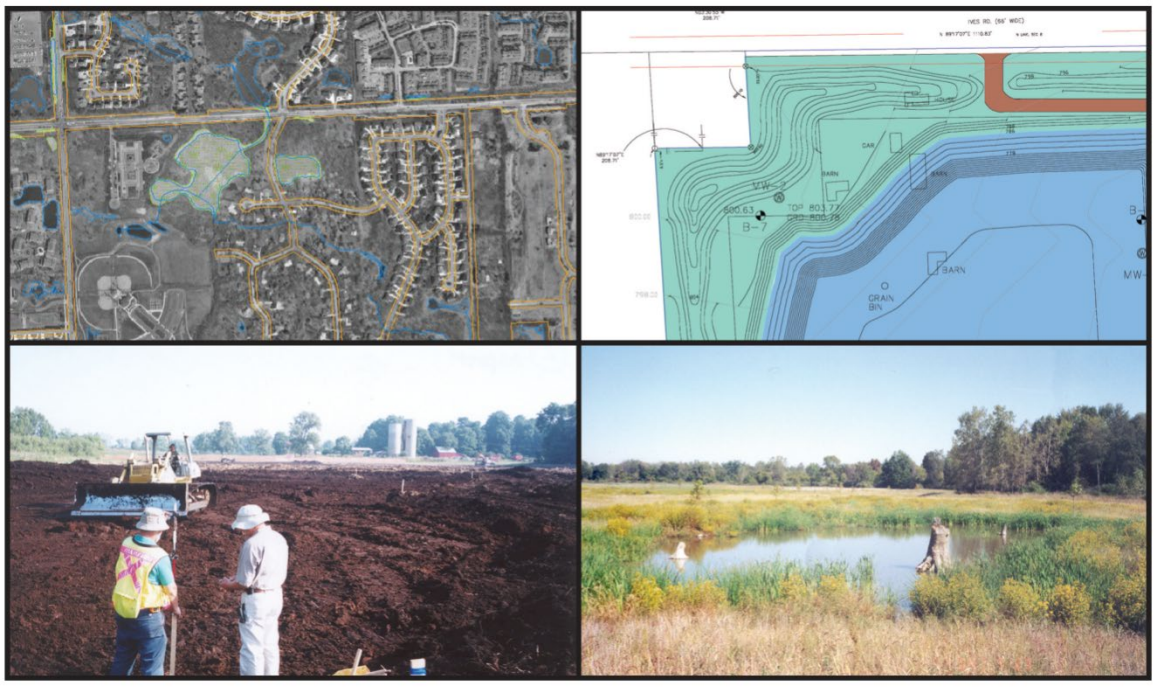
Response Activity Plan
To Comply With Section 20107a(1)(b)
of 1994 PA 451, Part 201, as amended

7850 East Jefferson Avenue
Detroit, Michigan

7850-9%-1 Limited Dividend Housing Association, LLC
7850-4%-1 Limited Dividend Housing Association, LLC
7850-9%-2 Limited Dividend Housing Association, LLC
7850-4%-2 Limited Dividend Housing Association, LLC
7850-9%-3 Limited Dividend Housing Association, LLC
7850-4%-3 Limited Dividend Housing Association, LLC
GDC-7850, LLC

June 4, 2021

ASTI ENVIRONMENTAL



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Prepared For:

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7850-9%-3 Limited Dividend Housing Association, LLC
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7850 East Jefferson Avenue
DETROIT, MICHIGAN
JUNE 4, 2021

1.0 INTRODUCTION

ASTI Environmental (ASTI) was retained by 7850-9%-1 Limited Dividend Housing Association (LDHA), LLC, 7850-4%-1 LDHA, LLC, 7850-9%-2 LDHA, LLC, and 7850-4%-2 LDHA, LLC, 7850-9%-3 LDHA, LLC, 7850-4%-3 LDHA, LLC, and GDC-7850, LLC (collectively referred to as 7850 LDHA, LLC) to prepare this Response Activity Plan to Comply with 7a(1)(b) (RespAP) for the property located at 7850 East Jefferson Avenue in the City of Detroit, Wayne County, Michigan (Subject Property) as allowed under Part 201,Environmental Remediation, of the Natural Resources and Protection Act, Act 451 of 1994, as amended (NREPA). A Site Location Map is provided as Figure 1. This RespAP was written based on the conclusions of subsurface investigations completed on the Subject Property, which were conducted based on information from the Phase I Environmental Site Assessment (ESA). Relevant portions of the most recent Phase I ESA completed by ASTI on February 21, 2019 is included as Attachment A.

The source of contamination is suspected to be due to historical filling of the Detroit River at the southern portion of the Subject Property between the years 1897 and 1910 with soil fill from unknown sources and backfilling the northern and central portions with soil and building debris after demolition of buildings in the 1970s. This RespAP is being submitted to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) for review and approval as a requirement for Michigan State Housing Development Authority (MSHDA) funding. 7850 LDHA, LLC will complete a Baseline Environmental Assessment (BEA) for submittal to the EGLE as non-liable parties. In addition, 7850 LDHA, LLC -intends to submit a Documentation of Due Care Compliance report to the EGLE as part of the MSHDA funding requirements. 7850 LDHA, LLC intend to take ownership of the Subject Property during June 2021 pending approval of this report.

2.0 DETAILED PROPERTY DESCRIPTION

2.1 Property Description

The Subject Property is located at 7850 East Jefferson Avenue in the City of Detroit, Wayne County. The Subject Property is situated on the south side of East Jefferson Avenue, east of Grand Boulevard, and north of the Detroit River. The Subject Property is comprised of one parcel with Parcel Number 17000017 that is approximately 2.8 acres in size.

No structures are present at the Subject Property. There is a crescent shaped asphalt drive on the northern portion of the Subject Property and the remainder of the property is maintained as lawn. A figure depicting the pertinent site features is included as Figure 2.

2.2 Property Features

DTE Energy provides electrical and natural gas services to the area with no known active lines on the Subject Property. Potable water, sanitary sewer, and storm water disposal services are available to the Subject Property through the City of Detroit Water and Sewerage Department. No drinking water wells or septic systems are present on the Subject Property. All utilities on and adjoining the Subject Property are depicted on the Survey in Attachment B.

The Subject Property contains no known above or underground storage tanks (USTs). Historical records indicate that two storage tanks were located on the Subject Property. The records did not indicate if the storage tanks were above ground or below ground. Sanborn Fire Insurance maps depicted one storage tank was within a structure and 50-gallons in size and was likely an above ground storage tank. The other storage tank was listed as 220 gallons in size and located in the basement and was likely an above ground storage tank. A geophysical survey was completed over the entire Subject Property as part of a subsurface investigation in 2007 to determine if abandoned USTs were present. The geophysical survey in 2007 consisted of a ground penetrating radar (GPR) survey of the Subject Property. The survey identified three anomalies at the locations depicted on Figure 2. These anomaly areas were investigated during the completion of the subsurface investigation by constructing a soil boring in the center of the anomaly and no USTs were encountered. The borings encountered brick, glass, concrete, asphalt and wood in the locations of the anomalies.

ASTI did not identify any abandoned or discarded containers and no land or resource use restrictions are connected with the Subject Property.

2.3 Proposed Construction Activities

7850 LDHA, LLC intends to develop the Subject Property with three multi-family residential buildings and will have common ownership of the land and buildings. The buildings will be five-stories in height with parking and common areas on the first floor beneath apartments on floors 2 through 5. Each building will include first floor access to stairwells, an elevator lobby, an elevator, community room, storage room, and a trash room where parking area is not present. The first floor of buildings 1 and 2 will have an open entrance for vehicle parking along the south side of the building and building 3 will have an open entrance for vehicle parking along the north side of the building. The first floor of the buildings will be partially below ground along the east and west exterior of the buildings. The building plans with elevations are provided in Attachment C. The location of the proposed buildings, parking areas, entrances, sidewalks, and greenspace is included as Figure 5.

The foundation plans for the buildings are included in Attachment C. The exterior walls will be constructed over spread footings with concrete slab of the building constructed over concrete piers.

Limited green space areas will be included around the buildings and paved parking areas. A playscape will be constructed on the southern portion of the Subject Property. The proposed building locations (with building numbers) on the Subject Property are on Figure 5 Response Activity Map.

3.0 PROPERTY USE, OWNERSHIP, AND HAZARDOUS SUBSTANCE USE

3.1 Intended and Current Subject Property Use

The intended use of the Subject Property is multifamily residential. The Subject Property will be developed with residential apartment buildings. The exterior portions of the Subject Property will be paved walks, access road, and parking. Greenspace areas will exist around the buildings and along the Detroit River. A playscape will be constructed on the southern portion of the Subject Property.

The Subject Property is currently fenced vacant land with no use. The Subject Property is vegetated with no visible indications of erosion. ASTI did not identify any no land or resource use restrictions connected with the Subject Property and no liable party has been identified nor does it appear any remedial actions have been conducted at the property.

3.2 Historical Use and Ownership

The Subject Property was residential by 1888 according to research. The southern portion of the Subject Property was a part of the Detroit River and was filled between 1897 and 1910. By 1935, the northern portion contained a clubhouse building identified as the Colony Town Club and the southern portion contained a residential dwelling and associated outbuildings. By the mid 1940's the northern portion was developed with a building used as a hospital and as a youth home. The buildings were demolished in the 1970s and remained vacant since that time.

The Subject Property is currently owned by the GDC-East Jefferson, LLC which purchased the Subject Property during April 2019 from Shamrock Acquisitions, LLC. A Phase I ESA completed in 2007 indicated that the Subject Property was owned by 7850 E. Jefferson, LLC. ASTI has not been provided with information on prior owners before ownership by 7850 E. Jefferson, LLC.

3.3 Historical Hazardous Substance Use

A Phase II ESA report was completed at the Subject Property by NTH Consultants, LTD (NTH) on October 12, 2007. The Phase II ESA was conducted to evaluate the following recognized environmental conditions (RECs) identified in NTH's Phase I ESA of the Subject Property dated September 11, 2007.

- The Subject Property formerly contained several structures, at least one of which had a basement. No information was available regarding the nature or source of the fill materials used to fill in the basements of the former structure(s).
- Review of available historical sources indicated that two storage tanks were present at the Subject Property with no detailed information available as to the current status or removal of the tanks.
- Review of available historical sources indicated that the southern 1/3 of the Subject Property was filled in sometime in the late 1800s or early 1900s. In addition, fill soils containing debris were encountered during NTH's concurrent geotechnical investigation. No information was available as to the nature or source of the fill materials.

At the time, the Phase II ESA identified arsenic, chromium, and mercury in soil and at the time was compared to the Michigan Department of Environmental Quality (DEQ) [currently EGLE] Part 201 generic residential cleanup criteria (GRCC) for drinking water protection and groundwater surface water interface protection criteria. The Subject Property was determined to be a "*facility"* as defined in Part 201 of Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451, as Amended (Part 201). A Geophysical Survey was also conducted during the Phase II ESA and no USTs were identified. Based on the results of the Phase II ESA, NTH conducted a Baseline Environmental Assessment (BEA) of the Property in January 2008, which was affirmed on February 1, 2008.

ASTI completed a Limited Phase II ESA on April 7, 2017 to determine the current conditions of the Subject Property on behalf of Shamrock Acquisitions, LLC. The Limited Phase II ESA is described in more detail in Section 6.1.1. The results of the Limited Phase II ESA reported that lead and mercury were detected in soil at concentrations above the EGLE Part 201 GRCC.

ASTI completed a Phase I ESA on February 21, 2019 on behalf of GDC-East Jefferson, LLC. The Phase I ESA identified the historical use of the Subject Property as containing two storage tanks with portions filled between 1897 and 1910 and after demolition of buildings.

Based on the historical uses on the Subject Property described in the Phase I ESA and hazardous substances identified during subsurface investigations, the potential historical hazardous substances that may have been used likely included petroleum and/or

contaminated soil fill associated with the placement of fill material. Contaminants that have been identified in soil have consisted of metals and polynuclear aromatic hydrocarbons (PNAs).

3.4 Subject Property Geology, hydrogeology, and Topography

According to the Quaternary Geology of Southern Michigan (W.R. Farrand and D.L. Bell, 1982), the native soil in the area of the Subject Property is lacustrine clay and silt. These soils are described as "gray to dark reddish brown, varied in some localities and chiefly underlay extensive, flat, low-lying areas formerly inundated by glacial Great Lakes. These soils also occur in separate small lake basins and include small areas of lacustrine sand and clay-rich till". The lacustrine clay and silt have a typical thickness between 1 and 10 feet. The United States Department of Agriculture online Web Soil Survey indicates near surface soil is the midtown gravelly- sandy loam.

The general lithology encountered in the soil borings, underlying surface cover (topsoil), consisted of fill materials varying in composition from sand to silty-clay and extended to depths between 0.5 feet and 13 feet below ground surface (bgs). The fill material was observed to contain asphalt, glass, plastic, wood, and/or concrete in select soil borings. No fill material was encountered in soil boring GP-1 completed on the northern portion of the Subject Property near E. Jefferson avenue. The fill material was observed to be the thickest on the southern portion of the Subject Property where fill material was encountered to 12-13 feet bgs in soil borings SB-4 and SB-5. A native silty-clay stratum was encountered under the fill materials and extended to the explored depth of the soil borings of 16 feet bgs. For more details on the encountered subsurface stratigraphy refer to the soil boring logs provided in Attachment D.

No groundwater was encountered at the Subject Property during the 2007 subsurface investigation. Limited groundwater was encountered in some soil borings completed during 2017 in sand between depths of 8 and 16 feet bgs. The groundwater was generally encountered within porous fill material and is discontinuous and insufficient for sampling. As the 2007 soil borings were completed during September and ASTIs soil borings were completed in April, the groundwater encountered may be seasonal depending on precipitation.

The topography of the Subject Property slopes to the south-southeast towards the Detroit River with an elevation at the north end of 595 feet above sea level (asl) and the elevation at the south end is 576 feet asl. The regional gradient is to the south.

4.0 IDENTIFICATION OF COMPLETE OR LIKELY TO BECOME COMPLETE EXPOSURE PATHWAYS

The following table describes the potentially complete pathways at the Subject Property based on the intended use as residential.

Complete Pathway	Relevant Subject Property Conditions	Explanation, If Not Complete
Drinking water pathway is not complete	Groundwater will not be used on the Subject Property for drinking water purposes. Visitors and occupants will not be able to drink the water on the Subject Property.	Municipal water will be supplied to the Subject Property for drinking water. No water wells are present or will be installed on the Subject Property.
Direct contact pathway is complete	Visitors and occupants will be able to come into contact with contaminated soils on the Subject Property.	
Soil particulate inhalation pathway is complete	Visitors and occupants may inhale substances in the indoor air from volatile compounds in the soil that may volatilize into the buildings.	
Soil volatilization to ambient air pathway is complete	Visitors and occupants can inhale contaminated ambient air particles via wind erosion or vehicle traffic.	
Soil volatilization to indoor air inhalation is complete	Visitors and occupants may be able to inhale substances in the indoor air from volatile compounds in soil that may volatilize into the proposed buildings.	
Groundwater/surface water interface pathway is not complete	The Detroit River is located along the Subject Property boundary; however no significant groundwater has been encountered. Visitors and occupants will not be able to come into contact with surface water on the Subject Property where groundwater is venting to the surface.	

The following exposure pathways are complete based on the proposed use of the Property: 1) soil direct contact, 2) soil volatilization to indoor air inhalation, soil particulate inhalation, and 4) soil volatilization to ambient air.

5.0 ASSESSMENT OF APPLICABILITY OF GENERIC CRITERIA

The information obtained on the Subject Property was evaluated to determine if the generic criteria are applicable for comparison to evaluate the unacceptable exposures for all complete pathways. The release(s) at the site appear to be due to the placement of fill material. The generic cleanup criteria for volatilization to indoor air are not applicable for the Subject Property due to the presence of heterogeneous soil/fill material.. In addition, several soil samples also contain multiple PNAs which may indicate the potential presence of residual non-aqueous phase liquid (NAPL). The department does not have promulgated criteria for vapor as a media. A site-specific evaluation is necessary to develop criteria to compare the data for vapor samples collected from the property. Site-specific criteria were obtained from EGLE to evaluate the volatilization to indoor air inhalation pathway. A copy of the EGLE provided site-specific volatilization to indoor air criteria (SS VIAC) is provided in Attachment E.

6.0 IDENTIFICATION OF THE CATEGORY OF APPLICABLE CLEANUP CRITERIA OF SITE-SPECIFIC VOLATILIZATION TO INDOOR AIR CRITERIA

Based on the intended Subject Property use as residential, the category of cleanup criteria and SSVIAC for comparison to the analytical data is residential.

7.0 SUBSURFACE CONTAMINANT INFORMATION

A description of the contaminants discovered during this investigation is discussed in the following sections.

7.1 Locations and Concentrations of Contaminants of Concern

7.1.1 Soil

Phase II ESA, NTH Consultants, Ltd, September 19, 2007

On September 19, 2007, NTH Consultants, Ltd (NTH) conducted a Phase II ESA Investigation of the Subject Property. The Phase II ESA was conducted to evaluate the RECs identified in NTH's Phase I ESA of the Subject Property dated September 11, 2007 (Section 3.2

On September 19, 2007, NTH advanced eight soil borings (GP-1 through GP-8) using a Geoprobe® drill rig. The drilling and sampling procedures are documented in the NTH Baseline Environmental Assessment dated January 23, 2008, which is available at the EGLE Warren District office.

Boring/sample ID, boring/sample locations, and depth were as follows:

Boring/ Sample ID	Boring/Sample Location	Depth of Boring
GP-1	On the northern portion of the Subject Property to evaluate a geophysical anomaly and potential impacts in fill soils	15 feet
GP-2	On the northern portion of the Subject Property to evaluate fill soil in the location of a former structure	2 feet
GP-3	On the northern portion of the Subject Property to evaluate a geophysical anomaly and potential impact in fill soils in the location of a former structure	15 feet
GP-4	On the central portion of the Subject Property to evaluate fill soil in the location of a former structure	15 feet
GP-5	On the central portion of the Subject Property for general coverage	15 feet
GP-6	On the central-southern portion of the Subject Property to evaluate a geophysical anomaly and potential impacts in fill soils	15 feet
GP-7	On the central-southern portion of the Subject Property to evaluate fill soil in the location of a former structure	15 feet
GP-8	On the southern portion of the Subject Property to evaluate fill soils on the southern portion of the Subject Property	15 feet

One soil sample was collected from each of these borings at varying depths between 0.5 and 8 feet bgs. The samples were analyzed for volatile organic compounds (VOCs), PNAs, and

Michigan 10 metals (arsenic, barium, cadmium, chromium, copper, lead, mercury, selenium, silver, and zinc).

Sample depth, rationale for sample depth, and analysis are provided in the following table.

Boring	Sample Matrix	Sample Depth	Analysis
GP-1	Soil	3-4'	VOCs, PNAs, & Michigan 10 metals
GP-2	Soil	0.5-1'	VOCs, PNAs, & Michigan 10 metals
GP-3	Soil	5-6'	VOCs, PNAs, & Michigan 10 metals
GP-4	Soil	4-5'	VOCs, PNAs, & Michigan 10 metals
GP-5	Soil	1-2'	VOCs, PNAs, & Michigan 10 metals
GP-6	Soil	7.5-8.5’	VOCs, PNAs, & Michigan 10 metals
GP-7	Soil	7.5-8.5’	VOCs, PNAs, & Michigan 10 metals
GP-8	Soil	1-2’	VOCs, PNAs, & Michigan 10 metals

Table 1 presents the laboratory analytical data for the soil samples in comparison to the applicable GRCC and SS VIAC for soil for the complete exposure pathways at the Subject Property. The Laboratory Analytical Report and Chain-of-Custody documentation are provided in the 2008 BEA. Figure 3 - Soil Analytical Results Map also depicts the soil analytical results in conjunction with the sample locations.

The laboratory analytical results reported that the metal arsenic was reported at concentrations above the GRCC for DC in soil samples GP-3 (5-6') and GP-5 (1-2'). The metal mercury was detected above the SS VIAC in soil sample GP-2. For the identified complete pathways at the Subject Property no other metals were detected in the soil samples at concentrations exceeding the applicable GRCC or VIAC.

Several PNAs were reported in soil samples GP-1 (3-4'), GP-2 (0.5-1'), GP-4 (4-5'), and GP-8 (1-2') at detections below SS VIAC. No PNAs were reported in the remaining samples. No VOCs were detected in the soil samples.

Limited Subsurface Investigation, ASTI Environmental, April 7, 2017

On April 7, 2017, ASTI conducted a Limited Subsurface Investigation (LSI) to determine the current conditions of the Subject Property based on the RECs and previous investigation results. ASTI advanced five soil borings (SB-1 through SB-5) at the Subject Property using a direct-push Geoprobe® drill rig. A soil sample was collected from each soil boring location for a total of five samples. A Soil Boring Location Map is provided as Figure 2. Boring ID, boring locations, and boring depth were as follows.

Boring/Sample ID	Boring/Sample Location	Depth of Boring
SB-1	Northwestern portion of the Subject Property in regard to deposition of fill material	16 feet
SB-2	Central portion of the Subject Property in regard to deposition of fill material	16 feet
SB-3	Central portion of the Subject Property in regard to deposition of fill material	16 feet
SB-4	Southern portion of the Subject Property within the area of a historical riverbed	16 feet
SB-5	Southern portion of the Subject Property within the area of a historical riverbed	16 feet

The soil borings were advanced to 16 feet bgs with the Geoprobe®. All down-hole equipment was decontaminated using an Alconox® wash and clean water rinse between borings to minimize the risk of cross contamination of samples. Soil encountered during field activities was characterized by ASTI's field personnel, examined for visual and/or olfactory evidence of impact, screened using a photoionization detector (PID), and recorded in a field logbook. Prior to sampling, the PID was calibrated to manufacturer specifications using 100 parts per million (ppm) isobutylene calibration gas. No PID readings were encountered in the field as indicated in the soil boring logs provided in Attachment D.

All soil samples were collected into laboratory certified clean 4-ounce glass jars from the probe sleeve for analysis of Michigan 10 metals by US EPA Method 7471B and 6020A and PNAs by US EPA Method 8270D, and 40-ml glass vials preserved in the field with methanol for VOCs analysis using US EPA Method 8260C. All samples were placed on ice and submitted to Merit Laboratories, Inc. in East Lansing, Michigan under standard chain of custody procedures.

Sample depth, rationale for sample depth, and analysis are provided in the following table.

Boring	Sample Matrix	Sample Depth	Rationale for sample location	Analysis
SB-1	Soil	0.5-1.5'	Presence of fill material within sampling interval	VOCs, PNAs, & Michigan 10 metals
SB-2	Soil	6.5-7.5'	Presence of fill material within sampling interval	VOCs, PNAs, & Michigan 10 metals
SB-3	Soil	9-10'	Presence of fill material within sampling interval	VOCs, PNAs, & Michigan 10 metals
SB-4	Soil	7-8'	Presence of fill material within sampling interval	VOCs, PNAs, & Michigan 10 metals
SB-5	Soil	5-6'	Presence of fill material within sampling interval	VOCs, PNAs, & Michigan 10 metals

The results were compared to the applicable generic criteria and the SS VIAC for the identified complete exposure pathways

Table 1 presents the laboratory analytical data for the soil samples in comparison to the applicable GRCC and SS VIAC for soil for the complete exposure pathways at the Subject Property. The laboratory analytical reports and chain of custody records are provided in Attachment F. Figure 3 - Soil Analytical Results Map also depicts the soil analytical results in conjunction with the sample locations.

The laboratory analytical results reported the metal mercury at concentrations above both the statewide default background level and the SS VIAC in soil samples SB-1 (0.5-1.5), SB-3 (9-10'), and SB-4 (7-8'). Lead was reported at a concentration exceeding the GRCC for DC in soil sample SB-1 (0.5-1.5'). No other metals were detected in the samples at concentrations exceeding the GRCC or SS VIAC.

PNAs were detected in in soil samples SB-1, SB-3, and SB-5, but at concentrations below the SS VIAC for soil. Do to the uncertainty associated with the presence of residual NAPL in these soils comparison was not made to the generic DC criteria, it is assumed the PNA concentrations detected present an unacceptable exposure via the direct contact pathway at the Subject Property. No PNAs were reported in the remaining soil samples. Toluene was the only VOC reported in soil sample SB-3 (9-10') and was detected at a concentration below the SS VIAC for soil. VOCs were not detected in any of the other soil samples collected for laboratory analysis.

Soil Gas Investigation, ASTI Environmental, July 18, 2019

On July 16 and 18, 2019, ASTI conducted a Soil Gas Investigation at the Subject Property to evaluate the volatilization to indoor air inhalation pathway for PNAs. ASTI installed 10 soil gas wells (SG-1 through SG-10) at the Subject Property using a stainless-steel hand auger on July 16, 2019. One vapor sample was collected from each soil gas well on July 18, 2019. A Sample Location Map is provided as Figure 2. Boring/sample ID, boring/sample locations, and depth were as follows.

Boring/Sample ID	Boring/Sample Location	Depth of Boring
SG-1	Northern portion of the Subject Property to evaluate PNAs in soil gas	5 feet
SG-2 through SG-7	Central portion of the Subject Property to evaluate PNAs in soil gas	5 feet
SG-8 through SG-10	Southern portion of the Subject Property to evaluate PNAs in soil gas	5 feet

The soil gas wells were only installed in areas where the proposed buildings at the time of the assessment would have ground contact with occupied spaces such as community room, lobby, storage rooms, mechanical, and elevator. At the time of the installation of the soil gas wells, other portions of the proposed building were proposed to be open parking.

The soil gas wells were installed using a 1.875-inch-long implant with a 0.5 inch vapor screen attached onto 1/4-inch outer diameter nylon tubing to the surface. The well screens were set at five feet bgs. The soil gas wells were completed with 4 to 6 inches of sand backfilled below the screen to 4 to 6 inches above the screen and the surface opening was sealed with hydrated bentonite. Prior to sample collection three volumes of air were purged from the soil gas wells with an air pump. The sampling train was then checked for leaks around the fitting connections and bentonite seal using a helium chamber in connection with a helium cylinder. After leak testing the sampling train, the 1/4-inch tubing was connected to a glass adsorbent tube, which was connected to an air pump with a flow rate of 150-200 ml/min. The vapor samples were collected by pulling vapor through the adsorbent tubing for one hour to obtain sufficient sample to have detections limits below the SS VIAC. The vapor samples were submitted to Fibertec for analysis of PNAs by US EPA method NIOSH 5515/TO-13A (modified). Note that this vapor sampling for PNAs was completed prior to EGLE approval of the revised analytical method employed by Fibertec. While the method for sampling PNAs was not approved by EGLE, the method used for sampling PNAs was the generally acceptable method at the time of the assessment. For this assessment it is assumed that concentrations of PNAs would be similar or slightly higher in concentration than detected. A Landfill Gas Analyzer (LGA) malfunctioned during the sampling event and readings for methane and oxygen were not obtained. Soil gas forms were completed for the sampling and are included in Attachment G.

The vapor samples were compared to the EGLE SS VIAC for soil vapor.

Table 2 presents the vapor laboratory analytical results in comparison to the SS VIAC for soil vapor. Figure 4 - Vapor Sample Analytical Map depicts the sample locations with the sample analytical results.

The PNA phenanthrene was detected in vapor sample SG-1 at a concentration exceeding the SS VIAC for vapor. SG-1 was located on the northern portion of the Subject Property. Benzo(a)anthracene was additionally detected in SG-1 at the SS VIAC. No PNAs were reported in the remaining vapor samples.

The Laboratory Analytical Reports and chain-of-custody documentation are provided in Attachment F.

7.2 Conceptual Site Model

Based on information obtained during the completion of the Phase I ESA, The Subject Property contained a residential dwelling and outbuildings by 1888. The southern portion of the Subject Property (the Detroit River) was filled with fill soil from an unknown origin sometime between 1897 and 1910. By 1935, the northern portion contained a clubhouse building identified as the Colony Town Club and the southern portion contained a residential dwelling and associated outbuildings. By the mid 1940's the northern portion was developed with a building used as a small hospital and as a youth home. The buildings were demolished in the 1970s and the Subject Property has been vacant since demolition.

Borings completed at the Subject Property have identified fill material ranging from surface to a depth of 0.5 feet to 13 feet bgs. Generally, the fill material is shallower (surface to 4 feet bgs) on the northern portion of the Subject Property, then extends to depths of approximately 8 feet bgs on the central portion and increases in thickness towards the southern portion of the Subject Property where fill material was encountered to depths of 12-13 feet bgs. Based on historical research, the fill material on the southern portion of the site was placed prior to 1910 and is considered pre-industrial years fill material. In addition, no potential upgradient sources of contamination that may have impacted the former river sediment below the fill material were identified. Fill material placed on the other portions of the Subject Property are shallower and were placed prior to 1977. Groundwater was not encountered at the Subject Property during 2007, but was encountered within the fill soil in very limited quantities in some soil borings completed during 2017.

Subsurface investigations were completed on the Subject Property during 2007, 2017 and 2019 to assess the fill material. These investigations identified concentrations of metals and PNAs above method detections limits and or applicable generic residential soil criteria for one or more complete pathways and or the SS VIAC for soil volatilization to indoor air generated by EGLE for the Subject Property. The only VOC detected in the soil was toluene at a concentration below the SS VIAC in one sample. Arsenic and lead were identified in soil above the GRCC for DC. Mercury was identified above the SS VIAC in four soil samples at depths ranging from 0.5-10 feet bgs. The PNA phenanthrene was detected in one vapor sample (SG-1) above the SS VIAC. In addition, the PNA benzo(a)anthracene was detected in vapor in SG-1 at the SS VIAC. For this evaluation, the PNAs are assumed to be present in vapor at the Subject Property above the SS VIAC.

The source of the lead, mercury, and PNAs is likely from the deposition of fill or from backfilling of building materials from the former residences as borings contained concrete, brick, and wood in the fill material. Lead, mercury, and PNAs are also commonly found in shallow soils in urban settings with a history of industrial uses from airborne particulates and vehicle emissions. Based on review of historical sources, the fill soil and backfilling with building materials would have occurred on the southern portion of the Subject Property between the years 1897 and 1910 and remaining portions of the Subject Property prior to 1977. The material encountered during the completion of the borings has been in place for at least 44 years.

Proposed development plans include the construction of three apartment buildings. The first floor of the buildings will primarily be parking with stairwells, elevator lobby, elevator, bathrooms, community room, storage rooms, and trash rooms. The upper floors will be apartment units. The buildings will be partial below grade with each building having one elevator. The elevators will have a sump that is contained within the concrete for the pit and will not be in contact with the underlying soils. Exterior areas will primarily be paved driveway or parking. Green space areas will exist around the buildings and a play scape area will be constructed on the southern portion of the Subject Property. Most of the green space areas will be small in size and the only area anticipated to be used by the residents is the play scape area and concrete pathways on the southern portion of the Subject Property.

Potential migration pathways at the Subject Property are limited as the site has not been developed since 1977. Groundwater was encountered in some locations in fill material

between 8 and 16 feet bgs during the subsurface investigations at the Subject Property. No utilities are connected to the Subject Property. Development plans will include the installation of utilities, which are not expected to be below the depth of investigation. Migration of contamination through the utility corridors is not expected.

No contaminants of concern (PNAs, Metals, or VOCs) were detected at concentrations in any soil samples collected for laboratory analyses in excess of the applicable generic residential criteria for the Volatile Soil Inhalation pathway or the Particulate Soil Inhalation pathway.

8.0 IDENTIFICATION OF COMPLETE OR LIKELY TO BECOME COMPLETE EXPOSURE PATHWAYS REQUIRING RESPONSE ACTIVITIES *(AS NECESSARY)* TO MITIGATE UNACCEPTABLE EXPOSURES

Based on the available soil data, ASTI has identified the following complete and or pathways that will be complete with unacceptable exposures requiring the undertaking of response activities to mitigate the exposures:

- Direct Contact
- Soil Volatilization to Indoor Air

The purchasing entities intend to develop the Subject Property with three multi-family residential buildings. The buildings will be five stories in height with primarily parking on the first floor beneath apartments in floors 2 through 4. Each building will include first floor access to stairwells, an elevator lobby, an elevator, mechanical room, community room, bathrooms, and a trash room. Green space areas will be included around the buildings and along the Detroit River.

8.1 Direct Contact Exposure

8.1.1 Proposed Response Activities

For the purposes of this ResAP, 7850 LDHA, LLC is assuming that soil containing concentrations of hazardous substances that give rise to an unacceptable exposure via direct contact with those soils exist over the entirety of the Subject Property. The hazardous substances include arsenic, lead, and or PNAs. Therefore, an exposure barrier is proposed to be installed over the entire Subject Property.

The development plan for the Subject Property indicates the majority of the Subject Property will be covered with building slabs and paved parking areas. Green space areas and landscaped areas are proposed to be exist only at specified locations surrounding the buildings and paved parking areas as indicated in Figure 5 DC Exposure Barrier Map and the Site Development Plans provided as Attachment C.

The type of exposure barrier to be installed over the Subject Property varies and are as follows:

(1) Building Floor Slab - This barrier will consist of the slab-on-grade concrete floor and foundation installed as part of the construction of the buildings on the property. Documented clean fill soil will be imported to the Subject Property for the construction of the buildings. In addition, clean fill soil will be imported for land balancing at the Subject Property

(2) Hardscape (pavement – asphalt and or concrete) – This barrier will consist of the paved parking areas, concrete sidewalks, and driveways on the property. The concrete will range in thickness of 4-8 inches and will have a 6-inch layer of sand or 21 AA base. The asphalt will range in thickness of 3.5-4.5 inches and will have a 10.5 to 12.5 inches layer of 21AA base. Documented clean fill soil will be imported to the Subject Property for the construction of the paved parking areas. In addition, clean fill soil will be imported for land balancing at the Subject Property.

(3) Softscape (soil with vegetative cover or other landscape cover) – This barrier consists of 3 layers:

a. Brightly colored visual demarcation layer over the contaminated soils, such TerraTex N04 orange fabric or similar fabric followed by,
b. Twelve to fourteen (12-14 inches) of documented clean sand installed over the demarcation layer followed by,
c. Six inches (6”) of clean, good quality topsoil to support and sustain the growth of a vegetative cover (grass).
d. Vegetative cover.
e. Playscape Area – in the area of the Subject Property designated as the Playscape (see Figure 5), a minimum of 24” of clean soil or mulch or combination of both to equal 24” will be placed over the demarcation layer. The top layer will consist of rubber mulch.

The location of the exposure barriers are depicted on Figure 5 DC Exposure Barrier Map.

Documentation of Installation of Exposure Barriers

Clean Soil – Fill Material - The fill material brought to the site will be documented as clean by analytical results from samples collected from the site of origin documenting that the material does not contain metals at concentrations above the applicable generic direct contact criteria.

Photographs will be taken to document the placement of the clean soil layer in all greenspace areas at the Subject Property. The thickness of the clean soil layer will be documented by direct measurement. At multiple locations within each greenspace area, an appropriately sized T Square will be used to measure the depth of clean soil/fill and topsoil layer at each location. A photograph of the T Square at each location will be taken documenting a minimum depth of 18" of soil.

Demarcation Layer – As the demarcation layer is placed within the greenspace areas of the Subject Property photographs will be taken to document the placement of the barrier in all greenspace areas.

Hardscape – Documentation of the asphalt and concrete areas will be completed by photographs of the installation of the pavement.

Due to the location on the Subject Property and size of the greenspace areas, use is expected to be "low intensity" and an 18" layer of clean soil covered with grass is considered sufficient to prevent unacceptable exposure. The proposed grass for the green space will include a drought resistant strain of grass. Schematics of the exposure barriers are included in Attachment J.

Tenants are not expected to perform any activities at the Subject Property involving contact with the soil below the grass/topsoil as there are no plans for gardens or activity areas in the green space with the exception of a play scape area on the southern portion of the Subject Property. Tenants will be notified at the time of lease of the exposure barriers and that any disturbance of any barrier by the tenant or guests is prohibited. An Environmental Lease Agreement is included as Attachment H.

Third parties who intend to perform subsurface work on the Subject Property will be notified about the contaminated soil prior to beginning work. Those who may come in contact with subsurface soils or groundwater will be notified to prevent unacceptable exposures and allow for proper soil management. If soil or groundwater needs to be removed from the Subject Property for any reason, the soil or groundwater will be characterized and disposed offsite in accordance with all applicable laws and/or regulations. A copy of the Contaminated Soil Notification Form to be used is provided in Attachment I.

8.1.2 Operation and Maintenance Plan and Inspection Schedule

An Operation and Maintenance Plan (O&M) for the proposed direct contact exposure barrier is included as Attachment J. Schematics of the various exposure barriers to be employed are included in the plan. The proposed exposure barriers will be inspected by maintenance personnel on an at least weekly basis. If the exposure barriers are removed, an equivalent barrier of pavement or landscape cover will be placed at the location. Pavement repairs will be made by a paving contractor as deemed necessary. The green space areas will not include a lawn sprinkler system. The proposed grass for the green space will be a drought resistant strain. If the weather during the warm months (June through September) includes a prolonged period of below average rainfall or if the grass is observed to be distressed due to a lack of rain or heat stress, the green space areas will be maintained by watering with sprinklers operated by maintenance staff. An inspection Form that can be completed to document inspections is also provided in Attachment J. Copies of the completed Inspection Forms will be maintained by the property management company or by the owner.

8.2 Volatilization to Indoor Air Inhalation

8.2.1 Proposed Response Activities

Mercury is present in soil at the Subject Property above the SS VIAC. Multiple PNAs have been detected in one or more soil samples collected from the Subject Property the collective concentrations of which could be indicative of residual NAPL. Additionally, phenanthrene has been detected in vapor at a concentration above the SS VIAC and the compound benzo(a)anthracene has been detected in vapor at a concentration equal to the SS VIAC. To mitigate an unacceptable exposure via the volatilization to indoor air inhalation pathway, a sub-slab depressurization mitigation system will be installed beneath the first floor slab of each of the three apartment buildings.

The Vapor Mitigation System Design and Installation Plan is included as Attachment K and were designed by a Professional Engineer. The building and foundation plans were provided by the project architect and engineers to ASTI for development of the sub-slab depressurization system (SSDS). The system will include a vapor barrier for greater radius of influence of the SSDS and allow for a time to respond of at least 7 days if the system is shut down. Details of the SSDS is described in the Vapor Mitigation System Design and Installation Plan in Attachment K.

Tenants will be notified at the time of lease of the presence of the SSDS at each of the apartment buildings on the Subject Property. An environmental lease agreement is included as Attachment H.

9.0 PROPOSED RESPONSE ACTIVITIES TO COMPLY WITH APPLICABLE DUE CARE RULES

The following sections provide information on proposed response activities regarding applicable Due Care Rules.

Rule 1005 Compliance with other laws and Regulations

A calculation could not be completed for phenanthrene, benzo(a)anthracene, VOCs and mercury into the EGLE Toxic Air Contaminants table to determine allowable emission rate for Permit or Permit to Install Exemption. To calculate the emission rate, either the vapor pins/ports that will be installed below the barrier will be sampled prior to the startup of the system to calculate an emission rate or each stack of the mitigation system will be sampled for VOCs by method TO-15, volatile PNAs by Method NIOSH 5515M/TO-13AM, and mercury by Method NIOSH 6009 modified at the time of the startup of the system and prior to occupation. The results of the sub-slab sampling or stack testing will be used to calculate the emissions.

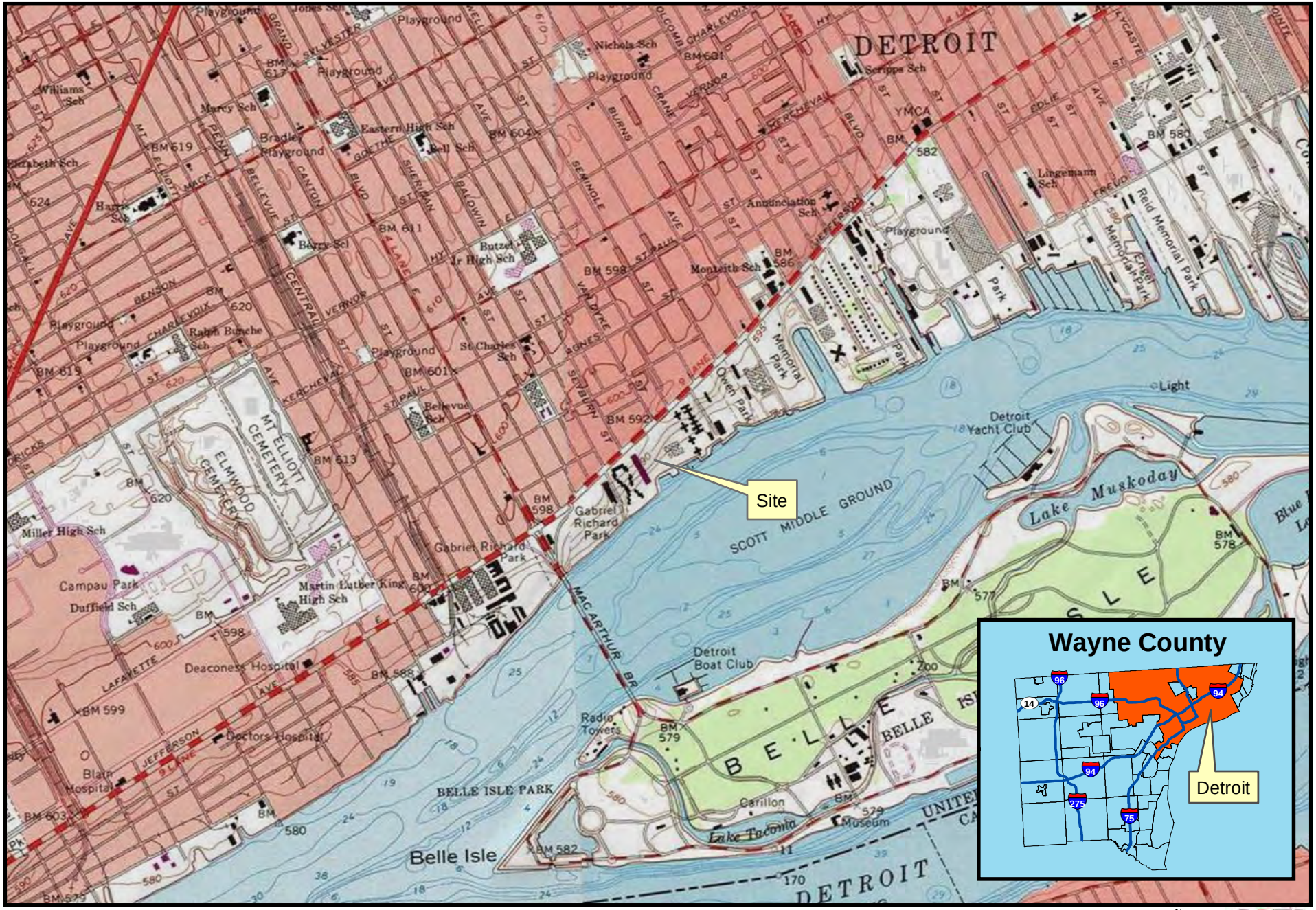
Rule 1013(6) Notice to Utility Workers or Others Conducting Activities

After taking ownership and prior to any construction work, the owner will provide written notice of the hazardous substance present at the Property to the following under Rule 1013 (6):

- Detroit Water and Sewerage Department
- DTE Energy, Electricity and Natural Gas

Copies of the notification letters that are to be sent to the above utility provided are included in Attachment L.

FIGURES



7850 E. Jefferson Ave.

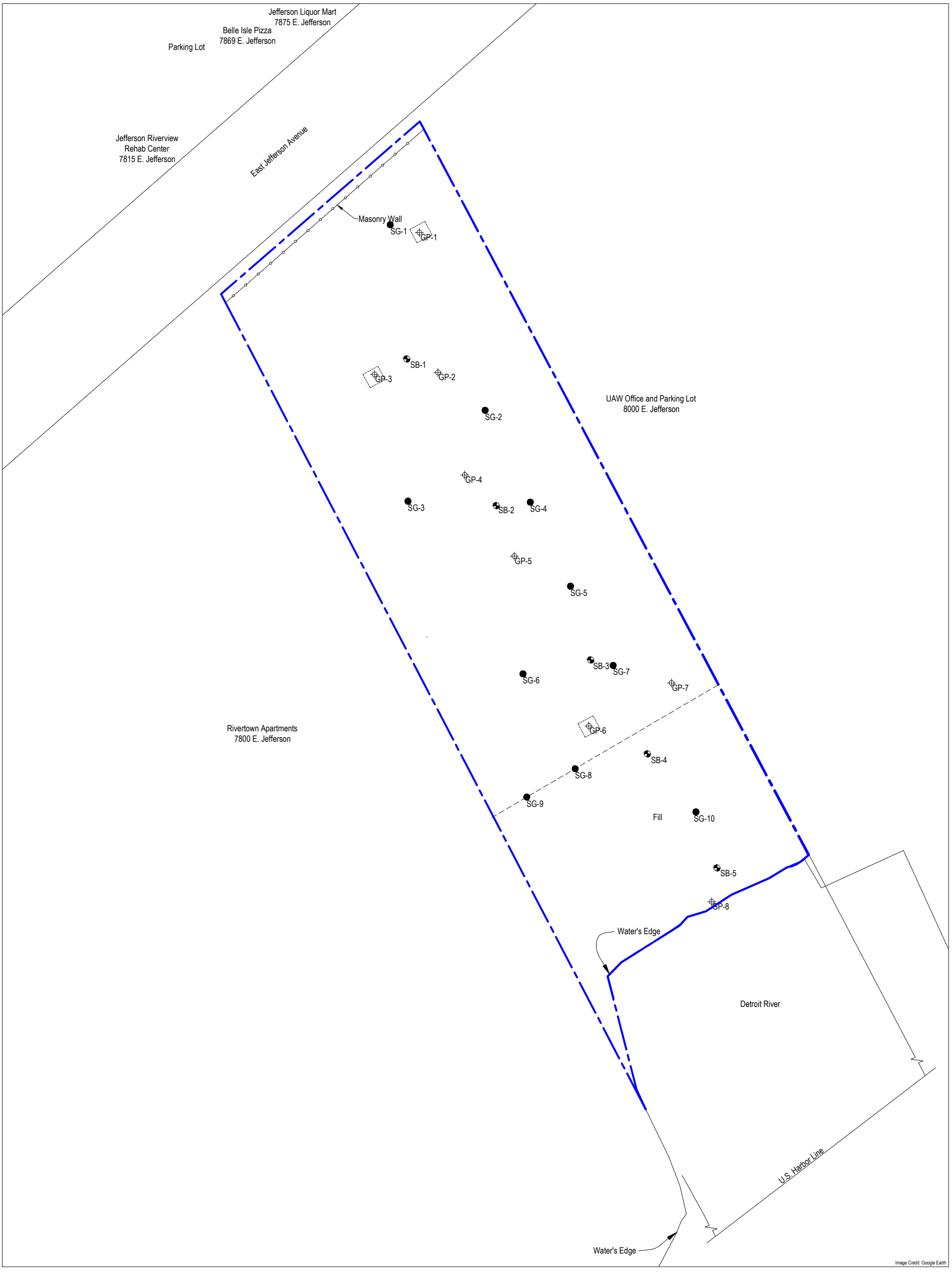
2,000 1,000 0 2,000 Feet

N W E S

ASTI Environmental

Created for: 7850-9%-1 Limited Dividend Housing Association, LLC
7850-4%-1 Limited Dividend Housing Association, LLC
7850-9%-2 Limited Dividend Housing Association, LLC
7850-4%-2 Limited Dividend Housing Association, LLC
Created by: RMH, July 2, 2019, ASTI Project 3-10105

Figure 1 - Site Location Map



7850 E. Jefferson Ave.

7850 E Jefferson, Detroit, MI

7850-9%-1 LDHA, LLC ; 7850-4%-1 LDHA, LLC
7850-9%-2 LDHA, LLC ; 7850-4%-2 LDHA, LLC

Figure 2 - Soil Boring Location Map

ASTI Project 3-10105, JRN, December 24, 2019

Jefferson Liquor Mart
7875 E. Jefferson

Belle Isle Pizza
7869 E. Jefferson

Parking Lot

Jefferson Riverview
Rehab Center
7815 E. Jefferson

East Jefferson Avenue

Masonry Wall

UAW Office and Parking Lot
8000 E. Jefferson

Rivertown Apartments
7800 E. Jefferson

Fill

Water's Edge

Detroit River

U.S. Harbor Line

Water's Edge

Image Credit: Google Earth

GP-1	3-4' 9/19/2007
Arsenic	6,600 µg/Kg
Barium	57,000 µg/Kg
Cadmium	230 µg/Kg
Chromium	16,000 µg/Kg
Copper	19,000 µg/Kg
Lead	14,000 µg/Kg
Mercury	84 µg/Kg
Selenium	230 µg/Kg
Zinc	50,000 µg/Kg
Benzo(a)anthracene	590 µg/Kg
Benzo(a)pyrene	600 µg/Kg
Benzo(b)fluoranthene	710 µg/Kg
Benzo(g,h,i)perylene	380 µg/Kg
Chrysene	590 µg/Kg
Fluoranthene	1,700 µg/Kg
Indeno(1,2,3-cd)pyrene	400 µg/Kg
Phenathrene	1,500 µg/Kg
Pyrene	1,300 µg/Kg
Remaining PNAs	ND
VOCs	ND

GP-2	0.5-1' 9/19/2007
Arsenic	5,700 µg/Kg
Barium	82,000 µg/Kg
Cadmium	460 µg/Kg
Chromium	13,000 µg/Kg
Copper	35,000 µg/Kg
Lead	174,000 µg/Kg
Mercury	160 µg/Kg
Selenium	390 µg/Kg
Zinc	200,000 µg/Kg
Benzo(a)anthracene	870 µg/Kg
Benzo(a)pyrene	920 µg/Kg
Benzo(b)fluoranthene	1,100 µg/Kg
Benzo(g,h,i)perylene	620 µg/Kg
Benzo(k)fluoranthene	440 µg/Kg
Chrysene	860 µg/Kg
Fluoranthene	1,900 µg/Kg
Indeno(1,2,3-cd)pyrene	640 µg/Kg
Phenathrene	850 µg/Kg
Pyrene	1,500 µg/Kg
Remaining PNAs	ND
VOCs	ND

GP-4	4-5' 9/19/2007
Arsenic	7,000 µg/Kg
Barium	54,000 µg/Kg
Cadmium	210 µg/Kg
Chromium	15,000 µg/Kg
Copper	17,000 µg/Kg
Lead	14,000 µg/Kg
Zinc	44,000 µg/Kg
Benzo(a)anthracene	340 µg/Kg
Benzo(a)pyrene	360 µg/Kg
Benzo(b)fluoranthene	410 µg/Kg
Fluoranthene	770 µg/Kg
Phenathrene	420 µg/Kg
Pyrene	650 µg/Kg
Remaining PNAs	ND
VOCs	ND

SB-1	0.5-1.5' 4/7/2017
Arsenic	3,630 µg/Kg
Barium	285,000 µg/Kg
Cadmium	420 µg/Kg
Chromium	7,620 µg/Kg
Copper	27,000 µg/Kg
Lead	518,000 µg/Kg
Mercury	187 µg/Kg
Zinc	189,000 µg/Kg
Benzo(a)anthracene	500 µg/Kg
Benzo(a)pyrene	530 µg/Kg
Benzo(b)fluoranthene	930 µg/Kg
Benzo(k)fluoranthene	1,000 µg/Kg
Chrysene	530 µg/Kg
Fluoranthene	950 µg/Kg
Phenanthrene	610 µg/Kg
Pyrene	890 µg/Kg
Remaining PNAs	ND
VOCs	ND

GP-3	5-6' 9/19/2007
Arsenic	8,000 µg/Kg
Barium	45,000 µg/Kg
Cadmium	200 µg/Kg
Chromium	18,000 µg/Kg
Copper	19,000 µg/Kg
Lead	12,000 µg/Kg
Zinc	51,000 µg/Kg
Remaining PNAs	ND
VOCs	ND

GP-7	7.5-8.5' 9/19/2007
Arsenic	7,500 µg/Kg
Barium	49,000 µg/Kg
Cadmium	220 µg/Kg
Chromium	17,000 µg/Kg
Copper	18,000 µg/Kg
Lead	9,500 µg/Kg
Zinc	49,000 µg/Kg
Remaining PNAs	ND
VOCs	ND

SB-5	5-6' 4/7/2017
Arsenic	2,350 µg/Kg
Barium	33,200 µg/Kg
Cadmium	460 µg/Kg
Chromium	5,010 µg/Kg
Copper	133,000 µg/Kg
Lead	69,000 µg/Kg
Zinc	293,000 µg/Kg
Anthracene	420 µg/Kg
Benzo(a)anthracene	820 µg/Kg
Benzo(a)pyrene	760 µg/Kg
Benzo(b)fluoranthene	1,290 µg/Kg
Benzo(g,h,i)perylene	410 µg/Kg
Benzo(k)fluoranthene	1,390 µg/Kg
Chrysene	810 µg/Kg
Fluoranthene	1,900 µg/Kg
Indeno(1,2,3-cd)pyrene	420 µg/Kg
Phenanthrene	1,640 µg/Kg
Pyrene	2,340 µg/Kg
Remaining PNAs	ND
VOCs	ND

SB-2	6.5-7.5' 4/7/2017
Arsenic	6,280 µg/Kg
Barium	42,700 µg/Kg
Chromium	12,100 µg/Kg
Copper	14,200 µg/Kg
Lead	14,700 µg/Kg
Mercury	68 µg/Kg
Zinc	26,500 µg/Kg
Remaining PNAs	ND
VOCs	ND

GP-5	1-2' 9/19/2007
Arsenic	8,000 µg/Kg
Barium	90,000 µg/Kg
Cadmium	440 µg/Kg
Chromium	21,000 µg/Kg
Copper	18,000 µg/Kg
Lead	16,000 µg/Kg
Mercury	70 µg/Kg
Selenium	240 µg/Kg
Zinc	71,000 µg/Kg
Remaining PNAs	ND
VOCs	ND

SB-3	9-10' 4/7/2017
Arsenic	2,360 µg/Kg
Barium	99,400 µg/Kg
Chromium	5,670 µg/Kg
Copper	6,580 µg/Kg
Lead	37,700 µg/Kg
Mercury	190 µg/Kg
Zinc	41,300 µg/Kg
Benzo(a)anthracene	660 µg/Kg
Benzo(a)pyrene	630 µg/Kg
Benzo(b)fluoranthene	1,040 µg/Kg
Benzo(k)fluoranthene	1,120 µg/Kg
Chrysene	700 µg/Kg
Fluoranthene	1,250 µg/Kg
Phenanthrene	1,070 µg/Kg
Pyrene	1,660 µg/Kg
Remaining PNAs	ND
Toluene	130 µg/Kg

GP-6	7.5-8.5' 9/19/2007
Arsenic	6,900 µg/Kg
Barium	52,000 µg/Kg
Cadmium	180 µg/Kg
Chromium	16,000 µg/Kg
Copper	17,000 µg/Kg
Lead	8,400 µg/Kg
Zinc	47,000 µg/Kg
Remaining PNAs	ND
VOCs	ND

GP-8	1-2' 9/19/2007
Arsenic	6,400 µg/Kg
Barium	7,300 µg/Kg
Cadmium	230 µg/Kg
Chromium	19,000 µg/Kg
Copper	43,000 µg/Kg
Lead	24,000 µg/Kg
Mercury	99 µg/Kg
Selenium	230 µg/Kg
Zinc	130,000 µg/Kg
Benzo(a)anthracene	510 µg/Kg
Benzo(a)pyrene	490 µg/Kg
Benzo(b)fluoranthene	570 µg/Kg
Chrysene	460 µg/Kg
Fluoranthene	1,200 µg/Kg
Phenathrene	850 µg/Kg
Pyrene	940 µg/Kg
Remaining PNAs	ND
VOCs	ND

DUP1-S / **SB-4**	7-8' 4/7/2017
Arsenic	400 µg/Kg
Barium	79,500 µg/Kg
Chromium	8,110 µg/Kg
Copper	16,000 µg/Kg
Lead	8,100 µg/Kg
Mercury	101 µg/Kg
Zinc	21,100 µg/Kg
Remaining PNAs	ND
VOCs	ND

SB-4	7-8' 4/7/2017
Arsenic	980 µg/Kg
Barium	50,500 µg/Kg
Chromium	5,990 µg/Kg
Copper	14,100 µg/Kg
Lead	44,600 µg/Kg
Mercury	215 µg/Kg
Zinc	31,200 µg/Kg
Remaining PNAs	ND
VOCs	ND

0 70 140 210

Approximate Scale in Feet

LEGEND

- Property Line
- Soil Boring 2017
- Soil Boring 2007

N

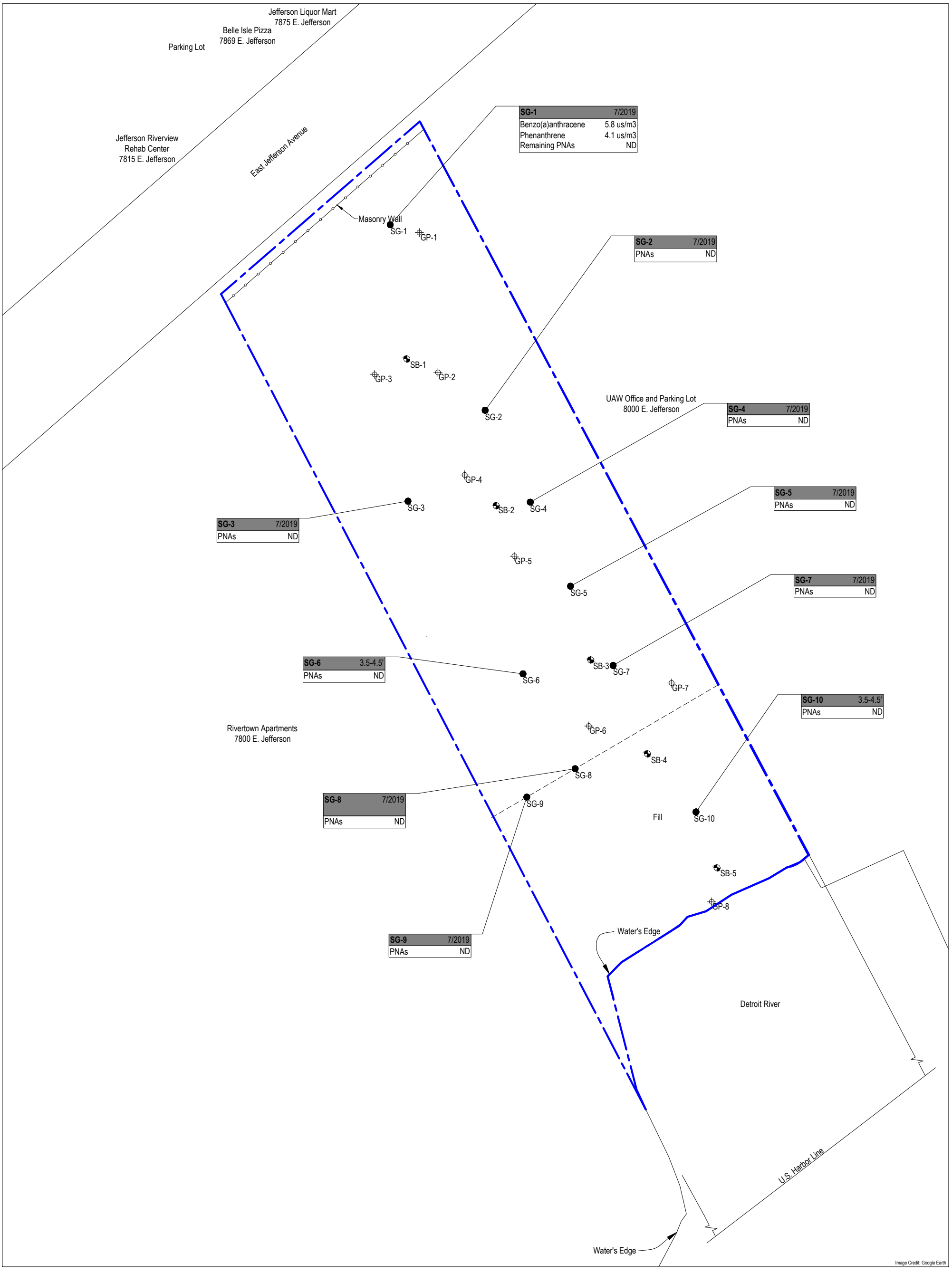
7850 E. Jefferson Ave.

7850 E Jefferson, Detroit, MI

ASTI Environmental

7850-9%-1 LDHA, LLC ; 7850-4%-1 LDHA, LLC
7850-9%-2 LDHA, LLC ; 7850-4%-2 LDHA, LLC
ASTI Project 3-10105, JRN, December 24, 2019

Figure 3 - Soil Analytical Map



0 70 140 210

Approximate Scale in Feet

LEGEND

- Property Line
- Soil Boring 2017
- Soil Boring 2007
- Soil Gas Location

7850 E. Jefferson Ave.

7850 E Jefferson, Detroit, MI

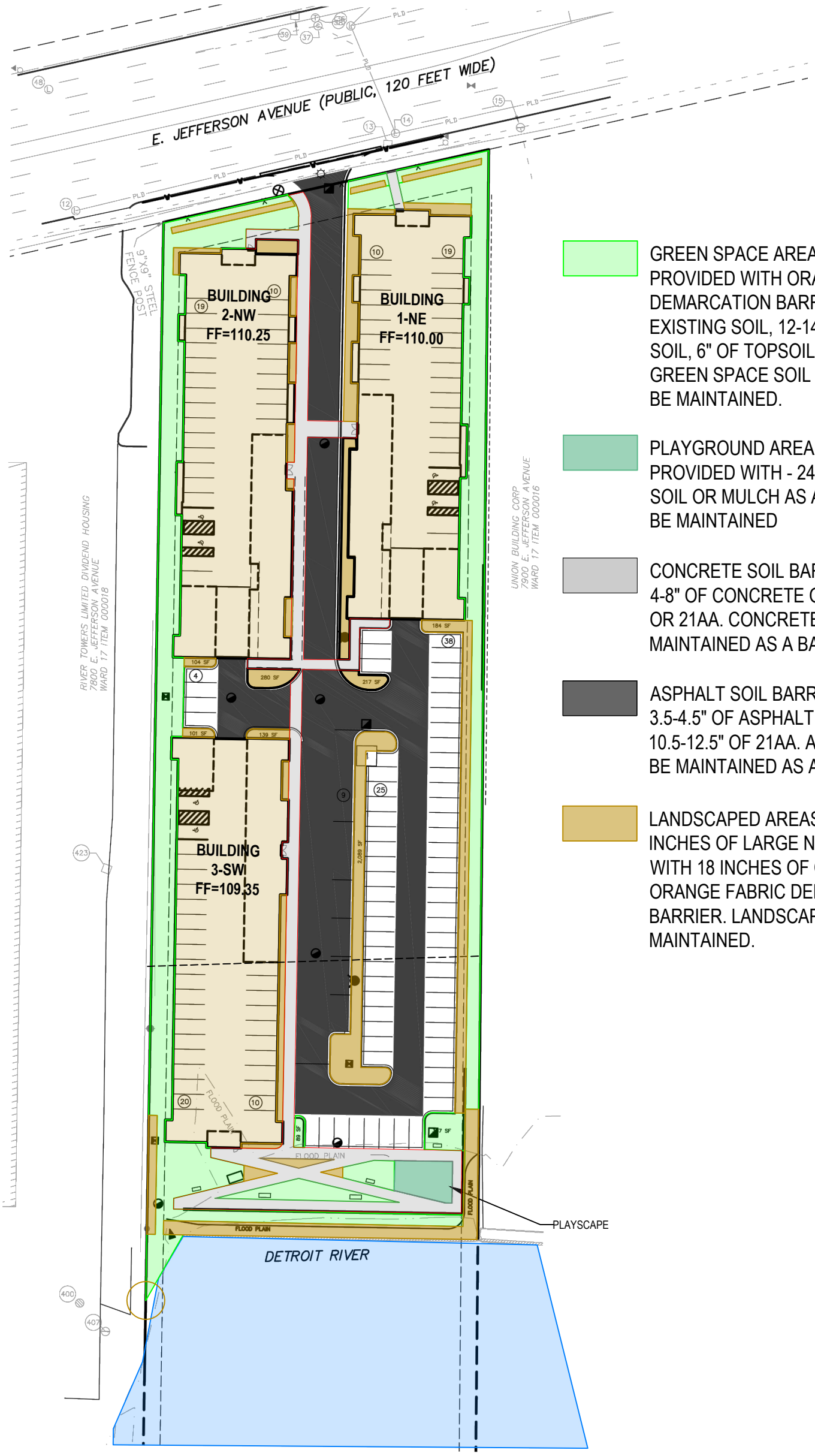
7850-9%-1 LDHA, LLC ; 7850-4%-1 LDHA, LLC
7850-9%-2 LDHA, LLC ; 7850-4%-2 LDHA, LLC

ASTI Project 3-10105, JRN, September 11, 2020

ASTI Environmental

N

Figure 4 - Soil Gas Analytical Map



0 70 140 210

Approximate Scale in Feet

7850 E. Jefferson Ave.

7850 E Jefferson, Detroit, MI

7850-9%-1 LDHA, LLC ; 7850-4%-1 LDHA, LLC
7850-9%-2 LDHA, LLC ; 7850-4%-2 LDHA, LLC
ASTI Project 3-10105, JRN, June 4, 2021

ASTI Environmental

Figure 5 - DC Exposure Barrier Map

TABLES

Table 1 Summary of Soil Sample Analytical Results
7850 E. Jefferson Avenue, Detroit, MI
ASTI Project No. 3-10105

Parameters	Statewide Default Background Levels*	Site-Specific Soil Volatilization To Indoor Air Criteria	Residential Finite Source Volatile Soil Inhalation for 5 Meter Source Thickness	Residential Particulate Soil Inhalation Criteria*	Residential Direct Contact Criteria*	GP-1 3-4' 9/19/2007 µg/kg	GP-2 0.5-1' 9/19/2007 µg/kg	GP-3 5-6' 9/19/2007 µg/kg	GP-4 4-5' 9/19/2007 µg/kg	GP-5 1-2' 9/19/2007 µg/kg	GP-6 7.5-8.5' 9/19/2007 µg/kg	GP-7 7.5-8.5' 9/19/2007 µg/kg	GP-8 1-2' 9/19/2007 µg/kg	SB-1 0.5-1.5' 4/7/2017 µg/kg	SB-2 6.5-7.5' 4/7/2017 µg/kg	SB-3 9-10' 4/7/2017 µg/kg	SB-4 7-8' 4/7/2017 µg/kg	Dup1-S SB-4 4/7/2017 µg/kg	SB-5 5-6' 4/7/2017 µg/kg	Meth Blank -- 4/7/2017 µg/kg
Metals																				
Total Arsenic	5,800	NLV	NLV	720,000	7,600	6,600	5,700	**8,000**	7,000	**8,000**	6,900	7,500	6,400	3,630	6,280	2,360	980	400	2,350	~
Total Barium	75,000	NLV	NLV	330,000,000	37,000,000	57,000	82,000	45,000	54,000	90,000	52,000	49,000	7,300	285,000	42,700	99,400	50,500	79,500	33,200	~
Total Cadmium	1,200	NLV	NLV	1,700,000	550,000	230	460	200	210	440	180	220	230	420	<200	<200	<200	<200	460	~
Total Chromium	18,000	NLV	NLV	260,000	2,500,000	16,000	13,000	18,000	15,000	21,000	16,000	17,000	19,000	7,620	12,100	5,670	5,990	8,110	5,010	~
Total Copper	32,000	NLV	NLV	130,000,000	20,000,000	19,000	35,000	19,000	17,000	18,000	17,000	18,000	43,000	27,100	14,200	6,580	14,100	16,000	133,000	~
Total Lead	21,000	NLV	NLV	100,000,000	400,000	14,000	100,000	12,000	14,000	16,000	8,400	9,500	24,000	212,000	14,700	37,700	44,600	8,100	69,000	~
Lead, Fine Fraction	21,000	NLV	NLV	100,000,000	**400,000**	~	174,000	~	~	~	~	~	~	**518,000**	~	~	~	~	~	~
Lead, Coarse Fraction	21,000	NLV	NLV	100,000,000	400,000	~	71,600	~	~	~	~	~	~	165,000	~	~	~	~	~	~
Lead, Total Calculated	21,000	NLV	NLV	100,000,000	400,000	~	106,000	~	~	~	~	~	~	217,000	~	~	~	~	~	~
Total Mercury	130	0.027	52,000	20,000,000	160,000	84	**160**	<50	<50	70	<50	<50	99	**187**	68	**190**	**215**	101	<50	~
Total Selenium	410	NLV	NLV	130,000,000	2,600,000	230	390	<200	<200	240	<200	<200	230	<400	<400	<400	<400	<400	<400	~
Total Silver	1,000	NLV	NLV	6,700,000	2,500,000	<100	<100	<100	<100	<100	<100	<100	<100	<200	<200	<200	<200	<200	<200	~
Total Zinc	47,000	NLV	NLV	ID	170,000,000	50,000	200,000	51,000	44,000	71,000	47,000	49,000	130,000	189,000	26,500	41,300	31,200	21,100	293,000	~
Polynuclear Aromatic Hydrocarbons (PNAs)																				
Anthracene	NA	13,000,000	1,400,000,000	67,000,000,000	230,000,000	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	420	~
Benzo (a) anthracene	NA	160,000	NLV	ID	20,000	590	870	<330	340	<330	<330	<330	510	500	<330	660	<330	<330	820	~
Benzo (a) pyrene	NA	NLV	NLV	1,500,000	2,000	600	920	<330	360	<330	<330	<330	490	530	<330	630	<330	<330	760	~
Benzo (b) fluoranthene	NA	ID	ID	ID	20,000	710	1,100	<330	410	<330	<330	<330	570	930	<330	1,040	<330	<330	1,290	~
Benzo (g,h,i) perylene	NA	NLV	NLV	800,000,000	2,500,000	380	620	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	410	~
Benzo (k) fluoranthene	NA	NLV	NLV	ID	200,000	<330	440	<330	<330	<330	<330	<330	<330	1,000	<330	1,120	<330	<330	1,390	~
Chrysene	NA	ID	ID	ID	2,000,000	590	860	<330	<330	<330	<330	<330	460	530	<330	700	<330	<330	810	~
Fluoranthene	NA	NLV	740,000,000	9,300,000,000	46,000,000	1,700	1,900	<330	770	<330	<330	<330	1,200	950	<330	1,250	<330	<330	1,900	~
Indeno (1,2,3-cd) pyrene	NA	NLV	NLV	ID	20,000	400	640	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	420	~
Phenanthrene	NA	1,700	160,000	6,700,000	1,600,000	1,500	850	<330	420	<330	<330	<330	850	610	<330	1,070	<330	<330	1,640	~
Pyrene	NA	25,000,000	650,000,000	6,700,000,000	29,000,000	1,300	1,500	<330	650	<330	<330	<330	940	890	<330	1,660	<330	<330	2,340	~
Remaining PNAs	CS	CS	CS	CS	CS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Polychlorinated Biphenyls	NA	NA	7,900,000	5,200,000	4,000 (T)	~	~	~	~	~	~	~	~	~	~	~	<330	<330	<330	~
Volatile Organic Compounds (VOCs)																				
Toluene	NA	3,700	5,100,000	27,000,000,000	50,000,000	<50	<50	<50	<50	<50	<50	<50	<50	<70	<60	130	<70	<70	<50	<80
Remaining VOCs	CS	CS	CS	CS	CS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

*Per R299.46, December 30, 2013.
Bolded and highlighted criteria exceeds corresponding bolded and highlighted criteri(a,on)
~ Parameter not tested for at his location.
ND- Not Detected
CS-Compound specific
ID-Inadequate data to develop criteriion
NA-Not available.
NLL-Hazardous substance is not likely to leach under most soil conditions.
NLV-Hazardous substance is not likely to volatilize under most conditions.
C-Value presented is a screening level based on the chemical-specific generic soil saturation concentration (Csat)
D-Calculated criterion exceeds 100%, hence it is reduced to 100% or 1.0e+9 ppb.
G-Groundwater Surface Water Interface (GSI) criterion depends on the pH or water hardness, or both, of the receiving surface water.
M-Calculated criterion is below the analytical target detection limit, therefore, the criterions defaults to the target detection limit.
T-Refer to the Federal Toxic Substance Control Act (TSCA), 40 CFR 761 Subpart D and 40 CFR 761 Subpart G to determine the applicability of TSCA cleanup standards.
W-Concentrations of trihalomethanes in groundwater shall be added together to determine compliance with the Michigan drinking water standard of 100 ug/L.
X-The Groundwater Surface Water Interface (GSI) criterion shown in the generic cleanup criteria tables is not protective for surface water that is used as a drinking water source.
DD-Hazardous substance causes developmental effects.

Table 2 Summary of Soil Gas Sample Analytical Results
7850 E. Jefferson Ave, Detroit, MI
ASTI Project Number: 3-10105

Parameters	Site-Specific Soil Volatilization to Indoor Air Criteria*	SG-1 7/18/2019 µg/m^3	SG-2 7/18/2019 µg/m^3	SG-3 7/18/2019 µg/m^3	SG-4 7/18/2019 µg/m^3	SG-5 7/18/2019 µg/m^3	SG-6 7/18/2019 µg/m^3	SG-7 7/18/2019 µg/m^3	SG-8 7/18/2019 µg/m^3	SG-9 7/18/2019 µg/m^3	SG-10 7/18/2019 µg/m^3	Dup-SG SG-10 7/18/2019 µg/m^3
PNAs												
Acenapthene	7,300 nc	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Acenaphtyhlene	7,300 nc	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Benzo(a)anthracene	5.8 mut	5.8	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
Benzo(a)pyrene	NA	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Benzo(b)fluoranthene	NA	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Benzo(ghi)perylene	NA	<5.6	<5.6	<5.6	<5.6	<5.6	<5.6	<5.6	<5.6	<5.6	<5.6	<5.6
Benzo(k)fluoranthene	NA	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9
Chrysene	NA	<4.5	<4.5	<4.5	<4.5	<4.5	<4.5	<4.5	<4.5	<4.5	<4.5	<4.5
Dibenzo(a,h)anthracene	NA	<4.5	<4.5	<4.5	<4.5	<4.5	<4.5	<4.5	<4.5	<4.5	<4.5	<4.5
Fluoranthene	NA	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Fluorene	4,900	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Indeno(1,2,3-cd)pyrene	NA	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2
2-Methylnaphthalene	350	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Naphthalene	25 ca	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Phenanthrene	3.5 nc	**4.1**	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Pyrene	3,500 nc	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2

*Site-Specific Volatilization to Indoor Air Criteria Dated June 19, 2019
ca- means the criterion is based on carcinogenic health effects.
mut- means the criterion is based on mutagenic cancer effects.
NA- not available.
nc- means the criterion is based on noncarcinogenic health effects.
Bolded and shaded result exceeds corresponding bolded and shaded criterion

ATTACHMENTS

Attachment A

Phase I ESA
ASTI Environmental, February 21, 2019

Phase I Environmental Site Assessment
2.8 Acres of Vacant Land
7850 E. Jefferson Avenue
Detroit, Michigan

GDC-East Jefferson LLC
February 21, 2019

ASTI ENVIRONMENTAL

ASTI ENVIRONMENTAL

SECTION IX **2018 MSHDA PHASE I SUMMARY COVER SHEET**

Project Name:	2.8 acres of vacant land		
Project Address:	7850 E. Jefferson Ave.		
Sponsors Name:	Nathan Keup	Sponsor E-mail:	Nkeup@ginosko.com
Consulting Firm:	ASTI Environmental		
Consultant Phone:	(810)225-2800	E-mail:	aspencer@asti-env.com
Consultant Project #:	1-10105	Report Date:	February 21, 2019

Additional Site Info (please complete if known)

Site area:	2.8 (in acres)	# Units planned:	
Vacant land:	☒	Developed: ☐	If developed, # existing buildings:
Vacant Structure(s):	☐	# vacant	Date(s) of construction for existing structures:
Single Site:	☐	Scattered sites: ☐	If scattered, # sites:
Rehab of existing structure(s):	☐	New Construction with planned demolition of existing structure(s):	☐
Adaptive Re-Use:	☐	New Construction without planned demolition of existing structure(s):	☐
No physical changes planned:	☐	Comments:	

Please answer all questions below, noting the appropriate page or appendix in your report that contains the supporting documentation. **Summary Cover Sheets containing unknown or incomplete responses will not be processed and will be returned for correction.**

1. Report Findings

a. The site contains a wetland area(s). ☐ Yes ☒ No Pg. 32
(See requirements in Sec. IV, H.6)

b. The site or a portion of the site is in the Special Flood Hazard Area.
☒ Yes ☐ No Pg. 32
(See requirements in Sec. IV, H.5)

c. The site contains a UST(s) or AST(s). ☐ Yes ☒ No Pg. 23
(See requirements in Sec. IV, I)

d. **RECs** - The Phase I ESA revealed a REC(s). ☒ Yes ☐ No Pg. 28-29
(See requirements in Sec. IV)

e. **EMF** - There are high power electrical transmission lines within 500 feet of the subject site.

☐ Yes ☒ No Pg. 32

(See requirements in Sec. IV, H.7)

f. **HP GAS** - There are buried high-pressure gas transmission lines (4" in diameter and 400 psi or greater) within 1000 feet of the subject site. ☐ Yes ☒ No Pg. 32

(See requirements in Sec. IV, H.8)

g. **NOISE -** The subject site is near a busy roadway or within 1000 feet of a limited access freeway or 3000 feet of a rail line, or within 15 miles of an airport. ☒ Yes ☐ No Pg. 32-33

Was a noise assessment performed?

☒ Yes ☐ No

(See requirements in Sec. IV, H.9)

h. **ASBESTOS** - A NESHAP-compliant asbestos survey is required for every MSHDA renovation/remodeling project, regardless of the date of construction. Was a NESHAP-compliant asbestos survey performed for this renovation/remodeling project?

☐ Yes ☒ No Pg. 32

If Yes, were any asbestos containing materials(ACM) identified?

☐ Yes ☐ No

(See requirements in Sec. IV, H.1)

i. **LEAD** - For structures built before January 1, 1978, a combination lead Risk Assessment/Inspection satisfying state and federal requirements is required. Was a combination lead Risk Assessment/Inspection performed?

☒ Not required: Post-1977 Date of Construction

☐ Yes ☐ No Pg. 32

If Yes, was Lead Based Paint identified?

☐ Yes ☐ No

(See requirements in Sec. IV, H.2)

j. **RADON -** For developments in EPA Radon Zone 1 counties (Branch, Calhoun, Cass, Hillsdale, Jackson, Kalamazoo, Lenawee, St. Joseph, and Washtenaw) was a radon assessment conducted by a Radon Professional was performed?

☒ Not required: Not in EPA Radon Zone 1 county

Pg. 32

☐ Yes ☐ No

If Yes, was Radon identified above the EPA action level?

☐ Yes ☐ No

(See requirements in Sec. IV, H.4)

k. A "Recorded Land Records" search was performed? ☐ Yes ☒ No Pg. 19

(See requirements in Sec. IV, C)

l. A Phase II investigation is required? ☒ Yes ☐ No Pg. 28

(See requirements in Sec. V)

m. A Tier I and non-invasive Tier II Vapor Encroachment Screen were preformed?

☒ Yes ☐ No Pg. 33

(See requirements in Sec. IV, H.10)

n. A Vapor Encroachment Condition (VEC) was identified. An invasive Tier II investigation is recommended.

☒ Yes ☐ No Pg. 33

(See requirements in Sec. IV, H.10)

2. Report Documentation Check List. If any of the responses below are "NO," do not submit report.

a. MSHDA Phase I Letter of Reliance completed? ☒ Yes ☐ No

b. User's Disclosure Statement completed? ☒ Yes ☐ No

c. Compliant ACORD 25 Certificate of insurance included? ☒ Yes ☐ No

d. FEMA Flood Plain Map Included? ☒ Yes ☐ No

e. Fire Insurance Maps or No Coverage Letter Included? ☒ Yes ☐ No

f. Development Site Plan Included? ☒ Yes ☐ No

g. Site boundaries indicated on all maps and photos? ☒ Yes ☐ No

I represent that this Summary Cover Sheet accurately reflects the environmental information contained in the above captioned document.

_____/2-21-19__ ___Anthony Spencer_____

Signature of Environmental Professional — Date — Print or Type Legal Name

Phase I Environmental Site Assessment
2.8 Acres of Vacant Land
7850 E. Jefferson Avenue
Detroit, Michigan

January 11, 2019

Report Prepared For:

GDC-East Jefferson, LLC
41800 W. 11 Mile Road Suite 209
Novi, Michigan 48375
and
Michigan State Housing Development Authority
735 E. Michigan Avenue
Lansing, Michigan 48912

Report Prepared By:

ASTI Environmental
10448 Citation Drive, Suite 100
Brighton, Michigan 48116
1-800-395-ASTI

ASTI Project No. 1-10105

Report Prepared by:

Ashleigh Czapek
Associate I

Anthony Spencer, EP
Associate II

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1.0 EXECUTIVE SUMMARY

ASTI Environmental (ASTI) was retained by GDC-East Jefferson, LLC to conduct a Phase I Environmental Site Assessment (ESA) of 2.8 acres of an overall 3.7 acre property, 7850 E. Jefferson Avenue, Detroit, Wayne County, Michigan (Subject Property). The remaining .09 acres is part of the Detroit River and is not required to be covered in this Phase I ESA. The Phase I ESA was conducted in accordance with American Society for Testing and Materials (ASTM) Practice E1527-13 and the Michigan State Housing Development Authority (MSHDA) Environmental Review Requirements for 2018. The information and opinions rendered in this report are exclusively for reliance by GDC-East Jefferson, LLC, Cinnaire Development Management Finance, LLC and MSHDA, and ASTI will not distribute or publish this report without the consent of GDC-East Jefferson, LLC, except as required by law or court order. The services provided by ASTI in completing this assessment have been provided in a manner consistent with the normal standards of the profession. No other warranties, expressed or implied, are made.

The Phase I ESA included (1) a site inspection on December 28, 2018, (2) interviews with knowledgeable site contacts, (3) review of pertinent Michigan Department of Environmental Quality (DEQ), Department of Licensing and Regulatory Affairs (LARA), Wayne County, and City of Detroit information, (4) acquisition and review of a federal and Michigan database search, (5) review of historical aerial photographs, Sanborn maps, and city directories, (6) FEMA Map search and National Wetlands Inventory map review, and (7) Noise Assessment.

No testing or sampling of materials (for example, soil, water, and air) was included in this assessment. No limiting conditions were identified during the site reconnaissance, except for those described in Section 6.1. The temperature was approximately 48 °F and rainy.

1.1 Summary and Conclusions

A detailed summary of the findings of this Phase I ESA can be found in Section 8.1.

We have performed a Phase I ESA in conformance with the scope and limitations of ASTM Practice E1527-13 and MSHDA requirements of the 2.8 acres of an overall 3.7 acres of vacant land, 7850 E. Jefferson Avenue, Detroit, Wayne County, Michigan (Subject Property). Any exceptions to, or deletions from, this practice are described in Section 5.4 of

this report. This assessment has revealed no evidence of recognized environmental conditions (RECs) in connection with the Subject Property, except for the following.

- Based on the laboratory analytical results for the soil samples collected at the Subject Property during the Limited Subsurface Investigation dated April 25, 2017, ASTI opines that the Subject Property is a "facility" as defined in Part 201 of Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451, as Amended (Part 201). The facility-level concentrations of metals, at the Subject Property are representative of a release.

1.2 Data Failure Points

Refer to Section 8.4 for a discussion regarding data failures and/or data gaps encountered during the investigation.

1.3 Identified Liens or Activity Use Limitations

The DEQ Remediation and Redevelopment Division (RRD) maintains a list of properties that have perfected environmental liens on file with the DEQ. The Subject Property was not on the list as of the last update dated November 2, 2018 (Appendix 10.5).

Based on a review of the government records search for the Subject Property provided from EDR and information provided on the User Questionnaire, there are no activity and use limitations (AULs) against the Subject Property.

2.0 INTRODUCTION

ASTI Environmental (ASTI) was retained by GDC-East Jefferson, LLC to conduct a Phase I Environmental Site Assessment (ESA) of 2.8 acres of an overall 3.7 acre property, 7850 E. Jefferson Avenue, Detroit, Wayne County, Michigan (Subject Property). The Phase I ESA was conducted in accordance with the American Society for Testing and Materials (ASTM) *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* (E1527-13), 40 CFR Part 312: Standards and Practice for All Appropriate Inquiries; Final Rule (AAI), and the Michigan State Housing Development Authority (MSHDA) Environmental Review Requirements for 2018.

2.1 Purpose

The assessment was conducted to identify *recognized environmental conditions,* (RECs), *historical recognized environmental conditions* (HRECs), and *controlled recognized environmental condition*s (CRECs) associated with the historical uses of the Subject Property, current site operations, and the condition of surrounding properties. ASTI understands that the findings of this study will be used for a LIHTC submittal to MSHDA. This Phase I ESA can be also used by GDC-East Jefferson, LLC and Cinnaire Development Management Finance, LLC to qualify for one of three landowner liability protections (contiguous property owner, innocent landowner, or bona fide prospective purchaser) available under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 as amended, and may also be used to qualify for State of Michigan liability defenses and exemption that may be available under Part 201 of the Natural Resources and Environmental Protection Act.

According to ASTM Practice E1527-13, the term *recognized environmental condition* is defined as the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. The term is not intended to include de minimis conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

2.2 Detailed Scope of Services

Information required to complete the ESA was obtained from personal interviews and review of practically reviewable and reasonably ascertainable records. Informational sources include the following:

- User's Environmental Questionnaire;
- Owner's Questionnaire
- DEQ Perfected Environmental Liens (11-2-18);
- Department of Environmental Quality (DEQ);
- Department of Licensing and Regulatory Affairs (LARA);
- available records maintained by the Detroit and Wayne County;
- The EDR Radius Map Report with GeoCheck (12-12-18);
- aerial photographs;
- Sanborn maps;
- city directories;
- Noise Assessment;
- FEMA; and
- U.S. Fish and Wildlife Service NWI Map.

Ms. Laura Gray inspected the Subject Property on December 28, 2018 under the direction of Mr. Anthony Spencer, Environmental Professional. Ms Ashleigh Czapek and Mr. Anthony Spencer completed report preparation. Copies of Ms. Czapek's and Mr. Spencer's resumes are provided in Appendix 10.8.

2.3 Significant Assumptions

Information obtained during this assessment, to the extent it was relied on to form our opinion, was assumed to be complete and accurate. ASTI cannot be held responsible for the quality or content of information obtained from interviews and standard sources. Since ASTI cannot warrant or guarantee that the information provided by interviews and standard sources is accurate or complete, the intention of this Phase I ESA is to reduce, but not eliminate, uncertainty for the potential for RECs, HRECs, and CRECs on the Subject Property.

2.4 Limitations and Exceptions

The information and opinions included in this report were given in response to a limited scope of work being a Phase I ESA per ASTM Practice E1527-13 and MSHDA Environmental Review Requirements for 2018, and should be considered and implemented only in light of that particular scope of work. The services provided by ASTI in completing this assessment have been provided in a manner consistent with the normal standards of the profession. No other warranties, expressed or implied, are made.

No testing or sampling of materials (for example, soil, water, and air) was included in this assessment. No limiting conditions were identified during the site reconnaissance, except for those described in Section 6.1. The temperature was approximately 48 °F and rainy.

Responses received from regulatory agencies or other secondary sources of information after the issuance of this report may alter the facts, findings, conclusions, or recommendations to this ESA.

2.5 Special Terms and Conditions

The Phase I ESA was performed in conformance with the scope and limitations of ASTM Practice E1527-13, AAI, and MSHDA Environmental Review Requirements for 2018. No special terms and conditions outside ASTM Practice E1527-13, AAI, and MSHDA Requirements have been addressed. Under the AAI Rule and ASTM Practice E1527-13, all appropriate inquiries must be conducted within one year prior to the date of transaction of the Subject Property. However, certain components of the all appropriate inquiries (interviews, liens searches, records review, and visual inspections) must be conducted or updated within 180 days prior to the date of the Subject Property transaction.

2.6 User Reliance

The Phase I ESA was performed for the benefit of GDC-East Jefferson, LLC, Cinnaire Development Management Finance, LLC and MSHDA, and ASTI acknowledges that said parties may rely on the contents and conclusions presented in this report. ASTI acknowledges the fact that the scope of work was sufficient in ASTI's opinion to uncover, to the extent of ASTI's services, potential environmental liabilities at the Subject Property.

This effort was performed per authorization of GDC-East Jefferson, LLC on December 11, 2018. The information and opinions rendered in this report are exclusively for use by GDC-

East Jefferson, LLC, Cinnaire Development Management Finance, LLC and MSHDA. ASTI will not distribute or publish this report without the consent of GDC-East Jefferson, LLC, except as required by law or court order.

Any use a third party makes of this report, or any reliance upon it, or any decisions based on it, is the sole responsibility of the third party. A third party is not afforded the status of a third party beneficiary unless ASTI expressly agrees to such status in writing. ASTI has no responsibility for any damages that may be suffered by a third party as a result of any decision made, or action taken by a third party, based on this report.

3.0 SITE DESCRIPTION

3.1 Location and Legal Description

General Location	A Site Location Map is provided in Appendix 10.1.
Quarter Section, Township and Range	Southwest ¼ of Section 2, T2S and R12E
City/Township, County, State Zip Code	Detroit, Wayne County, MI, 48214
Parcel Number(s)	17000017

Current assessing records with parcel legal descriptions are included in Appendix 10.5.

3.2 Site and Vicinity General Characteristics

Subject Property Zoning	R-6-High density residential district
Local Development Utilization	Residential and commercial

A Site Features Map is included in Appendix 10.2. Photographs of the Subject Property and adjoining properties were taken during the site inspection and are provided as Appendix 10.3.

3.3 Current Use of the Subject Property

The Subject Property is currently vacant land and has no obvious use.

3.4 Descriptions of Structures, Roads, Other Improvements on the Site

Below is summary of the Subject Property improvements.

Roads and Other Improvements	
Access	Access is available from East Jefferson Ave.
Paved Areas	There is a crescent shaped paved path through the northern section of the Subject Property.
Maintained Lawn	Most of the Subject Property is green space.
Landscaped Areas	None
Surface Water	None, but the Detroit River borders to the south.

Municipal Services and Utilities			
Service or Utility	**Present**	**Provider**	**Comments**
Potable Water Source	No		Available
Irrigation Well	No		
Sewage	No		Available
Storm Sewer	No		Available
Electrical	No		Available
Natural Gas	No		Available
Solid Waste Disposal	No		
Heating & Cooling	No		

There was no indication or evidence of the former presence of potable wells or septic systems on the Subject Property. A current or prior heating source other than natural gas has not been identified through a review of reasonably ascertainable records.

3.5 Current Uses of Adjoining Properties

ASTI observed adjoining properties during the inspection to evaluate the potential risk these properties may pose to the Subject Property.

Adjoining Property Use			
Direction from Property	**Occupant & Address**	**Use**	**Potential Concerns Observed During Site Reconnaissance**
North	Riverview Medical Offices 7815 E. Jefferson	Medical offices	None
	Belle Isle Pizza 7869 E. Jefferson	Restaurant	
	Jefferson Liquor Mart and Boost Mobile 7875 E. Jefferson	Alcohol store and cell phone store	
	Vacant structure	None	
South	Detroit River	None	None
East	International U.A.W. Federal Credit Union 8000 E. Jefferson	Credit union	None
West	River Tower Apartments 7800 E. Jefferson	Apartments	None

4.0 USER PROVIDED INFORMATION

In order to qualify for one of the landowner liability protections offered by the Small Business Liability Relief and Brownfield's Revitalization Action of 2001, the User, defined by ASTM as *the party seeking to use Practice E1527 to complete an environmental site assessment of the Subject Property*, has specific obligations for completing a successful application of this practice as outlined in Section 6 of ASTM E1527-13 Failure to provide information regarding the obligations outlined to the Environmental Professional may result in a determination that AAI is not complete.

Mr. Nathan Keup representing GDC-East Jefferson, LLC, completed a User's Questionnaire. A copy of the User's Questionnaire is provided in Appendix 10.6.

4.1 Title Records

A title search was not included in the scope of this Phase I ESA.

4.2 Environmental Liens or Activity and Use Limitations

Mr. Keup was not aware of any environmental liens or activity and land use limitations.

4.3 Specialized Knowledge

Mr. Keup does not have any specialized knowledge or experience related to the Subject Property or nearby properties that might help ASTI identify a potential REC.

4.4 Commonly Known or Reasonably Ascertainable Information

Mr. Keup does not have any commonly known or reasonably ascertainable information indicative of releases or threatened releases on the Subject Property.

4.5 Valuation Reduction for Environmental Issues

According to Mr. Keup, the purchase price represents the fair market value.

4.6 Owner, Property Manager, and Occupant Information

The Subject Property is owned by Shamrock Acquisitions, LLC. Additional interview information is provided in Section 7.0.

4.7 Reason for Performing Phase I ESA

ASTI understands that the findings of this study will be used for a LIHTC submittal to MSHDA. This Phase I ESA can be also used by GDC-East Jefferson, LLC to qualify for one of three landowner liability protections (contiguous property owner, innocent landowner, or bona fide prospective purchaser) available under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 as amended, and may also be used to qualify for State of Michigan liability defenses and exemption that may be available under Part 201 of the Natural Resources and Environmental Protection Act.

4.8 Other

No other information was provided by Mr. Keup.

5.0 RECORDS REVIEW

5.1 Standard Environmental Record Sources

ASTI ordered a government records search for the Subject Property from Environmental Data Resources, Inc. (EDR) in Shelton, Connecticut. A copy of The EDR Radius Map Report with GeoCheck dated December 12, 2018, is included in Appendix 10.5. A description of the databases, search distances, and results are presented in the report.

ASTM-Required Databases			
Database List (ASTM Required Search Distance)	**Subject Property Listing**	**Adjoining Property Listing**	**Total Applicable ASTM Listings**
Federal NPL/State Hazardous Waste Site (1 mile)	No	No	0
Delisted NPL (0.5 mile)	No	No	0
Federal/State/Tribal Equivalent SEMS (0.5 mile)	No	No	0
Federal SEMS Archive (0.5 mile)	No	No	1
Federal RCRA CORRACTS (1 mile)	No	No	0
Federal TSD Facility (0.5 mile)	No	No	0
Federal RCRA Generator (Subject Property/Adjoining)	No	No	0
Federal Inst./Eng. Controls (Subject Property only)	No	No	0
Federal ERNS (Subject Property Only)	No	N/A	0
State/Tribal Landfill or Solid Waste Facility (0.5 mile)	No	No	0
State/Tribal LUST (0.5 mile)	No	Yes(1)	7
State/Tribal Registered UST (Subject Property/Adjoining Properties)	No	Yes	1
State/Tribal Inst./Eng. Controls (Subject Property only)	No	N/A	0
State/Tribal Voluntary Cleanup Sites (0.5 mile)	No	No	0
State/Tribal Brownfield Sites (0.5 mile)	No	No	1

Refer to the EDR report Executive Summary for abbreviation descriptions.

Supplemental Databases Selected by Environmental Professional			
Supplemental Database List Name (ASTI Search Distance)	**Subject Property Listing**	**Adjoining Property Listing**	**Additional Listings in Search Distance**
State/Tribal - Part 201 (1 mile)	No	No	3
Michigan Baseline Environmental Assessment (BEA) Sites ($^1/_{10}$ mile)	Yes	No	1
Historical Auto Stations ($^1/_{10}$ mile)	No	Yes	3
Dry Cleaners/Historical Cleaners ($^1/_{10}$ mile at EP discretion/i.e. Detroit)	No	Yes	0
Additional Non-ASTM Databases (Subject Property or Adjoining Property)	Yes(1)	No	N/A
Orphans	No	No	0

Discussion of Subject Property Listings

The subject Property is listed with a BEA conducted in 2008 and a related Inventory listing. See section 5.4.5 for a further discussion of these listings.

Discussion of Off-Site Listings of Environmental Concern

Adjoining property listings are discussed below. For the remaining listings, ASTI considers select criteria to determine which listings represent an environmental concern to the Subject Property. The criteria include but are not limited to the following.

- Database type
- Topography relative to the Subject Property
- Direction and distance
- Soil profile identified in available sources
- Known or inferred groundwater depth and flow direction
- Status of applicable investigation
- Surface and subsurface conditions including but not limited to buildings, pavement, utility corridors, and surface water features
- Potable water source (well or municipal)

An evaluation of these criteria is completed to determine the level of risk associated with each listing. Listings with likely releases that are found to have the potential to represent an elevated or high risk are requested through FOIA to applicable agencies.

Using the referenced criteria and based upon the information contained within the EDR report, ASTI did identify additional listings beyond adjoining properties that were considered

to represent the potential to be an elevated or high risk to the Subject Property. Adjoining listings and these sites are discussed below.

Site Name	Jennings Building
Databases Listing(s)	LUST, UST, AIRS, WDS
Location	7815 E Jefferson Ave.
Distance and Direction	North adjoining
Documentation Requested	• *LARA:* Michigan Department of Licensing and Regulatory Affairs
Summary of Findings	This site is listed as a UST and "closed" LUST site. The site contained a 5,000-gallon diesel UST, which was installed on May 14, 1959 and removed on October 15, 1998. During the removal, stained soils and elevated PID readings were noted. A confirmed released was submitted to the DEQ on October 15, 1998. The LUST site was closed on March 3, 1999. ASTI requested associated DEQ records from the DEQ, but they were not provided. Releases that have been granted regulatory closure have low potential for affecting offsite locations. Due to the soil lithology in the area, regulatory closure of the release, and the location across E. Jefferson Ave., it is unlikely that an associated release would migrate onto the Subject Property.

Site Name	Brossy L C Dyeing Co
Databases Listing(s)	EDR Historic Cleaner
Location	7885 E Jefferson Ave.
Distance and Direction	North adjoining
Documentation Requested	None
Summary of Findings	This site was identified as a historical cleaner. The historical information was considered as part of the summary provided in Section 5.5.

Site Name	Stoepel H Robert
Databases Listing(s)	EDR Historic Auto Station
Location	7895 E Jefferson Ave.
Distance and Direction	North adjoining
Documentation Requested	None
Summary of Findings	This site was identified as a historical auto garage and service station. The historical information was considered as part of the summary provided in Section 5.5.

Site Name	Sunoco Inc., Marine Pollution Control, McIntosh Super Service, Duncan Service
Databases Listing(s)	LUST, UST, FINDS, WDS, Financial assurance, Inventory, RCRA-NonGen, ECHO, EDR Historic Auto
Location	8005 E Jefferson Ave.
Distance and Direction	~approximately 300 feet to the northeast
Documentation Requested	• *RRD:* Remediation and Redevelopment Division of the DEQ
Summary of Findings	The site is listed as an "open" LUST site. Multiple confirmed releases have occurred on the site, 1990, 2000, 2001, 2002 and 2018. All were gasoline or diesel related except for the 2001 release which was used oil. The 1990 release was closed in 1999. Closure reports were reviewed for the 1990 and 2000/2001 releases. Soil boring logs from the 2000/2001 closure report indicate that the soil is mostly clay. The nearest detections to the Subject Property are ~ 400 feet to the northeast and are under the cleanup criteria for direct contact and volatization to indoor air inhalation. Due to the soil lithology, reviewed DEQ records, the distance, and location across E. Jefferson Ave., it is unlikely that an associated release would migrate onto the Subject Property.

5.2 Additional Environmental Record Sources

Michigan Oil and Gas Wells

Based on a review of the DEQ GeoWebFace search system and EDR report, no oil or gas wells were identified on or adjoining to the Subject Property.

County and Local Records Review

ASTI requested information for the Subject Property from the Wayne County Department of Public Services. A response was received on December 14, 2018 indicating that no records were found (Appendix 10.5).

A Freedom of Information Act request for Detroit Fire Department records for the Subject Property was submitted. A response was received on January 8, 2019 indicating that no records were found (Appendix 10.5).

Assessing Department files were available for review. A current assessing record is provided in Appendix 10.5

Building Department permits from Detroit were reviewed. General building permits were issued for the Subject Property, no environmental concerns were noted.

City of Detroit, Safety Engineering and Environmental Department Oil Tank Card Records were reviewed.

A 220-gallon heating tank was listed in the basement of the Subject Property in 1931.

The north adjoining property at 7875 E. Jefferson, listed a leaking underground storage tank in Section 5.1, had two 220-gallon tanks installed in 1952 and two 220-gallon tanks installed in 1953. At 7895 E. Jefferson, another north adjoining site, the location was listed as having 220-and 440-gallon tanks in the basement and a 2,000-gallon UST in 1927; two 220-gallon tanks in the basement in 1933 and 1934; and one 220-gallon tank in 1935.

The east adjoining property at 7900 E. Jefferson is listed as having an outdoor 2,000-gallon UST in 1929; one 220-gallon tank in the basement in 1948 and a 1,000-gallon UST in 1949. No further information was provided for the current status of the USTs. Due to soil lithology and inferred groundwater flow direction to the southeast, it is unlikely that any associated release would migrate onto the Subject Property.

5.3 Physical Setting Sources

A Physical Setting Sources Map, which includes an overlay of the United States Geological Survey (USGS) topographic map (7.5-minute series) for the Belle Isle, Michigan quadrangle, which includes the Subject Property, is provided in the EDR report in Appendix 10.5. The USGS map is also the basis of the Site Location Map in Appendix 10.1.

Average Elevation (feet above mean sea level)	582 ft
Local Gradient	The topography of the Subject Property declines to the southeast.
Regional Gradient	The topography of the regional area declines to southeast.
Nearest Surface Water Body	The Detroit River to the southeast
Groundwater Depth	According to a limited subsurface investigation conducted on the Subject Property in 2017, 8 to 12 feet below ground surface (bgs). It was present at four of five sampling locations in a sand layer or seam that is apparently discontinuous.
Groundwater Flow Direction	Groundwater flow is inferred to the southeast

Soil composition information for the Subject Property is included in the EDR report (Appendix 10.5). The soil component for the Subject Property is described as follows.

Soil Component	Soil Texture	Infiltration Rate	Drainage	Hydric
Urbanland	Variable	Not reported	Not reported	No

During a limited subsurface investigation conducted on the Subject Property (refer to Section 5.4.5), the subsurface lithology encountered in the soil borings, underlying surface cover (topsoil), generally consisted of fill materials varying in composition from sand to silty-clay and extended to depths between 4 feet and 13 feet bgs. The fill materials contained varying amounts of debris consisting of brick, concrete, foundry sand, and slag.

5.4 Historical Use Information on the Subject Property

Reasonably ascertainable standard historical sources as found in Section 8.3.4 of ASTM Practice E1527-13 were used to determine the previous use of the Subject Property and surrounding area. A chronological summary of the sources used may include, but is not limited to aerial photographs, Sanborn maps, city directories, agency records, and prior environmental assessments. ASTI made a *good faith* effort to identify the obvious uses of the Subject Property from the present back to the Subject Property's first developed use, or back to 1940, whichever is earlier. *Data Failures* were encountered as part this assessment and are discussed as data gaps in Section 8.4.

5.4.1 Aerial Photographs

ASTI reviewed available aerial photographs of the Subject Property area provided by EDR. Copies of the aerial photographs are included in Appendix 10.4. The aerial photographs are summarized as follows.

Year	Observations
1937	General area: Roadways and buildings are evident.
	Subject Property: A building is evident to north with associated driveway to the east.
	North adjoining: Building and parking areas are evident beyond E Jefferson Ave.
	East adjoining: A vacant parcel is evident.
	South adjoining: The Detroit River is noticeable.

Year	Observations
	West adjoining: Blurry photograph, driveways are evident.
1949	Subject Property: The building appears to be improved with an extra driveway to the west and a new building is evident to the south.
	North adjoining: No significant change is evident.
	East adjoining: New building is evident.
	South adjoining:
	West adjoining: Artificial filling was added to extend the surface area. New building complex is evident, with associated parking
1952	No significant change is evident.
1961	No significant change is evident.
1972	Subject Property: No significant change is evident.
	North adjoining: No significant change is evident.
	East adjoining: No significant changes are evident.
	South adjoining: No significant changes are evident.
	West adjoining: No significant changes are evident.
1987,1997, 1999, 2005, 2009, 2012, 2016	No significant changes are evident.

5.4.2 Sanborn Maps

ASTI reviewed available Sanborn maps of the Subject Property area provided by EDR. Copies of the Sanborn maps are included in Appendix 10.4. The maps are summarized as follows.

Year	Observations
1887	General area: Roadways, alleys, buildings, and the Detroit River are evident.
	Subject Property: A duplex is depicted with a garage structure to the south.
	North adjoining: Vacant parcels were depicted.
	East adjoining: A vacant parcel was identified.
	South adjoining: The Detroit River is evident.
	West adjoining: A dwelling and a bowling alley were present.
1910	Subject Property: The duplex was expanded into one large dwelling with an underground passage, a second dwelling, a greenhouse, and a boathouse to the south. A 50-gallon gasoline tank was present to the west of the garage.
	North Adjoining: Dwelling and vacant parcels were present.
	East adjoining: Dwelling and carriage house were present.
	South adjoining: The Detroit River is evident.
	West adjoining: The bowling alley structure was converted to a dwelling.
1915	Subject Property: No significant changes were identified except for a dock area addition and boilers identified in the southwest dwelling.
	North adjoining: No significant changes.
	East adjoining: No significant changes.

Year	Observations
	South adjoining: No significant changes.
	West adjoining: No significant changes.
1941	Subject Property: Previous dwelling was changed to Colony Town Club.
	North adjoining: A hospital, stores and apartments are identified. A filling station with four USTs was also present to the northeast at 7885-7895 E. Jefferson Ave.
	East adjoining: Previous dwelling was changed to Chrysler Corp. Sales Training School.
	South adjoining: No significant changes.
	West adjoining: The dwellings were removed and the area is vacant.
1951	Subject Property: Colony Town Club was changed to Detroit Medical Hospital and the dock area was removed.
	North adjoining: No significant changes.
	East adjoining: A large boat house was constructed on the waterfront.
	South adjoining: No significant changes.
	West adjoining: No significant changes.
1953	No significant changes were evident.
1957	
1961	Subject Property: No significant changes.
	North adjoining: The hospital was expanded to the east and the filling station and USTs to the northeast were removed.
	East adjoining: No significant changes.
	South adjoining: No significant changes.
	West adjoining: No significant changes.
1977	Subject Property: All structures were removed from the Subject Property.
	North adjoining: No significant changes.
	East adjoining:The Chrysler Corp. building was labeled as vacant. The remainder of the parcel is labeled as parking.
	South adjoining: No significant changes.
	West adjoining: The River Towers and associated parking was present.
1989	Subject Property: No significant changes.
	North adjoining: No significant changes.
	East adjoining: The vacant building was removed.
	South adjoining: No significant changes.
	West adjoining: No significant changes.
1991	No significant changes.
1996	
2002	

5.4.3 City Directories

A city directory search was conducted by EDR (Appendix 10.4). Findings are incorporated into Sections 5.3.5 and 5.3.6.

5.4.4 Title Search

A title search was not included in the scope of this Phase I ESA.

5.4.5 Prior Environmental Investigations

NTH, 2007-2008

A Phase II ESA report was completed at the Subject Property by NTH Consultants, LTD (NTH) on October 12, 2007. The Phase II ESA was conducted to evaluate the following recognized environmental conditions (RECs) identified in NTH's Phase I ESA of the Subject Property dated September 11, 2007. A copy of these reports in provided in the Tab Attachments.

- The Subject Property formerly contained several structures, at least one of which had a basement. No information was available regarding the nature or source of the fill materials used to fill in the basements of the former structure(s).
- Review of available historical sources indicated that two storage tanks were present at the Subject Property with no detailed information available as to the current status or removal of the tanks.
- Review of available historical sources indicated that the southern 1/3 of the Subject Property was filled in sometime in the late 1800s or 1900s. In addition, fill soils containing debris were encountered during NTH's concurrent geotechnical investigation. No information was available as to the nature or source of the fill materials.

At the time, the Phase II ESA identified arsenic, chromium, and mercury in soil at concentrations above the Michigan Department of Environmental Quality's (MDEQ)'s Part 201 generic residential cleanup criteria (GRCC) for drinking water protection and groundwater surface water interface protection criteria. The Subject Property was determined to be a "*facility*" as defined in Part 201 of Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451, as Amended (Part 201).

Based on the results of the Phase II ESA, NTH conducted a Baseline Environmental Assessment (BEA) of the Subject Property in January 2008, which was affirmed on February 1, 2008. A Geophysical Survey was also conducted during the Phase II ESA and no underground storage tanks were identified. ASTI was unable to review this document. It was likely based on the laboratory information provided in the 2007 Phase II.

ASTI, 2017

ASTI conducted a limited subsurface investigation at the Subject Property and the report is dated April 25, 2017. On April 7, 2017, ASTI advanced five soil borings (SB-1 through SB-5) at the Subject Property using a direct-push Geoprobe® drill rig. At the time, the laboratory analytical results reported the metals mercury, arsenic and lead at concentrations exceeding the generic residential cleanup criteria (GRCC) for direct contact. The detected arsenic was determined to be below normal background concentrations in the area.

The Subject Property is a "facility" as defined in Part 201 of Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451, as Amended (Part 201). A Baseline Environmental Assessment (BEA) is not applicable for the current owner, but could be prepared for a new ownership entity.

ASTI recommended the preparation of a Due Care Plan to document the procedures to follow to avoid exacerbation of or exposure to existing contamination during redevelopment and future use of the Subject Property.

A Due Care Memo was completed on May 3, 2017. Based on the information provided to ASTI for preperation of the Due Care Memo, the likely applicable pathways for due care would be the soil volatilization to indoor air inhalation (SVIAI), particulate soil inhalation (PSI), and direct contact (DC). Based on the limited sampling completed, there is a potential unacceptable risk due to the detection of lead above the GRCC for DC.

5.4.6 Summary of Historical Uses on the Subject Property

Based on review of the obtained historical sources, the historic use(s) of the Subject Property is summarized as follows.

The Subject Property contained a residential dwelling and outbuildings by 1888. The southern portion was filled sometime in the late 1800's or early 1900's. By 1935, the northern portion contained a clubhouse building identified as the Colony Town Club and the southern portion contained a residential dwelling and associated outbuildings. By the mid 1940's the northern portion was developed with a building used as a hospital and as a youth home. The Subject Property has remained vacant since approximately 1977.

The southern portion of the Subject Property was filled in sometime in the late 1800s or early 1900s. No information was available about the fill material used, the use of unknown fill materials is considered a REC.

5.5 Historical Use Information on Adjoining Properties

Based on review of the obtained historical sources, the historic uses of adjoining properties are summarized as follows.

Summary of Historic Uses of Adjoining Properties	
Direction	**Historical Use Summary**
North	The property was developed with a residential structure in the early 1900s. By the early 1930s the area was developed with a hospital and several commercial structures. Over the years these structures housed a variety of commercial ventures including, a florist, restaurants, drug store, dying company, an auto garage, filling station, dry cleaners, automotive parts sales, bait and tackle shop and an investment company. Concerns associated with the former gas station and auto repair include underground storage tank systems including tanks, pumps, and associated piping for petroleum products such as gasoline, diesel, fuel oil, and used oil; the use of in-ground hoists; and spills associated with auto repair operations such as oils and solvents. Releases are commonly associated with the use of white gas and/or solvents at dry cleaners. Based on reviewed reports from Section 5.4.5, soil lithology, distance to the operations, and the location across E Jefferson Ave., it is unlikely that an associated release would migrate onto the Subject Property from sites to the north.
East	The property is developed with a residential dwelling, outbuilding and boathouse in the early 1900s. By 1940, the residence had been converted to the Chrysler Corporation Sales Training School. A large boat house was constructed on the water for the Chrysler corporation in the early 1950s. By the 1970s, the Chrysler Corp. building was vacant and the southern portion of the property had been acquired by the U.A.W. Headquarters to the east. In the early 1980s the structure was demolished and the area was paved for parking. The current structure I still used by the U.A.W.
South	The area to the south is the Detroit River.
West	By at least 1987, there was a bowling alley and residential structure. By the early 1900s, the bowling alley was converted to a residential structure. Between 1915 and the mid-1930s the two structures were removed. In the late 1960s/early 1970s the current apartment tower was constructed.

6.0 SITE RECONNAISSANCE

6.1 Methodology and Limiting Conditions

Assessor Name and Title	Laura Gray, Environmental Technician
Date of Inspection	December 28, 2018
Weather Conditions	48°F and rainy
Methodology	Inspected exterior of the Subject Property, including all property boundaries, and adjoining properties from Subject Property and public access areas.
Access Limitations	Some areas of overgrown vegetation, trash and debris. An encampment of setup within a wooded area of the Subject Property.

6.2 General Site Settings

General Location	A Site Location Map is provided in Appendix 10.1
City/Township, County, State Zip Code	Detroit, Wayne County, Michigan 48214
Acreage	2.8 of 3.7 acres
Local Development Utilization	Residential and commercial

6.3 Exterior Observations

The following table summarizes the site exterior observations. Items observed are discussed further following the table.

Category	Item	Item Observed
Above Ground Hazardous Substances and Petroleum Products	Drums, barrels or containers ≥5 gallons in connection with identified uses	No
	Drums, barrels or containers ≥5 gallons not in connection with identified uses	No
	Unidentified Substance Containers	No
	ASTs	No
Underground Hazardous Substances and Petroleum Products	USTs (fill ports and/or vent pipes)	No
	Fuel dispensers	No
	Natural gas or petroleum pipelines/wells	No
Basic & Specialized Systems (Electrical, Hydraulic, Refrigeration, & PCBs)	Pole-mounted transformers	No
	Pad-mounted transformers	No
	Capacitors	No
	Hydraulic equipment	No

Category	Item	Item Observed
	Emergency generator	No
	High-power transmission lines (EMF)	No
Indications of Releases or Potential Releases	Stained soil or pavement	No
	Stressed vegetation	No
	Pools of liquid	No
	Strong or pungent odors	No
	Filled Land	No
	Unregulated/Unauthorized Waste Disposal	Yes
Drainage & Waste Collection Systems	Pits	No
	Ponds	No
	Lagoons	No
	Sumps	No
	Storm water collection basins	No
	Monitor wells	No
	Dry wells/crocks	No
	Oil-water separators	No
	Regulated/Authorized Waste Removal (Dumpsters)	No
Other Notable Items		

Items noted as not observed do not fully warrant that these items are not present on the Subject Property as some items may not have been readily observable.

6.4 Interior Observations

The Subject Property is currently vacant land. However, there are remnants of a former brick shed or garage structure on the southeast border of the Subject Property.

7.0 INTERVIEWS

7.1 Interview with Owner

The Subject Property is owned by Shamrock Acquisitions, LLC. An Owner Questionnaire was completed by Mr. Matthew Duffield on January 10, 2019 (Appendix 10.6). Mr. Duffield stated that historical sources indicated that two storage tanks were present at the property previously and that no information available as to the current status or removal of tanks and that no tanks were visually present; he is referring to the historical tanks listed as a REC in the previous Phase I ESA. Mr. Duffield also stated that the property was historically used as a high end residence and is now vacant.

7.2 Interview with Key Site Manager

Refer to Section 7.1.

7.3 Interview with Occupants

The Subject Property is currently vacant.

7.4 Interviews with Local Government Officials

Conversations with local government officials were limited to requesting records.

7.5 Interviews with Others

No others were interviewed as part of this assessment.

8.0 EVALUATION

8.1 Findings

Historical summary

NTH, 2007-2008

A Phase II ESA report was completed at the Subject Property by NTH Consultants, LTD (NTH) on October 12, 2007. The Phase II ESA was conducted to evaluate the following recognized environmental conditions (RECs) identified in NTH's Phase I ESA of the Subject Property dated September 11, 2007. A copy of these reports in provided in the Tab Attachments.

- The Subject Property formerly contained several structures, at least one of which had a basement. No information was available regarding the nature or source of the fill materials used to fill in the basements of the former structure(s).
- Review of available historical sources indicated that two storage tanks were present at the Subject Property with no detailed information available as to the current status or removal of the tanks.
- Review of available historical sources indicated that the southern 1/3 of the Subject Property was filled in sometime in the late 1800s or 1900s. In addition, fill soils containing debris were encountered during NTH's concurrent geotechnical investigation. No information was available as to the nature or source of the fill materials.

At the time, the Phase II ESA identified arsenic, chromium, and mercury in soil at concentrations above the Michigan Department of Environmental Quality's (MDEQ)'s Part 201 generic residential cleanup criteria (GRCC) for drinking water protection and groundwater surface water interface protection criteria. The Subject Property was determined to be a "*facility*" as defined in Part 201 of Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451, as Amended (Part 201).

Based on the results of the Phase II ESA, NTH conducted a Baseline Environmental Assessment (BEA) of the Subject Property in January 2008, which was affirmed on February 1, 2008. A Geophysical Survey was also conducted during the Phase II ESA and

no underground storage tanks were identified. ASTI was unable to review this document. It was likely based on the laboratory information provided in the 2007 Phase II.

ASTI, 2017

ASTI conducted a limited subsurface investigation at the Subject Property and the report is dated April 25, 2017. On April 7, 2017, ASTI advanced five soil borings (SB-1 through SB-5) at the Subject Property using a direct-push Geoprobe® drill rig. At the time, the laboratory analytical results reported the metals mercury, arsenic and lead at concentrations exceeding the generic residential cleanup criteria (GRCC) for direct contact. The detected arsenic was determined to be below normal background concentrations in the area.

The Subject Property is a "facility" as defined in Part 201 of Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451, as Amended (Part 201). A Baseline Environmental Assessment (BEA) is not applicable for the current owner, but could be prepared for a new ownership entity.

ASTI recommended the preparation of a Due Care Plan to document the procedures to follow to avoid exacerbation of or exposure to existing contamination during redevelopment and future use of the Subject Property.

A Due Care Memo was completed on May 3, 2017. Based on the information provided to ASTI for preperation of the Due Care Memo, the likely applicable pathways for due care would be the soil volatilization to indoor air inhalation (SVIAI), particulate soil inhalation (PSI), and direct contact (DC). Based on the limited sampling completed, there is a potential unacceptable risk due to the detection of lead above the GRCC for DC.

8.2 Opinion

Based on the site inspection, interviews, regulatory and municipal records review, and review of historical documentation, the following is opined by the EP.

1. The EP did not identify any de minimis conditions associated with the Subject Property.

2. The EP did not identify any HRECs associated with the Subject Property.

3. The EP did not identify any CRECs associated with the Subject Property.

4. The EP identified the following RECs associated with the Subject Property, except for those listed below.

   - Based on the laboratory analytical results for the soil samples collected at the Subject Property during the Limited Subsurface Investigation dated April 25, 2017, ASTI opines that the Subject Property is a "facility" as defined in Part 201 of Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451, as Amended (Part 201). The facility-level concentrations of metals, at the Subject Property are representative of a release.

8.3 Additional Investigation

ASTI recommends additional investigation prior to site development.

8.4 Data Gaps

Data gaps occur when the EP is unable to obtain information required despite a *good faith* effort.

Data failure is one type of data gap. According to ASTM Practice E1527-13, data failure occurs when all of the standard historical sources that are *reasonably ascertainable* and likely to be useful have been reviewed and yet the objectives have not been met. Historical sources are required to document property use back to the Subject Property's first developed use or back to 1940, whichever is earlier. A data failure occurred and is described below.

Data Gap	ASTI was unable to determine the first date of development.
Is this a significant data gap?	No
Rationale	Information from other sources provided sufficient information regarding past use.

Additional data gaps were encountered during the investigation consisting of the following.

Data Gap	ASTI was unable to verify heating sources for past developments. You may discuss the tanks from past reports and owner.
Is this a significant data gap?	No
Rationale	It appears that heating oil was used as a fuel source prior to natural gas. If a buried heating oil fuel tank is found during any redevelopment activities, the tank should be properly

	decommissioned with verification sampling conducted.

Data Gap	ASTI was unable review certain requested records from the DEQ
Is this a significant data gap?	No
Rationale	Sufficient information was reviewed from other sources to determine the likelihood of a release. Should this information become available it should be reviewed.

8.5 Conclusions

We have performed a Phase I ESA in accordance with the scope and limitations of ASTM Practice E1527-13 of 2.8 acres of an overall 3.7 acre property, 7850 E. Jefferson Avenue, Detroit, Wayne County, Michigan (Subject Property). Any exceptions to, or deletions from, this practice are described in Section 5.4 of this report. This assessment has revealed no recognized environmental conditions in connection with the Subject Property, except for the following.

- Based on the laboratory analytical results for the soil samples collected at the Subject Property during the Limited Subsurface Investigation dated April 25, 2017, ASTI opines that the Subject Property is a "facility" as defined in Part 201 of Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451, as Amended (Part 201). The facility-level concentrations of metals, at the Subject Property are representative of a release.

8.6 Additional Services

A noise Assessment was performed by ASTI for the Subject Property.

8.7 Deviations

No deletions, deviations, or additions to E1527-13 have occurred during this assessment, except for MSHDA Environmental Review Requirements for 2018.

8.8 References

The following references were used in preparing this Phase I ESA.

- Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process E1527-13
- Michigan State Housing Development Authority Environmental Review Requirements for 2018

- Standard Guide for Vapor Encroachment Screening on Subject Property Involved in Real Estate Transactions: ASTM E2600-15
- The EDR Radius Map Report with GeoCheck, 12-12-18
- The EDR Aerial Photo Decade Package, 12-12-18
- EDR Certified Sanborn Map Report, 12-12-18
- The EDR-City Directory Image Report, 12-17-18
- User Questionnaire
- Owner Questionnaire
- Detroit Assessing Department
- Wayne County Department of Public Services
- Detroit Building Department
- Detroit Fire Department
- Phase I ESA, 9-11-07
- Phase II ESA, 10-12-07
- Limited Subsurface Investigation, 4-25-17
- Due Care Memo, 5-3-17
- DEQ Perfected Environmental Liens List, 11-2-18
- http://www.deq.state.mi.us/GeoWebFace/
- U. S. Fish and Wildlife Service
- FEMA

8.9 Signature(s) of Environmental Professional

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in 312.10 of 40 CFR 312.

I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Anthony Spencer, EP
Associate II

8.10 Qualification(s) of Environmental Professional(s)

Ms. Anthony Spencer has been conducting Phase I Environmental Site Assessments for ASTI Environmental for seven years. Mr. Spencer has a Bachelors Degree in Environmental Science from Wayne State University.

9.0 NON-SCOPE SERVICES DISCUSSION

9.1 Asbestos-Containing Materials (ACMs)

There are no structures present on the Subject Property. Some building ruins remain.

9.2 Lead-Based Paint (LBP)

There are no structures present on the Subject Property.

9.3 Radon Gas

Wayne County is not a MSHDA radon mitigation county. Wayne County is located within EPA Radon Zone 3.

9.4 100-Year Floodplain

The majority of the Subject Property is not located within a flood hazard zone per FEMA Panel 26163CO301E dated February 2, 2012; but a small portion of the southern end of the Subject Property at the riverfront is included in the 100-year floodplain (Appendix 10.7).

9.5 Wetlands

A wetland delineation was not included in the scope of this Phase I ESA. No obvious wetland features were observed on the Subject Property parcel. ASTI obtained a National Wetlands Inventory map from the U.S. Fish and Wildlife Service (Appendix 10.7). No NWI wetlands were identified.

9.6 EMF

No EMF lines were observed near the Subject Property.

No cell towers or roof top phone towers, antennae, or arrays were observed.

9.7 High Pressure Buried Gas Lines

The Subject Property is not believed to be located within 1,000 feet of buried high-pressure gas transmission lines.

9.8 Noise Analysis

One busy roadway was identified within 1,000 feet of the Subject Property and it was assessed in the Noise Assessment (Appendix 10.7). Two active airports were also noted

within the 15-mile distance criteria. Coleman A Young International Airport is located approximately 3.74 miles distant and Windsor International Airport is located 5.22 miles distant and based on the distance to these airports they are not considered a noise concern. The roadway noise was projected to levels in 2029 and was found to be within the "Normally Unacceptable" range.

9.9 Assessment of Potential Vapor Encroachment Conditions, ASTM E 2600-15

The purpose of Tier 1 and Tier 2 Non-Invasive screening is to conduct an initial screen to determine if al vapor encroachment condition (VEC) exists in connection with the Subject Property. The vapor encroachment screen (VES) is conducted in accordance with ASTM E 2600-15.

Based on the results of the Limited Subsurface Investigation conducted on the Subject Property in April 2017, mercury was identified above the GRCC. The screening process concludes that a VEC likely exists.

10.0 APPENDICES

10.1 Site Location Map/USGS 7.5 min. Topographic Map

10.2 Site Features Map

10.3 Site Photographs

10.4 Historical Research Documentation: Aerial Photographs, Certified Sanborn Map Report, and City Directory Summary

10.5 Regulatory Records Documentation: The EDR Radius Map Report with GeoCheck, DEQ FOIA/File Documentation, Health Department Response, Assessing Records, City of Detroit Building Department Index Permit and City of Detroit, Safety Engineering and Environmental Department Oil Tank Card Records, City Of Detroit Fire Department Response and DEQ Perfected Environmental Liens

10.6 Interview Documentation: MSHDA User's Questionnaire, Site Manager's Questionnaire, and Development Plan

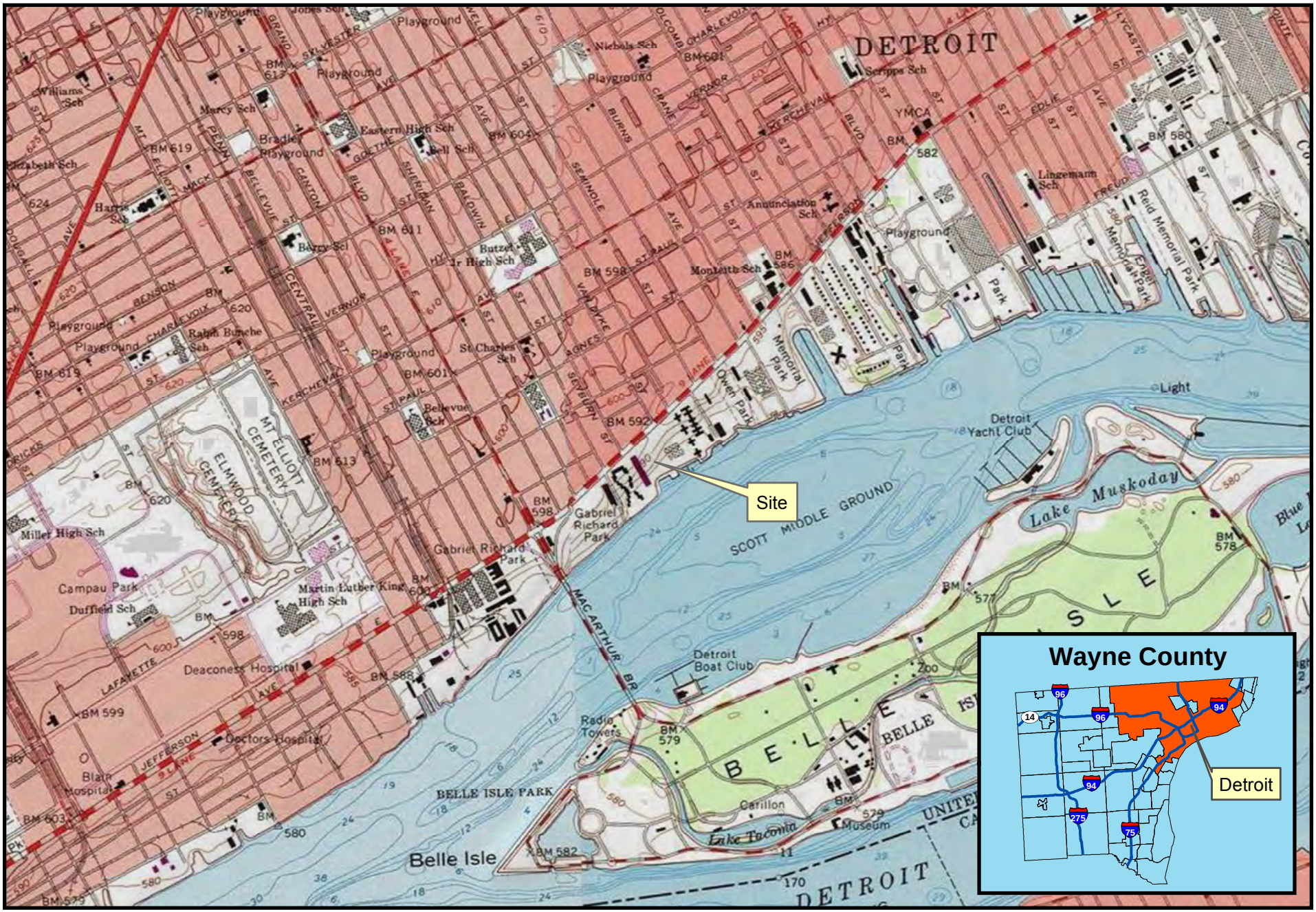
10.7 Special Contractual Conditions Between User and Environmental Professional: FEMA Firmette Map, National Wetlands Inventory Map, and Noise Assessment

10.8 Qualifications of the Environmental Professional(s)

10.9 MSHDA Phase I Letter of Reliance

10.10 Copy of Environmental Professional Insurance Certificate

10.1 Site Location Map/USGS 7.5 min. Topographic Map



7850 E. Jefferson Ave.

Detroit, MI

Created for: GDC-East Jefferson LLC
Created by: BJG, January 9, 2019, ASTI Project 1-10105

Figure 1 - Site Location Map

10.2 Site Features Map

0 60 120 180

Approximate Scale in Feet

LEGEND

Property Line

7850 E. Jefferson Ave.

Detroit, MI

Created for: GDC East Jefferson, LLC

ASTI Project 1-10105, MPM, January 10, 2019

ASTI Environmental

N

Site Features Map

10.3 Site Photographs

PHOTO LOG

7850 E Jefferson Ave, Detroit, Michigan

	**Photo 1.** The north view of the Subject Property facing south, showing a concrete paved driveway and general vegetation
	**Photo 2.** The north boundary of the Subject Property facing west, showing remnants of a masonry wall
	**Photo 3.** The east boundary of Subject Property, showing tall vegetation

ASTI Project No. 1-10105
December 29, 2018
Photographed By Laura Gray

PHOTO LOG

7850 E Jefferson Ave, Detroit, Michigan

	**Photo 4.** The south boundary of the Subject Property
	**Photo 5.** The west view of the Subject Property
	**Photo 6.** Soil piles located to the north of the Subject Property

ASTI Project No. 1-10105
December 29, 2018
Photographed By Laura Gray

PHOTO LOG

7850 E Jefferson Ave, Detroit, Michigan

	**Photo 7.** Masonry walls debris located to the northeast of the Subject Property
	**Photo 8.** Example of asphalt patches located to the northeast of the Subject Property
	**Photo 9.** Change in gradient of the Subject Property located to the south

ASTI Project No. 1-10105
December 29, 2018
Photographed By Laura Gray

PHOTO LOG

7850 E Jefferson Ave, Detroit, Michigan

	**Photo 10.** Old building remains located to the southeast of the Subject Property
	**Photo 11.** Fence debris located to the southeast of the Subject Property
	**Photo 12.** Ground depressions located to the north toward the center of the Subject Property

ASTI Project No. 1-10105
December 29, 2018
Photographed By Laura Gray

PHOTO LOG

7850 E Jefferson Ave, Detroit, Michigan

	**Photo 13.** Another example of the ground depressions
	**Photo 14.** Northwest adjoining senior living community located on 7815 E Jefferson
	**Photo 15.** Northeast adjoining properties located on 7869 and 7875 E Jefferson

ASTI Project No. 1-10105
December 29, 2018
Photographed By Laura Gray

PHOTO LOG

7850 E Jefferson Ave, Detroit, Michigan

	**Photo 16.** East adjoining Union building located at 7900 E Jefferson
	**Photo 17.** West adjoining River Towers located at 7800 E Jefferson

10.4 Historical Research Documentation: Aerial Photographs, Certified Sanborn Maps, and City Directory Report

7850 E Jefferson Ave

7850 E Jefferson Ave

Detroit, MI 48214

Inquiry Number: 5509725.8

December 12, 2018

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

12/12/18

Site Name:

7850 E Jefferson Ave
7850 E Jefferson Ave
Detroit, MI 48214
EDR Inquiry # 5509725.8

Client Name:

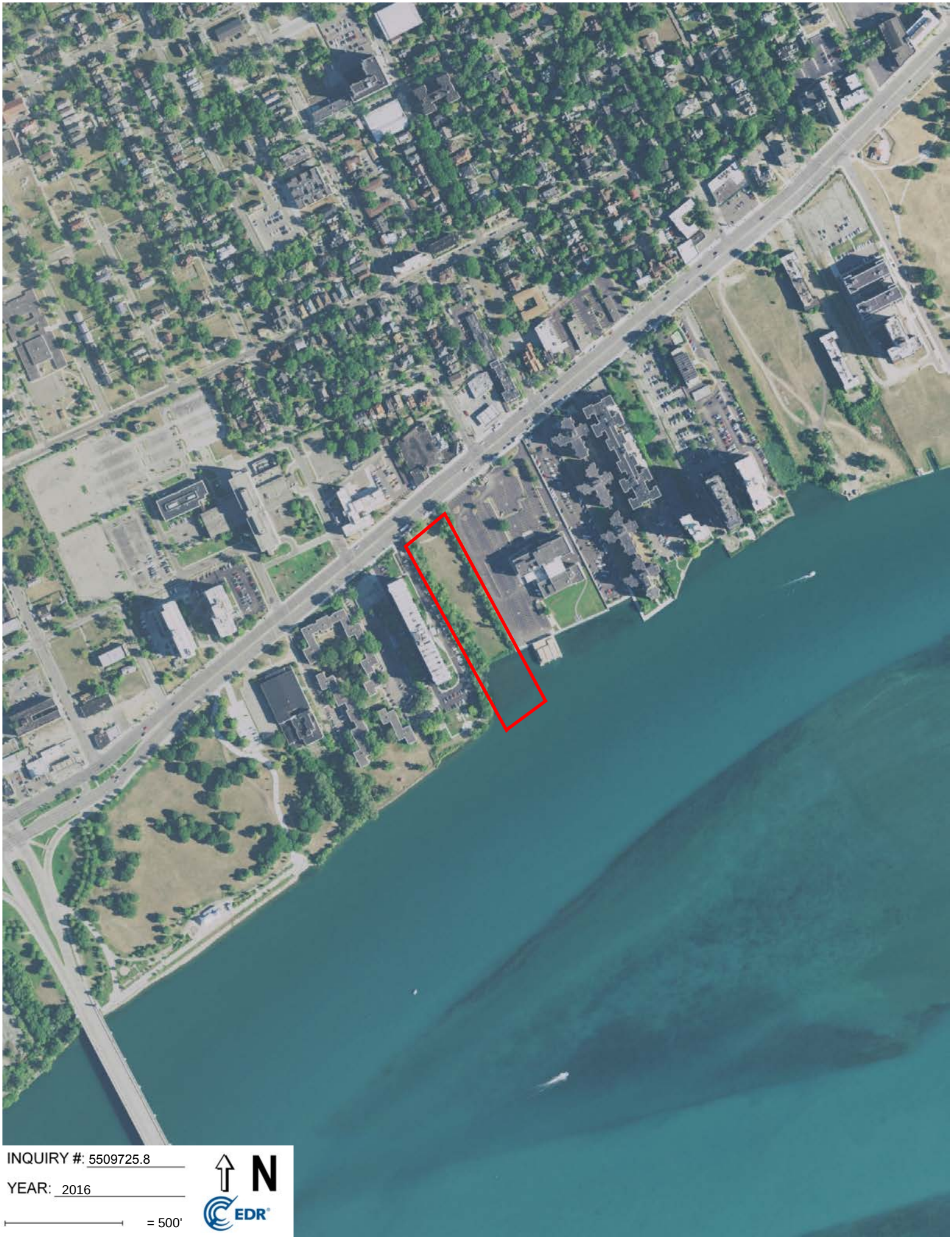
Applied Science & Technology
10448 Citation Drive
Brighton, MI 48116
Contact: Laura Gray

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

Search Results:

Year	Scale	Details	Source
2016	1"=500'	Flight Year: 2016	USDA/NAIP
2012	1"=500'	Flight Year: 2012	USDA/NAIP
2009	1"=500'	Flight Year: 2009	USDA/NAIP
2005	1"=500'	Flight Year: 2005	USDA/NAIP
1999	1"=500'	Acquisition Date: March 28, 1999	USGS/DOQQ
1997	1"=500'	Flight Date: April 26, 1997	DTE
1987	1"=500'	Flight Date: June 17, 1987	USDA
1972	1"=500'	Flight Date: July 01, 1972	USDA
1961	1"=500'	Flight Date: May 30, 1961	DTE
1956	1"=500'	Flight Date: April 13, 1956	DTE
1952	1"=500'	Flight Date: August 17, 1952	DTE
1949	1"=500'	Flight Date: May 03, 1949	DTE
1937	1"=500'	Flight Date: July 23, 1937	USDA

When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.



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YEAR: 2016

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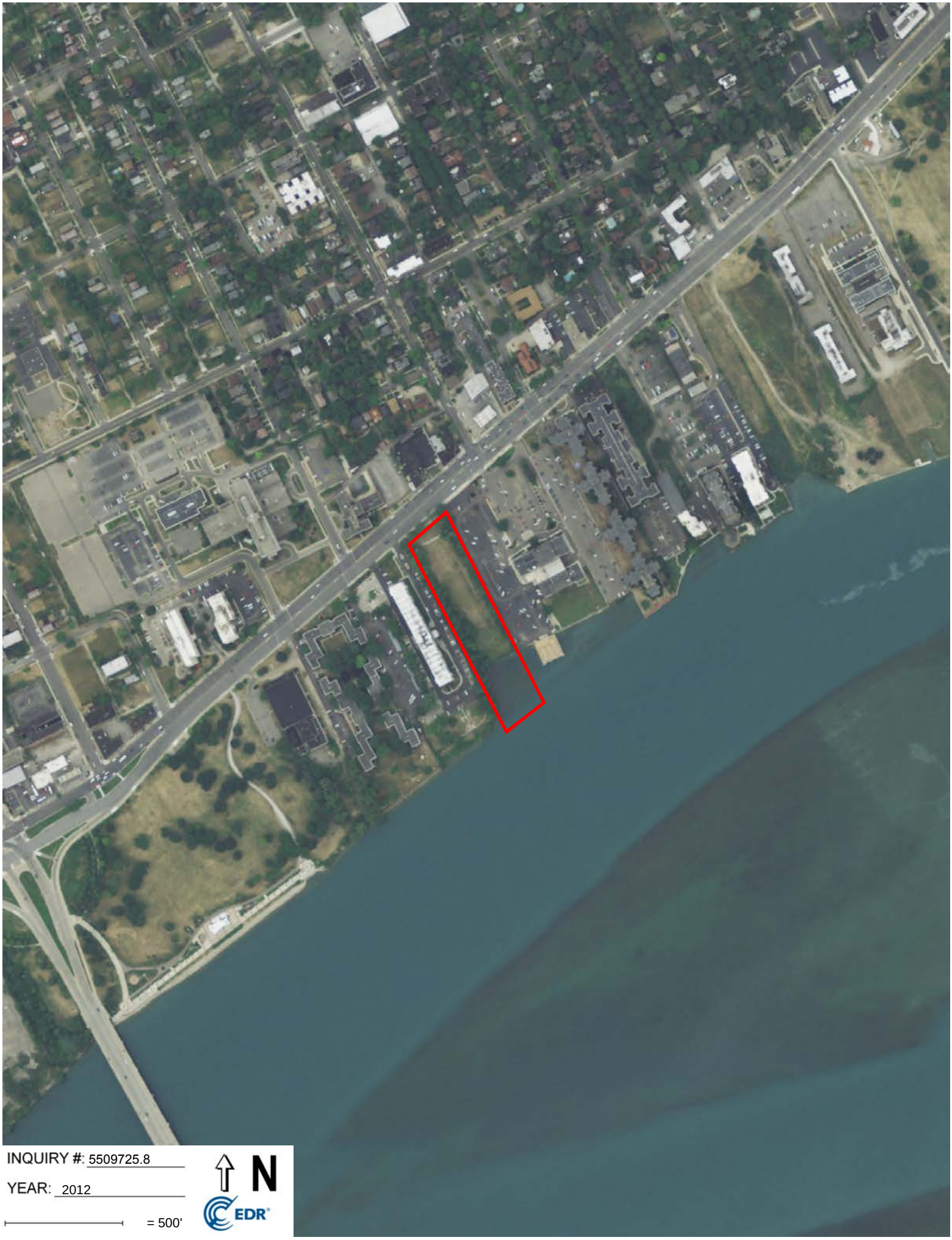
EDR



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YEAR: 2012

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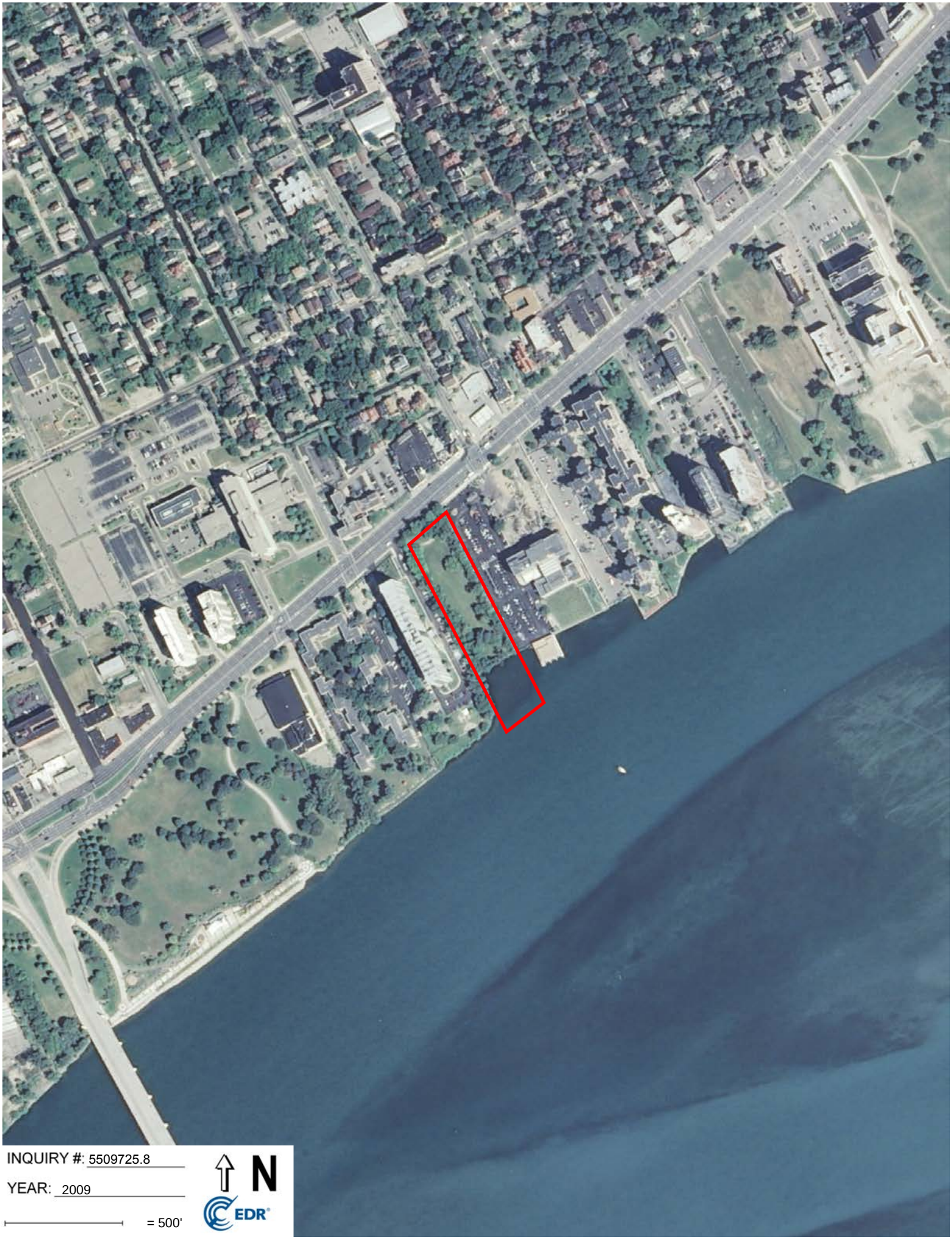

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YEAR: 2009

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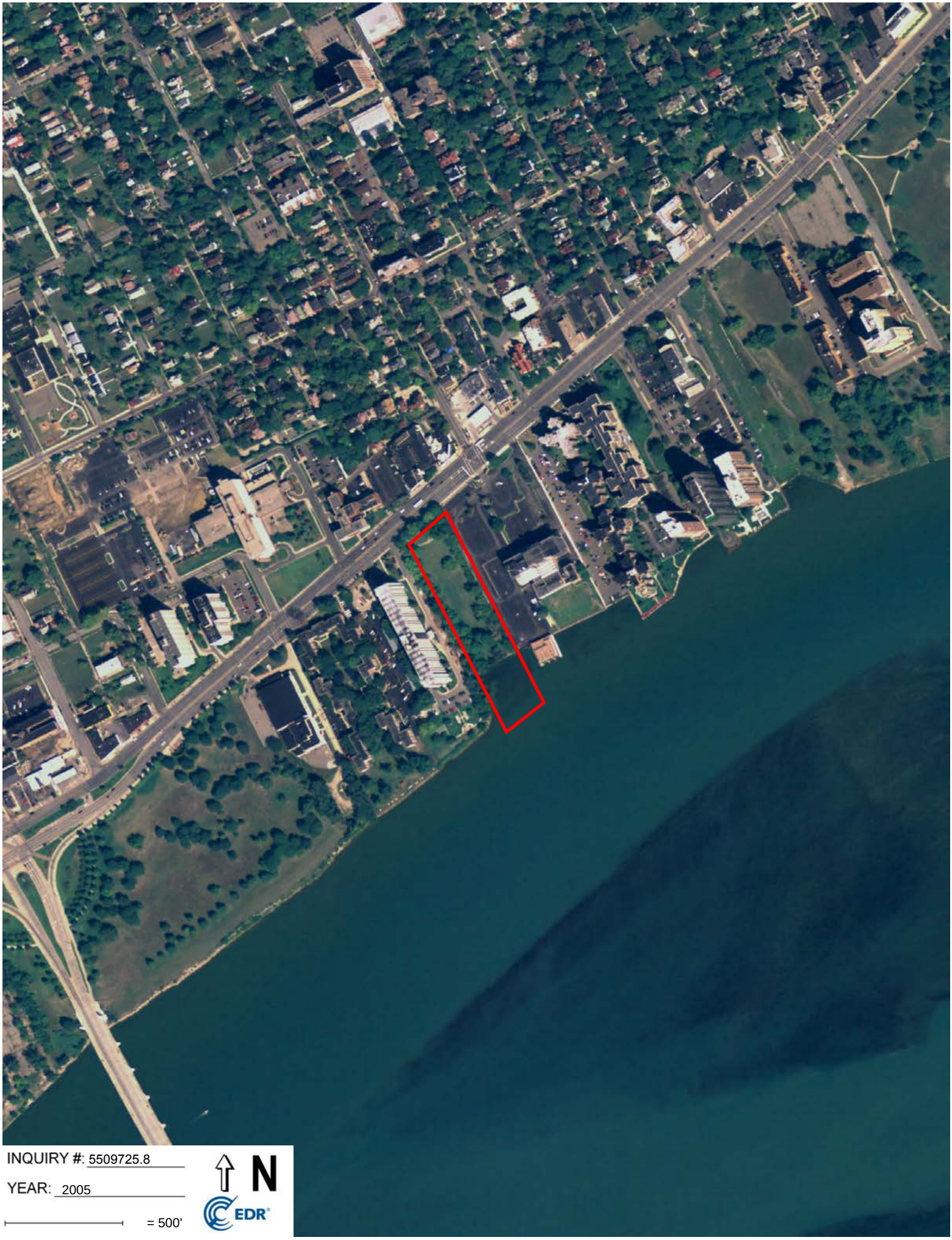
EDR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YEAR: 2005
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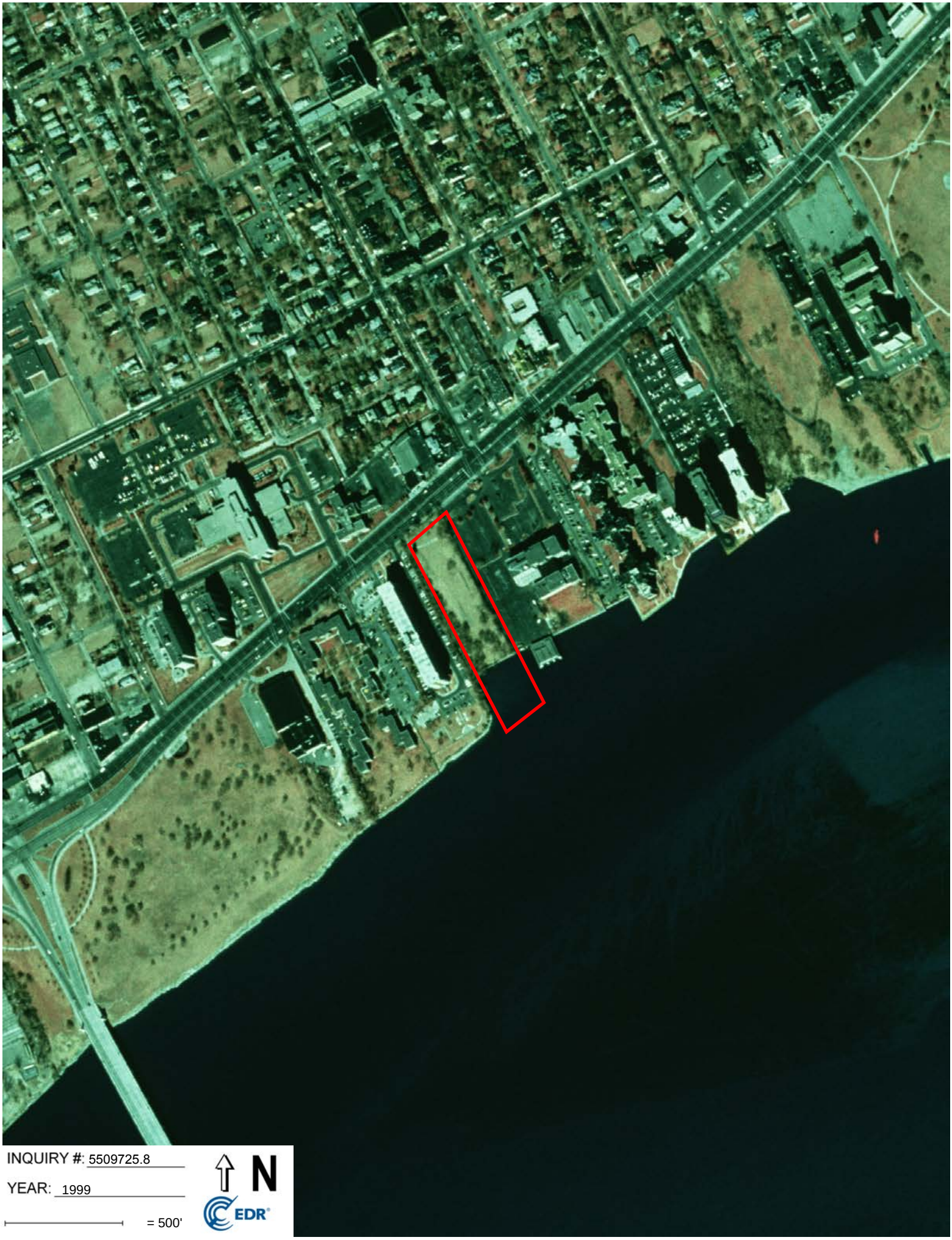
EDR



INQUIRY #: 5509725.8

YEAR: 1999

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EDR

INQUIRY #: 5509725.8

YEAR: 1997

= 500'

N

EDR

INQUIRY #: 5509725.8

YEAR: 1987

= 500'

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EDR

INQUIRY #: 5509725.8

YEAR: 1972

= 500'

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EDR

INQUIRY #: 5509725.8

YEAR: 1961

= 500'

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EDR

INQUIRY #: 5509725.8

YEAR: 1956

= 500'

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EDR

INQUIRY #: 5509725.8

YEAR: 1952

= 500'

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EDR

INQUIRY #: 5509725.8

YEAR: 1949

= 500'

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EDR

INQUIRY #: 5509725.8

YEAR: 1937

= 500'

N

EDR

7850 E Jefferson Ave

7850 E Jefferson Ave

Detroit, MI 48214

Inquiry Number: 5509725.3

December 12, 2018

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

12/12/18

Site Name:

7850 E Jefferson Ave
7850 E Jefferson Ave
Detroit, MI 48214
EDR Inquiry # 5509725.3

Client Name:

Applied Science & Technology
10448 Citation Drive
Brighton, MI 48116
Contact: Laura Gray

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by Applied Science & Technology were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Certification # 17AF-4BA9-B8A1

PO # NA

Project 1-10105

Maps Provided:

2002	1951
1996	1941
1991	1915
1989	1910
1977	1897
1961	
1957	
1953	

Sanborn® Library search results

Certification #: 17AF-4BA9-B8A1

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

The Sanborn Library LLC Since 1866™

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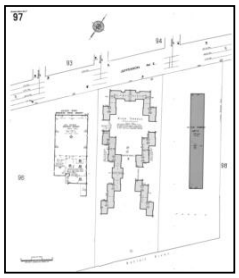
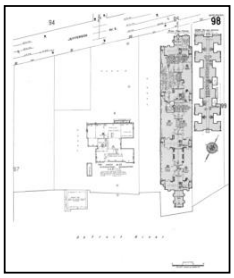
Sanborn Sheet Key

This Certified Sanborn Map Report is based upon the following Sanborn Fire Insurance map sheets.

2002 Source Sheets

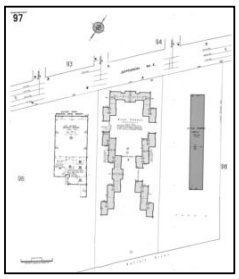


Volume 8, Sheet 97
2002

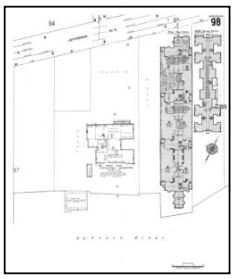


Volume 8, Sheet 98
2002

1996 Source Sheets

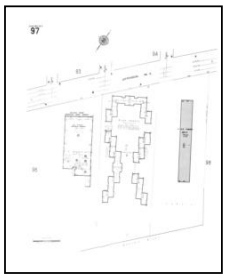


Volume 8, Sheet 97
1996

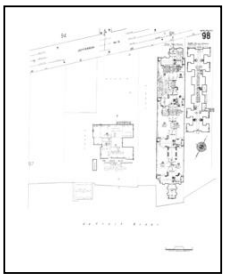


Volume 8, Sheet 98
1996

1991 Source Sheets

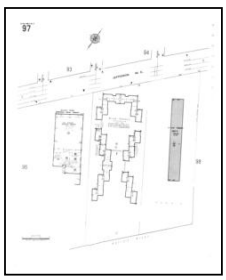


Volume 8, Sheet 97
1991

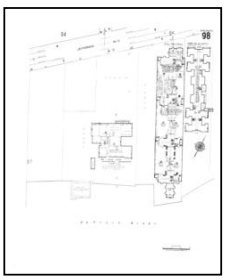


Volume 8, Sheet 98
1991

1989 Source Sheets



Volume 8, Sheet 97
1989



Volume 8, Sheet 98
1989

Sanborn Sheet Key

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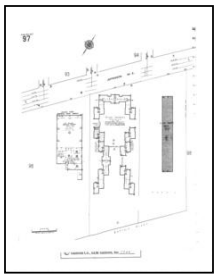
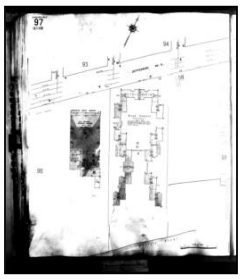
1977 Source Sheets



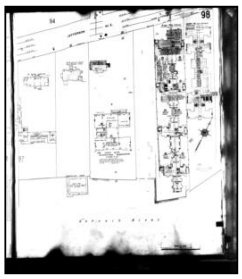
Volume 8, Sheet 97
1977

Volume 8, Sheet 98
1977

1961 Source Sheets

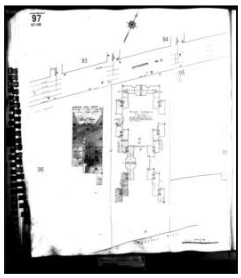


Volume 8, Sheet 97
1961

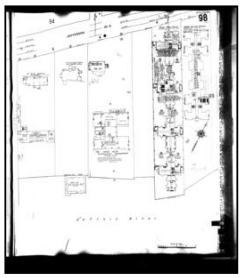


Volume 8, Sheet 98
1961

1957 Source Sheets

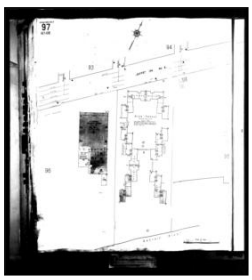


Volume 8, Sheet 97
1957



Volume 8, Sheet 98
1957

1953 Source Sheets



Volume 8, Sheet 97
1953

Volume 8, Sheet 98
1953

Sanborn Sheet Key

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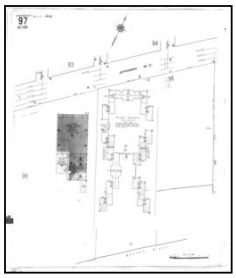
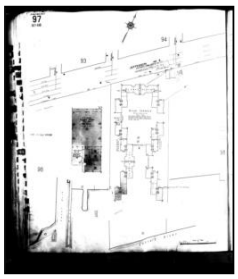
1951 Source Sheets



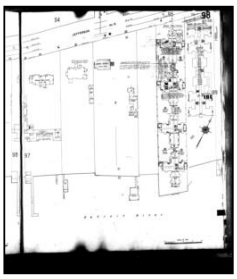
Volume 8, Sheet 97
1951

Volume 8, Sheet 98
1951

1941 Source Sheets

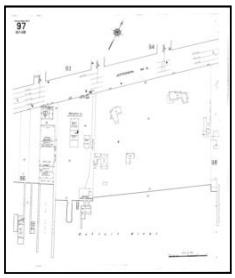


Volume 8, Sheet 97
1941

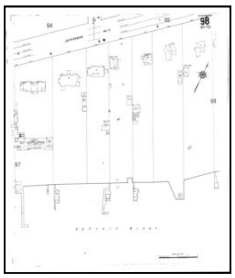


Volume 8, Sheet 98
1941

1915 Source Sheets

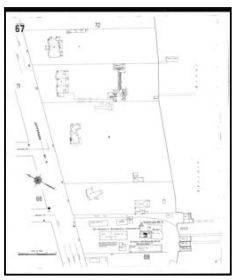


Volume 8, Sheet 97
1915

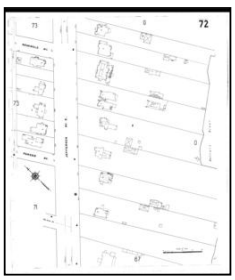


Volume 8, Sheet 98
1915

1910 Source Sheets



Volume 8, Sheet 67
1910



Volume 8, Sheet 72
1910

Sanborn Sheet Key

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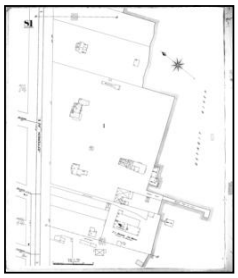
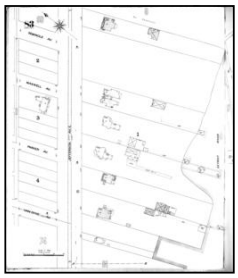
1897 Source Sheets



Volume 6, Sheet 81
1897



Volume 6, Sheet 83
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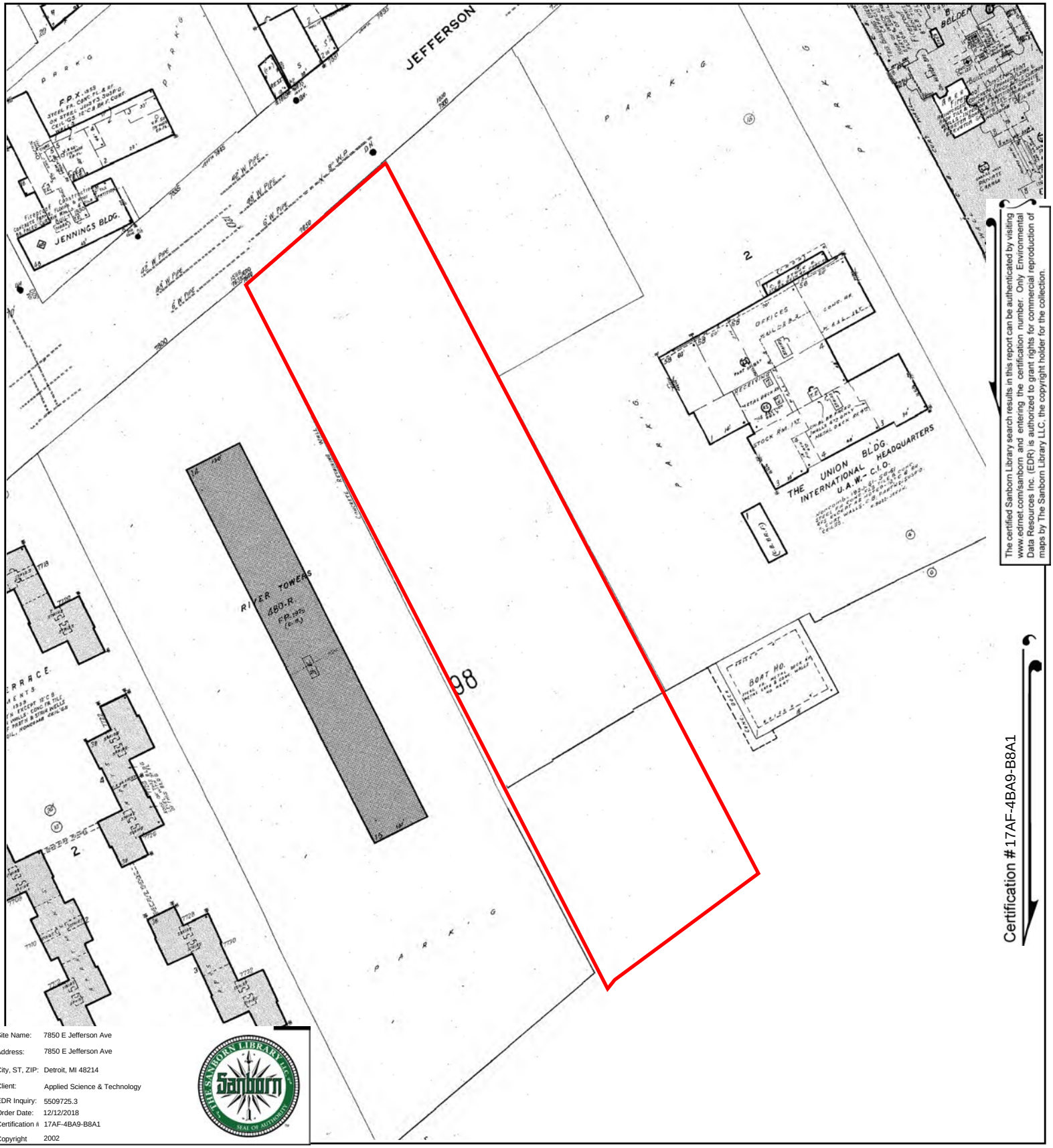
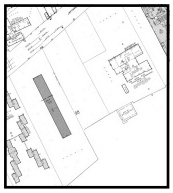


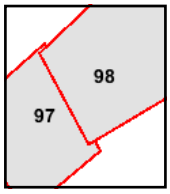
Certification #17AF-4BA9-B8A1

Site Name:	7850 E Jefferson Ave
Address:	7850 E Jefferson Ave
City, ST, ZIP:	Detroit, MI 48214
Client:	Applied Science & Technology
EDR Inquiry:	5509725.3
Order Date:	12/12/2018
Certification #:	17AF-4BA9-B8A1
Copyright	2002

This Certified Sanborn Map combines the following sheets.
Outlined areas indicate map sheets within the collection.

0 Feet 150 300 600





Volume 8, Sheet 98
Volume 8, Sheet 97

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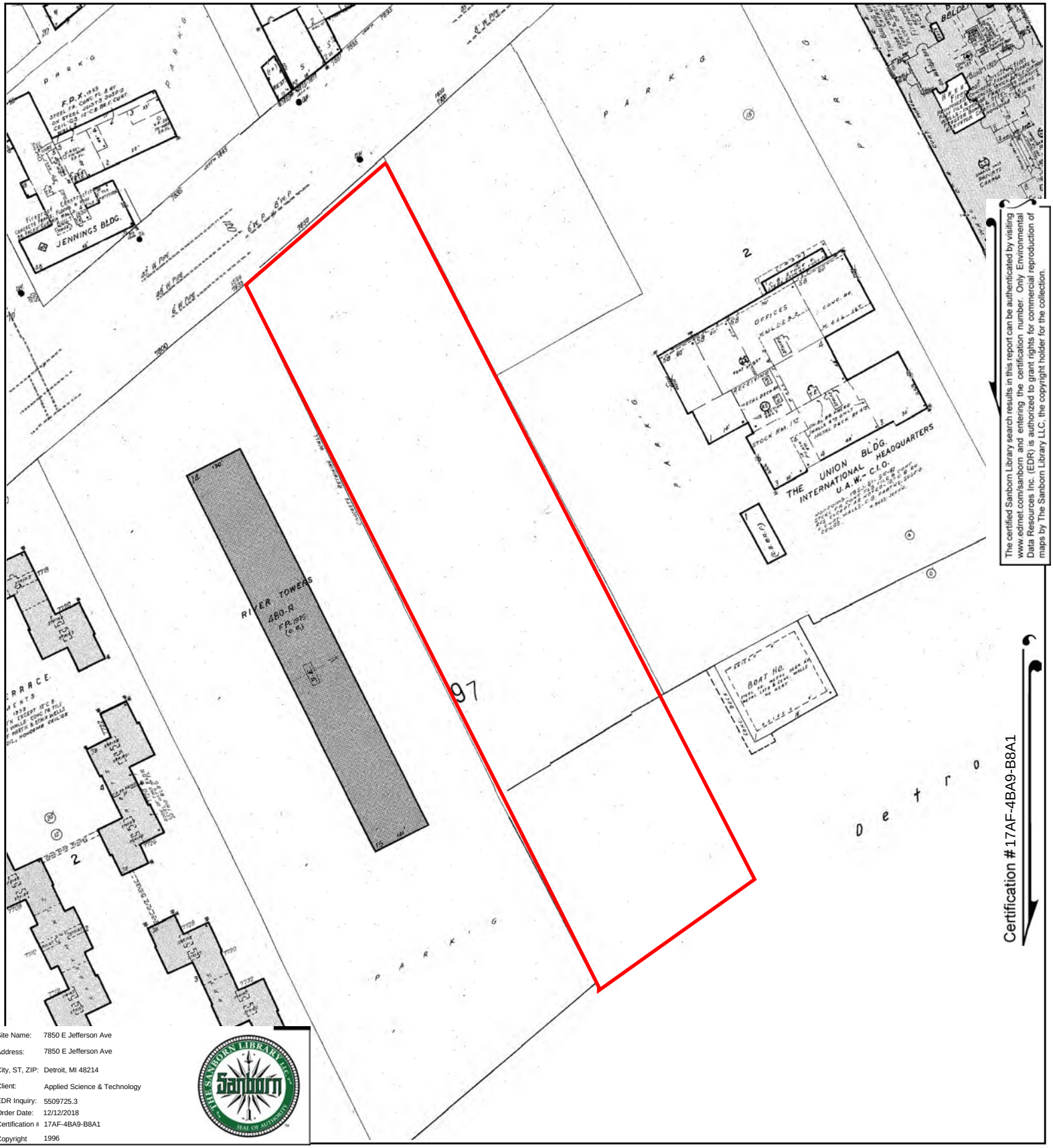
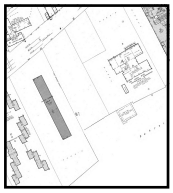


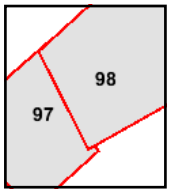
Certification #17AF-4BA9-B8A1

Site Name:	7850 E Jefferson Ave
Address:	7850 E Jefferson Ave
City, ST, ZIP:	Detroit, MI 48214
Client:	Applied Science & Technology
EDR Inquiry:	5509725.3
Order Date:	12/12/2018
Certification #:	17AF-4BA9-B8A1
Copyright	1996

This Certified Sanborn Map combines the following sheets.
Outlined areas indicate map sheets within the collection.

0 Feet 150 300 600





Volume 8, Sheet 98
Volume 8, Sheet 97

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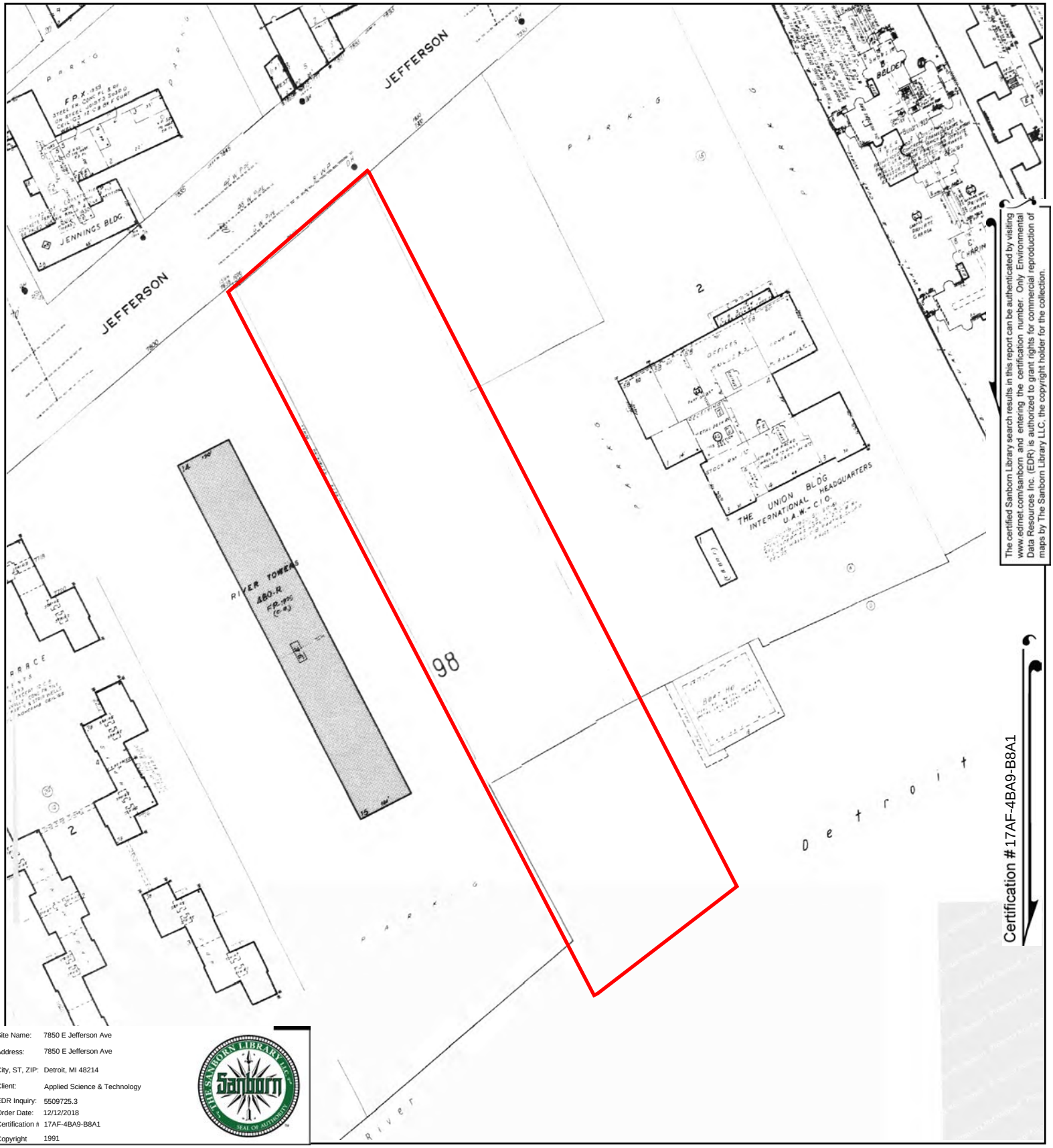

Certification #17AF-4BA9-B8A1

Site Name:	7850 E Jefferson Ave
Address:	7850 E Jefferson Ave
City, ST, ZIP:	Detroit, MI 48214
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EDR Inquiry:	5509725.3
Order Date:	12/12/2018
Certification #:	17AF-4BA9-B8A1
Copyright	1991

This Certified Sanborn Map combines the following sheets.
Outlined areas indicate map sheets within the collection.

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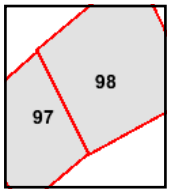

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Volume 8, Sheet 97

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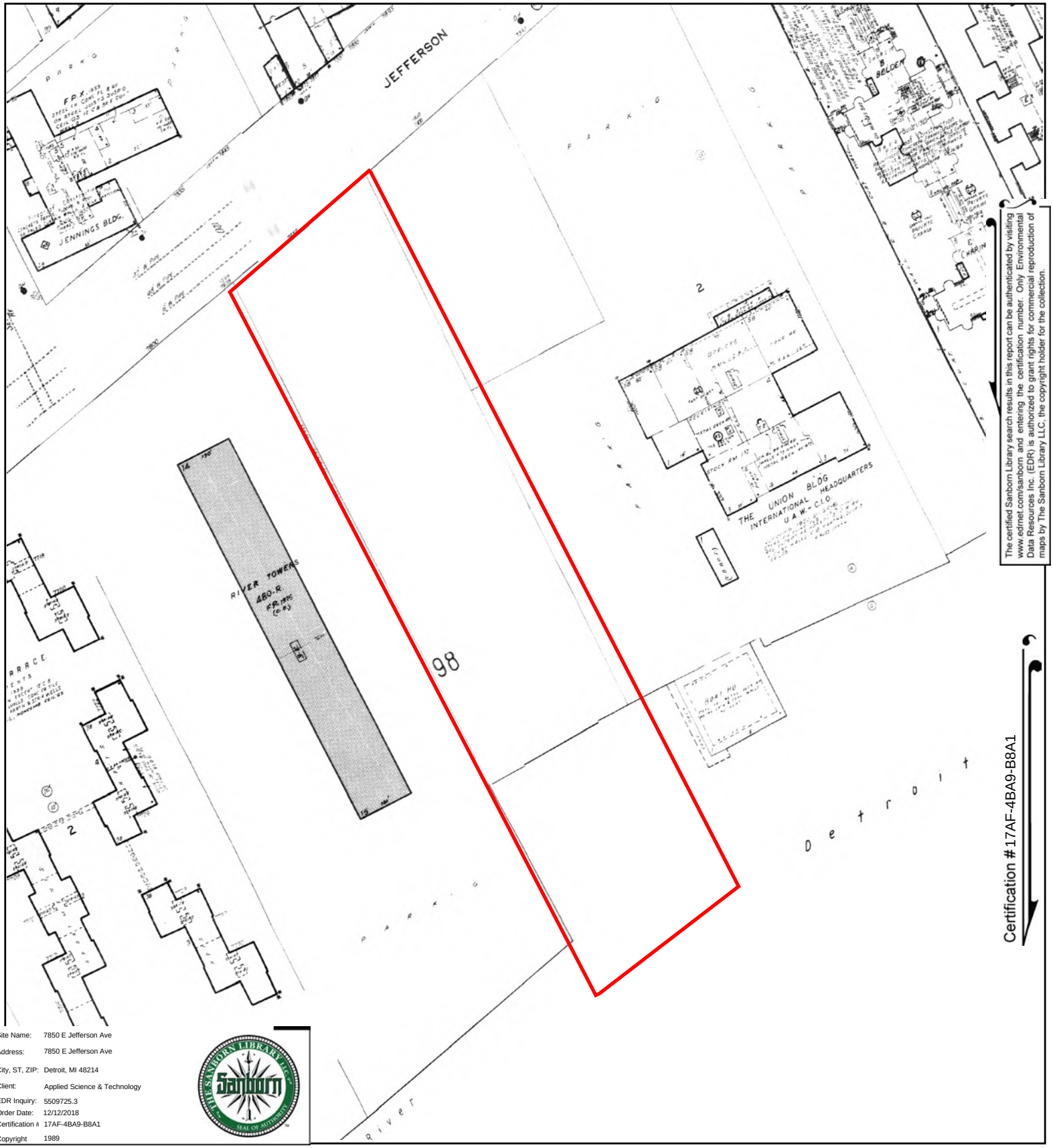

Certification #17AF-4BA9-B8A1

Site Name:	7850 E Jefferson Ave
Address:	7850 E Jefferson Ave
City, ST, ZIP:	Detroit, MI 48214
Client:	Applied Science & Technology
EDR Inquiry:	5509725.3
Order Date:	12/12/2018
Certification #:	17AF-4BA9-B8A1
Copyright	1989

This Certified Sanborn Map combines the following sheets.
Outlined areas indicate map sheets within the collection.

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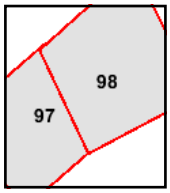

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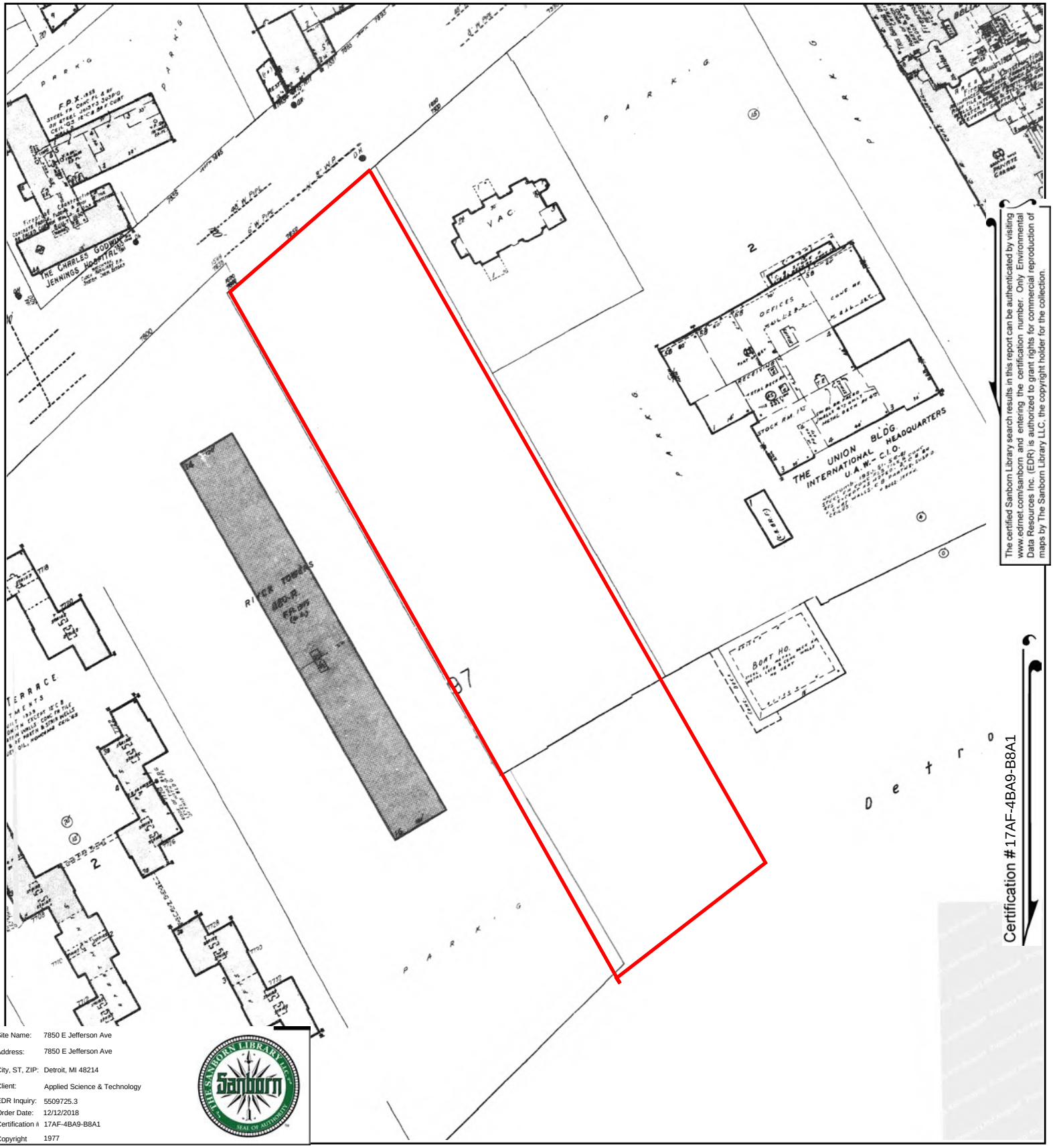
N



Certification #17AF-4BA9-B8A1

Site Name:	7850 E Jefferson Ave
Address:	7850 E Jefferson Ave
City, ST, ZIP:	Detroit, MI 48214
Client:	Applied Science & Technology
EDR Inquiry:	5509725.3
Order Date:	12/12/2018
Certification #:	17AF-4BA9-B8A1
Copyright	1977

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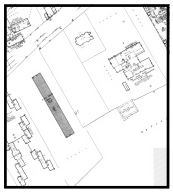

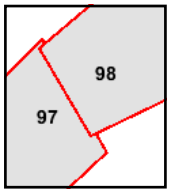

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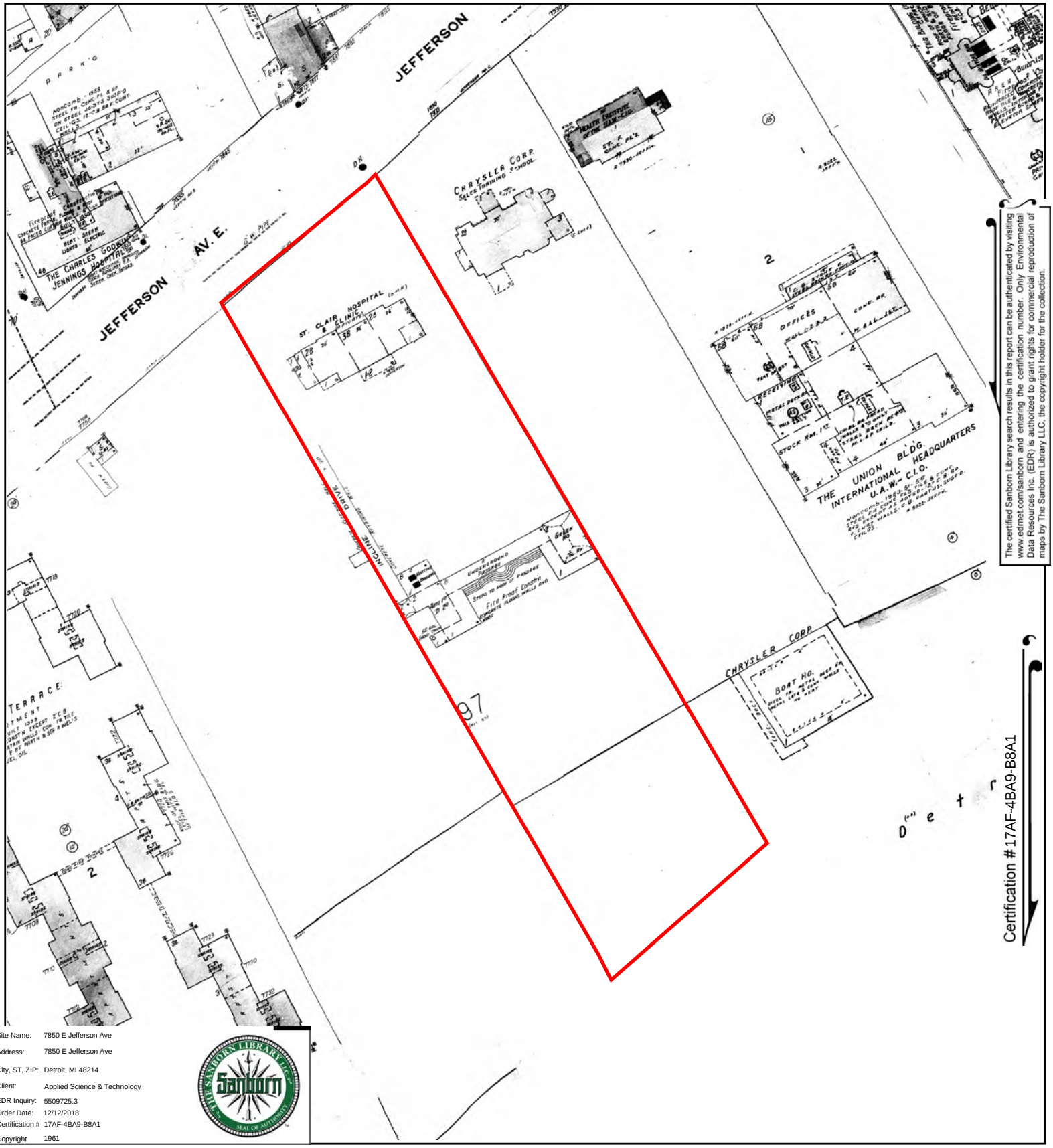

Certification #17AF-4BA9-B8A1

Site Name:	7850 E Jefferson Ave
Address:	7850 E Jefferson Ave
City, ST, ZIP:	Detroit, MI 48214
Client:	Applied Science & Technology
EDR Inquiry:	5509725.3
Order Date:	12/12/2018
Certification #:	17AF-4BA9-B8A1
Copyright	1961

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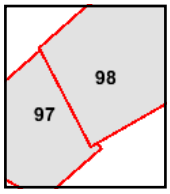

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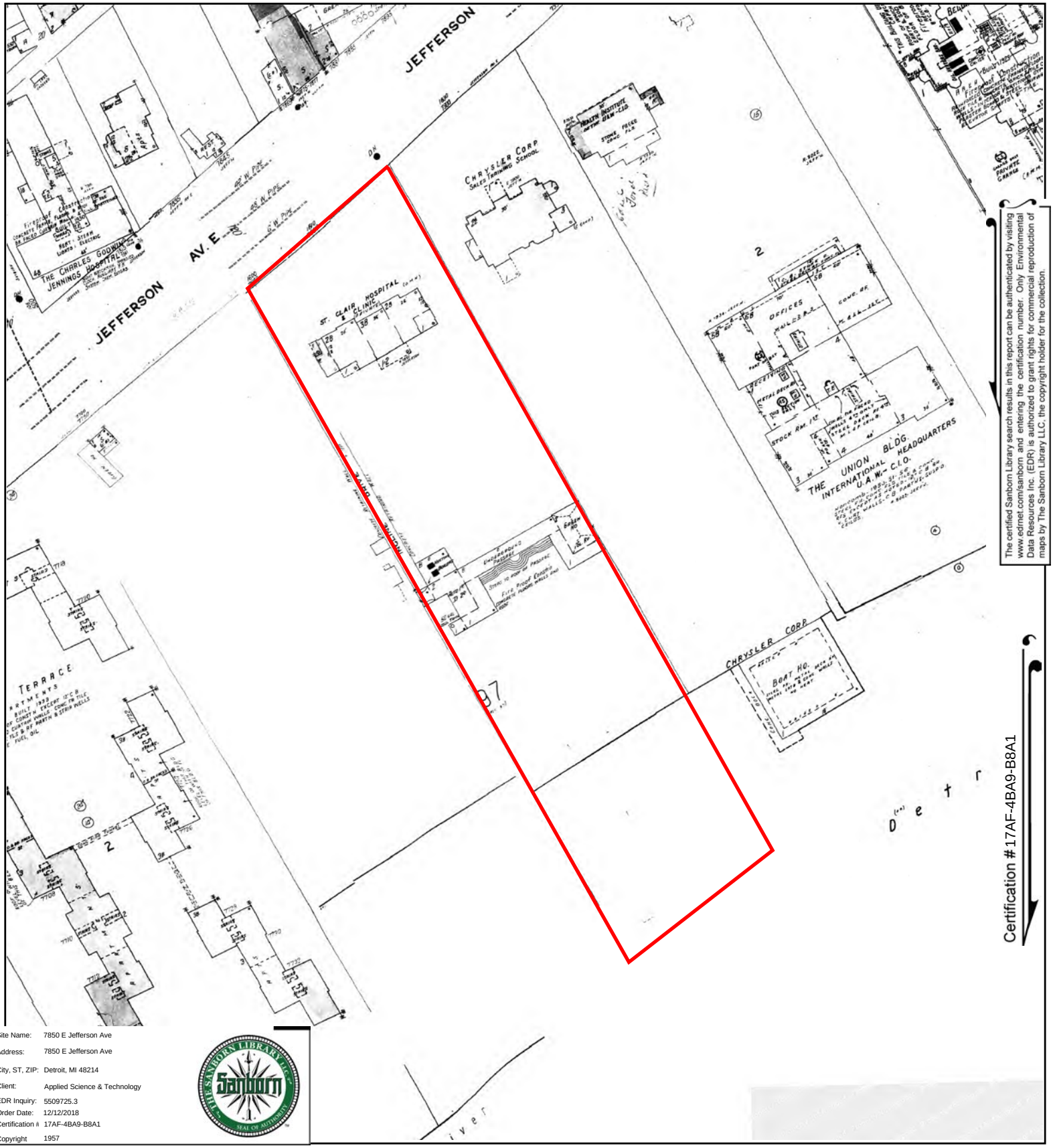

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City, ST, ZIP:	Detroit, MI 48214
Client:	Applied Science & Technology
EDR Inquiry:	5509725.3
Order Date:	12/12/2018
Certification #:	17AF-4BA9-B8A1
Copyright	1957

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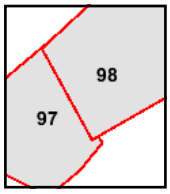

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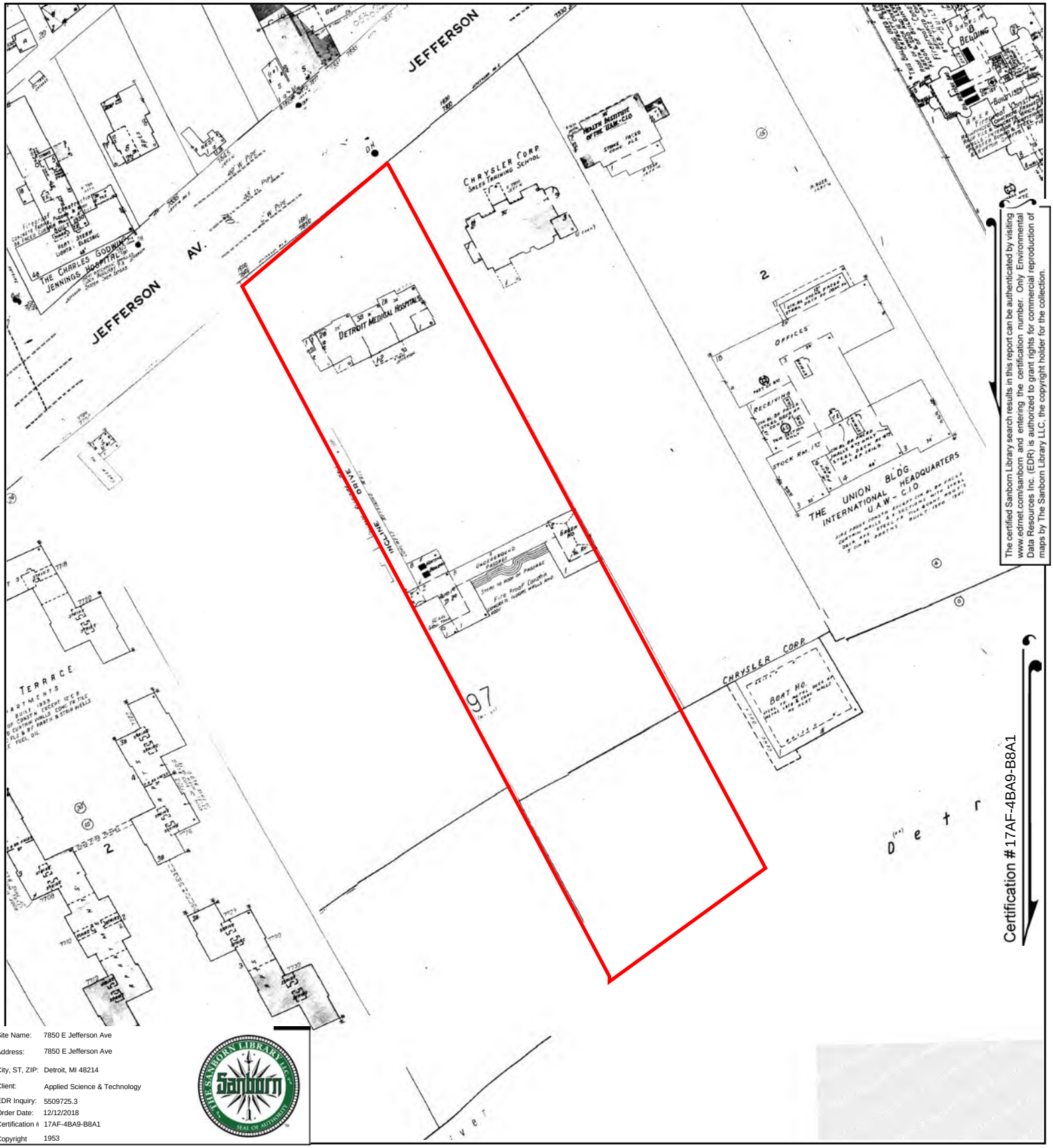

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City, ST, ZIP:	Detroit, MI 48214
Client:	Applied Science & Technology
EDR Inquiry:	5509725.3
Order Date:	12/12/2018
Certification #:	17AF-4BA9-B8A1
Copyright	1953

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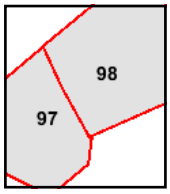

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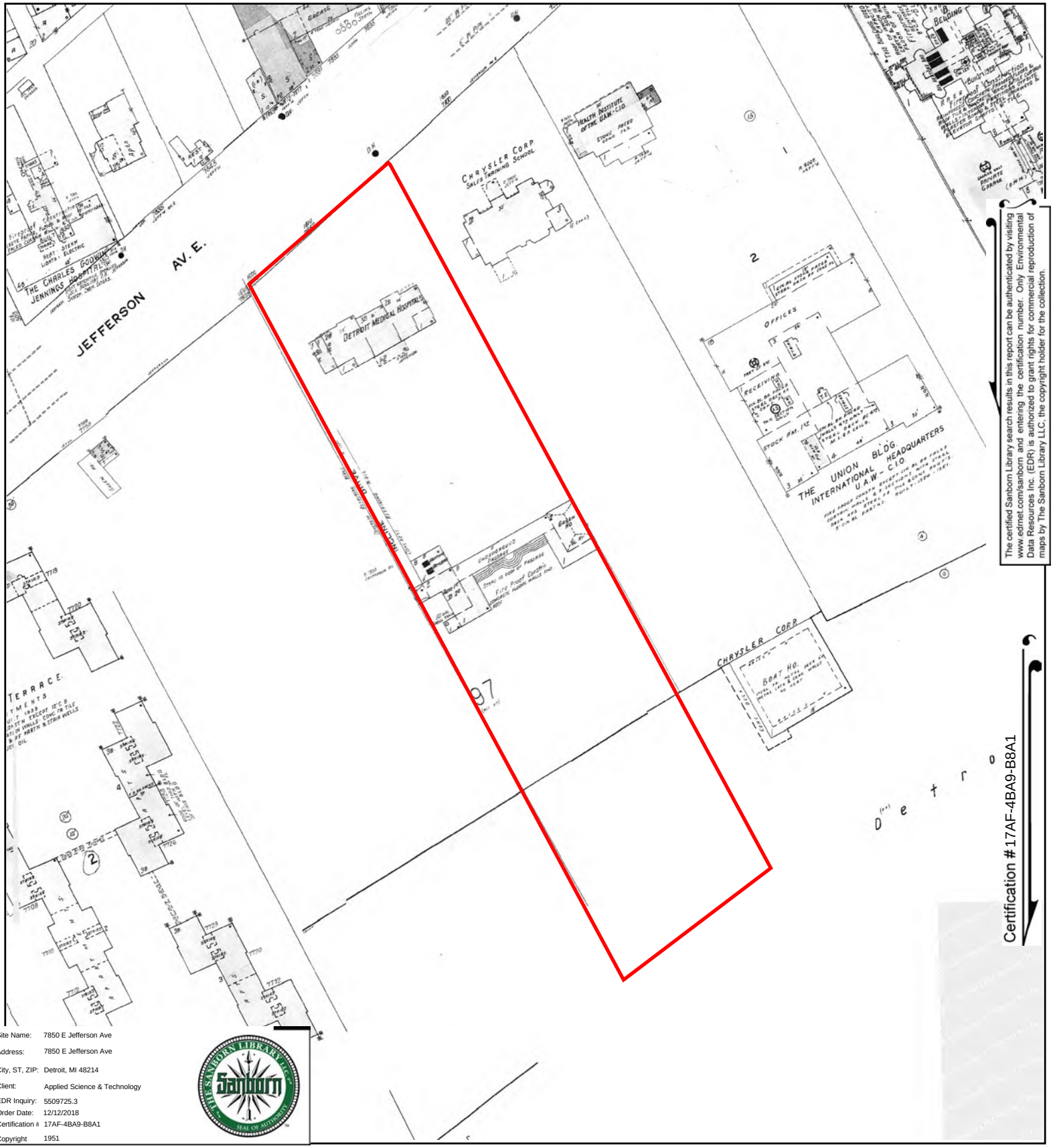

Certification #17AF-4BA9-B8A1

Site Name:	7850 E Jefferson Ave
Address:	7850 E Jefferson Ave
City, ST, ZIP:	Detroit, MI 48214
Client:	Applied Science & Technology
EDR Inquiry:	5509725.3
Order Date:	12/12/2018
Certification #:	17AF-4BA9-B8A1
Copyright	1951

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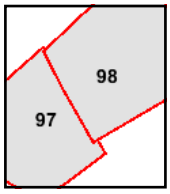

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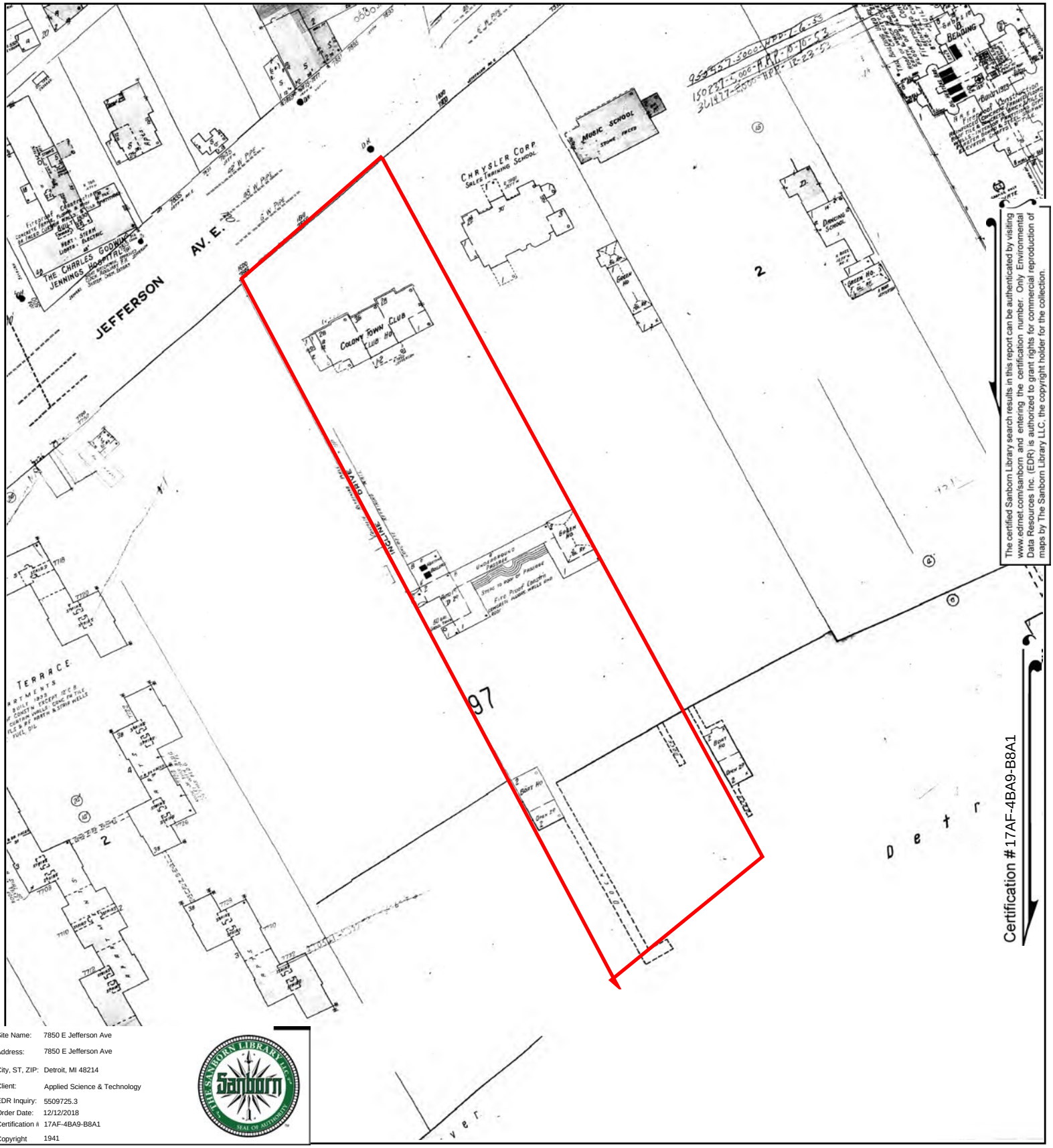

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Site Name:	7850 E Jefferson Ave
Address:	7850 E Jefferson Ave
City, ST, ZIP:	Detroit, MI 48214
Client:	Applied Science & Technology
EDR Inquiry:	5509725.3
Order Date:	12/12/2018
Certification #:	17AF-4BA9-B8A1
Copyright	1941

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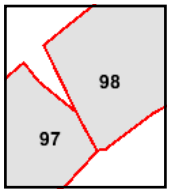

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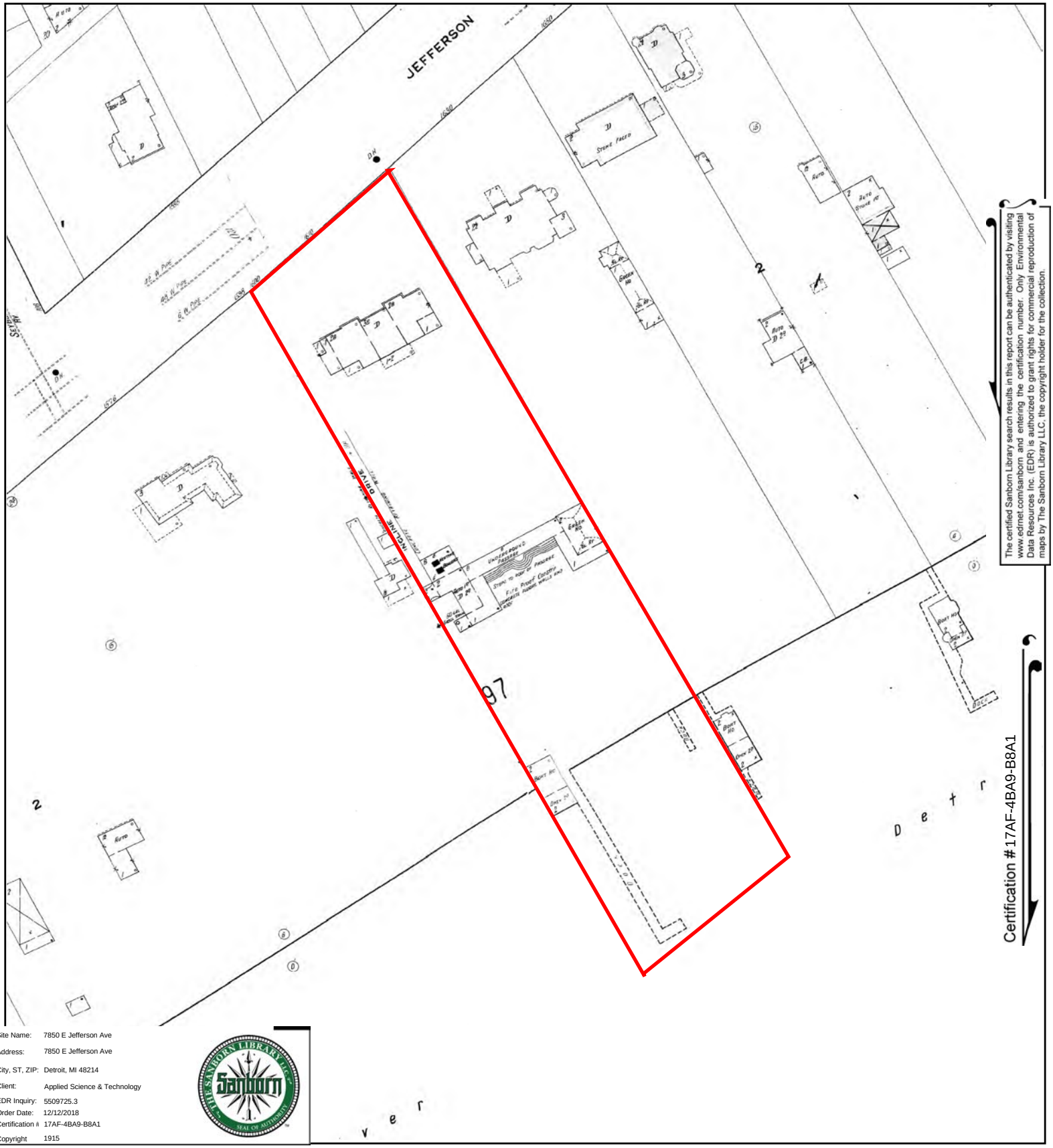

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Site Name:	7850 E Jefferson Ave
Address:	7850 E Jefferson Ave
City, ST, ZIP:	Detroit, MI 48214
Client:	Applied Science & Technology
EDR Inquiry:	5509725.3
Order Date:	12/12/2018
Certification #:	17AF-4BA9-B8A1
Copyright	1915

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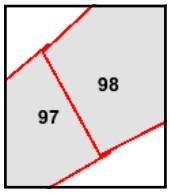

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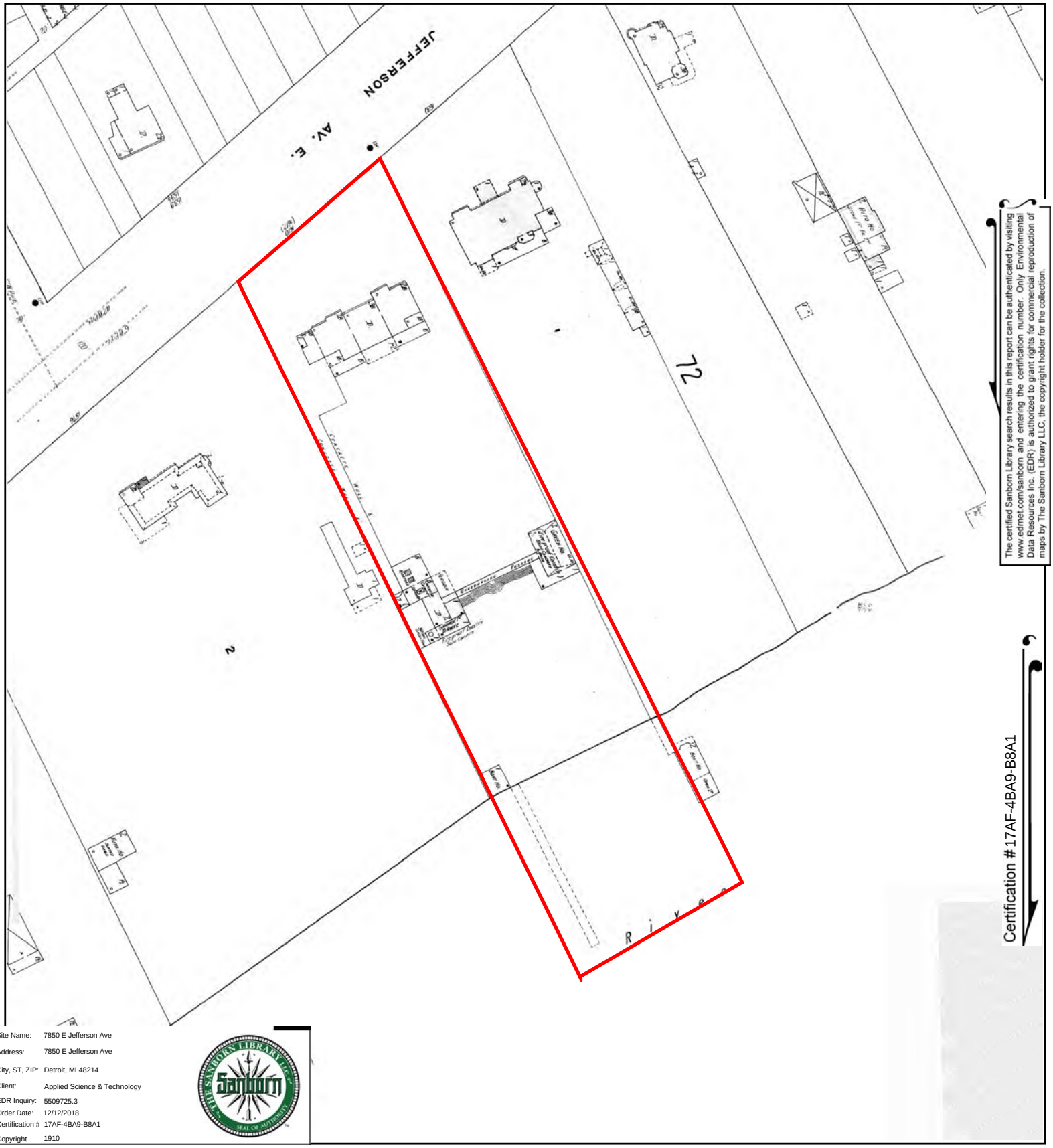

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Site Name: 7850 E Jefferson Ave
Address: 7850 E Jefferson Ave
City, ST, ZIP: Detroit, MI 48214
Client: Applied Science & Technology
EDR Inquiry: 5509725.3
Order Date: 12/12/2018
Certification #: 17AF-4BA9-B8A1
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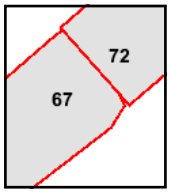

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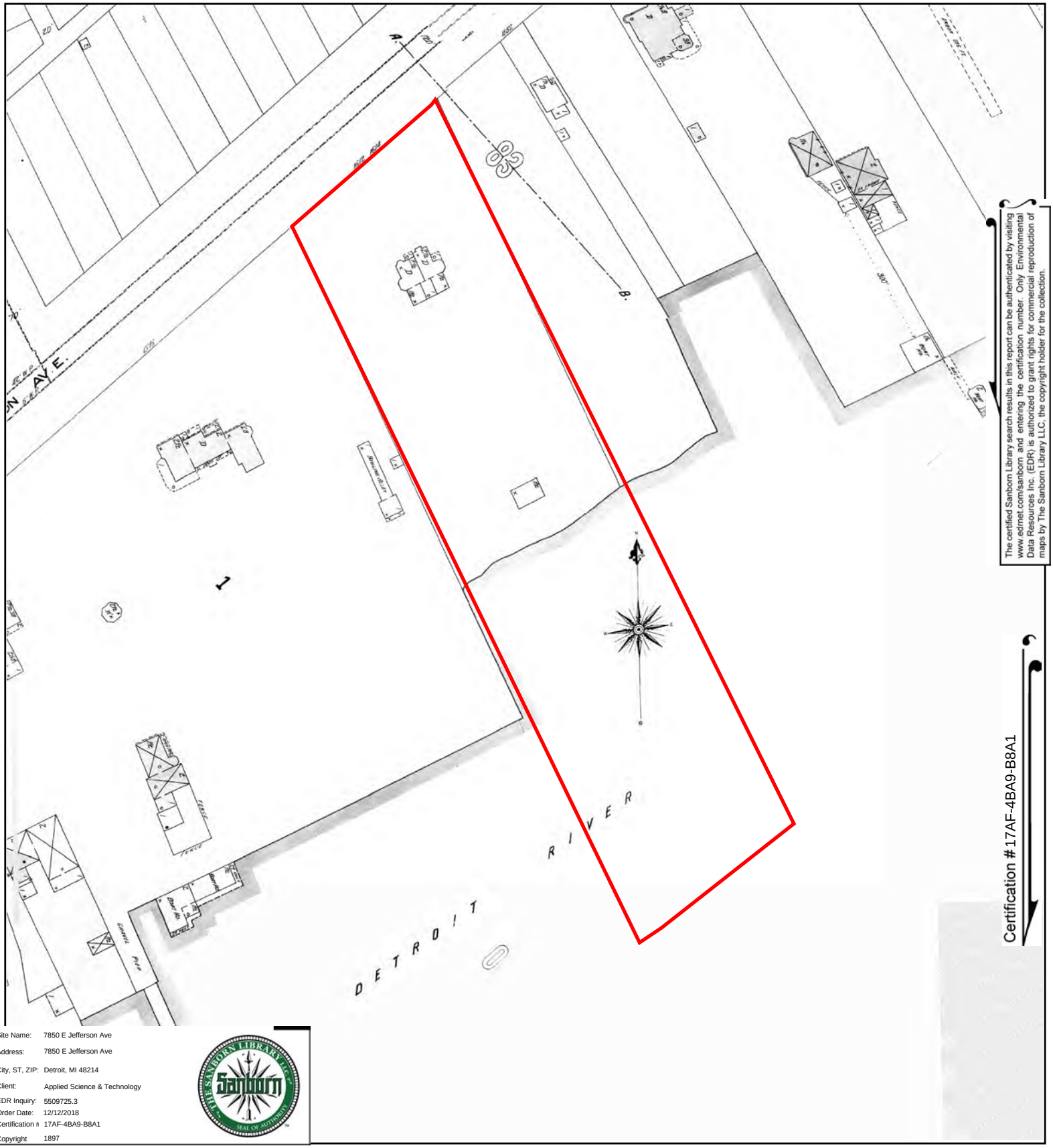

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Site Name:	7850 E Jefferson Ave
Address:	7850 E Jefferson Ave
City, ST, ZIP:	Detroit, MI 48214
Client:	Applied Science & Technology
EDR Inquiry:	5509725.3
Order Date:	12/12/2018
Certification #:	17AF-4BA9-B8A1
Copyright	1897

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Outlined areas indicate map sheets within the collection.

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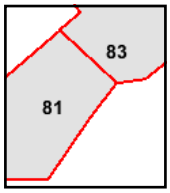

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N

7850 E Jefferson Ave
7850 E Jefferson Ave
Detroit, MI 48214

Inquiry Number: 5509725.5
December 17, 2018

The EDR-City Directory Image Report

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

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SECTION

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

RECORD SOURCES

EDR's Digital Archive combines historical directory listings from sources such as Cole Information and Dun & Bradstreet. These standard sources of property information complement and enhance each other to provide a more comprehensive report.

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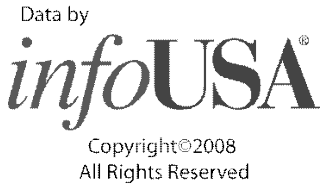

RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

Year	Target Street	Cross Street	Source
2014	☑	☐	EDR Digital Archive
2010	☑	☐	EDR Digital Archive
2005	☑	☐	EDR Digital Archive
2000	☑	☐	EDR Digital Archive
1995	☑	☐	EDR Digital Archive
1992	☑	☐	EDR Digital Archive
1987	☑	☐	Bressers Directory Co
1982	☑	☐	Bressers Directory Co
1978	☑	☐	Bressers Directory Co
1972	☑	☐	Bressers Directory Co
1967	☑	☐	Bressers Directory Co
1962	☑	☐	Bressers Directory Co
1957	☑	☐	Bressers Directory Co
1954	☑	☐	POLK DIRECTORY CO
1940	☑	☐	POLK DIRECTORY CO
1935	☑	☐	POLK DIRECTORY CO
1931	☑	☐	POLK DIRECTORY CO
1926	☑	☐	POLK DIRECTORY CO
1921	☑	☐	POLK DIRECTORY CO

EXECUTIVE SUMMARY

Year	Target Street	Cross Street	Source
1916	☑	☐	POLK DIRECTORY CO
1911	☐	☐	POLK DIRECTORY CO

FINDINGS

TARGET PROPERTY STREET

7850 E Jefferson Ave
Detroit, MI 48214

Year	*CD Image*	*Source*	
E JEFFERSON AVE			
2014	pg A2	EDR Digital Archive	
2010	pg A16	EDR Digital Archive	
2005	pg A32	EDR Digital Archive	
2000	pg A49	EDR Digital Archive	
1995	pg A63	EDR Digital Archive	
1992	pg A78	EDR Digital Archive	
1987	pg A84	Bressers Directory Co	
1987	pg A85	Bressers Directory Co	
1982	pg A86	Bressers Directory Co	
1982	pg A87	Bressers Directory Co	
1978	pg A88	Bressers Directory Co	
1978	pg A89	Bressers Directory Co	
1972	pg A90	Bressers Directory Co	
1967	pg A91	Bressers Directory Co	
1962	pg A92	Bressers Directory Co	
1962	pg A93	Bressers Directory Co	
1957	pg A94	Bressers Directory Co	
1957	pg A95	Bressers Directory Co	
1954	pg A96	POLK DIRECTORY CO	
1954	pg A97	POLK DIRECTORY CO	
1940	pg A98	POLK DIRECTORY CO	
1935	pg A99	POLK DIRECTORY CO	
1931	pg A100	POLK DIRECTORY CO	
1926	pg A101	POLK DIRECTORY CO	
1921	pg A102	POLK DIRECTORY CO	
1916	pg A103	POLK DIRECTORY CO	
1911	-	POLK DIRECTORY CO	Target and Adjoining not listed in Source

FINDINGS

CROSS STREETS

No Cross Streets Identified

City Directory Images

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

E JEFFERSON AVE 2014 (Cont'd)

7716	HUDSON, WILLIAM
	MORRIS, FRANK J
	STEVENSON, CARTER H
	SUGGS, BERNARD
	WARE, ALLAN
	WOOD, WARREN
7718	ALEXANDER, RENEE D
	JONES, VERONICA L
	KYLE, GENE M
	LUCY, ANTHONY W
	SEALS, TINA P
	SMITH, GERALD K
7720	ARLAUSKAS, PATRICIA L
	CARSE, LINDA D
	DAVIE, EDWARD L
	FREEMAN, JOYCE L
	JORDAN, GREG
	MOORE, DON A
	MOSS, KENNETH L
	REMODELING DETROIT LLC
7722	FINK, H
	KEATON-PAYNE, LEAH V
	MIXON, ANTHONY
	NIMMONS, ROSALYN
	PITTS, LASHANNON
	SCANDERICK, MICHAEL W
	TAYLOR, JAMES E
	WILLIAMSON, RICARDO A
	WRIGHT, SIERRA
7724	CROCKRAN, STEVEN F
7726	DAY, ROBERT E
	MITCHELL, DARRYL Q
7728	GRIER, MARK A
	HAWTHORNE, ULTAME D
	WILSON, GILBERT G
7730	MOORE, YVONNE D
	OBANNON, MICHAEL K
	ONEIL, CLARENCE E
	TERRY, NIKKI R
7732	KIMBROUGH, HOPE
	LANGFORD, SHARON L
	WATSON, TIMOTHY J
	WHITE, CHRISTON D
7733	COMPREHENSIVE REHABILITATION
	LEANN BOOKSTORE
	RIVERVIEW HEALTH & REHAB CTR
	ST JOHN PROVIDENCE HEALTH SYS
	URGENT CARE MANAGEMENT PC
7800	ABSTON, ELEANORA
	ADAMS, DAVID

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

E JEFFERSON AVE 2014 (Cont'd)

7800	ALEXANDER, RODNEY
	ALLEN, LINDA J
	ALLEN, NAKYA R
	ALLEN, WILLIAM J
	ANDERSON-SR, THERO T
	ANDREWS, KATHY D
	ANDREWS, VERA E
	ARBITTER, JENNIFER V
	ARMSTRONG, KAREN D
	BANKS, ELEANOR C
	BARNES, EUGENE E
	BEAMON, LILLIAN J
	BELLARD, KENNETH D
	BEST, THELMA
	BILLINGSLEY, CONNIE
	BIVENS, EM M
	BLACK, SANDRA A
	BLOCKSON, LEE A
	BOLDEN, MATTIE
	BOONE, KATRINA A
	BOWEN, HAYWOOD
	BRADBERRY, JUDITH D
	BRADLEY, ROBERT J
	BRAY, MARK A
	BRITT, JAMES C
	BROWN, CHARLES
	BROWN, EDWARD
	BROWN, HELEN L
	BUCHANAN, VELMA J
	BUSH, JATONA L
	BYNUM, DORIS B
	CALLOWAY, PAULA
	CALVERT, CLEVE
	CAMPBELL, CYNTHIA
	CARROL, ELOISE
	CARTER, CHARLENE
	CARTHORN, PERRY
	CARVAN, BETTY C
	CATO, RENEE F
	CAULEY, JEROME S
	CAVITT, ETHEL M
	CHARLES, JOANN
	CHRISTIAN, TERRANCE K
	CLARK, MICHAEL
	COBBIN, MARILYN
	COHENS, JOHN
	COLE, BEVERLY G
	COLEMAN, PAULINE N
	CREATIVE STYLES
	CROWN OF GLORY HAIR SALON INC

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

E JEFFERSON AVE 2014 (Cont'd)

7800	CURRAN, BETTY J
	DANIELS, MARCUS L
	DANZY, THEOPHILUS T
	DAVENPORT, DANIEL E
	DAVIS, LUCILLE D
	DICKENS, SAM
	DOBBS, ALICE
	DOWNS-JONES, MARY L
	DUKES, LESTER
	DUNN, BELL J
	DURHAM, LENELL L
	DURR, CHRISTINE L
	EDWARDS, S
	ELDER, MINNIE L
	EVANS, ANNIE R
	FARLEY, LINDA M
	FARMER, DEBORAH S
	FAULK, ADDIE L
	FERGUSON, THERESA S
	FIELDS, ROBERT L
	FINN, WILHELMINA F
	FLYNN, EMMAGENE
	FORD, LATRINA
	FOREHAND, JOE R
	FOSTER, CURTIS
	FOY, GERALDINE
	FRANKLIN, ALMA R
	FUNK SHUI MANAGEMENT LLC
	GANT, SHARON
	GARFIELD, VERONICA
	GATES, LYNDA J
	GATLING, JOYCE H
	GENTRY, HELEN H
	GILBERT, LEILA M
	GILLIAM, JOE N
	GLASS, KIM
	GLENN, NORRIS H
	GOINS, ANDAMO
	GOSSETT, PHILLIS E
	GOUDY, BEVERLY
	GRADY, WILLIAM E
	GRAHAM, MARTHA L
	GRANT, MARY A
	GRAVES, RITA C
	GREENE, IRMA J
	GRIFFIN, VAL M
	GROSS, LARNELL V
	GUIDEN, RICKEY
	HAGGEN, YVONNE C
	HARMON, ALAN L

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

E JEFFERSON AVE 2014 (Cont'd)

7800	HARRIS, ORA
	HARRIS, OTHA L
	HARRIS, QUINCY
	HARRISON, AARON M
	HARVY, JANICE
	HAWKINS, SHELIA M
	HAYNES, ROBBIE A
	HENRY, JOYCE
	HICKS, PAUL
	HILLMON, LEONARD
	HILTON, CAROLINE
	HINDS, BETTY A
	HINES, MARY D
	HINTON, NATHANIEL
	HODGE, OLGA
	HODGES, JOSEPHINE
	HOLMES, DONNIE R
	HUDSON, MARY F
	HUNT, HERMAN E
	IRBY, ARTHUR L
	JACKSON, KEITH
	JACKSON, LOUIS F
	JAMES, KANDICE M
	JAMES, LOUIS L
	JENKINS, BRIAN W
	JOHNSON, BLANCHE C
	JOHNSON, SHARONE C
	JOHNSON, THOMAS Z
	JONES, JOHNNIE
	JONES, MALVINA R
	JONES, SAMUEL L
	JONES, SHEILA L
	JOURNEY, DARTAGKA L
	KELLEY, DEMETRIUS L
	KEMP, CRYSTAL
	KEY, CAROLYN J
	KIMBROUG, EMMA M
	KING, BEVERLY B
	KING, SAMUEL
	LAGRONE, GLADYS M
	LANG, JOHN
	LAVIGNE, KATIE
	LAWSON, DAVID J
	LEE, SHERRY
	LEWIS, BERDINE
	LOGAN, MARILYN
	LONG, ALBERTA
	LOPP, ANITA R
	LUMSDEN, NORMAN B
	LYNEM, VEESTHER R

E JEFFERSON AVE 2014 (Cont'd)

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	MATHIS, ROBERT L
	MAXWELL, CORDELL A
	MCGEE, CATHERINE
	MCGHEE, HERMAN
	MCLEMORE, WILLIE J
	MELVIN, MARY W
	MEYERS, RAYMOND R
	MILLER, ANITA J
	MITCHELL, FANNIE M
	MONTGOMERY, WARDELL
	MOORE, JOHN H
	MOORE, MONICA R
	MOORE, WESLEY H
	MOSES, JERRY
	MUHAMMAD, HASSAN A
	MYATT, CAROL
	NELSON, HERSCHEL L
	NERO, BETTY
	NEROMILLER, BETTY
	NEWMAN, LAVERA
	NICHOLS, KARRIE
	NIXON, WILLIAM
	OWENS, MARION
	PACK, VIOLET A
	PARIS, BARBARA J
	PARKS, CALVIN D
	PARR, LOUIS
	PEETE, MATTHEW R
	PEOPLES, TOMMIE
	PHILLIPS, ELAINE D
	POLLARD, CROMWELL
	POYDRAS, BARBARA J
	PRESLEYSCOTT, WILLIE
	QUICK, JEROME
	RAINEY, ANNIE L
	RAMSA, LUCILLE
	RAMSEY, IDA M
	RANDOLPH, ELLEN T
	REDDEN, SHIRLEY A
	REESE, MARIE
	RENFROE, JEANETTE
	RENFROE, THERESA M
	REUBEN, ISSAC
	RICHARDSON, CHARLES V
	RIVER TOWERS
	ROBINSON, DOROTHY J
	ROBINSON, MARCO
	ROSS, MARGARET E
	RULE, WILLIE M

Target Street	Cross Street	Source
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E JEFFERSON AVE 2014 (Cont'd)

7800	RUSHING, ROBERT L
	SAMUEL, NATHANIEL
	SANDERS, NELLIE L
	SANKS, ROBERT R
	SATCHEL, SANDRA
	SCOTT, ROSIE M
	SCRUGGS, DARRELL E
	SEARCY, VIOLA L
	SEATON, EVA L
	SELDON, NAOMI J
	SIMMS, CECELIA
	SIMPSON, TIFFANY T
	SMITH, ANGELA C
	SMITH, THEDRICK E
	SNIPES, JACQUELINE B
	SPARKS, MARTEEZ L
	SPENCER, VANESSA D
	STANLEY, ABRAHAM B
	STEPHENSON, GWENDOLYN F
	STEWART, IRVIN W
	STIGER, EUNICE M
	STURGES-SR, ARTHUR
	SULLIVAN, VINCENT A
	SUMMERS, DONALL E
	SUTTON, BREE L
	SWANN, JOSEPH
	SWIFT, SANDRA
	SYKES, WENDY
	TAYLOR, ROBERT B
	TEDFORD, WALLA B
	THOMAS, CHRISTIN E
	THOMAS, FRANK
	THOMPSON, DORIS N
	TOLLIVER, JACQUELINE M
	TOLLIVER, MARY L
	TOWNSEND, HERMAN L
	TRAMMELL, CONSTANCE
	TRUMAN, THERESA
	TUCKER, MAY
	UCHENDU, BON
	WALDON, BARBARA J
	WALKER, ALEX C
	WALLER, LINDA D
	WALLINGFORD, EMMA L
	WARD, THOMAS
	WATLEY, JOHNNIE B
	WEAVER, EVELYN
	WEBB, MARTHA E
	WHEELER, JIMMY
	WHITE, SHARON A

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

E JEFFERSON AVE 2014 (Cont'd)

7800	WHITEHEAD, ALPHONSO N
	WILKERSON, WILLIE J
	WILLIAMS, CLARA D
	WILLIAMS, EARL
	WILLIAMS, T
	WILLIE, JONES
	WILSON, JOHN T
	WOODS, BRUCE L
	WOODWARD, BARBARA A
	WOODWARD, GENEVA E
	YOUNGUE, FRANKIE E
7869	GARALINOS PIZZA INC
7875	PATTAH HUTCH
7901	GATES, OLIVIA
7919	MICHAEL TS
8000	INTERNATIONAL UNION UAW REGION
	INTERNATIONAL UNION UNITED AU
	INTERNTIONAL UAW FEDERAL CR UN
	SUSAN HARWOOD TRAINING GRANT P
	UAW LOCAL 1954
	UAW LOCAL 566 BUILDING CORP
	UAW PUBLIC RELATIONS
	UAW RETIRED EMPLOY OF MOLD A M
	UNION BUILDING CORPORATION
	UNITED AUTO AEROSPACE & AGRIC
	VOLUNTARY BENEFITS PLAN FOR UA
8005	HANAA ENTERPRISE LLC
	SUNOCO
	VALERO ENTERPRISE LLC
8030	ELLIS, GERTRUDE
8045	MOROUN NURSING CTR DETROIT LLC
	MOROUN NURSING HOME INC
8100	ALEXANDER, LAREL
	ARNOLD, MELENIE
	ARTHUR, RACHEL L
	BARNES, ALICIA J
	BESPOKE BOTANICALS LLC
	BROWN, TONYA
	BUNN, ELLA L
	CASON, KAREN M
	COLLINS, DIANE A
	CUNNINGHAM, RODNEY
	DANIEL MALONE
	DEWITT, KHADIJA
	DOROUGH, TINA
	FLIPPEN, BRITTANY
	GARRETTE, STEPHANIE V
	GIBBONS, RACHEL C
	GREEN, JULIA
	HAMPTON-COOPER, LAUREN T

Target Street	Cross Street	Source
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E JEFFERSON AVE 2014 (Cont'd)

8100 HAWKINS, KEVIN
HAYES, DAMOND D
HICKS, SHERRITHA
HOLT, DESIREE
HUBBERT, CHANTEL N
HUGHES, UGANDA L
JACKSON, NATASIA
JAMES, ERICA
JENKINS, CARLESIA S
JONES, DANNY L
KING, KAREN
LINDSAY, CHRISTOP
LOVELACE, CHRISTOPHER D
MALONE, D
MCINTOSH, CARMEN L
MCMURRAN, WILLIAM R
MEEKS, JANICE
METCALF, AMY A
MILES, SHERMON
NEWELL, GLORIA J
NICKELSON, KAI
NORFLEET, ALLISON L
NORMAN, LONNIE
ODUMS, CHAVON
PAPERIE DESIGN STUDIO LLC
PATILLO, LATOI M
PERSON, ALEXIS D
PLUM, GERALD C
RHODES, GLENN E
SACKEY, DONNIE
SHOBE, CARLA
SPRATT, CHEVIS B
STALKER, SARAH E
TECHNOGENIUS
THAMES, ANGELA L
THOMAS, CARMA
TRITON INVESTMENT COMPANY
TUCKER, RICKY L
WARD, GILBERT
WEINSTEIN, TRACI
WHITE, ALBERT
WILSON, CHRISTOPHER A

E JEFFERSON AVE 2010 (Cont'd)

7718 KYLE, ROBIN H
RICHARDSON, KEYNDA
7720 AIDA WORKS SPA
ARLAUSKAS, PATRICIA L
BROWN, ERNESTINE
HOLLINGSHED, ROBERT
LYNK, CAREY D
MASON, PAT A
PELT, ALPHONSO
7722 BEAL, VIVIAN L
KEATON-PAYNE, LEAH V
NIMMONS, ROSALYN
PITTS, LASHANNON
TAYLOR, BRENDA L
WELCH, TONY
7724 CROCKRAN, STEVEN F
7726 EDWARDS, CELIA M
JOHNSON, ATASHA
PITTMAN, MARY L
TIERT, LORETTA
7728 ALDRIDGE, RAYMOND W
ARCHIE, CHARLES B
GRIER, MARK A
HENRY, WAYNE R
PREMIER SUPPLIERS
WILSON, GILBERT
7730 MOORE, YVONNE D
OBANNON, SHIRLEY A
ONEIL, CLARENCE E
7732 ALBRECHT, WILLIAM A
EPSTEIN, SOLOMON
HARDY, JOHN W
KNIGHT, CASSANDRA F
LANGFORD, KRYSTAL N
NEWSOM, DENISE
7733 MEDICAL RESOURCE GROUP
ST JOHN HEALTH
URGENT CARE MANAGEMENT PC
7800 ACKLIN, CONNIE L
ADAMS, DAVID
ALFORD, BENNIE
ALLEN, WILLIAM J
ANDERSON, ALBERTA D
ANDERSON, JOSEPH
ANDREWS, VERA E
ANTHONY, JERRY L
ANTLE, ANNA M
ARCHIE, DOROTHY
ARMSTRONG, KAREN D
B SMITH

Target Street	Cross Street	Source
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E JEFFERSON AVE 2010 (Cont'd)

7800	BAILEY, WANDA A
	BANTA, MILTON C
	BARBER, MARY L
	BARNES, EUGENE E
	BARNES, P J
	BEAMON, LILLIAN J
	BEASLEY, EDWARD
	BEATON, PHYLLIS P
	BELLARD, KENNETH D
	BEST, THELMA
	BLACK, MAURICE J
	BLACKMAN, CURLY
	BLOCKSON, LEE A
	BOKOTA, STANLEY
	BOLDEN, MATTIE
	BRADBERRY, JUDITH
	BRADLEY, DOROTHY
	BRADLEY, PAUL
	BRAY, MARY
	BRINTLEY, LYNETTA
	BROOKS, PATRICIA A
	BROWN, BOBBY
	BROWN, CHARLES
	BROWN, HELEN L
	BROXTON, EUMON L
	BUCHANAN, VELMA J
	BURGESS, CAROLYN J
	BUSH, JATONA
	BYNUM, DORIS B
	CAMPBELL, COLLIER F
	CAPERS, PATRICIA A
	CARD, SILAS
	CARR, CRYSTAL
	CARROLL, FREDERICK
	CARSON, MARTELL N
	CARTER, ETHEL M
	CARVAN, BETTY C
	CAULEY, JEROME S
	CAVITT, RICKY
	CHAPMAN, DELORES
	CHEEKS, ZIHORA Z
	CHRISTIAN, MARY A
	CLARK, BERTHA G
	CLARK, JOY C
	CLEMONS, LUCIOUS
	CLEMONS, MILDREN V
	COBBIN, MARILYN
	COHENS, JOHN
	COLE, B
	COLEMAN, PAULINE

E JEFFERSON AVE 2010 (Cont'd)

7800	COLLINS, A J
	COLLINS, EUGENE
	CONLEY, EDITH L
	CONNER, CHARLENE
	COOK, SHEILA
	COOPER, ORIER
	CORNELUS, ELVIE
	CRAIG, EDGAR M
	CRAIG, NATHAN
	CRAWFORD, NATHANIEL
	CROSSLEY, GERALDIN
	CROWN OF GLORY HAIR SALON INC
	CRUTCHFIELD, ROBERT
	CRYSTAL CLEAR CLEANING SERVICE
	CURRY, NUMMIE J
	D J LAWSON
	DANIEL, PAUL
	DANIEL-JR, JOE L
	DANIELS, GLORIA R
	DAVIS, DARWIN M
	DAVIS, PAULINE B
	DENMAN, DENISE R
	DIXON, DELPHINE
	DOLLAR, ANDREW A
	DOYLE, MAURICE L
	DUDLEY, FOREST
	EDWARDS, DIANA M
	EDWARDS, S
	ERWIN, BERTHA
	EVANS, ANDRE L
	EVANS, LINDA S
	FARLEY, LINDA M
	FARROW, RUTH
	FAULK, ADDIE L
	FEAZELL, MARGARET
	FERGUSON, THERESA S
	FIELDS, ROBERT
	FINN, WILHELMINA F
	FORD, MAE J
	FOREHAND, JOE R
	FOSTER, CONSTANCE
	FOSTER, CURTIS B
	FOY, GERALDINE
	FRAZIER, LUCIUS
	GARFIELD, VERONICA
	GARRETT, S
	GILCHRIST, OLIVIA C
	GILLIAM, JOE N
	GIVENS, RUFUS C
	GLENN, MARY F

E JEFFERSON AVE 2010 (Cont'd)

7800 GLENN, NORRIS
GOINS, PEARLIE M
GOODE, LETITIA T
GOODLES, E
GOODMAN, MABLE
GRANT, MARY
GRAY, WILLIAM W
GREEN, DAN
GREENE, IRMA J
GRIFFIN, VAL M
GROSS, LARNELL V
GUYDEN, FRANCES A
HAGGEN, YVONNE C
HALL, BRENDA J
HALL, GERALD M
HAMMOCK, GEORGE
HARDAWAY, TIANNA
HARDISON, BEVERLY
HARPER, DORETHA S
HARPERA, LORRAINE
HARRIS, LUCILLE
HARRIS, OTHA L
HARRIS, QUINCY
HARRISON, ANTONIA
HARRISON, BARBARA J
HATSHEPSITOU, M
HAWK, FLORENCE
HAWKINS, TERRANCE A
HAYNES, GENNIE
HAYNES, ROBBIE A
HENRY, JOYCE
HERRING, ROSE
HICKS, WINTON L
HILL, EARNEST
HINTON, SARAH A
HOBBS, CONSTANCE L
HOLMES, ILENE
HOPKINS, WILL F
HUDSON, MANNIE
HURNS, JOHN W
ISAAC, REUBEN
JACKSON, DELILLIAN E
JACKSON, DOROTHY M
JACKSON, KEITH
JOHNSON, EVELYN
JOHNSON, ROLAND
JOHNSON, SALESHIA
JOHNSON, THOMAS
JONES, HELEN E
JONES, LINDA

E JEFFERSON AVE 2010 (Cont'd)

7800 JONES, ROBERTA
JOURNEY, DARTAGKA
KELLEY, CECELIA
KEY, CLARICE
KIMBROUGH, EMMA M
KING, OLIVE M
KING, SAMUEL
LANE, DALE E
LANG, JOHN
LAVIGNE, KATIE
LAWSON, DAVID J
LAY, ISIDORA
LEE, ETHEL M
LENYOUN, ARNETT
LESLIE, JOHN O
LEWIS, SAMSON
LOGAN, MARILYN
LONG, ALBERTA
LUCKETT, CLASSIE B
LYNEM, VEESTHER R
MAMON, DIANE M
MARKWOOD, SUE
MARLIN, ELAINE
MARSHALL, JEANETTE M
MATHIS, VALERIE A
MAYERS, AZELINE
MCCRACKEN, VALERIE
MCCULLOM, WILLIAM D
MCCULLUM, MARY
MCGEE, CATHERINE
MCGHEE, MELVYN D
MCLEMORE, WILLIE J
MCMURRAY, KENNY
MCNARY, KIMBERLY J
MELVIN, MARY W
MILLER, JAYANN
MILLS, CALLIE
MILLS, L
MITCHELL, GLORIA J
MOBLEY, CHEREL
MONTGOMERY, WARDELL
MOORE, WESLEY H
MORGAN, ROSIE K
MORMAN, ADELE
MORRISON, ALLEARA
MORTON, DWIGHT E
MUHAMMAD, JOYCE
MURRIE, TOMMIE
MYATT, CAROL
NEAL, THOMAS

E JEFFERSON AVE 2010 (Cont'd)

7800	NELSON, HERSCHEL
	NELSON, ROSA M
	NELSON, SHARON
	NEWTON, GLORIA
	ORR, MARION
	OUTSOURCE
	OWENS, MARION
	PACK, VIOLET A
	PAG, JULIA
	PARIS, BARBARA
	PARKS, CALVIN
	PATTERSON, DOROTHY
	PEETE, MARVIN
	PENDLETON, ROY
	PEOPLES, MARLENE
	PERRY, ALICE
	PHILLIPS, CORRINE
	PHILLIPS, VALTINE
	PICKENS, FAYE
	POLLARD, CROMWELL
	POLLARD, LAMARR
	POMILEE, WILLIE M
	PORTER, JEANETTE
	POYDRAS, BARBARA J
	PRATHER, JAMES
	PRESLEYSCOTT, WILLIE
	PUGH, ALPHONSE
	PURYEAR, MILDRED
	RAINEY, ANNIE L
	RAMSEY, IDA M
	RANDOLPH, ELLEN T
	RAY, CHARLOTTE G
	REDDING, HAROLD R
	REED, MILES M
	REESE, GRACE L
	RENFROE, J
	REUBEN, ISSAC
	RHEINHARDT, MOLLIE M
	RICHARDS, ALBERT
	RIDLEY, GEORGE E
	RISKER, BETTY J
	RIVER TOWERS
	ROBERTSON, JERRY
	ROBINSON, PATRICIA
	RUSHING, GLORIA J
	SCOTT, LULA M
	SCOTT, ROSIE M
	SEARCY, VIOLA L
	SEATON, EVA L
	SHABAZZ, EUNICE M

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E JEFFERSON AVE 2010 (Cont'd)

7800	SHAVERS, DEBORAH R
	SHELTON, AUDREY L
	SIMMONS, ELEANOR
	SINGLETON, SUSAN
	SLAUGHTER, JOANA M
	SMITH, ANGELA C
	SMITH, B
	SMITH, CLARA J
	SMITH, MURLINE M
	SMITH, VIRGINIA V
	SOCIETY OF AFRICAN AMERICAN PO
	SOLIMAN, MOUNIAR
	SPARKS, MARTEEZ L
	STANLEY, ABRAHAM B
	STEPHENSON, GWENDOLYN F
	STEWART, CYNTHIA
	STEWART, IRVIN W
	STIGER, EUNICE M
	SULLIVAN, BARBARA A
	SUTTON, BREE L
	SWANN, JOSEPH
	SWIFT, BEATRICE M
	SWIFT, SANDRA
	TAYLOR, BLANCHE
	TAYLOR, PEASIE M
	TEDFORD, WALLA B
	TELL, FREDERIC
	THOMAS, CATHLIN
	THOMPSON, T
	TOLLIVER, MARY L
	TRACY, ANNIE K
	TRAMMELL, CONSTANCE
	TRUELOVE, DAVID I
	TUCKER, MAY
	TURNER, ALVIN J
	VERNON, LUCILLE S
	WALKER, ALBERT B
	WATLEY, JOHNNIE
	WATTS, SEBRON E
	WHITE, DENISE
	WHITEHEAD, EDRA J
	WILKERSON, WILLIE J
	WILLIAMS, CLARA D
	WILLIAMS, ROBERT
	WILLIAMS, SAMUEL G
	WILSON, JOHN
	WINBURN, FLOSSIE M
	WOODS, BRUCE L
	WOODS, DONELL S
	WRIGHT, EVA B

E JEFFERSON AVE 2010 (Cont'd)

7800	WRIGHT, MABEL E
7815	ALATASSI EMAD
	DETROIT-MACOMB HOSPITAL CORP
	ENT SURGICAL
	GOTTAM NARSIMHA MD
	KNIGHT PHARMACY
	PARK FAM HEALTH CARE
7869	GARALINOS PIZZA INC
7875	AMMORI FAROOK
	PATTAH HUTCH
8000	INTERNATIONAL UNION UAW 465
	INTERNATIONAL UNION UNI AUTO W
	INTERNATIONAL UNION UNITED AU
	INTERNTIONAL UAW FEDERAL CR UN
	INTERNTNAL UN U AA AG IP WK AR
	SUSAN HARWOOD TRAINING GRANT P
	UAW HEALTH & SAFETY DEPT
	UAW LOCAL 1954
	UAW LOCAL 566 BUILDING CORP
	UAW PUBLIC RELATIONS
	UAW RETIRED EMPLOY OF MOLD A M
	UAW SOLIDARITY HOUSE
	UAW STRIKE FUND
	UNION BUILDING CORPORATION
	UNITED AUTO WORKERS AMERICA
	VOLUNTARY BENEFITS PLAN FOR UA
8005	JEFFERSON ULTRA SERVICE INC
	SUNOCCO
	VALERO ENTERPRISE LLC
8045	AMBASSADOR NURSING HOME
	MOROUN NURSING HOME INC
8100	ALEXANDER, TONYA
	BONAY, SOLOMON
	BOWERS, TODD
	BROWN KATHERINE H
	BROWN, LAVERNE
	BUTLER, RODNEY
	CALVERT, WYLEAN
	CARMA S
	CEASER, EC C
	CHEEKS, MARLENA
	COLEMAN, LALAFINA
	COLLINS, S
	DANDRIDGE, LEON
	DEAN, ALINDA A
	DOROUGH, TINA
	DURRAH, CHRISTINE
	EMILYS ELEGANT EVENTS
	ENGLISH, ANDREW E
	FAYES HAIR SALON

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E JEFFERSON AVE 2010 (Cont'd)

8100 GIBSON, I
GREEN, JULIA
HAWKINS, KEVIN
HAYES, JOYCE A
HICKS, L
HUGHES COMPANY LTD
HUGHES, SANDRA M
HUNTER, STEVEN C
IMIM, JOSHUA
JAMES, ERICA
JOHNSON, DELIA
JONES, SHIRLEY M
JORDAN, GREG D
KIERST, WILLIAM
KING, KATHERINE
LEE SANG H MD
LIGE, A
LUNN, DEONDRE
MACKEY, ROBERT
MALONE, DANIEL K
MARQUES ALEXI DUPREE
MAY, DEVION
MAYE, NEFERTITI R
MCBRIDE, LAWRENCE E
MCCARTHEY INDUSTRIES INC
MCCORMICK, SHEILA
MCGOWAN, MARIE
MCINTOSH, CARMEN L
MIDGETT, RODNEY
MOORE, JOHN H
NEWELL, GLORIA J
NICKELSON, KAI
ODUMS, CHAVON
PYE, REUBEN A
RAMSEUR, RONNETTE M
RIVERS, DONOVAN A
ROBINSON, ALFRED
RONALD MOORING
SANG, H
SEGAN, SHAWN
SHEEKS, MARLENA
SOW, MOUSTAPHA
SPIVEY, DEVAINE
STEWART, KATHY
TATE, GENI K
TRUITT, EBONI
WALKER, AUDONTE
WHITE, ELLIS M
WHITFIELD, SYLVIA
WILLIAMS, ROCHELLE

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E JEFFERSON AVE 2010 (Cont'd)

8100 WYCHE, LYNN

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E JEFFERSON AVE 2005 (Cont'd)

7726	BREWER, JAMES C
	BYNUM, L A
	CARTER-GRIFFIN, K
	INFO TO GO INC
	KOWAL, CHRISTINE A
	LEWIS, J
	MARSHALL, CHRISTOPHER D
	MCGHEE, ELLA E
	NNAMDI, I D
	PITTMAN, MARY L
	PUCKETT ENTERPRISES
	TIERT, LORETTA
	WILLIAMS, TARNELL
7728	ALLEN, NORMA J
	ARCHIE, CHARLES B
	BURNS, NICOLE
	CORNELIUS, JOHN
	CRAWFORD, SAMUEL K
	GRIER, MARK A
	HENRY, WAYNE R
	KIMBROUGH, HOPE N
	NELSON, MAE I
	PREMIER SUPPLIERS
	SLACK, LARRY
7730	BLANFORD, DEBORAH
	LEWIS, BRENT A
	MOORE, YVONNE D
	ONEIL, CLARENCE E
	THOMPSON, RENEE G
7732	ALBRECHT, WILLIAM A
	ALDRIDGE, RAYMOND W
	BROWN, NICOLE
	HARDY, JOHN W
	WHITE, PANESSA
7733	SAINT JOHNS MEDICAL LIBRARY
	ST JOHN HEALTH
	TOURO UNIVERSITY
7800	ACKLIN, CONNIE L
	ALEXANDER, JAMES
	ALEXANDER, SHARON G
	ALFORD, B
	ALLEN, DAISY
	ALLEN, MARCELLA
	ANDERSON, OZIAS
	ANDERSON, WILLIE E
	ANTHONY, JERRY L
	ANTLE, ANNA M
	ARBITTER, JO
	ARCHIBALD, BLANCHIE B
	ARCHIE, DOROTHY

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E JEFFERSON AVE 2005 (Cont'd)

7800	ARMSTEAD, ELAINE R
	ARMSTRONG, ALLA
	ARMSTRONG, DOROTHY
	AYLER, ROSA L
	BAILEY, ARCHIE
	BAILEY, FRANCES R
	BANKS, BERNICE
	BARBER, MARY L
	BARNES, EUGENE E
	BEAMON, LILLIAN J
	BEASLEY, CORINE
	BEATON, PHYLLIS P
	BELL, MONCIE
	BENDER, ERMA M
	BENSON, MM
	BEST, THELMA
	BICKLEY, MONTEZ
	BLOCKSON, LEE A
	BLUE, ALBERT
	BOKOTA, STANLEY
	BOLDEN, MATTIE
	BRADBERRY, JUDITH
	BRADLEY, PAUL
	BRAZIER, JOHN W
	BRIDGEMAN, WILLIE
	BRIDGES, LAWRENCE
	BROWN, ABNER
	BROWN, AGNES
	BROWN-BLANKS, GENEVA
	BROXTON, EUMON L
	BUDDIN, FONTELLA K
	BUFORD, ADA
	BUGGS, ARDIE D
	BYNUM, DORIS B
	CAMMON, MARVIN
	CAMPBELL, COLLIER F
	CAMPBELL, LOIS A
	CANNON, WINDSOR
	CARD, SILAS
	CARTER, BETTY
	CASSIDY, BRENT
	CHAMBERS, R
	CHAPMAN, DELORES
	CHAPMAN, E
	CHAVIS, WILLIETTE
	CLARK, BERTHA G
	CLAYTON, CLARENCE
	COHEN, ORANGE D
	COLE, TIFFANY
	COLVARD, DAVID M

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E JEFFERSON AVE 2005 (Cont'd)

7800	COTTRELL, SHIRLEY
	CRAIG, EDGAR M
	DALE, JOSEPHINE
	DANIEL, PAUL
	DAVIS, PAULINE B
	DENNY, SUSIE
	DILLARD, VERA L
	DIXON, GEORGE H
	DOLLAR, ANDREW A
	DORITY, CLIFFORD L
	DOUGLAS, GWENDOLYN
	DOYLE, MAURICE L
	DRAKE, CLEO
	DRAW, RUBY V
	DUDLEY, DELORIS A
	DUDLEY, FOREST
	EDWARDS, PHYLLIS D
	ELLIOTT, ANTHONY
	ETLINGER, PHYLLIS
	EVANS, ANDRE L
	FAIRBANKS, WILLIAM S
	FARLEY, LINDA M
	FARROW, RUTH
	FAULK, ADDIE L
	FEAZELL, MARGARET
	FINN, WILHELMINA
	FOLEY, VIRGINIA
	FOREHAND, JOE R
	FOSTER, CURTIS
	FUQUA, EVELYN C
	GAINES, WILLIAM
	GASS, ULYD
	GILCHRIST, OLIVIA C
	GILLIAM, JOE N
	GIPSONJONES, CLAUDIA
	GLEATON, LEEGRAND G
	GLENN, MARY F
	GLENN, NORRIS
	GOODE, LETITIA
	GOODMAN, MABLE
	GRADY, WILLIAM A
	GRAHAM, VONCILE
	GREENE, IRMA J
	GRIER, BOBBIE J
	GUNN, GERALDINE J
	GUYDEN, FRANCES
	HAIRSTON, EVERETT
	HALE, PRESTON B
	HANKINS, FREDDY
	HARDRICK, LOUISE

10.8 Qualifications of the Environmental Professional(s): Resume of EP(s) and Additional Staff

RESUME

ASTI ENVIRONMENTAL

ASHLEIGH CZAPEK

Associate I/Architectural Historian

PROFILE

Certifications
36 CFR Part 61 Qualified as an Architectural Historian
HUD 3-day CFR24 Part 58 Environmental Review Process Training, 2017
40-Hour HAZWOPER training as per 29 CFR 1910.120(e)

Education
Eastern Michigan University, M.S. Historic Preservation 2016
Western Michigan University, B.S. Psychology 2008

Experience History
Associate I, Property Services Group, ASTI Environmental
Graduate Assistant, Michigan State Historic Preservation Office

Professional Background
Ms. Czapek has experience researching, writing and reviewing Section 106 SHPO applications. She has contributed to a number of National Register of Historic Places nominations, as well as researching and writing the National Register of Historic Places Nomination for the Glaister House in Lansing, MI. She also prepares Phase I Environmental Site Assessment reports, Transaction Screen Reports, Environmental Assessments, Environmental Review Records, Statutory Checklists and other NEPA related documents.

Years Experience: 1 - ASTI
2 - GOVERNMENT

ASTI ENVIRONMENTAL

RESUME

A S T I E N V I R O N M E N T A L

ANTHONY LLOYD SPENCER
Associate II

PROFILE

Certifications/Training
Environmental Professional (AAI)
40-Hour OSHA HAZWOPER Training
HUD Basic Environmental Training, August 2012

Education and Training
Wayne State University, B.S., Environmental Science, Minor, Geology, May 2011

Experience History
Associate II, Property Service Group, ASTI ENVIRONMENTAL
Research Assistant, Ohio State University, School of Environment and Natural Resources
Research Assistant, Wayne State University, Department of Biology

Professional Background
Mr. Spencer specializes in Phase I environmental site assessments (ESAs). He has completed ESAs for residential, commercial, and industrial sites. He has experience working in Michigan, Ohio, Kentucky, Oklahoma, Pennsylvania, and North Carolina. Work has included vacant land, apartment complexes, residential scattered lots, former plating facilities, print shops, landfills, auto garages, gasoline stations, and schools. The property evaluations have included site inspections, historical research, and contact with federal, state, and local agencies. Mr. Spencer also has experience assisting with Phase II ESA sampling and report preparation, noise assessments, NEPA reporting, HUD narratives, and SHPO consultation.

Mr. Spencer has also conducted tree identification and timber cruising for the U.S. Fish & Wildlife Service in Michigan's Upper Peninsula.

Years Experience:

6 --- ASTI
2 --- other agencies

ASTI ENVIRONMENTAL

10.9 MSHDA Phase I Letter of Reliance

ASTI ENVIRONMENTAL

Investigation • Remediation
Compliance • Restoration

10448 Citation Drive, Suite 100
Brighton, MI 48116

Mailing Address:
P.O. Box 2160
Brighton, MI 48116-2160
800 395-ASTI
Fax: 810.225.3800

www.asti-env.com

February 21, 2018

PRIVILEGED AND CONFIDENTIAL

Mr. Dan Lince
Environmental Manager
Rental Development Division
Michigan State Housing Development Authority
735 E. Michigan Avenue
Lansing, Michigan 48912

RE: Phase I ESA for: 2.8 Acres of Vacant Land, 7850 E. Jefferson Ave., Detroit, MI, ASTI Project 1-10105 dated February 21, 2019

Dear Mr. Lince:

Please find enclosed the Phase I Environmental Site Assessment (ESA) for the subject property dated February 21, 2019 to the Michigan State Housing Development Authority.

It is my understanding that the information contained in the Phase I Environmental Site Assessment will be used by the Authority in considering proposed financing of residential development of the subject property and, furthermore, that the Authority may rely upon the Phase I Environmental Site Assessment as if it was issued to the Authority.

I **represent** that the attached is a true, correct and complete copy of the Phase I Environmental Site Assessment for the above captioned property and that the report represents my professional opinion of the site as of this date and that I meet the definition of an Environmental Professional as defined in Section 312.10 of 40 CFR 312. I also **represent** that the Phase I Environmental Site Assessment including the evaluation, recommendations, and conclusions as of this date has been performed in conformance with the scope and limitations of the ASTM Practice E 1527-13, ASTM Practice E 2600-15, and MSHDA's Environmental Review Requirements for 2018.

Sincerely,

ASTI Environmental

Anthony Spencer, EP
Associate II

TAB ATTACHMENTS

1. Phase I ESA, NHT Consulting, 9-11-07
2. Phase II ESA, NHT Consulting, 10-12-07
3. Limited Subsurface Investigation, ASTI Environmental, 4-25-17
4. Due Care Memo, ASTI Environmental, 5-3-17

Attachment B

Survey With Legal Description

UTILITY STATEMENT

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE.

(R) = UTILITY SHOWN FROM RECORDS OR PLANS, & FIELD LOCATED WHERE POSSIBLE.

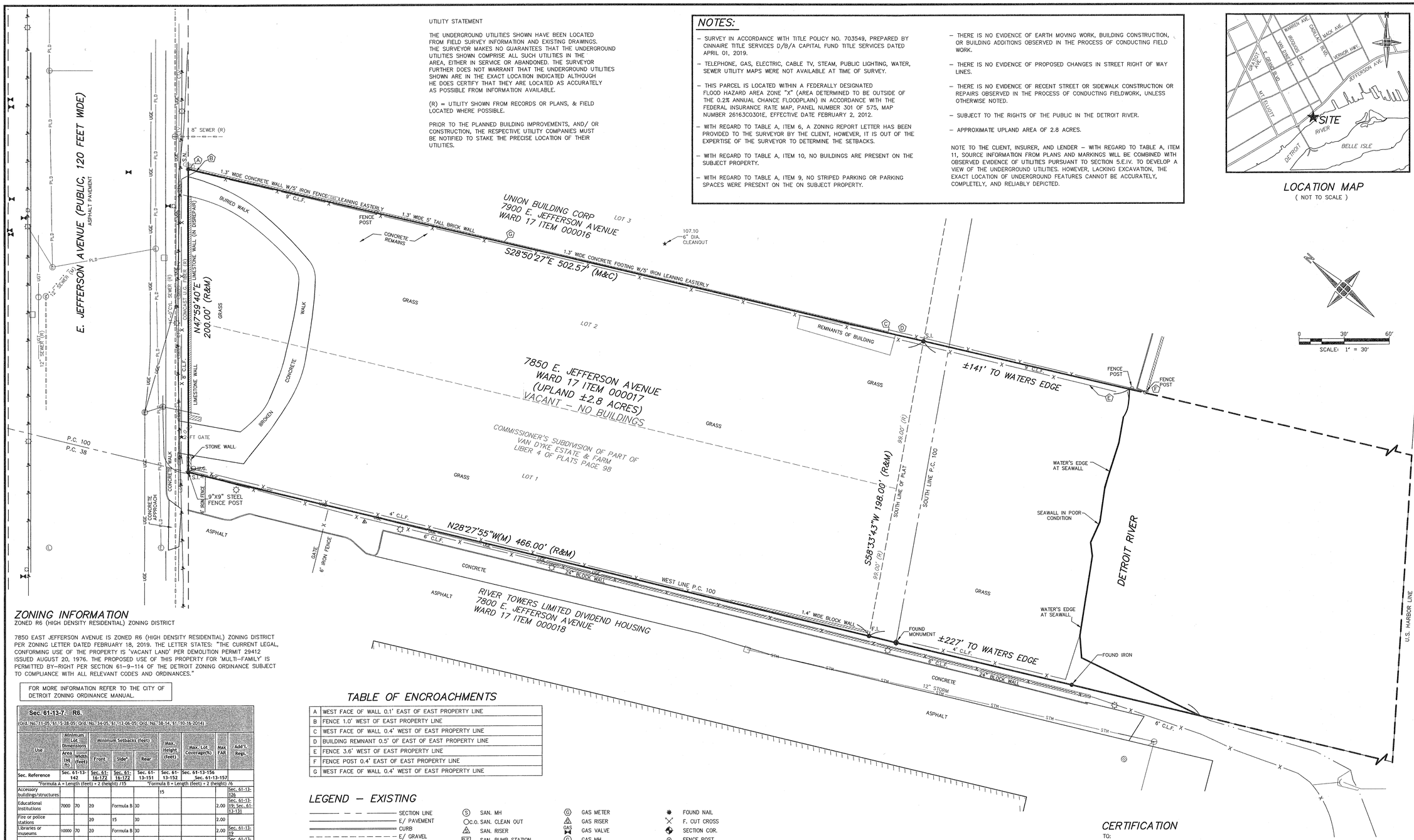
PRIOR TO THE PLANNED BUILDING IMPROVEMENTS, AND/ OR CONSTRUCTION, THE RESPECTIVE UTILITY COMPANIES MUST BE NOTIFIED TO STAKE THE PRECISE LOCATION OF THEIR UTILITIES.

NOTES:

- SURVEY IN ACCORDANCE WITH TITLE POLICY NO. 703549, PREPARED BY CINNAIRE TITLE SERVICES D/B/A CAPITAL FUND TITLE SERVICES DATED APRIL 01, 2019.
- TELEPHONE, GAS, ELECTRIC, CABLE TV, STEAM, PUBLIC LIGHTING, WATER, SEWER UTILITY MAPS WERE NOT AVAILABLE AT TIME OF SURVEY.
- THIS PARCEL IS LOCATED WITHIN A FEDERALLY DESIGNATED FLOOD HAZARD AREA ZONE "X" (AREA DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN) IN ACCORDANCE WITH THE FEDERAL INSURANCE RATE MAP, PANEL NUMBER 301 OF 575, MAP NUMBER 26163C0301E, EFFECTIVE DATE FEBRUARY 2, 2012.
- WITH REGARD TO TABLE A, ITEM 6, A ZONING REPORT LETTER HAS BEEN PROVIDED TO THE SURVEYOR BY THE CLIENT, HOWEVER, IT IS OUT OF THE EXPERTISE OF THE SURVEYOR TO DETERMINE THE SETBACKS.
- WITH REGARD TO TABLE A, ITEM 10, NO BUILDINGS ARE PRESENT ON THE SUBJECT PROPERTY.
- WITH REGARD TO TABLE A, ITEM 9, NO STRIPED PARKING OR PARKING SPACES WERE PRESENT ON THE ON SUBJECT PROPERTY.
- THERE IS NO EVIDENCE OF EARTH MOVING WORK, BUILDING CONSTRUCTION, OR BUILDING ADDITIONS OBSERVED IN THE PROCESS OF CONDUCTING FIELD WORK.
- THERE IS NO EVIDENCE OF PROPOSED CHANGES IN STREET RIGHT OF WAY LINES.
- THERE IS NO EVIDENCE OF RECENT STREET OR SIDEWALK CONSTRUCTION OR REPAIRS OBSERVED IN THE PROCESS OF CONDUCTING FIELDWORK, UNLESS OTHERWISE NOTED.
- SUBJECT TO THE RIGHTS OF THE PUBLIC IN THE DETROIT RIVER.
- APPROXIMATE UPLAND AREA OF 2.8 ACRES.

NOTE TO THE CLIENT, INSURER, AND LENDER – WITH REGARD TO TABLE A, ITEM 11, SOURCE INFORMATION FROM PLANS AND MARKINGS WILL BE COMBINED WITH OBSERVED EVIDENCE OF UTILITIES PURSUANT TO SECTION 5.E.IV. TO DEVELOP A VIEW OF THE UNDERGROUND UTILITIES. HOWEVER, LACKING EXCAVATION, THE EXACT LOCATION OF UNDERGROUND FEATURES CANNOT BE ACCURATELY, COMPLETELY, AND RELIABLY DEPICTED.

LOCATION MAP
(NOT TO SCALE)



ZONING INFORMATION

ZONED R6 (HIGH DENSITY RESIDENTIAL) ZONING DISTRICT

7850 EAST JEFFERSON AVENUE IS ZONED R6 (HIGH DENSITY RESIDENTIAL) ZONING DISTRICT PER ZONING LETTER DATED FEBRUARY 18, 2019. THE LETTER STATES: "THE CURRENT LEGAL, CONFORMING USE OF THE PROPERTY IS 'VACANT LAND' PER DEMOLITION PERMIT 29412 ISSUED AUGUST 20, 1976. THE PROPOSED USE OF THIS PROPERTY FOR 'MULTI-FAMILY' IS PERMITTED BY-RIGHT PER SECTION 61-9-114 OF THE DETROIT ZONING ORDINANCE SUBJECT TO COMPLIANCE WITH ALL RELEVANT CODES AND ORDINANCES."

FOR MORE INFORMATION REFER TO THE CITY OF DETROIT ZONING ORDINANCE MANUAL.

Sec. 61-13-7. R6.
(Ord. No. 11-05, §1, 5-28-05; Ord. No. 34-05, §1, 12-06-05; Ord. No. 38-14, §1, 10-16-2014)

Use	Minimum Lot Dimensions		Minimum Setbacks (feet)			Max. Height (feet)	Max. Lot Coverage(%)	Max FAR	Add'l. Regs.
	Area (Sq ft)	Width (feet)	Front	Side*	Rear				
Sec. Reference	Sec. 61-13-142		Sec. 61-16-122	Sec. 61-13-151		Sec. 61-13-152	Sec. 61-13-156 Sec. 61-13-157		
*Formula A = Length (feet) ÷ 2 (height) /15				*Formula B = Length (feet) ÷ 2 (height) /6					
Accessory buildings/structures						15			Sec. 61-13-126
Educational institutions	7000	70	20	Formula B	30			2.00	Sec. 61-13-19; Sec. 61-13-131
Fire or police stations			20	15	30			2.00	
Libraries or museums	10000	70	20	Formula B	30			2.00	Sec. 61-13-19
Marinas			20	20		35			Sec. 61-13-91
Multiple-family dwellings	7000	70	20	Formula A	30		(0.07 RSR)	2.00	
Neighborhood center (non-profit)	7000	70	20	Formula B	30			1.50	Sec. 61-13-19
Outdoor recreation facilities									Sec. 61-13-131
Parking lots or parking areas			20	10					Sec. 61-13-102; Article XIV, Division 1, Subdivision
Parking structures			20	Formula B	5			2.00	Sec. 61-13-103
Public utilities			20	15	30			2.00	
Religious institutions	10000	70	20	Formula B	30			2.00	Sec. 61-13-19; Sec. 61-13-104
Rooming houses	7000	70	20	Formula A	30		(0.07 RSR)	2.00	
Schools	10000	70	20	Formula B	30			2.00	Sec. 61-13-19; Sec. 61-13-131
Single-family dwellings, Religious residential facilities	5000	50	20	4 ft minimum/ 14 ft combined	30	35	35 (See also Sec. 61-13-105)		
Town houses (attached group)	7000	70	20	Formula A	30			2.00	Sec. 61-13-106
Two-family dwellings	6000	55	20	4 ft minimum/ 14 ft combined	30	35	35 (See also Sec. 61-13-107.)		Sec. 61-13-106
Agricultural uses	See: Sec. 61-12-329								Sec. 61-12-131
All other uses	7000	70	20	Formula B	30			2.00	

TABLE OF ENCROACHMENTS

A	WEST FACE OF WALL 0.1' EAST OF EAST PROPERTY LINE
B	FENCE 1.0' WEST OF EAST PROPERTY LINE
C	WEST FACE OF WALL 0.4' WEST OF EAST PROPERTY LINE
D	BUILDING REMNANT 0.5' OF EAST OF EAST PROPERTY LINE
E	FENCE 3.6' WEST OF EAST PROPERTY LINE
F	FENCE POST 0.4' EAST OF EAST PROPERTY LINE
G	WEST FACE OF WALL 0.4' WEST OF EAST PROPERTY LINE

LEGEND – EXISTING

- SECTION LINE
- E/ PAVEMENT
- CURB
- E/ GRAVEL
- CL ROAD
- E/ WALK
- MISC. LINE
- FENCE
- GUARD RAIL
- WALL
- BLDG. LINE
- OVERHANG LINE
- T/ BANK
- B/ BANK
- CL DITCH/STREAM
- WATER EDGE
- STORM LINE
- SAN. LINE
- WATER LINE
- GAS LINE
- UG ELEC. LINE
- UG TELE. LINE
- UG CABLE TV LINE
- PAINT STRIPE
- COMBINED SEWER
- PLD LINE
- STEAM LINE
- ELECTRIC OVERHEAD
- SAN. MH
- C.O. SAN. CLEAN OUT
- SAN. RISER
- SAN. PUMP STATION
- COMB. MH
- GATE VALVE
- HYDRANT
- WATER VALVE
- WATER METER
- FDC CONNECTION
- IRRIGATION CONTROL BOX
- STORM MH
- CATCH BASIN
- BEEHIVE CB
- CULVERT E.S.
- C.O. STORM CLEAN OUT
- ROUND CB
- LIGHT POLE
- UTILITY POLE
- ELEC. TRANS.
- AIR CONDITIONER
- ELEC. MH
- ELEC. METER
- ELEC. RISER
- PUBLIC LIGHTING MH
- GAS METER
- GAS RISER
- GAS VALVE
- GAS MH
- TELE. RISER
- TELE. MH
- TELE. CROSS BOX
- CABLE RISER
- MANHOLE
- SIGN
- PROT. POST/GUARD POST
- GUY
- DECIDUOUS TREE
- CONIFEROUS TREE
- DEAD TREE
- UTILITY FLAG
- BLDG. CORNER (FIELD LOCATED)
- HANDICAP PARKING
- 000.00+/-000.0 EXISTING ELEVATION
- SOIL BORING
- MONITORING WELL
- MISC. TOPO. SHOT
- SURVEY CONTROL POINT
- FOUND IRON
- FOUND NAIL
- F. CUT CROSS
- SECTION COR.
- FENCE POST
- BENCHMARK
- FOUND PIPE
- FOUND MON.
- ASPH. ASPHALT
- CONC. CONCRETE
- G.P. GUARD POST
- C.L.F. CHAIN-LINK FENCE
- D.L. DOOR LEDGE
- F.F. FINISHED FLOOR
- O.H. OVERHANG
- F.I. FOUND IRON
- S.I. SET IRON
- F.I.P. FOUND IRON PIPE
- M. MEASURED
- R. RECORD
- C. CALCULATED
- F.M. FOUND MONUMENT
- S.N. SET NAIL
- CMP CORREGATED METAL PIPE
- RCP REINFORCED CONCRETE PIPE
- G.L. GROUND LIGHT

PROPERTY DESCRIPTION

(PER TITLE POLICY NO. 703549, PREPARED BY CINNAIRE TITLE SERVICES D/B/A CAPITAL FUND TITLE SERVICES DATED APRIL 01, 2019)

THE LAND REFERRED TO IN THIS COMMITMENT IS SITUATED IN THE COUNTY OF WAYNE, STATE OF MICHIGAN, IS DESCRIBED AS FOLLOWS:

LOTS 1 AND 2 OF COMMISSIONERS SUBDIVISION OF PART OF THE VAN DYKE ESTATE AND FARM (SO-CALLED) PRIVATE CLAIMS 100 AND 679, TOWN 1 SOUTH, RANGE 12 EAST, CITY OF DETROIT, WAYNE COUNTY, MICHIGAN, ACCORDING TO THE PLAT OF SAID SUBDIVISION AS RECORDED IN LIBER 4 OF PLATS, PAGE 98, WAYNE COUNTY RECORDS.

SCHEDULE B – SECTION II EXCEPTIONS

(PER TITLE POLICY NO. 703549, PREPARED BY CINNAIRE TITLE SERVICES D/B/A CAPITAL FUND TITLE SERVICES DATED APRIL 01, 2019)

– THERE ARE NO APPLICABLE RECORDED EXCEPTIONS SHOWN ON THIS TITLE COMMITMENT POLICY.

CERTIFICATION

TO:

- CINNAIRE DEVELOPMENT FINANCE MANAGEMENT, LLC, A DELAWARE LIMITED LIABILITY COMPANY, AS ADMINISTRATIVE AGENT FOR DEVELOP MICHIGAN REAL ESTATE FUND, LP, A DELAWARE LIMITED PARTNERSHIP
- GDC-EAST JEFFERSON, LLC, A MICHIGAN LIMITED LIABILITY COMPANY
- 7850-9%-1 LIMITED DIVIDEND HOUSING ASSOCIATION, LLC, A MICHIGAN LIMITED LIABILITY COMPANY
- 7850-4%-1 LIMITED DIVIDEND HOUSING ASSOCIATION, LLC, A MICHIGAN LIMITED LIABILITY COMPANY
- 7850-9%-2 LIMITED DIVIDEND HOUSING ASSOCIATION, LLC, A MICHIGAN LIMITED LIABILITY COMPANY
- 7850-4%-2 LIMITED DIVIDEND HOUSING ASSOCIATION, LLC, A MICHIGAN LIMITED LIABILITY COMPANY
- 7850-9%-3 LIMITED DIVIDEND HOUSING ASSOCIATION, LLC, A MICHIGAN LIMITED LIABILITY COMPANY
- 7850-4%-3 LIMITED DIVIDEND HOUSING ASSOCIATION, LLC, A MICHIGAN LIMITED LIABILITY COMPANY
- GDC-7850, LLC, A MICHIGAN LIMITED LIABILITY COMPANY
- CINNAIRE TITLE SERVICES D/B/A CAPITAL FUND TITLE SERVICES
- OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY
- INVEST DETROIT FOUNDATION, (ACTING BY AND THROUGH ITS CHASE INVEST DETROIT FUND LLC, A MICHIGAN LIMITED LIABILITY COMPANY) ISAOA, ATIMA
- MICHIGAN STATE HOUSING DEVELOPMENT AUTHORITY

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2016 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 1 – 4, 6(A) AND (B), 7(A) AND (B), 8 – 10(A), 11, 13, 16, 17, 19 AND 20 OF TABLE A THEREOF, AND ITEM 21(A), AS AGREED TO BETWEEN THE UNDERSIGNED AND MSHDA.

THE FIELDWORK WAS COMPLETED ON FEBRUARY 11, 2019.

DATE OF PLAT OR MAP: APRIL 01, 2019
REVISED: APRIL 24, 2019

ANTHONY L. GONZALEZ, MICHIGAN P.S. NO. 56165
tgonzalez@giffelswebster.com

giffels webster

Engineers
Surveyors
Planners
Landscape Architects

28 West Adams Road
Suite 1200
Detroit, MI 48226
p (313) 962-4442
f (313) 962-5068
www.giffelswebster.com

Executive:	J.N.R.
Manager:	C.A.A.
Designer:	J.Z.B./A.L.G.
Quality Control:	C.A.A.
Private Claim:	100
	T-01-S R-12-E

Professional Seal:

STATE OF MICHIGAN
ANTHONY L. GONZALEZ
PROFESSIONAL SURVEYOR
No. 56165
LICENSED PROFESSIONAL SURVEYOR

811
Know what's below.
Call before you dig.

DATE:	ISSUE:
04.24.19	UPDATED CERTIFIED PARTIES & ADDED ZONING INFORMATION

Developed For:

ALTA/NSPS LAND TITLE SURVEY

7850 E. JEFFERSON AVENUE

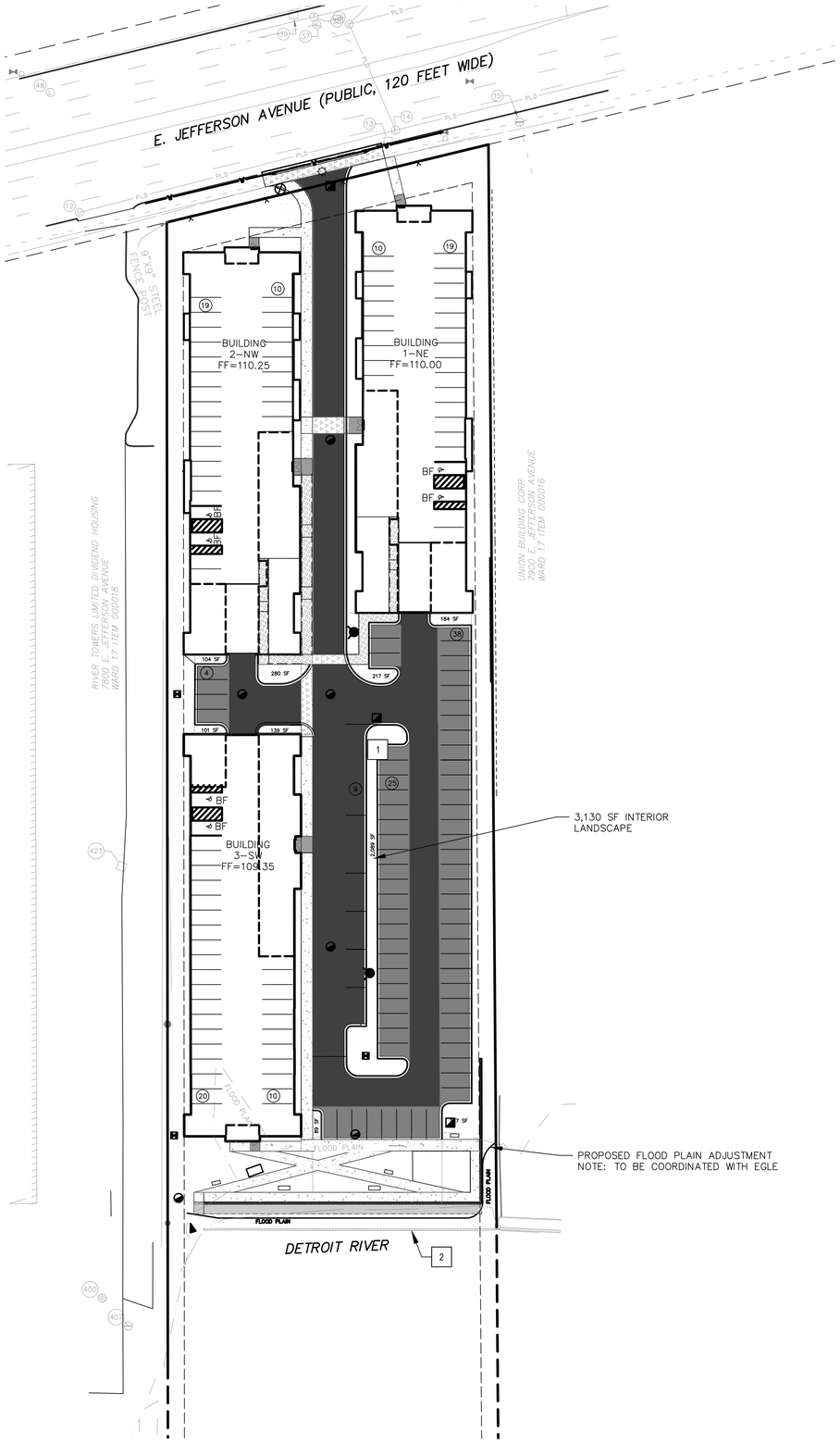
CITY OF DETROIT
WAYNE COUNTY
MICHIGAN

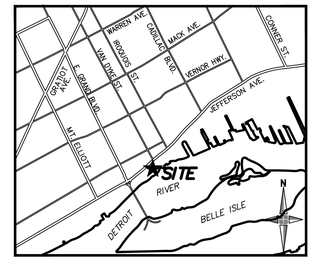
Date:	04.01.19
Scale:	1"=30'
Sheet:	1 OF 1
Project:	19604.00D

N:\19\19600\19604.00D - 7850 E Jefferson ALTA MSHDA Cert\Drawings\ALTA\19604.00D ALTA 7850 E Jefferson updated.dwg

Attachment C

Site Development Plans





LOCATION MAP
(NOT TO SCALE)

SITE PLAN KEY NOTES

1. PLAYSCAPE
2. EXISTING SEAWALL

INTERIOR LANDSCAPE REQUIREMENT

REQUIRED = 22SF*PARKING SPACES PROVIDED
REQUIRED = 22SF*76=1,672 SF
PROVIDED = 3,130 SF

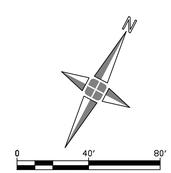
PARKING REQUIREMENTS

	REQUIRED	PROVIDED
Parking Spaces*	169	164
Barrier-Free Spaces (Van Accessible)**	6(1)	6(3)
Off-Street Loading Zone***	2	2

*Detroit Zoning Ordinance 61-14-24 (0.75 Spaces Per Dwelling Unit, Multifamily housing where located within 0.5 mi of high-frequency transit corridor)

**Detroit Zoning Ordinance 61-14-122 (151-200 Total Spaces Provided)

***Detroit Zoning Ordinance 61-14-81 (100,000-500,000 Sq.Ft.; (1) 12x35 Space and (1) 12x55 Space Required)



NOT FOR CONSTRUCTION - SITE PLAN ONLY

giffels webster
Engineers
Surveyors
Planners
Landscape Architects

28 West Adams Road
Suite 1200
Detroit, MI 48226
p (313) 962-4442
f (313) 962-5068
www.giffelswebster.com

Executive:	M. Marks
Manager:	D. Root
Designer:	S. Forest
Quality Control:	M. Darga
Section:	PC - Van Dyke Farm

Professional Seal:

811 Know what's **below.** **Call** before you dig.

DATE:	ISSUE:
2019-06-28	Design Development Owner Review
2019-07-24	Design Development Owner Review
2019-08-07	Site Plan Re-Submission
2019-09-12	Site Plan Re-Submission
2019-11-13	Site Plan Re-Submission
2020-03-27	Revised Site Plan Approval
2020-04-08	Revised Site Plan Approval
2020-07-02	Revised Site Plan Approval
2021-01-06	EGLE Submittal

Developed For:
Ginosko Development Co.

41800 W. 11 Mile Rd
Ste. 209
Novi, MI 48375
T: (248) 513-4900
F: (248) 513-4904

Overall Site Plan

7850 E. Jefferson Ave.

City of Detroit
Wayne County
MICHIGAN

Date:	2019-04-25
Scale:	1"=40'
Sheet:	C-500
Project:	19604-10

V:\19604-010 7850 East Jefferson\Design\CAD\Sheet Files\C-500 Overall Site Plan.dwg

Multifamily Residential

7850 E JEFFERSON AVE.

Detroit, MI 48214

GINOSKO DEVELOPMENT CO

HOOKER | DE JONG
Architects & Engineers
316 Morris Avenue
Studio Suite 410
Muskegon, MI 49440
P 231 | 722 | 3407
F 231 | 722 | 2589

SHEET INDEX

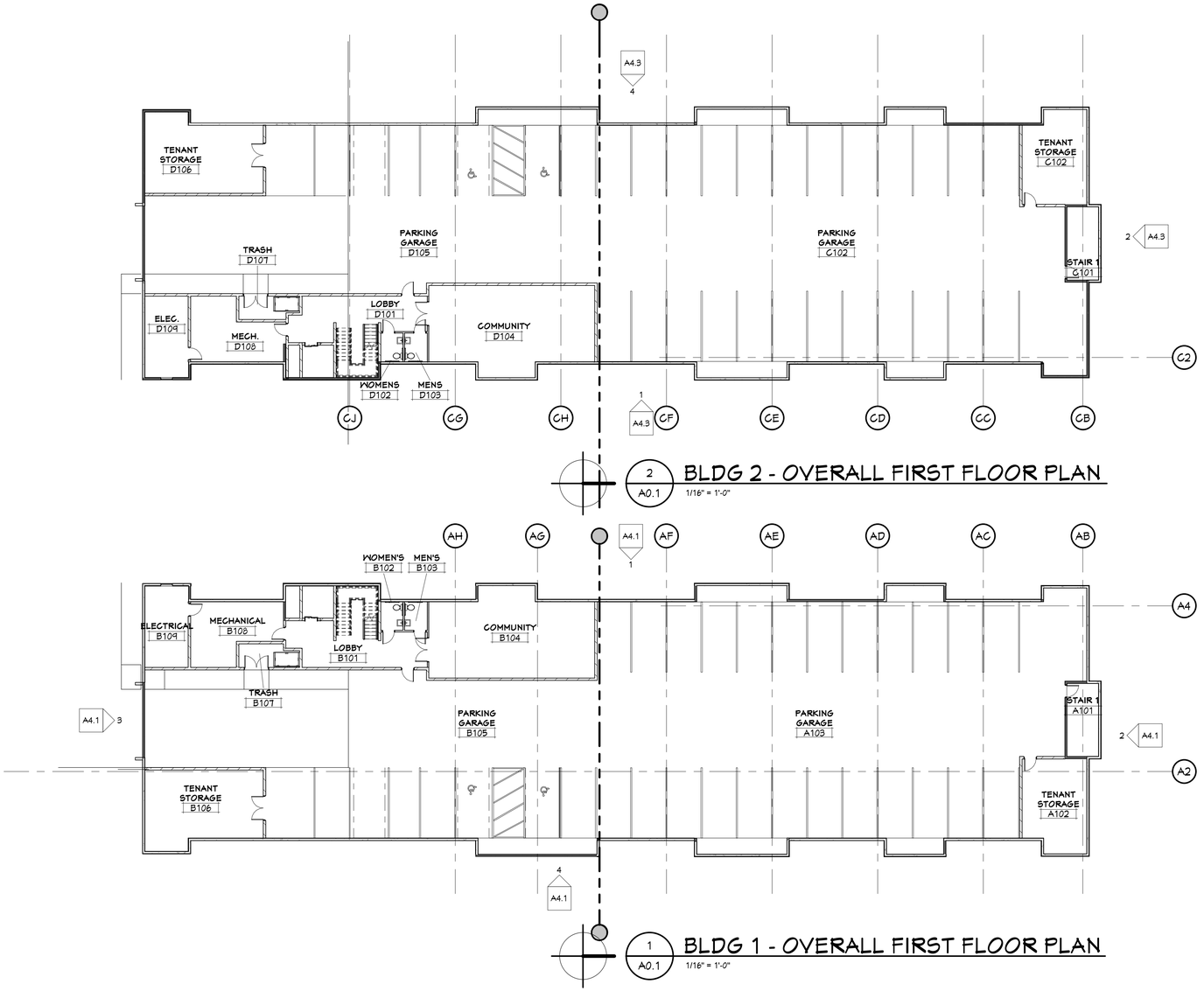
SHEET INDEX

SHEET #	SHEET NAME	DESIGN ISSUANCE	CURRENT ISSUANCE DATE	CURRENT ISSUANCE DESCRIPTION

CODE SUMMARY

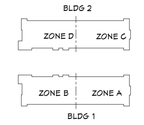
PROJECT DESCRIPTION:	PROJECT INCLUDES CONSTRUCTION OF (3)THREE - 15 UNIT RESIDENTIAL BUILDINGS IN TWO CONFIGURATIONS. ALL BUILDINGS SHALL BE (5) FIVE STORIES WITH CONCRETE PODIUM CONSTRUCTION ON THE GROUND LEVEL AND STICK CONSTRUCTION ABOVE. EACH BUILDING WILL CONTAIN TWO STAIR TOWERS AND AN ELEVATOR, ALL OF WHICH MUST EXTEND TO THE ROOFTOP PATIO AREA. EACH UNIT WILL HAVE A SMARTPAK HVAC SYSTEM, WHICH WILL REQUIRE EXTERIOR EXHAUST/INTAKE GRILLS. THE FACADE DESIGN MAY NOT ALTER LOCATIONS OF GRILLS OR WINDOWS. FACADE MATERIALS MAY RANGE FROM MASONRY TO METAL PANELS OR CEMENTITIOUS BOARD
APPLICABLE CODES:	2015 MICHIGAN BUILDING CODE 2015 MICHIGAN MECHANICAL CODE 2015 MICHIGAN PLUMBING CODE 2015 NEC W/ PART 8 DELEGATRICAL CODE RULES 2009 ICC/ANSI A117.1 2015 INTERNATIONAL ENERGY CONSERVATION CODE AND 2013 ASHRAE 90.1-2013 AS AMENDED IN THE MICHIGAN UNIFORM ENERGY CODE UNIFORM ACCESSIBILITY STANDARDS (UFAS)
USE GROUP:	RESIDENTIAL - GROUP R-2 (SECTION 304)
CONSTRUCTION TYPE:	TYPE VA CONSTRUCTION (TABLE 504.4)
AUTOMATIC SPRINKLER SYSTEM:	BUILDING WILL BE EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH 903.3.1.1 (NFPA 13)

7850 E JEFFERSON AVE.
JULY 09, 2020: CONDO DOC ISSUANCE
4-1177



2 A0.1 **BLDG 2 - OVERALL FIRST FLOOR PLAN**
1/16" = 1'-0"

1 A0.1 **BLDG 1 - OVERALL FIRST FLOOR PLAN**
1/16" = 1'-0"



KEYPLAN
NTS

1/16" = 1'-0"
0' 8' 16' 32' 64'

HOOKER | DE JONG
Architects & Engineers
316 Morris Avenue
Studio Suite 410
Muskegon, MI 49440
P 231 | 722 | 3407
F 231 | 722 | 2589

Multifamily Residential
7850 E JEFFERSON AVE.
Detroit, MI 48214
GINOSKO DEVELOPMENT CO

Project Number	4-1177

ISSUANCE

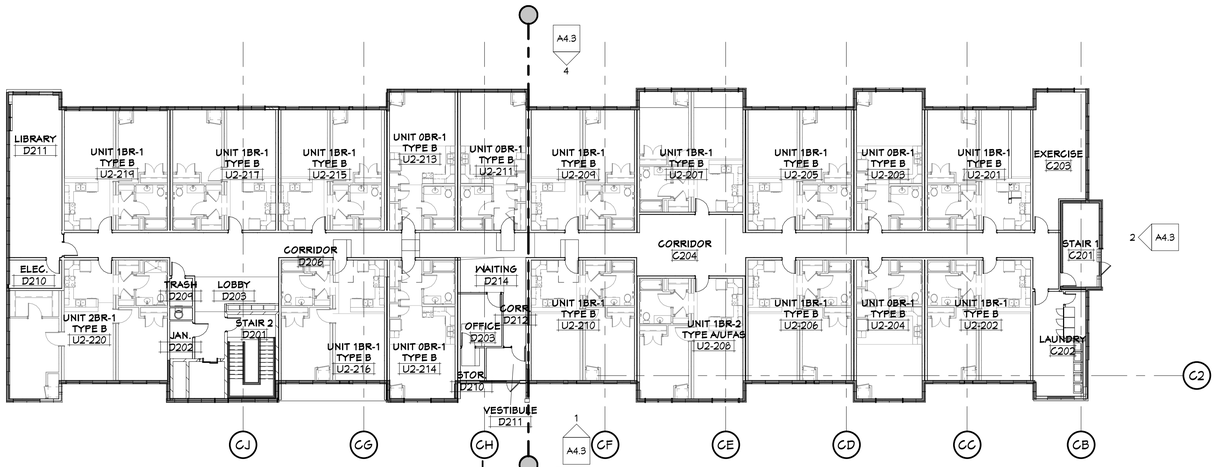
No.	Date	Description
1	2020.05.08	DESIGN ISSUE 40%
2	2020.07.09	CONDO DOCS

NOT FOR CONSTRUCTION

OVERALL FIRST FLOOR PLANS

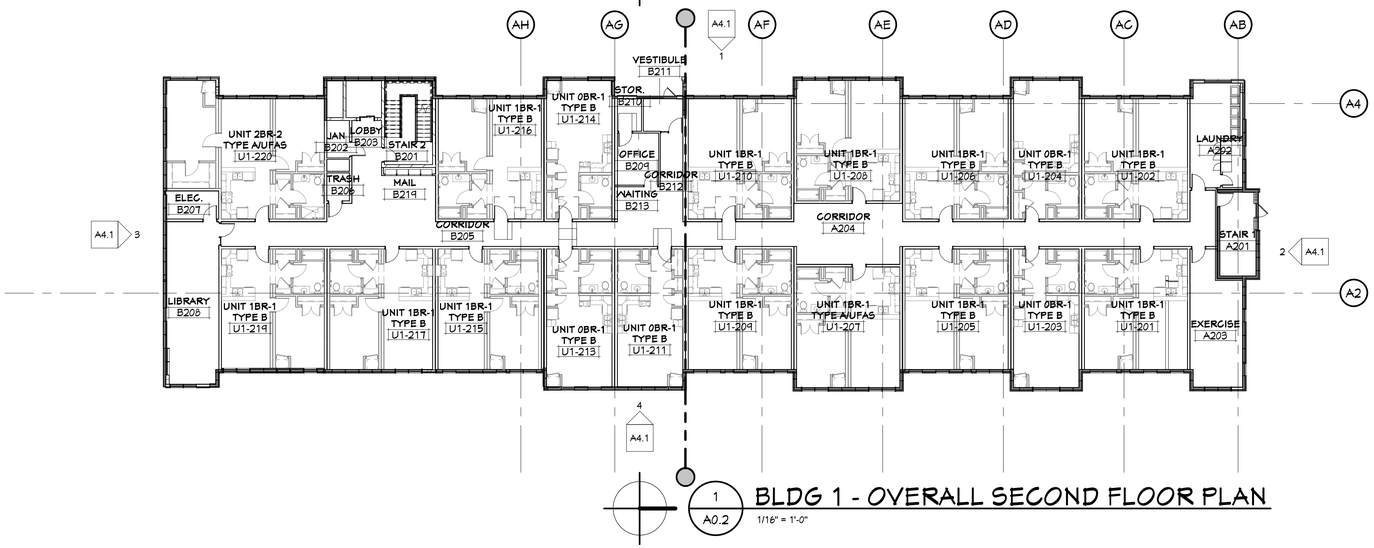
A0.1

2/4/2021 9:33:38 AM
C:\1-Revit Projects\4-1177_ARCH_REVISED_justin.rvt



2 A0.2 BLDG 2 - OVERALL SECOND FLOOR PLAN

1/16" = 1'-0"



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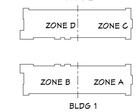
1/16" = 1'-0"



KEYPLAN

NTS

1/16" = 1'-0"

0' 8' 16' 32' 64'

H
DJ

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Multifamily Residential

7850 E JEFFERSON AVE.

Detroit, MI 48214

GINOSKO DEVELOPMENT CO

Project Number	4-1177

ISSUANCE

No.	Date	Description
1	2020.05.08	DESIGN ISSUE 40%
2	2020.07.09	CONDO DOCS

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OVERALL SECOND FLOOR PLANS

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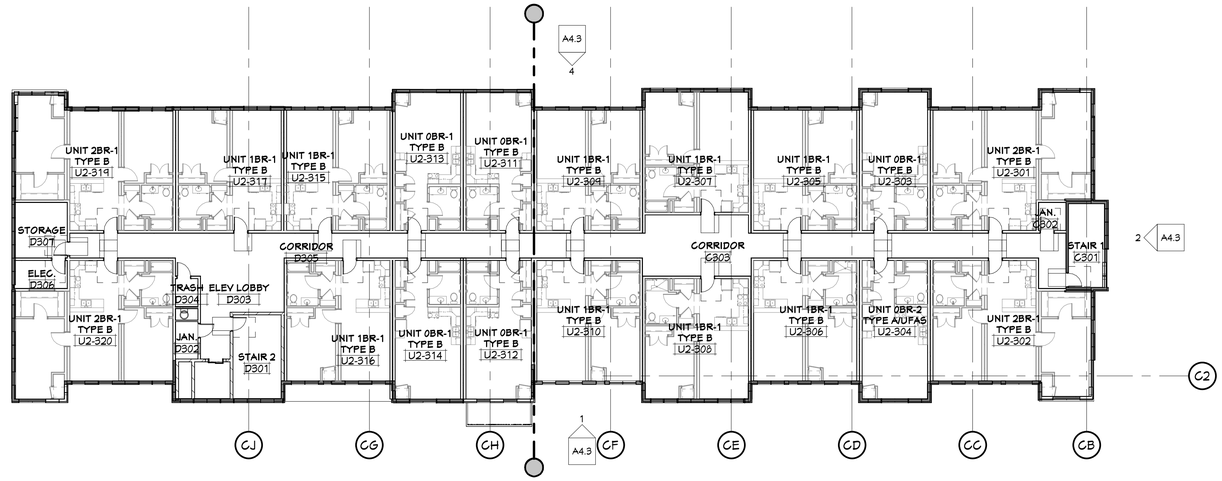

2 A0.3 BLDG 2 - OVERALL THIRD FLOOR PLAN

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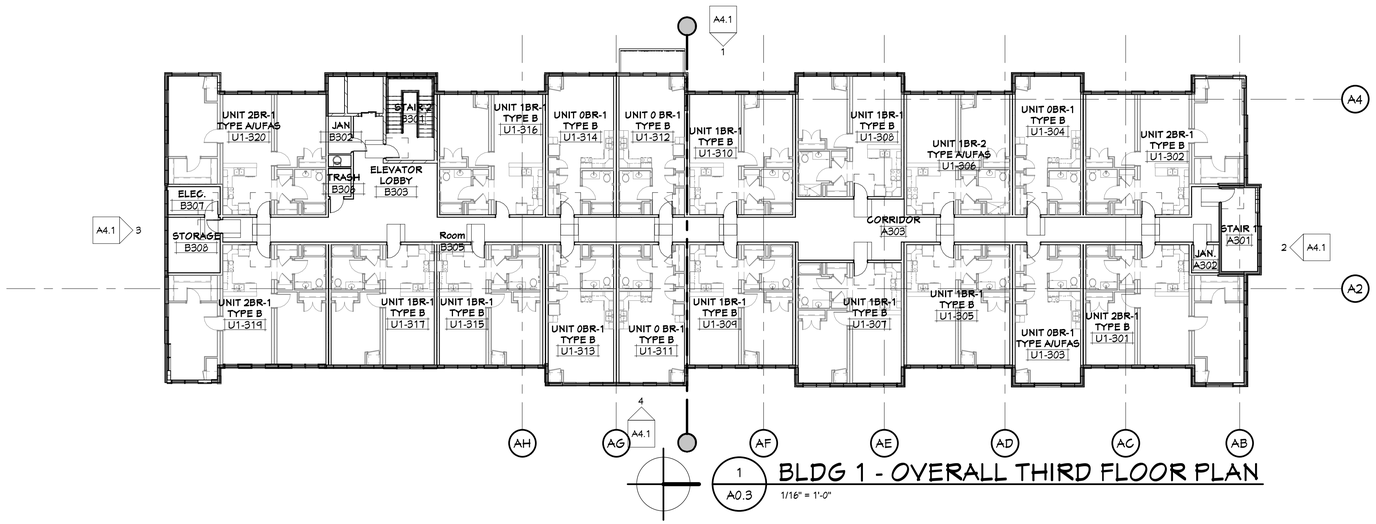

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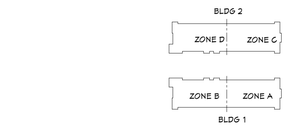
1/16" = 1'-0"



KEYPLAN

NTS

1/16" = 1'-0"

0' 8' 16' 32' 64'

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OVERALL THIRD FLOOR PLANS

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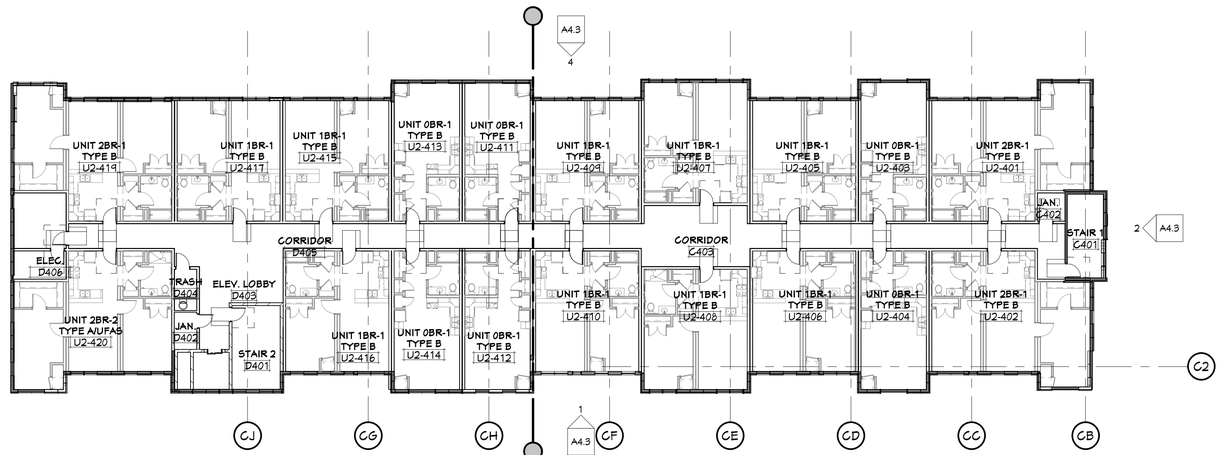

2 A0.4 BLDG 2 - OVERALL FOURTH FLOOR PLAN

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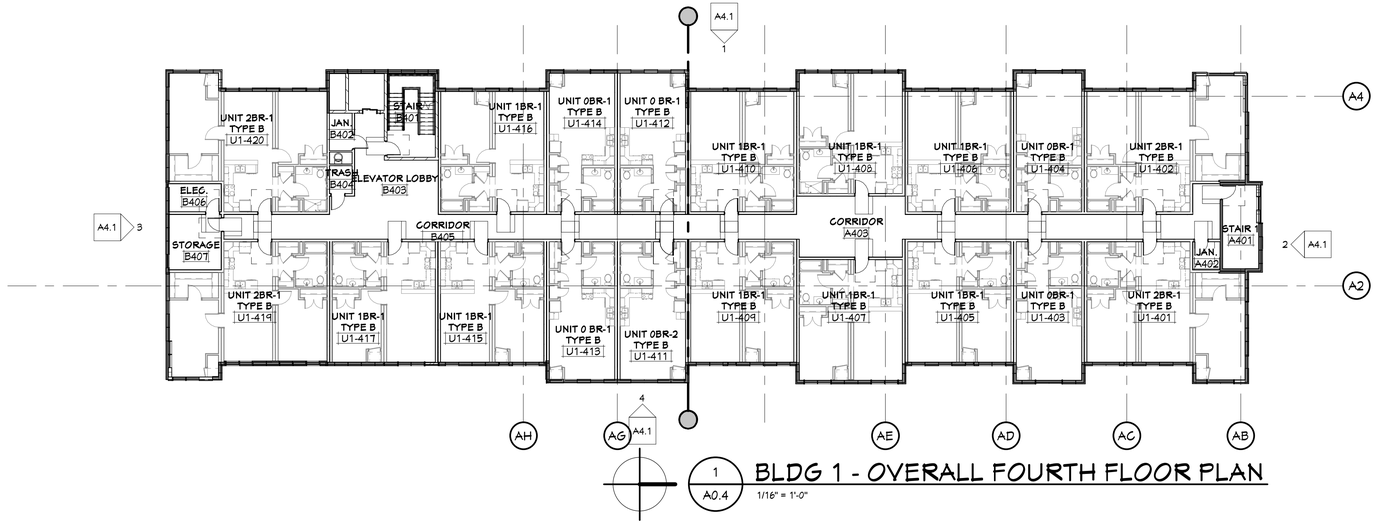

1 A0.4 BLDG 1 - OVERALL FOURTH FLOOR PLAN

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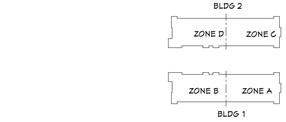

KEYPLAN

NTS

1/16" = 1'-0"

0' 8' 16' 32' 64'

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OVERALL FOURTH FLOOR PLAN

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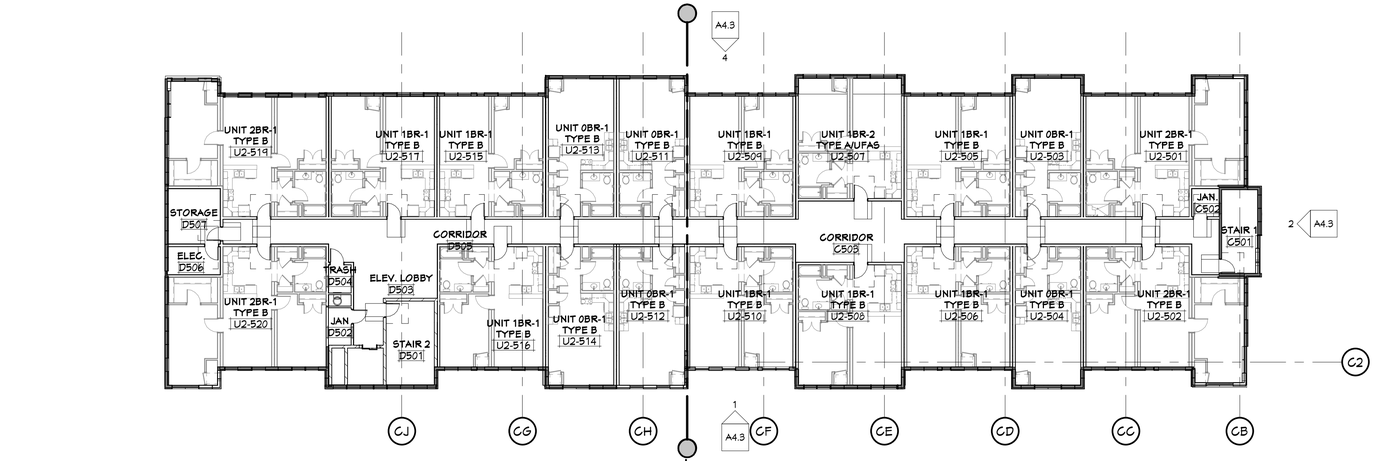
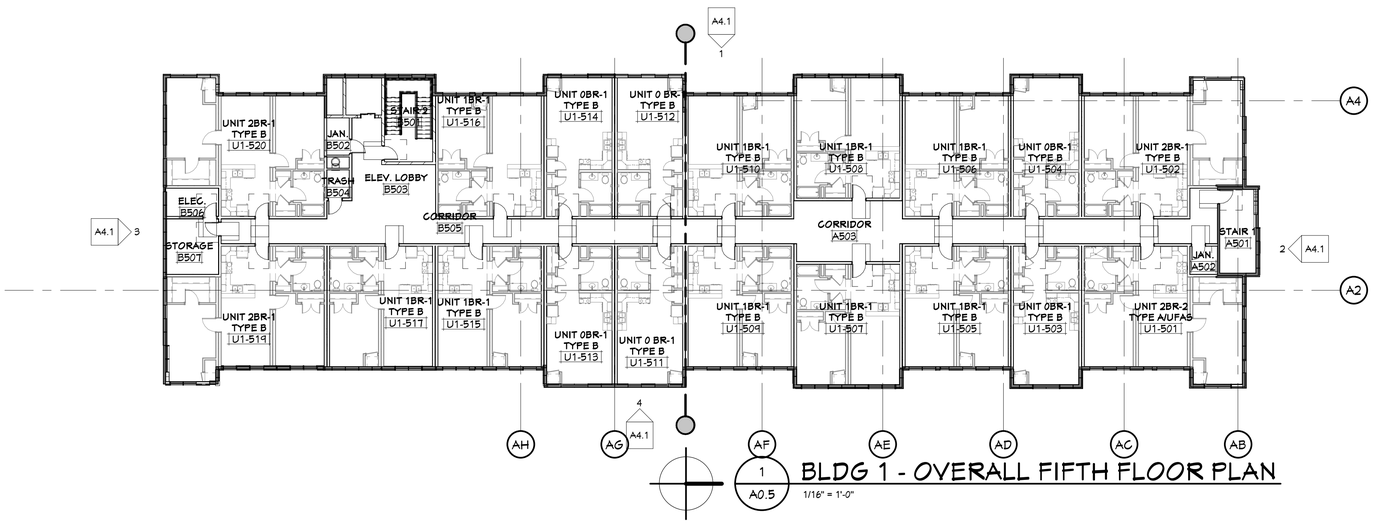


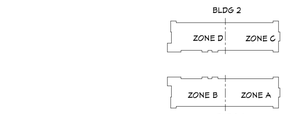
2 A0.5 BLDG 2 - OVERALL FIFTH FLOOR PLAN

1/16" = 1'-0"



1 A0.5 BLDG 1 - OVERALL FIFTH FLOOR PLAN

1/16" = 1'-0"



KEYPLAN

NTS

1/16" = 1'-0"

0' 8' 16' 32' 64'

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OVERALL FIFTH FLOOR PLAN

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ROOF PLAN LEGEND

	MEMBRANE ROOFING WITH NON-TAPERED INSULATION
	MEMBRANE ROOF WITH TAPERED INSULATION
	STANDING SEAM METAL ROOF
	SLOPE IN STRUCTURE
	SLOPE IN TAPERED INSULATION
XX	RD - ROOF DRAIN - SEE PLUMBING OD - OVERFLOW DRAIN - SEE PLUMBING
	ROOF WALKWAY PAD
	DOWNSPOUT NOZZLE (BELOW) - SEE PLUMBING
RT	ROOF TIE-OFF

GENERAL ROOF PLAN NOTES

(APPLIES TO ALL ROOF PLAN DRAWINGS)

1. CONTRACTOR TO FIELD MEASURE ALL AREAS. ALL QUANTITIES OF MATERIAL AND SIZES ARE THE RESPONSIBILITY OF THE CONTRACTOR. ALL MECHANICAL EQUIPMENT AND PLUMBING PENETRATIONS ARE NOT SHOWN. CONTRACTOR TO VERIFY QUANTITIES AND LOCATIONS.
2. CONTRACTOR TO PROVIDE SADDLES AT ALL RTU'S, EXHAUST FANS, ETC., AND AS SHOWN, AT A MINIMUM OF 1/4" PER FOOT AS REQUIRED. COORDINATE LOCATION AND QUANTITIES WITH OTHER DRAWINGS.
3. REFER TO MECHANICAL AND PLUMBING DRAWINGS FOR LOCATIONS OF EXHAUST FANS, RELIEF VENTS, THRU ROOF ETC. NOT SHOWN.
4. PROVIDE TAPERED INSULATION (SLOPING AT 1/4" PER FOOT) WHERE NOTED WITH THE LOW POINT TO BE 4" MINIMUM.
5. ALL WORK SHALL COMPLY WITH ROOFING MANUFACTURER'S STANDARDS FOR WARRANTY.
6. SEE X/AX.X FOR ROOF DRAIN DETAIL.
7. THICKNESS OF RIGID ROOF INSULATION MAY VARY FROM MANUFACTURER. ALL WOOD BLOCKING IS TO MATCH THICKNESS OF INSULATION.
8. SEE X/AX.X FOR ROOF CURB DETAIL.
9. SEE X/AX.X FOR VENT THRU ROOF DETAIL.

ROOF PLAN KEYNOTES

1. ROOF PATIO
2. -
3. -
4. -
5. -
6. -
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9. -
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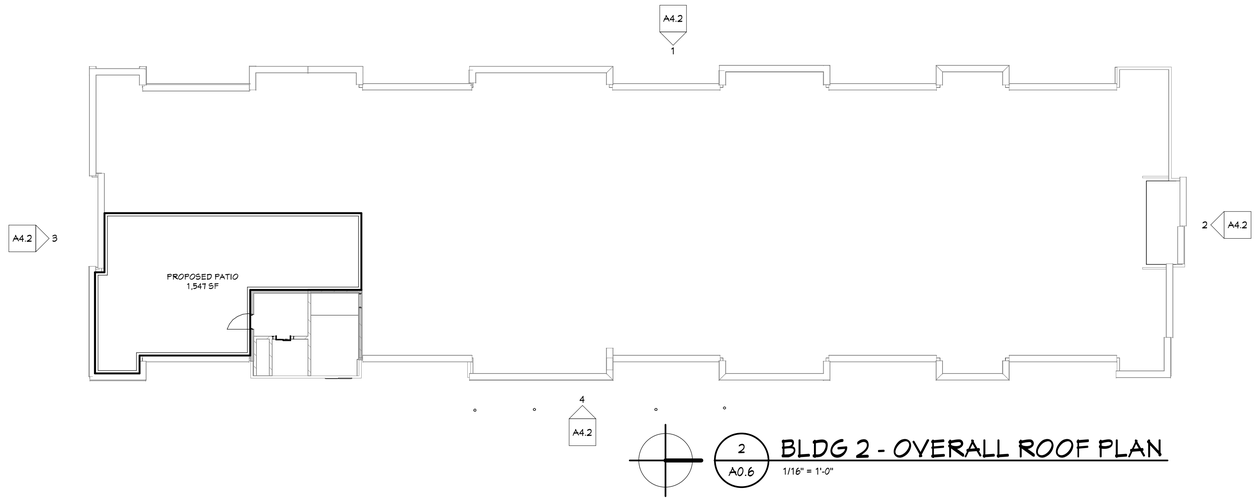
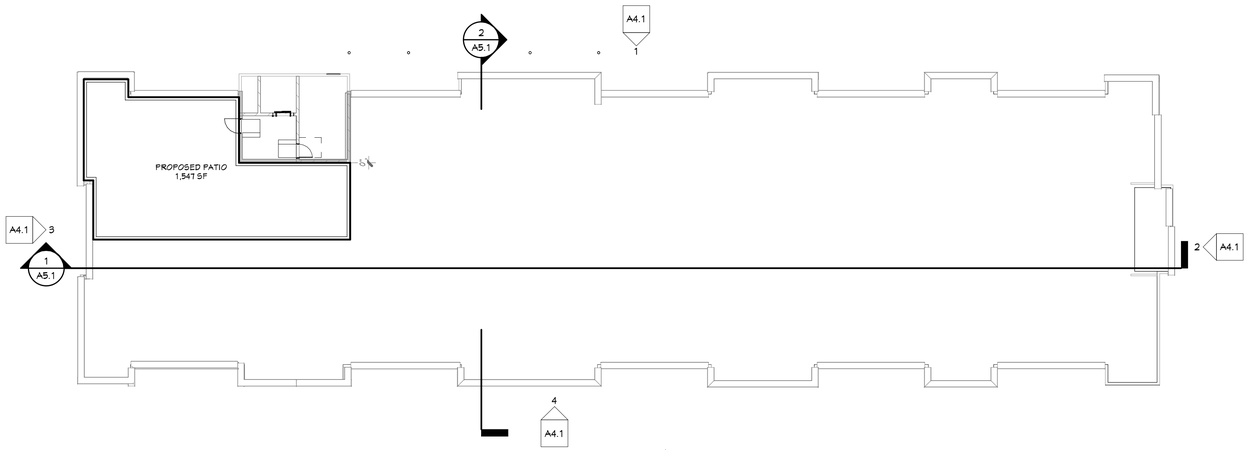
13. -
14. -
15. -



2 A0.6 BLDG 2 - OVERALL ROOF PLAN
1/16" = 1'-0"



1 A0.6 BLDG 1 - OVERALL ROOF PLAN
1/16" = 1'-0"

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BLDG 2
ZONE D | ZONE C
ZONE B | ZONE A
BLDG 1

KEYPLAN
NTS

1/16" = 1'-0"
0' 8' 16' 32' 64'

OVERALL ROOF PLANS

A0.6

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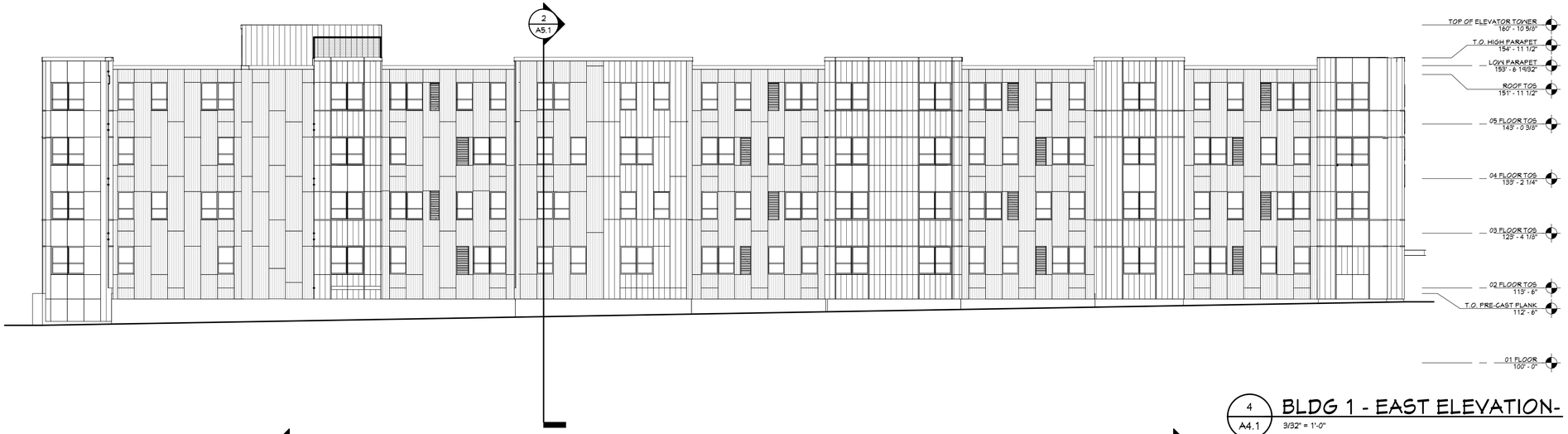
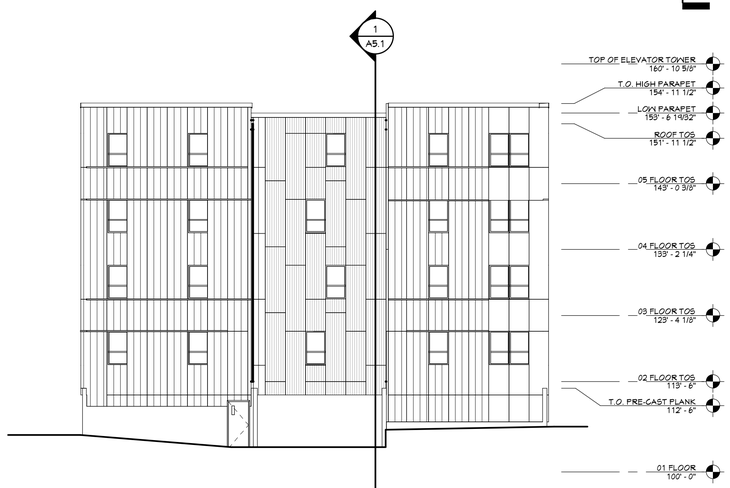


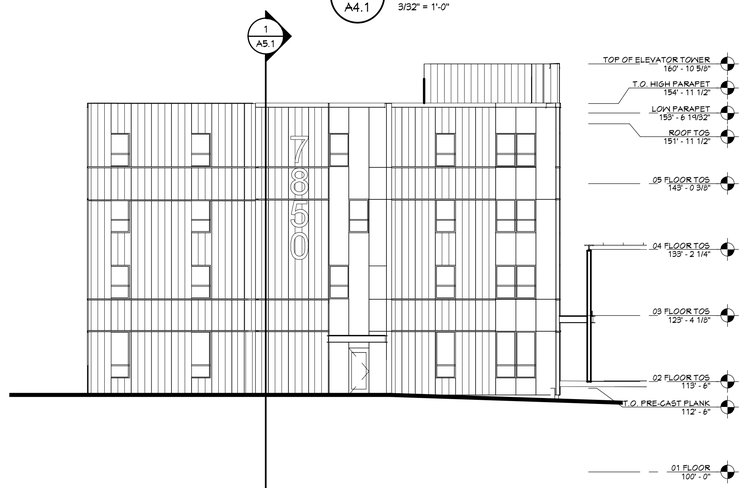
4 A4.1 BLDG 1 - EAST ELEVATION-

3/32" = 1'-0"



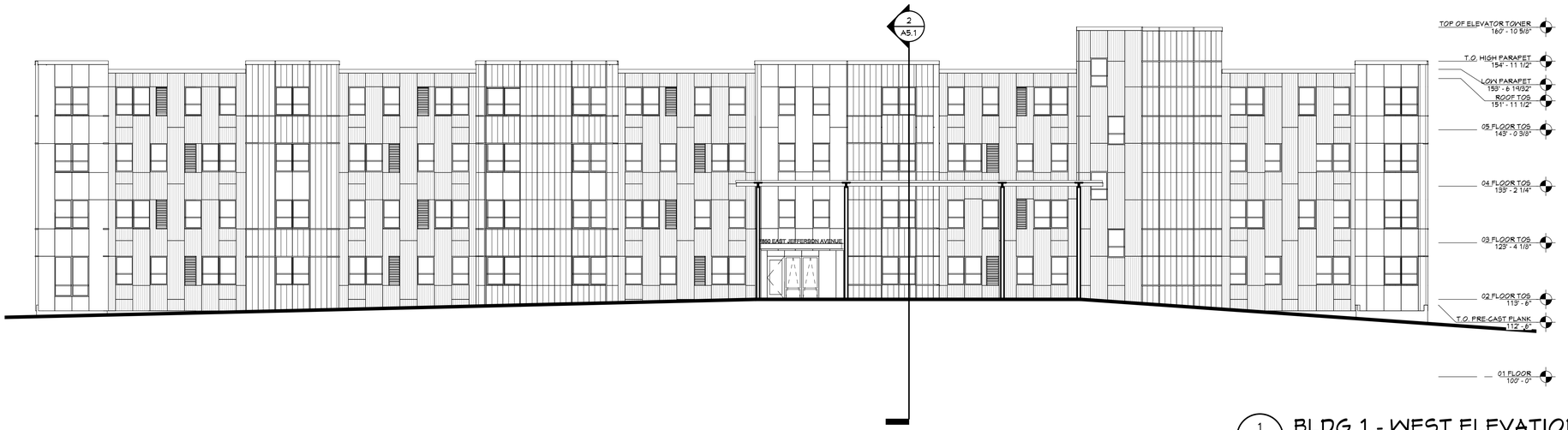
3 A4.1 BLDG 1 - SOUTH ELEVATION-

3/32" = 1'-0"



2 A4.1 BLDG 1 - NORTH ELEVATION-

3/32" = 1'-0"



1 A4.1 BLDG 1 - WEST ELEVATION-

3/32" = 1'-0"

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BUILDING 1 - EXTERIOR ELEVATIONS

A4.1

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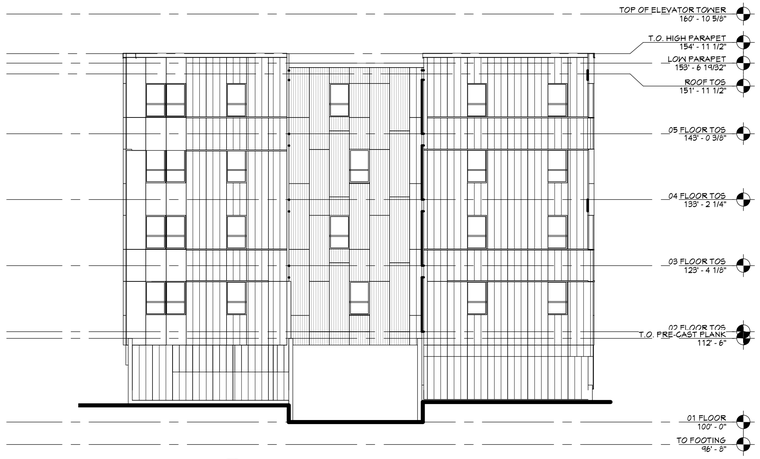
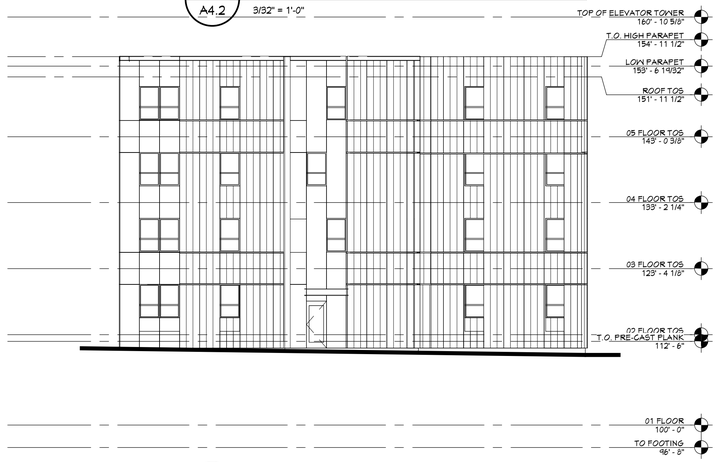
4 A4.2 **BLDG 2 - EAST ELEVATION**

3/32" = 1'-0"



3 A4.2 **BLDG 2 - SOUTH ELEVATION**

3/32" = 1'-0"



2 A4.2 **BLDG 2 - NORTH ELEVATION**

3/32" = 1'-0"

1 A4.2 **BLDG 2 - WEST ELEVATION**

3/32" = 1'-0"

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BUILDING 2 - EXTERIOR ELEVATIONS

A4.2

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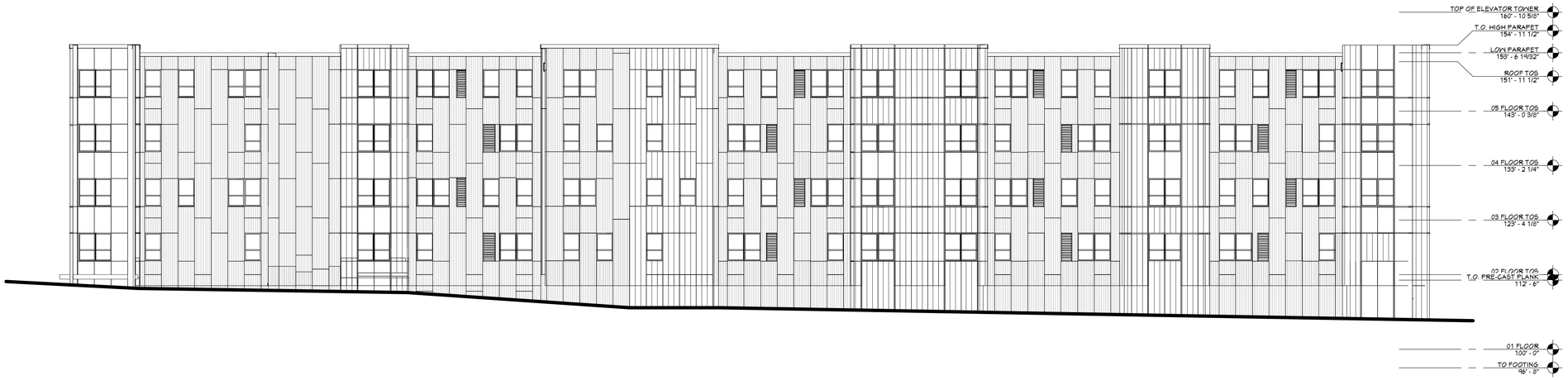
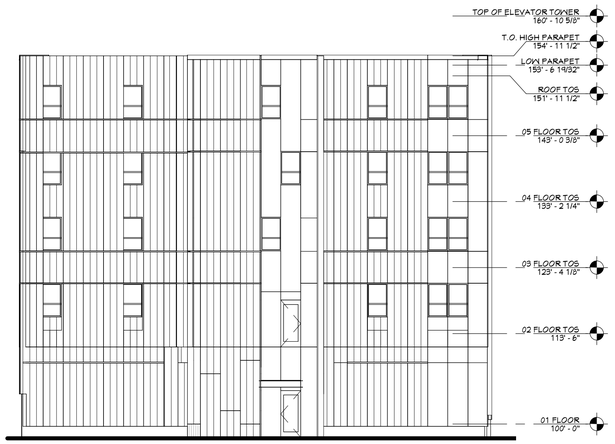


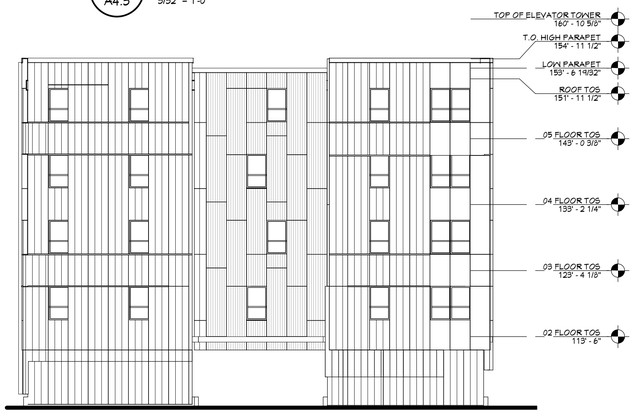
4 A4.3 **BLDG 3 - EAST ELEVATION**

3/32" = 1'-0"



3 A4.3 **BLDG 3 - EAST ELEVATION**

3/32" = 1'-0"



2 A4.3 **BLDG 3 - EAST ELEVATION**

3/32" = 1'-0"

1 A4.3 **BLDG 3 - EAST ELEVATION**

3/32" = 1'-0"

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BUILDING 3 - EXTERIOR ELEVATIONS

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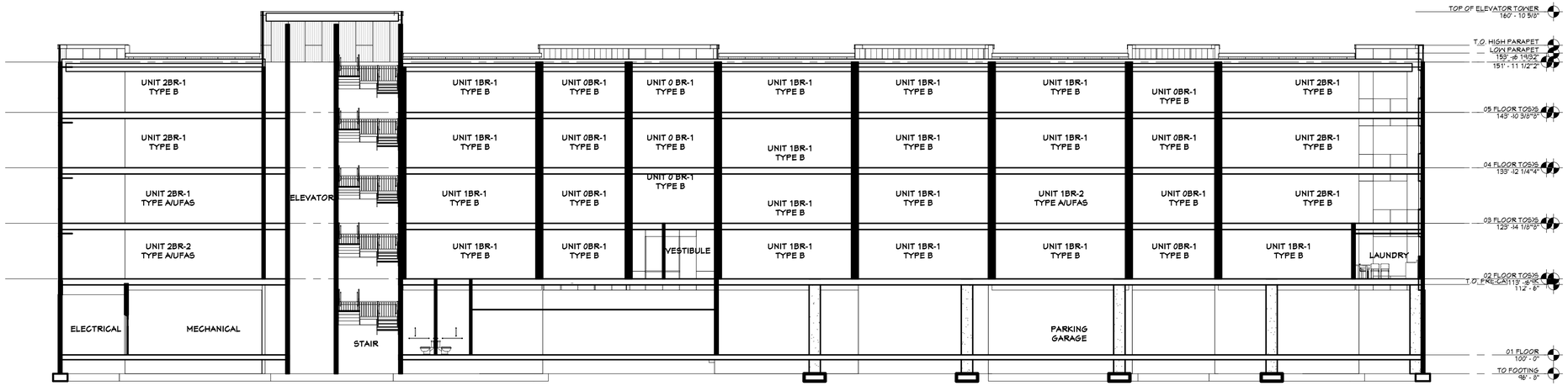
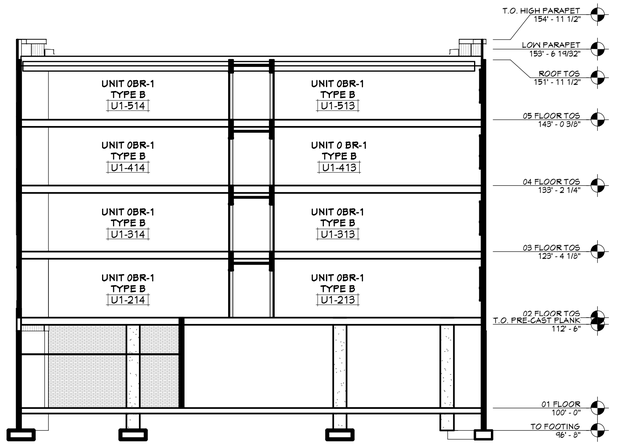
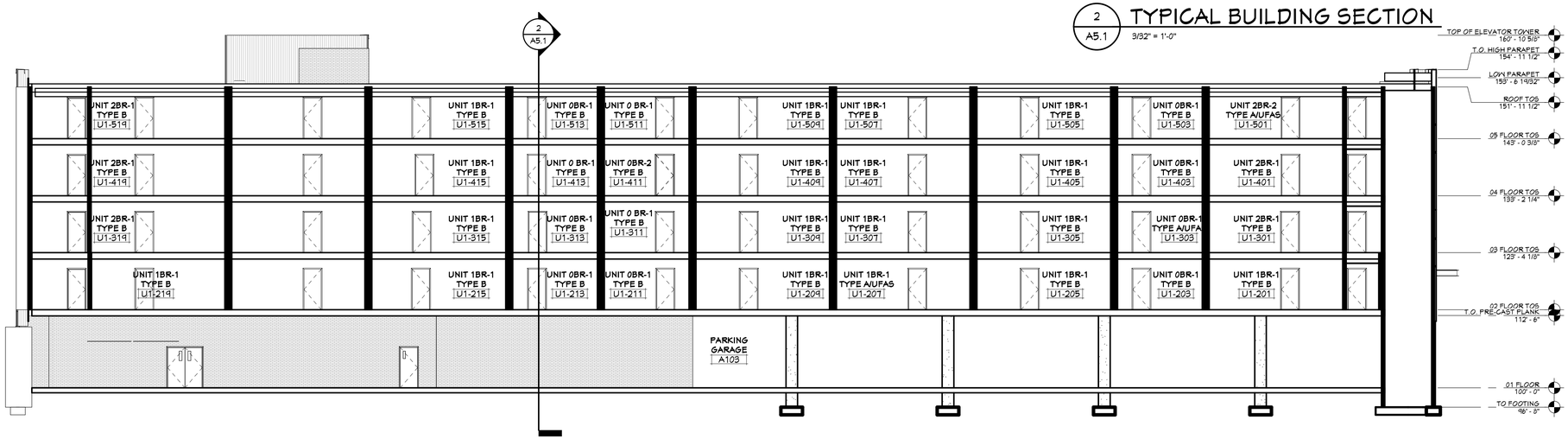




2 A5.1 TYPICAL BUILDING SECTION

3/32" = 1'-0"



1 A5.1 TYPICAL BUILDING SECTION

3/32" = 1'-0"

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BUILDING SECTIONS

A5.1

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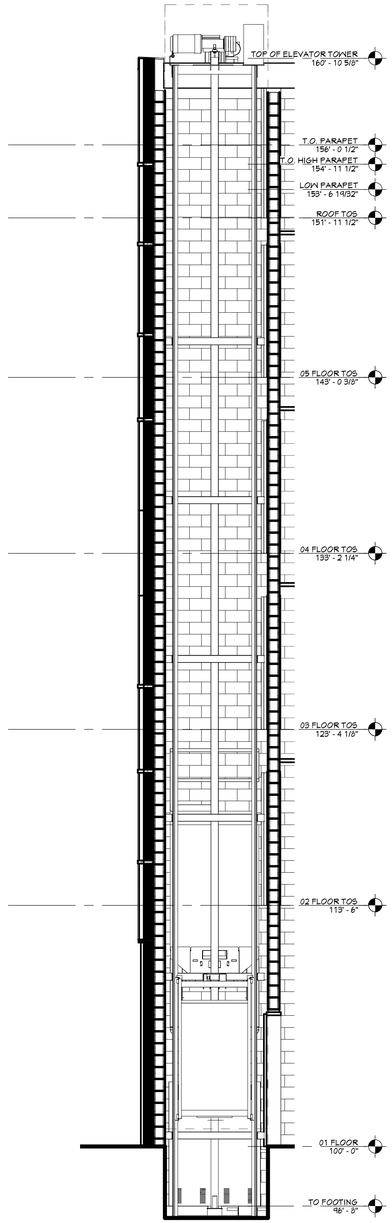
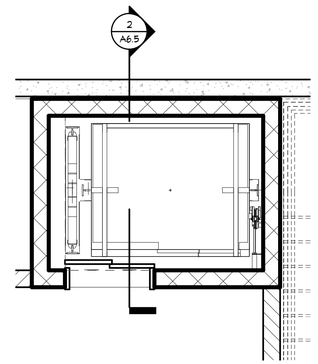


2 A6.5 **TYP ELEVATOR SECTION**
1/4" = 1'-0"



1 A6.5 **ELEVATOR ENLARGED PLAN**
3/8" = 1'-0"

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PLAN DETAILS

A6.5

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STRUCTURAL ABBREVIATIONS

#	NUMBER
&	AND
@	AT
Ø	DIAMETER
ALT	ALTERNATE
ARCH	ARCHITECT ARCHITECTURAL
BOD	BOTTOM OF DECK
BPL	BASE PLATE
CJ	CONTROL JOINT CONSTRUCTION JOINT
CL	CENTER LINE
CLR	CLEAR
CMU	CONCRETE MASONRY UNITS
CONC	CONCRETE
CONN	CONNECTION
CONT	CONTINUOUS
DF	DOUGLAS FIR
DIA	DIAMETER
DT	DRAG TRUSS
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL
EMBED	EMBEDMENT
EQ	EQUAL
EQUIP	EQUIPMENT
EXST, (E)	EXISTING
EXT	EXTERIOR
FTG	FOOTING
GA	GAGE OR GAUGE
GC	GENERAL CONTRACTOR
GLB	GLU LAM BEAM
GT	GIRDER TRUSS
HORIZ	HORIZONTAL
ID	INSIDE DIAMETER
JB	JOIST BEARING
LONG	LONGITUDINAL
LT WT	LIGHT WEIGHT
MAX	MAXIMUM
MECH	MECHANICAL
MFD	MANUFACTURED
MFG	MANUFACTURING
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OPP	OPPOSITE
OSB	ORIENTED STRAND BOARD
PERP	PERPENDICULAR
PL	PLATE
PT	POST TENSIONED PRESSURE TREATED
REINF	REINFORCE REINFORCED REINFORCEMENT REINFORCING
REQD	REQUIRED
SCHED	SCHEDULE
SHTHG	SHEATHING
SIM	SIMILAR
SPEC	SPECIFICATION
ST	SHEAR TRUSS
STD	STANDARD
STRUCT	STRUCTURAL
T&B	TOP AND BOTTOM
T&G	TONGUE AND GROOVE
THRU	THROUGH
TOB	TOP OF BEAM
TOC	TOP OF CONCRETE
TOCP	TOP OF CONCRETE PIER
TOF	TOP OF FOOTING
TOM	TOP OF MASONRY
TOP	TOP OF PARAPET
TOS	TOP OF STEEL
TOW	TOP OF WALL
TRANS	TRANVERSE
TWS	THREADED WELD STUD
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VERT	VERTICAL
VIF	VERIFY IN FIELD
WP	WORK POINT

STRUCTURAL UNITS

#, LB	POUND
FT/LB	FOOT POUND
K	KIP (1000 LBS)
KSI	KIPS PER SQUARE INCH
PCF	POUNDS PER CUBIC FOOT
PLF	POUNDS PER LINEAL FOOT
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
SF	SQUARE FOOT

STRUCTURAL ORGANIZATIONS

ACI	AMERICAN CONCRETE INSTITUTE
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
AISI	AMERICAN IRON AND STEEL INSTITUTE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APA	AMERICAN PLYWOOD ASSOCIATION
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWS	AMERICAN WELDING SOCIETY

GENERAL SYMBOL LEGEND

SLOPE DIRECTION (DOWN)

SPAN DIRECTION

XX'-XX" — MISCELLANEOUS ELEVATION

A / - — ELEVATION REFERENCE

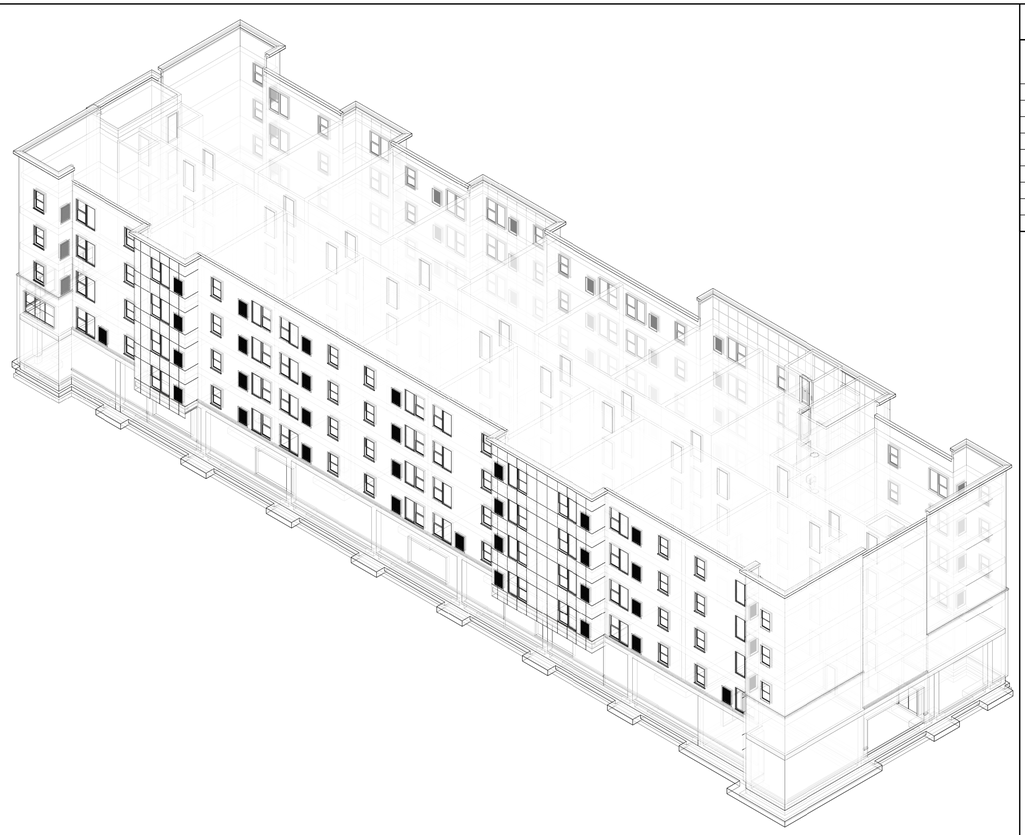
A / - — SECTION CUT

A / - — DETAIL CUT

A — REVISION

0'-0" — FINISH FLOOR ELEVATION

CHANGE (STEP) IN ELEVATION



STRUCTURAL SYMBOL LEGEND

#	INDICATES SIZE OF DEFORMED BAR
	DIRECTION IN WHICH BARS EXTEND
	LIMITS OF AREA COVERED BY BARS OR POST TENSION
5.5 FD	FLOOR / ROOF DECK, SEE SCHEDULE
HDU#	DENOTES HOLDOWN PER PLAN OR SEE ------- FOR HOLDOWN SCHEDULE
SW-# X'-X"	INDICATES SHEAR WALL AND LENGTH AT THIS LEVEL. SEE SHEAR WALL SCHEDULE FOR SHEATHING, BLOCKING, NAILING, AND ANCHOR BOLT REQUIREMENTS. ALL EXTERIOR WALLS SHALL BE SHEATHED PER SW-6 CRITERIA, UNO LABEL SIDE INDICATES SHEATHING SIDE OF WALL UNO IN SCHEDULE
F#, CF#, MF#	DENOTES FOOTING TYPE, SEE SCHEDULE 1/S6.01
CP##	DENOTES CONCRETE PIER, SEE SCHEDULE 2/S6.01
CW##	DENOTES CONCRETE WALL, SEE SCHEDULE 4/S6.01
BPL#	DENOTES BASE PLATE TYPE, SEE SCHEDULE
MW##	DENOTES MASONRY WALL, SEE SCHEDULE 3/XXXXX621
ML##	DENOTES MASONRY LINTEL, SEE SCHEDULE 2/XXXXX621
CJ	DENOTES MASONRY CONTROL JOINT LOCATION COORDINATE WITH ARCHITECTURAL FOR LOCATIONS. FOR CONSTRUCTION, SEE DETAIL 5/042000-01-A
	DENOTES RECESS, SLOPED, OR STEPPED FLOOR ELEVATIONS. COORDINATE SIZE AND LOCATION WITH ARCHITECT. SEE DETAIL 8/033000-11-B
S S	DENOTES STEP IN FOOTING, SEE 2/033000-10-A
BOD X'-X"	DENOTES BOTTOM OF DECK ELEVATION. WORK POINT IS A PROJECTION UP FROM OUTSIDE FACE OF STRUCTURAL WALL.
000 #	ROOF SUPPORTED MECHANICAL UNIT WITH OPERATING WEIGHT. PROVIDE FULL DEPTH BRIDGING BETWEEN MAIN FRAMING UNDER MECHANICAL UNIT CURB. COORDINATE EXACT LOCATION, SIZE AND NUMBER OF DECK PENETRATIONS WITH MECHANICAL. FOR TYPICAL SUB-FRAMING AT OPENINGS, SEE
	INDICATES 2x FLAT BLOCKING BETWEEN FRAMING MEMBERS
B## H## J##	INDICATES BEAM/HEADER/JOIST PER SCHEDULE
MSTC XX CS XX CMSTC XX	INDICATES HOLDOWN STRAP TO FRAMING BELOW WALL. SEE FOR STRAP HOLDOWN DETAIL AT FLOOR-TO-FLOOR AND BEAM SUPPORTING SHEAR WALL END. USE MIN (2) 2X POST, UNO
	INDICATES ROOF OVER-FRAMING PER
###	INDICATES DRAG STRAP PER SCHEDULE
A	DENOTES SNOW DRIFT, SEE GENERAL NOTES

SHEET INDEX

SHEET NUMBER	SHEET NAME	CURRENT REVISION	CURRENT REVISION DATE
S0.01	STRUCTURAL COVER SHEET	1	Date 1
S1.01	BLDG 2 FOUNDATION OVERALL PLAN		
S1.01P	BLDG 2 FOUNDATION ZONE PLANS		
S1.02	BLDG 2 LEVEL 2 SLAB OVERALL PLAN		
S1.02L	BLDG 2 LEVEL 2 LOADING PLAN		
S1.02P	BLDG 2 LEVEL 2 REINF ZONE PLANS		
S1.02S	BLDG 2 LEVEL 2 TRANSFER SLAB ZONE PLANS		
S6.01	CONCRETE SCHEDULES	1	Date 1
S6.02	CONCRETE SCHEDULES		

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Detroit, MI 48214

GINOSKO DEVELOPMENT CO

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121 N. 9TH ST.
SUITE #401
BOISE, ID 83702
PHONE: 208-639-4520
AxiomPLLC.com

Axiom Project Number: **A20-023**

100% SD SET 2020-03-25

Boise, ID | Salt Lake City, UT | Albuquerque, NM

Project Number ***4-1177***

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No.	Date	Description
1	Date 1	Revision 1

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STRUCTURAL COVER SHEET

S0.01

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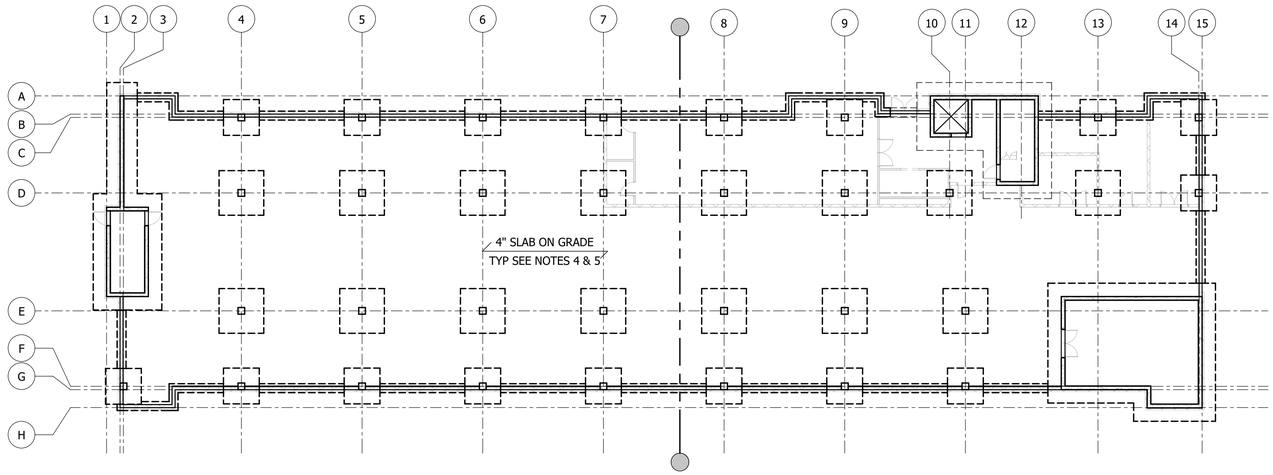

1 BUILDING B FOUNDATION PLAN OVERALL
SCALE: 1/16" = 1'-0"

GENERAL NOTES

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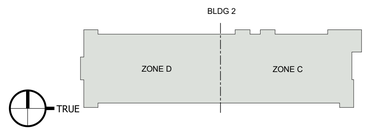
  MASONRY STANDARD DETAILS: S5.20 SERIES SHEETS
  WOOD STANDARD DETAILS: S5.60 SERIES SHEETS
  SCHEDULES: S6.00 SERIES SHEETS

FOUNDATION PLAN NOTES

1. SEE GEOTECHNICAL REPORT FOR UNDERSLAB AND FOOTING REQUIREMENTS.
2. FINISH FLOOR REFERENCE ELEVATION (FFE) = 100'-0" = XXXX.XX' CIVIL TYPICAL UNO
3. TOP OF EXTERIOR FOOTING (TOF) = 98'-0" TYPICAL UNO
   TOP OF INTERIOR FOOTING (TOF) = 98'-0" TYPICAL UNO
   TOP OF CONCRETE PIERS (TOCP) = 99'-4" TYPICAL UNO
4. CONTRACTOR TO COORDINATE SLAB ON GRADE CONTROL AND COLD JOINTS WITH ~~ARCH~~ PROVIDE SPACING / LOCATION TO ARCHITECT AND ENGINEER FOR APPROVAL.
5. 4" SLAB ON GRADE REINFORCING TO UTILIZE #4 AT 24" OC EACH WAY.



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BLDG 2 FOUNDATION OVERALL PLAN

S1.01

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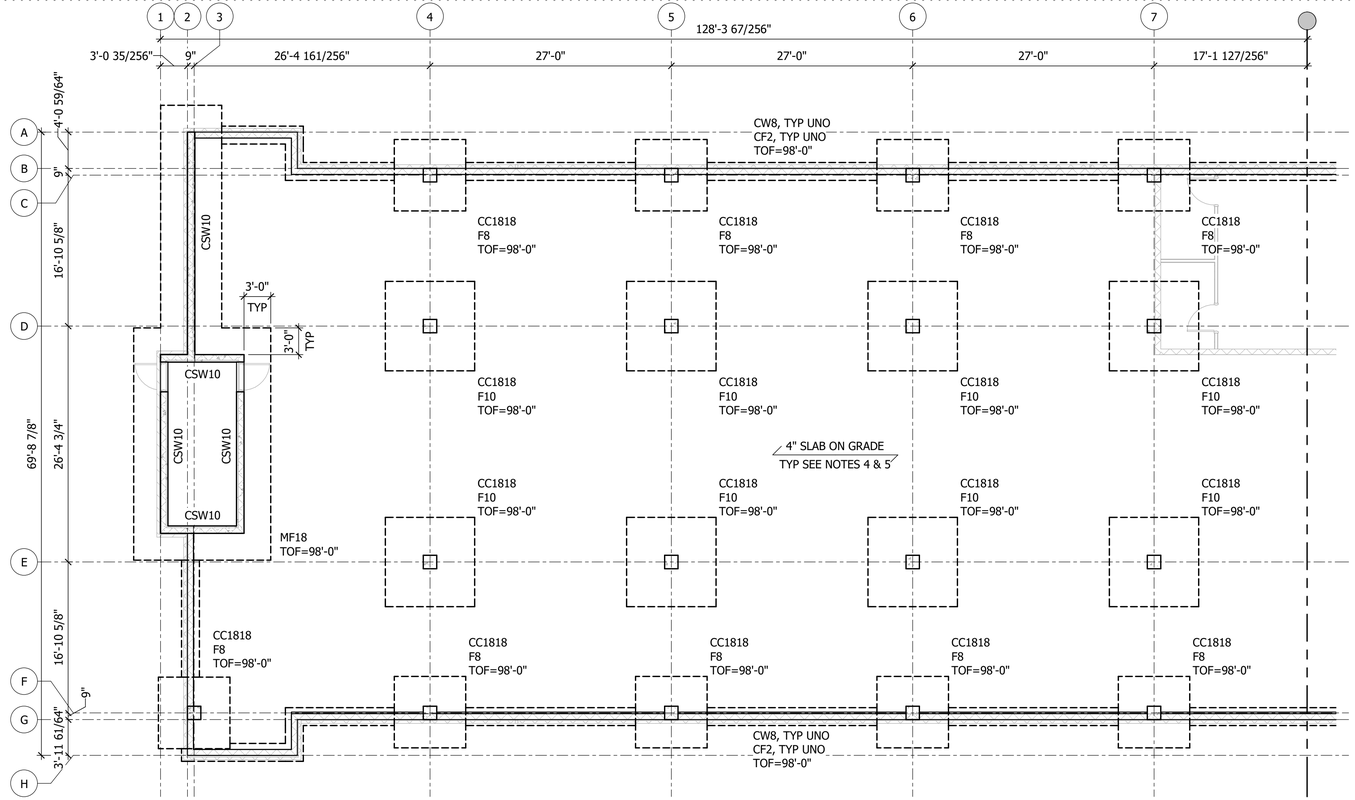
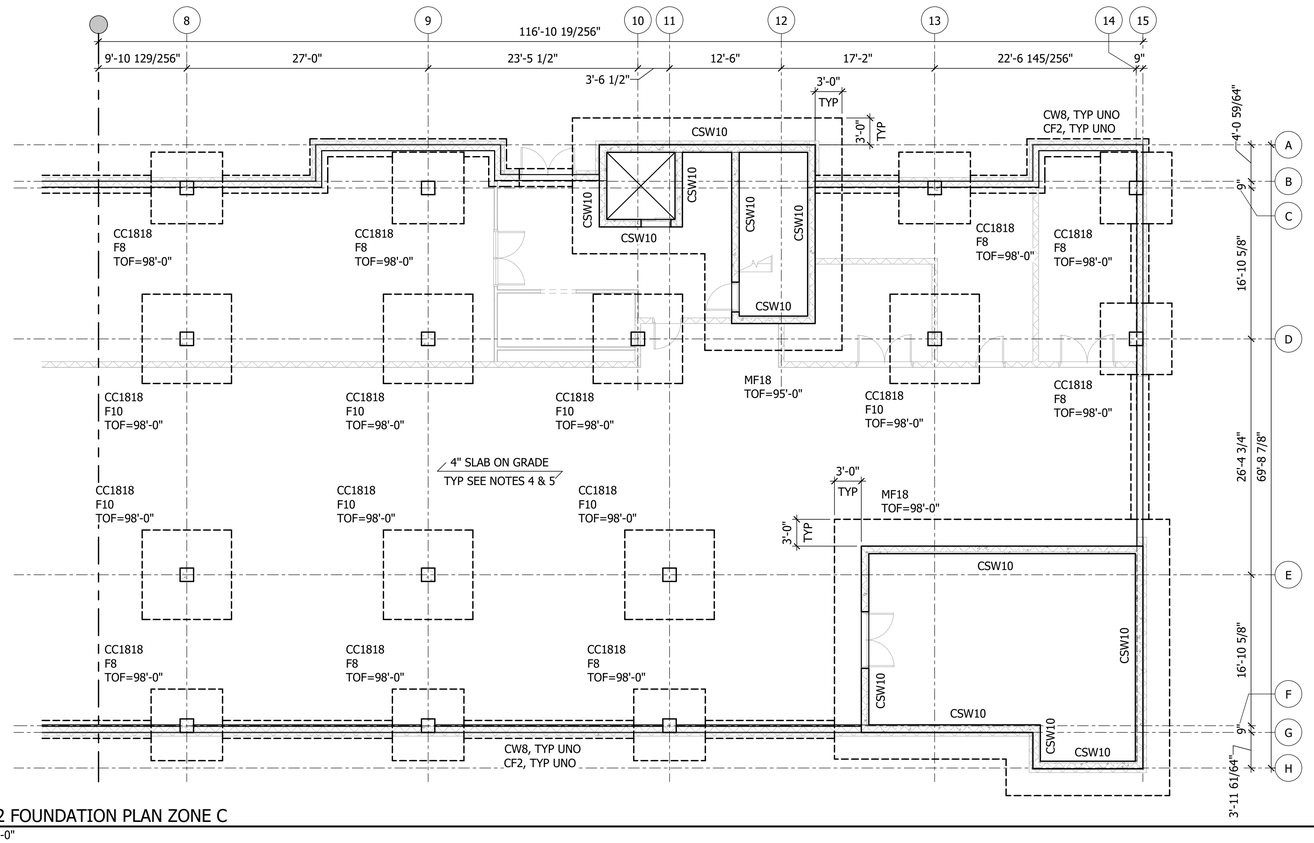


1 BUILDING 2 FOUNDATION PLAN ZONE D
SCALE: 1/8" = 1'-0"



2 BUILDING 2 FOUNDATION PLAN ZONE C
SCALE: 1/8" = 1'-0"

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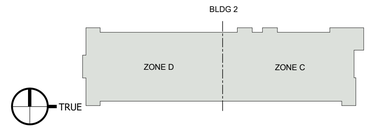

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BLDG 2 FOUNDATION ZONE PLANS

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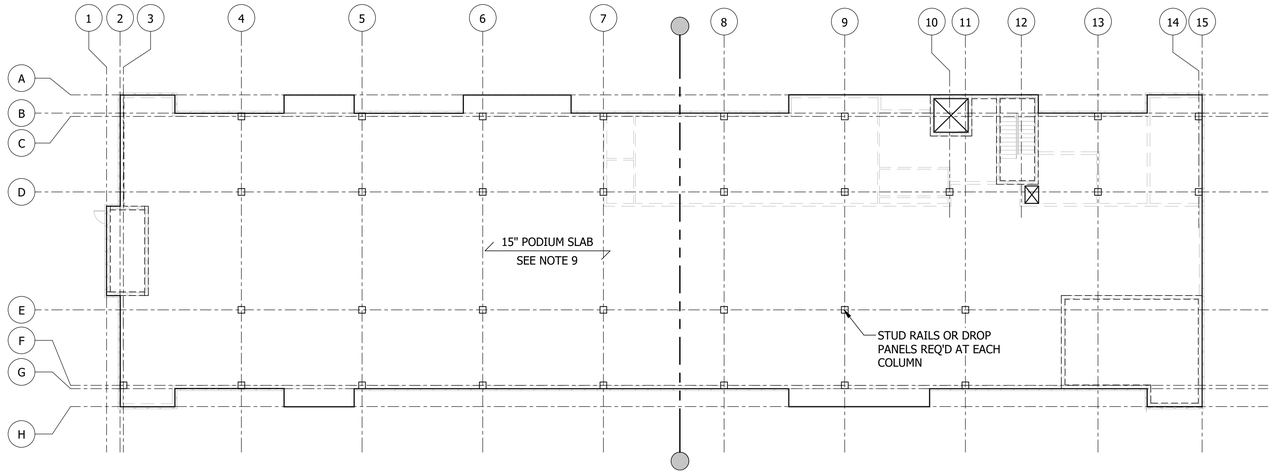

1 BUILDING B LEVEL 2 SLAB PLAN OVERALL
SCALE: 1/16" = 1'-0"

GENERAL NOTES

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ELEVATED SLAB PLAN NOTES

1. TOP OF SLAB VARIES, SEE ARCH DRAWINGS.
2. STRUCTURAL SLAB SHALL BE 15" THICK CONCRETE, AS INDICATED ON PLANS, UNO
3. CONTINUOUS TOP STEEL SHALL BE SPLICED WITH A CLASS B LAP IN THE MIDDLE THIRD OF THE SPAN WHERE SPLICES ARE REQUIRED.
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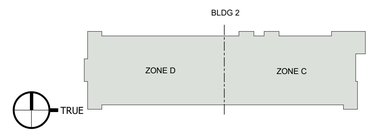

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BLDG 2 LEVEL 2 SLAB OVERALL PLAN

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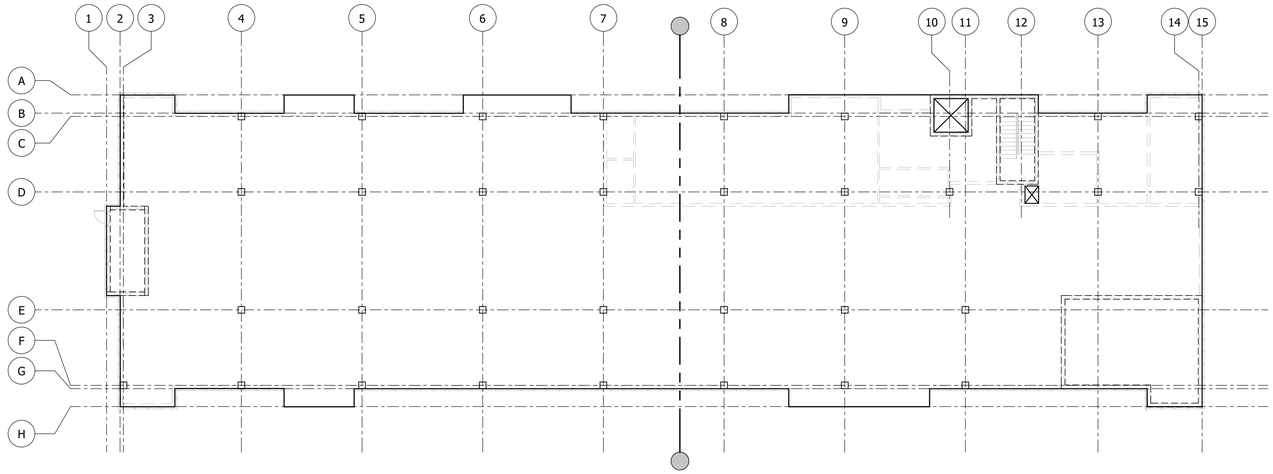
LOADING PLAN NOTES

1. NOTES HERE



1 BUILDING B LEVEL 2 LOADING PLAN
SCALE: 1/16" = 1'-0"

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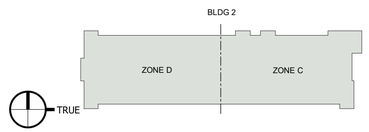
S1.02L



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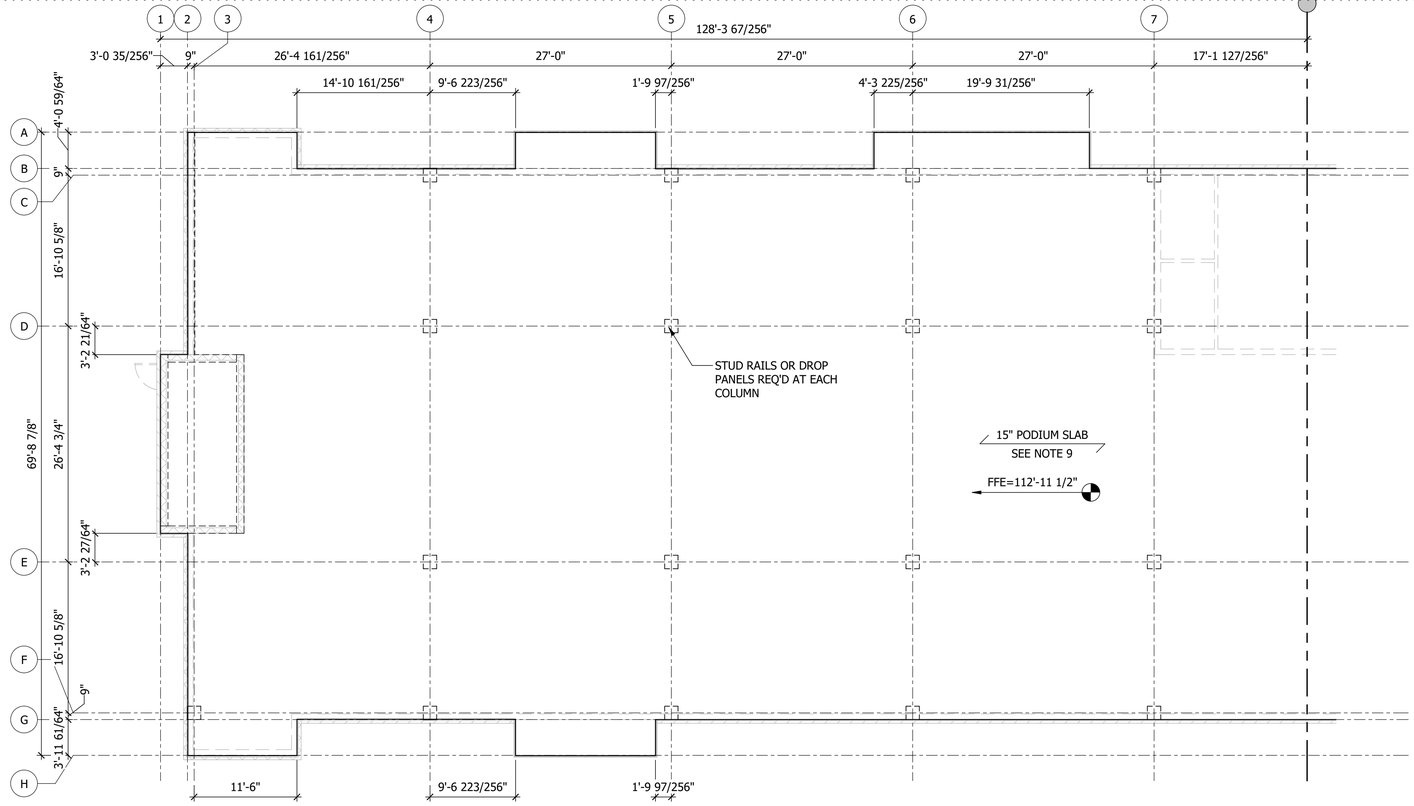
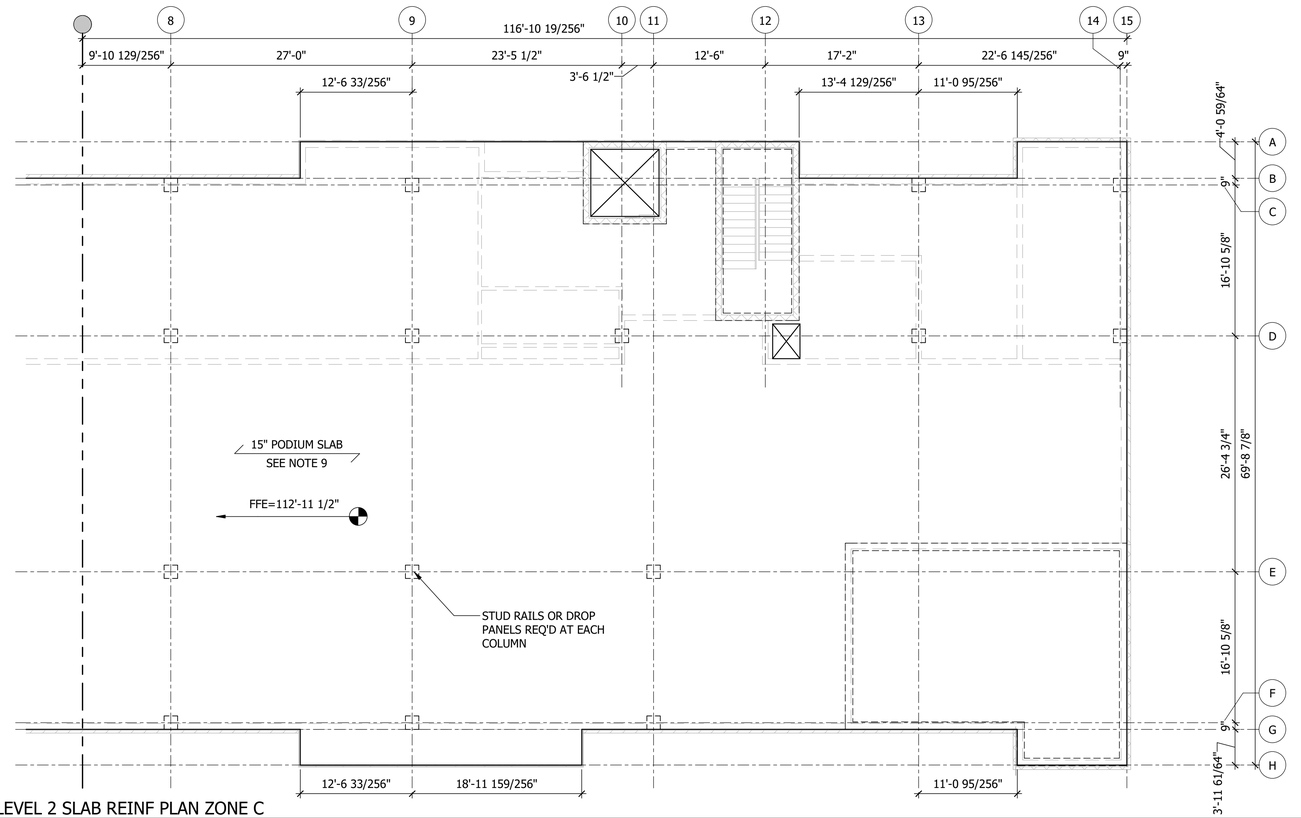


1 BUILDING B LEVEL 2 SLAB REINF PLAN ZONE D

SCALE: 1/8" = 1'-0"



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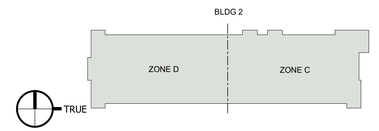

Project Number	4-1177

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BLDG 2 LEVEL 2 REINF ZONE PLANS

S1.02P

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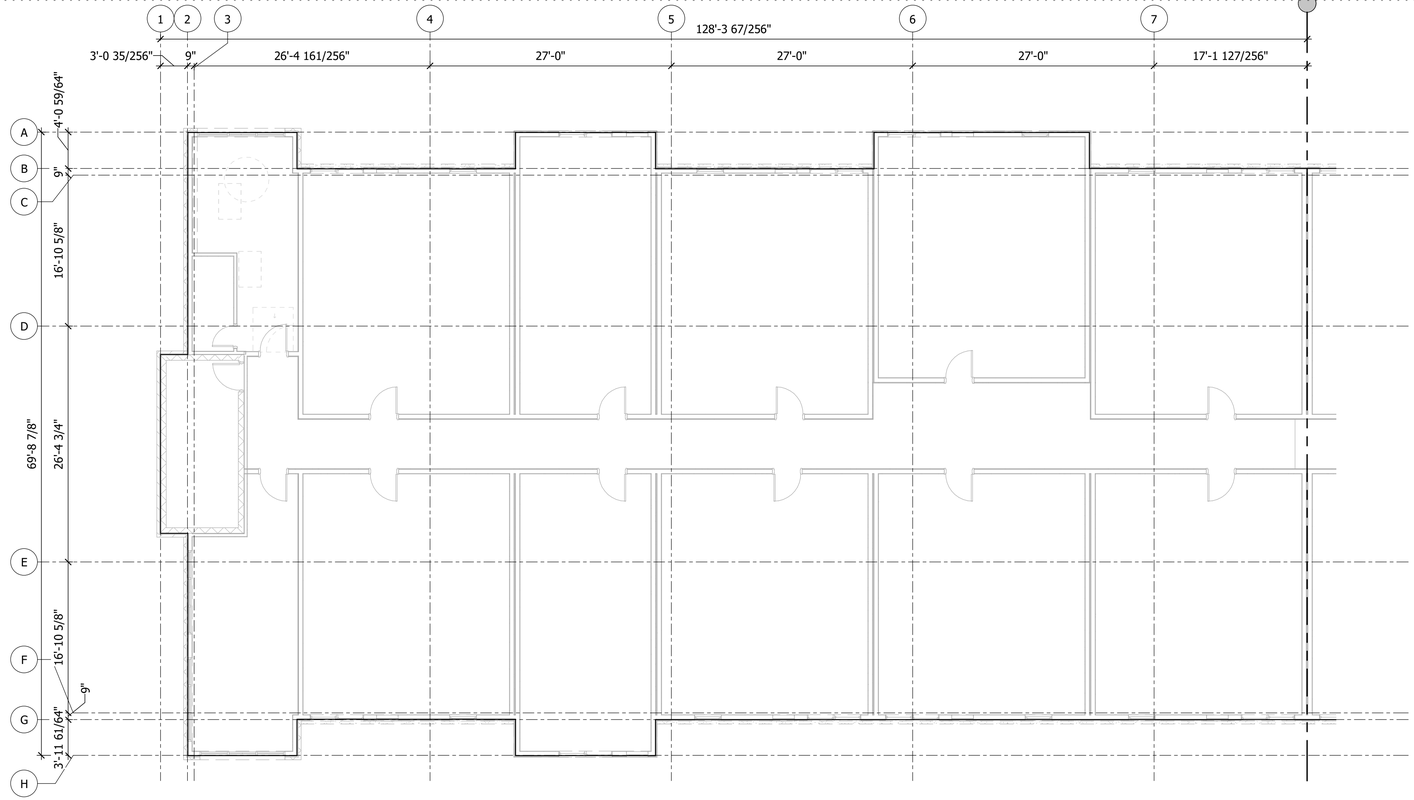

1 BUILDING B LEVEL 2 TRANSFER SLAB PLAN ZONE D
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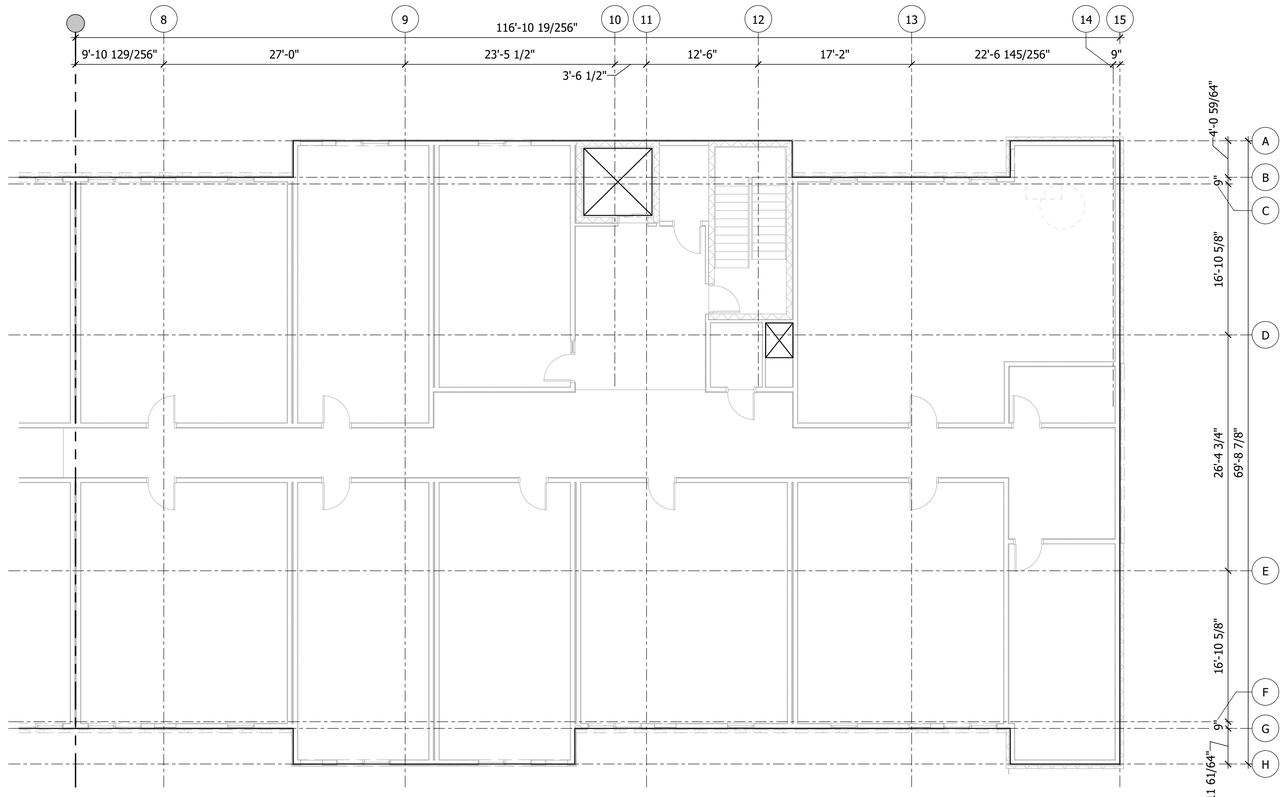

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WOOD PODIUM PLAN NOTES

1. ALL EXTERIOR WALLS TO BE SHEATHED PER SW6 PER
2. FOR WALL FRAMING INFORMATION, SEE WOOD STUD SCHEDULE
3. FOR FULL SHEARWALL SCHEDULE AN DETAIL, SEE
4. ALL ANCHOR BOLTS AND SHEARWALL RODS ARE REQUIRED TO BE CAST IN PLACE INTO PT SLAB. FOR SILL BOLTING, SEE
5. COORDINATE FRAMING AT WALL INTERSECTIONS PER
6. AT ALL HOLDOWNS UNO PER SCHEDULE, USE DOUBLE 2x POSTS PER HOLDOWN SCHEDULE WITH 10d FACE NAILS AT SHEARWALL EDGE NAIL SPACING. VERIFY ALL HOLDOWN LOCATIONS WITH FRAMING PLANS. FRAMER SHALL CONFIRM LAYOUT BEFORE CONCRETE IS POURED.
7. ALL WOOD BEARING ON UNPROTECTED CONCRETE, EXPOSE TO WEATHER, OR WITHIN 8" OF FINISHED GRADE SHALL BE PRESSURE TREATED, UNO.
8. DESIGNATES CONTINUOUS TIE DOWN, SEE SCHED

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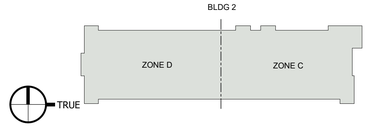

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Axiom Project Number: **A20-023**

100% SD SET 2020-03-25

Project Number	4-1177

ISSUANCE

No.	Date	Description

NOT FOR CONSTRUCTION

BLDG 2 LEVEL 2 TRANSFER SLAB ZONE PLANS

S1.02S

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CONCRETE CONTINUOUS FOOTING SCHEDULE					
	SIZE		REINFORCING		
MARK	WIDTH	DEPTH	TOP	BOTTOM	COMMENTS
CF2	2'-0"	1'-0"	-	(3) #5 CONT	

CONCRETE MAT FOUNDATIONS						
	SIZE			REINFORCING		
MARK	WIDTH	LENGTH	DEPTH	TOP	BOTTOM	COMMENTS
MF18	SEE PLAN	SEE PLAN	1'-6"	-	#5 AT 12" OC EACH WAY	

CONCRETE SPREAD FOOTING SCHEDULE						
	SIZE			REINFORCING		
MARK	WIDTH	LENGTH	DEPTH	TOP	BOTTOM	COMMENTS
F8	8'-0"	8'-0"	1'-6"			
F10	10'-0"	10'-0"	1'-6"			

1 FOOTING SCHEDULES
SCALE: NTS

CONCRETE SLAB ON GRADE SCHEDULE			
MARK	THICKNESS	REINFORCING	COMMENTS
4" SLAB ON GRADE	4"	#3 AT 18" OC EACH WAY	

CONCRETE WALL SCHEDULE				
		REINFORCING		
MARK	THICKNESS	VERTICAL	HORIZONTAL	COMMENTS
CSW10	10"	#5 AT 12" OC EACH FACE	#5 AT 12" OC EACH FACE	
CW8	8"	#5 AT 12" OC	#5 AT 12" OC CENTERED	

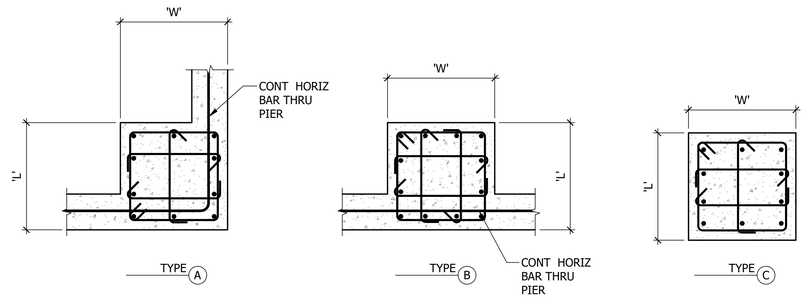
NOTES:
1. FOR 4" SLABS WELDED WIRE FABRIC AND REBAR SHALL BE PLACED 1 1/2" CLEAR FROM TOP OF CONCRETE.
2. FOR SLAB GREATER THAN 4" WELDED WIRE FABRIC AND REBAR SHALL BE PLACED 2" CLEAR FROM TOP OF CONCRETE.
3. SEE ARCHITECTURAL DRAWINGS FOR SLAB DEPRESSIONS, SLOPES, ETC

3 SLAB ON GRADE SCHEDULE
SCALE: NTS

4 CONCRETE WALL SCHEDULE
SCALE: NTS

CONCRETE PIER SCHEDULE							
	WIDTH	LENGTH	DIAMETER	REINFORCING			
MARK	"W"	"L"	"Ø"	VERTICAL	HORIZONTAL	PIER TYPE	COMMENTS

NOTES:
1. PROVIDE MIN (3) #3 TIES OR (2) #4 TIES WITHIN TOP 5" OF PIER TO ENCLOSE ANCHOR BOLTS.
2. PROVIDE CROSS TIE REINF AT EACH VERTICAL REINF AS SHOWN IN PIER TYPE.
3. ALTERNATE TIES WHERE OCCURS.
4. REBAR LAYOUT TYPES ARE FOR CONFIGURATION ONLY, FOR QUANTITIES, SEE SCHEDULE ABOVE.



2 CONCRETE PIER SCHEDULE AND SECTIONS
SCALE: NTS

HOOKER | DE JONG
Architects & Engineers
316 Morris Avenue
Studio Suite 410
Muskegon, MI 49440
P 231 | 722 | 3407
F 231 | 722 | 2589

Multifamily Residential
7850 E JEFFERSON AVE.
Detroit, MI 48214

GINOSKO DEVELOPMENT CO

100% SD SET 2020-03-25

Project Number	4-1177
ISSUANCE	

No.	Date	Description
1	Date 1	Revision 1

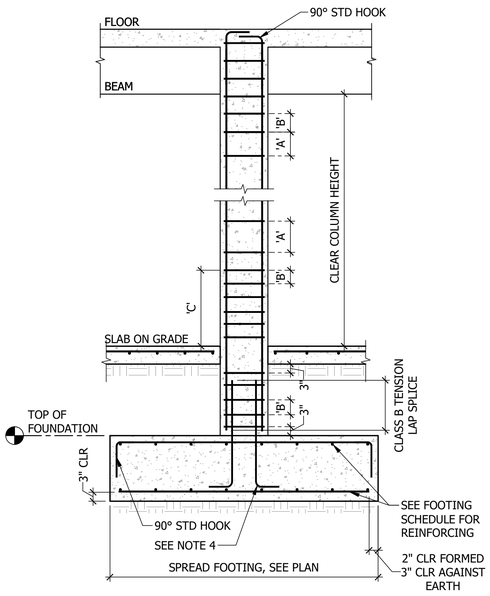
NOT FOR CONSTRUCTION

CONCRETE SCHEDULES

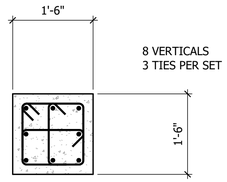
S6.01

HEADQUARTERS:
121 N. 9TH ST.
SUITE #401
BOISE, ID 83702
PHONE: 208-639-4520
AxiomPLC.com
Axiom Project Number: **A20-023**

Boise, ID | Salt Lake City, UT | Albuquerque, NM



1 COLUMN ELEVATION
SCALE: NTS



1A 18" x 18" COLUMN SECTION
SCALE: NTS

NOTES:
1. "A" = TYPICAL TIE SPACING, SEE SCHEDULE.
2. "B" = MAX OF "A"/2 OR 6".
3. "C" = ONE SIXTH OF THE CLEAR COLUMN HEIGHT, OR THE MAX COLUMN DIMENSION, WHICHEVER IS GREATER, BUT NOT LESS THAN 18".
4. DOWELS SHALL MATCH VERTICAL BARS IN SIZE AND NUMBER.
5. SEE DETAIL 3/033000-05-AJ 4/033000-05-AJR COLUMN SIZE CHANGE.
6. AT BEAM - COLUMN JOINT PROVIDE MIN OF "B" OR 6" TIE SPACING.

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100% SD SET 2020-03-25

Project Number	4-1177

ISSUANCE

No.	Date	Description

NOT FOR CONSTRUCTION

CONCRETE SCHEDULES

S6.02

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Attachment D

Soil Boring Logs

PROJECT NO: 16-070753-02	NTH CONSULTANTS, LTD.	SHEET 1 OF 2

LOG OF GEOPROBES

PROBE NO.	GROUND SURFACE ELEV.	DEPTH (FT)	SOIL DESCRIPTION	DISCRETE SAMPLE INFO.			
				SAMPLE NO.	DEPTH (FT) FROM	DEPTH (FT) TO	HNU READING (PPM)
GP-1	N/A	0.0 – 0.5 0.5 – 4.0 4.0 – 6.0 6.0 – 15.0	TOPSOIL: DARK BROWN **SILTY SAND** WITH ORGANIC MATTER BROWN **SILTY SAND** WITH TRACE GRAVEL BROWN **SANDY CLAY** BROWN AND GRAY **SILTY CLAY** [NO GROUNDWATER ENCOUNTERED]	S-1*	3.0	4.0	<10 <10 <10 <10
GP-2	N/A	0.0 – 1.0 1.0 – 2.0	TOPSOIL: DARK BROWN **SILTY SAND** WITH ORGANIC MATTER FILL: DEMOLITION DEBRIS AND BUILDING RUBBLE INCLUDING PIECES OF BRICK, GLASS, CONCRETE, ASPHALT, WOOD AND PLASTIC [NO GROUNDWATER ENCOUNTERED]	S-1*	0.5	1.0	<10 N/A
GP-3	N/A	0.0 – 0.5 0.5 – 6.0 6.0 – 15.0	TOPSOIL: BROWN **SILTY SAND** WITH ORGANIC MATTER FILL: BROWN **SANDY CLAY** WITH DEMOLITION DEBRIS AND BUILDING RUBBLE INCLUDING PIECES OF CONCRETE, ASPHALT, GLASS, PLASTIC AND WOOD BROWN AND GRAY **SILTY CLAY** [NO GROUNDWATER ENCOUNTERED]	S-1*	5.0	6.0	<10 <10 <10
GP-4	N/A	0.0 – 0.5 0.5 – 5.0 5.0 – 15.0	TOPSOIL: DARK BROWN **SILTY SAND** WITH ORGANIC MATTER FILL: DARK BROWN **SILTY CLAY** WITH PIECES OF GRAVEL AND BRICK BROWN AND GRAY **SILTY CLAY** [NO GROUNDWATER ENCOUNTERED]	S-1*	4.0	5.0	<10 <10 <10
GP-5	N/A	0.0 – 0.5 0.5 – 15.0	TOPSOIL: DARK BROWN **SILTY SAND** WITH ORGANIC MATTER BROWN AND GRAY SILTY CLAY [NO GROUNDWATER ENCOUNTERED]	S-1*	1.0	2.0	<10 <10

NOTES:

[1] GEOPROBES BACKFILLED WITH SOIL CUTTINGS AFTER OBTAINING SOIL AND/OR WATER SAMPLES.
[2] GEOPROBE DRILLING INSPECTED BY B. STEARNS OF NTH CONSULTANTS, LTD.
[3] SOIL CLASSIFICATION BASED SOLELY ON VISUAL OBSERVATION.
[4] * - SAMPLE SUBMITTED FOR ANALYTICAL TESTING.

DRILLED BY: FIBERTEC ENVIRONMENTAL SERVICES **DATE:** 09/19/07 **FIGURE NO:** 2

PROJECT NO: 16-070753-02	NTH CONSULTANTS, LTD.	SHEET 2 OF 2

LOG OF GEOPROBES

PROBE NO.	GROUND SURFACE ELEV.	DEPTH (FT)	SOIL DESCRIPTION	DISCRETE SAMPLE INFO.			
				SAMPLE NO.	DEPTH (FT) FROM	DEPTH (FT) TO	HNu READING (PPM)
GP-6	N/A	0.0 – 0.5 0.5 – 8.5 8.5 – 15.0	TOPSOIL: DARK BROWN **SILTY SAND** WITH ORGANIC MATTER FILL: BROWN **SILTY SAND** WITH PIECES OF BRICK, GRAVEL, CONCRETE AND WOOD BROWN AND GRAY **SILTY CLAY** [NO GROUNDWATER ENCOUNTERED]	S-1*	7.5	8.5	<10 <10 <10
GP-7	N/A	0.0 – 0.5 0.5 – 8.5 8.5 – 15.0	TOPSOIL: DARK BROWN **SILTY SAND** WITH ORGANIC MATTER FILL: BROWN **SILTY SAND** WITH PIECES OF BRICK, GRAVEL AND CONCRETE BROWN AND GRAY **SILTY CLAY** [NO GROUNDWATER ENCOUNTERED]	S-1*	7.5	8.5	<10 N/A <10
GP-8	N/A	0.0 – 0.5 0.5 – 5.0 5.0 – 15.0	TOPSOIL: DARK BROWN **SILTY SAND** WITH ORGANIC MATTER BROWN AND GRAY **SILTY CLAY** GRAY **SILTY CLAY** WITH SILTY SAND SEAMS [NO GROUNDWATER ENCOUNTERED]	S-1*	1.0	2.0	<10 <10 <10

NOTES:

[5] GEOPROBES BACKFILLED WITH SOIL CUTTINGS AFTER OBTAINING SOIL AND/OR WATER SAMPLES.
[6] GEOPROBE DRILLING INSPECTED BY B. STEARNS OF NTH CONSULTANTS, LTD.
[7] SOIL CLASSIFICATION BASED SOLELY ON VISUAL OBSERVATION.
[8] * - SAMPLE SUBMITTED FOR ANALYTICAL TESTING.

DRILLED BY: FIBERTEC ENVIRONMENTAL SERVICES **DATE:** 09/19/07 **FIGURE NO:** 2

ASTI Environmental
10448 Citation Dr., Suite 100
Brighton, MI 48116

SOIL BORING LOG

Boring Data	
Boring ID:	**SB-1**
Total Depth:	16'

Proj. Name:	7850 E. Jefferson Avenue
Proj. Number:	10105
Site Address:	7850 E. Jefferson Avenue
	Detroit, Michigan
Drilled by:	ERG
Method:	Geoprobe
Geologist:	Jeremy Efros, CPG

Date Completed:	4/7/2017

MW Data	
Size:	NA
Type:	NA
Screen Length:	NA
Well Depth:	NA
GW Depth (▼):	NA

Depth From	Depth To	Description	PID (ppm)	Sample Depth
0	6"	SILTY fine to medium SAND, trace to some roots, dark brown, moist, medium dense (FILL)	0.0	
6"	3'	SAND, fine to coarse grained, trace gravel, brick, and concrete, brown, moist, loose (FILL)	0.0	Soil at 0.5-1.5'
3'	4'	Brick and concrete	0.0	
4'	16'	SILTY CLAY, trace fine to coarse grained sand and gravel, brown, stiff (CL)	0.0	
		End of Boring		

Notes:
ppm = parts per million
bgs = below ground surface
Unified Soil Classification System Symbols:
CL = Clay

ASTI Environmental
10448 Citation Dr., Suite 100
Brighton, MI 48116

SOIL BORING LOG

Boring Data	
Boring ID:	**SB-2**
Total Depth:	16'

Proj. Name:	7850 E. Jefferson Avenue
Proj. Number:	10105
Site Address:	7850 E. Jefferson Avenue
	Detroit, Michigan
Drilled by:	ERG
Method:	Geoprobe
Geologist:	Jeremy Efros, CPG

Date Completed:	4/7/2017

MW Data	
Size:	NA
Type:	NA
Screen Length:	NA
Well Depth:	NA
GW Depth (▼):	12' bgs

Depth From	Depth To	Description	PID (ppm)	Sample Depth
0	8"	SILTY fine to medium SAND, trace to some roots, dark brown, moist, loose (FILL)	0.0	
8"	6.5'	SILTY CLAY, trace fine to coarse grained sand, gravel, and organics, brown, stiff (FILL)	0.0	
6.5'	7.5'	SAND, fine to coarse grained, trace to some slag, trace gravel, dark brown, moist, loose (FILL)	0.0	Soil at 6.5-7.5'
7.5'	8'	SILTY CLAY, trace fine to coarse grained sand, gravel, and organics, brown, stiff (FILL)	0.0	
8'	16'	SILTY CLAY, trace fine to coarse sand and gravel, wet fine to coarse grained sand seam at 12' bgs, brown with occasional gray mottles, stiff (CL)	0.0	
		End of Boring		

Notes:
ppm = parts per million
bgs = below ground surface
Unified Soil Classification System Symbols:
CL = Clay

ASTI Environmental
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Brighton, MI 48116

SOIL BORING LOG

Boring Data	
Boring ID:	**SB-3**
Total Depth:	16'

Proj. Name:	7850 E. Jefferson Avenue
Proj. Number:	10105
Date Completed:	4/7/2017
Site Address:	7850 E. Jefferson Avenue
	Detroit, Michigan
Drilled by:	ERG
Method:	Geoprobe
Geologist:	Jeremy Efros, CPG

MW Data	
Size:	NA
Type:	NA
Screen Length:	NA
Well Depth:	NA
GW Depth (▼):	12' bgs

Depth From	Depth To	Description	PID (ppm)	Sample Depth
0	6"	SILTY fine to medium SAND, trace to some roots, dark brown, moist, loose (FILL)	0.0	
6"	1'	SILTY CLAY, trace fine to coarse grained sand, brown, stiff (FILL)	0.0	
1'	9'	SAND, fine to coarse grained, trace to some gravel, trace silt, cobbles, concrete, and brick, brown, moist, loose (FILL)	0.0	
9'	10'	SAND, fine to coarse grained, trace to some gravel, trace silt, cobbles, concrete, brick, and foundry sand, brown, moist, loose (FILL)	0.0	Soil at 9-10'
10'	12'	SILTY CLAY, trace fine to coarse grained sand, brown, stiff (FILL)	0.0	
12'	13'	SAND, fine to coarse grained, trace to some gravel, trace concrete, brown, wet, loose (FILL)	0.0	
13'	16'	SILTY CLAY, trace fine to coarse sand and gravel, brown, stiff (CL)	0.0	
		End of Boring		

Notes:
ppm = parts per million
bgs = below ground surface
Unified Soil Classification System Symbols:
CL = Clay

ASTI Environmental
10448 Citation Dr., Suite 100
Brighton, MI 48116

SOIL BORING LOG

Boring Data	
Boring ID:	**SB-4**
Total Depth:	16'

Proj. Name:	7850 E. Jefferson Avenue
Proj. Number:	10105
Site Address:	7850 E. Jefferson Avenue
	Detroit, Michigan
Drilled by:	ERG
Method:	Geoprobe
Geologist:	Jeremy Efros, CPG

Date Completed:	4/7/2017

MW Data	
Size:	NA
Type:	NA
Screen Length:	NA
Well Depth:	NA
GW Depth (▼):	8' bgs

Depth From	Depth To	Description	PID (ppm)	Sample Depth
0	6"	SILTY fine to medium SAND, trace to some roots, dark brown, moist, medium dense (FILL)	0.0	
6"	6.5'	SILTY CLAY, trace fine to coarse sand and gravel, frequent silty sand seams, brown, medium stiff (FILL)	0.0	
6.5'	8'	SAND, fine to coarse grained, trace gravel, slag, and roots, black, moist, medium dense (FILL)	0.0	Soil at 7-8'
8'	10.5'	SAND, fine to medium grained, trace gravel and organics, occasional silty sand seams, brown to dark brown, wet, loose (FILL)	0.0	
10.5'	14'	SAND, fine to medium grained, trace to some silt, trace gravel, brown, wet, medium dense (SW)	0.0	
14'	16'	SILTY CLAY, trace fine to coarse sand and gravel, gray, medium stiff (CL)	0.0	
		End of Boring		

Notes:
ppm = parts per million
bgs = below ground surface
Unified Soil Classification System Symbols:
CL = Clay
SW = Well graded sand

ASTI Environmental
10448 Citation Dr., Suite 100
Brighton, MI 48116

SOIL BORING LOG

Boring Data	
Boring ID:	**SB-5**
Total Depth:	16'

Proj. Name:	7850 E. Jefferson Avenue
Proj. Number:	10105
Date Completed:	4/7/2017
Site Address:	7850 E. Jefferson Avenue
	Detroit, Michigan
Drilled by:	ERG
Method:	Geoprobe
Geologist:	Jeremy Efros, CPG

MW Data	
Size:	NA
Type:	NA
Screen Length:	NA
Well Depth:	NA
GW Depth (▼):	8' bgs

Depth From	Depth To	Description	PID (ppm)	Sample Depth
0	6"	SILTY fine to medium SAND, trace to some roots, dark brown, moist, medium dense (FILL)	0.0	
6"	3.5'	SILTY CLAY, trace fine to coarse grained sand and gravel, brown, medium stiff (FILL)	0.0	
3.5'	6'	SILTY fine SAND, trace clay, medium to coarse grained sand, gravel, brick, and organics, brown, moist, medium dense (FILL)	0.0	Soil at 5-6'
6'	12'	SILTY fine SAND, trace organics, occasional silty clay seams, brown, moist to wet at 8' bgs, medium dense (FILL)	0.0	
12'	14'	SILTY CLAY, trace fine to coarse grained sand and gravel, brown, stiff (CL)	0.0	
14'	16'	SAND, fine grained, some silt, trace gravel, brown, wet, medium dense (SW)	0.0	
		End of Boring		

Notes:
ppm = parts per million
bgs = below ground surface
Unified Soil Classification System Symbols:
CL = Clay
SW = Well graded sand

Attachment E

Site-Specific Criteria Memo

STATE OF MICHIGAN
DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY
WARREN DISTRICT OFFICE

GRETCHEN WHITMER
GOVERNOR

LIESL EICHLER CLARK
DIRECTOR

June 2, 2020

MEMO

DELIVERED VIA ELECTRONIC MAIL 06/02/2020

TO: Brian Kuberski, ASTI

FROM: Jeanne Schlaufman, EQS
Remediation and Redevelopment Division
Warren District Office

SUBJECT: Resubmission - Site-Specific Criteria:
Vacant Land/Proposed Redevelopment
7850 East Jefferson Avenue, Detroit, Wayne County
Site ID #82007002

The Department of Environment, Great Lakes, and Energy (EGLE) is providing *revised* site specific criteria for the volatilization to indoor air pathway for the subject property in response to your request dated April 8, 2020.

Inserted within the body of this memo are tables that contain site-specific volatilization to indoor air criteria (VIAC) under Part 201 or site-specific target levels (SSTLs) under Part 213 of the Natural Resources and Environmental Protection Act, 1994 PA 451 as amended, which represent the EGLE's determination of values that reflect best available information regarding the toxicity and exposure risks posed by the hazardous substances present at the Vacant Land/Proposed Redevelopment, 7850 East Jefferson Avenue, Detroit, Wayne County property. These values may be used as site-specific criteria (SS VIAC) for the volatilization to indoor air pathway without further documentation. In both residential and nonresidential scenarios, an exceedance of soil or groundwater site-specific criteria may be *satisfied* with representative soil gas sampling that *meets* the site-specific soil gas criteria. All pertinent criteria would then be satisfied in all affected media.

Other values may be developed by a person consistent with the statutory provisions for development of site-specific criteria in accordance with Section 20120b, Part 201 and provided for EGLE review and approval.

Exceedances of the residential SS VIAC will require restrictions or institutional controls for closure.

The results of this evaluation are as follows:

Table 1. Residential Volatilization to Indoor Air Criteria (VIAC). The following are **restricted** site-specific criteria that apply to a residential house with a **slab-on-grade**, the depth to groundwater submitted for this site (i.e. 8 ft), and USDA soil type of **sand**.

CAS#	Hazardous Substance	Groundwater Not In Contact (GWNIC) (µg/L)	Soil (µg/kg)	Soil Gas** (µg/m^3)
83329	Acenaphthene	3,900 (S) sol	2.1E+05 nc	7,300 nc
208968	Acenaphthylene	65 (CC) nc	DATA	7,300 nc
994058	t-Amyl methyl ether (TAME)	2,600 nc	34 (M) nc	2,200 nc
120127	Anthracene	43 (S) sol	1.3E+07 nc	35,000 nc
71432	Benzene	25 ca	1.7 (M) ca	110 ca
56553	Benzo(a)anthracene	9.4 (S) (MM) sol	1.6E+05 (MM) mut	5.8 (MM) mut
75650	t-Butyl alcohol	2.3E+05 nc	3,200 nc	2,500 nc
104518	n-Butylbenzene	1,500 nc	560 nc	7,000 nc
135988	sec-Butylbenzene	4,800 nc	3,800 nc	14 nc
98066	t-Butylbenzene	2.5 nc	0.64 (M) nc	14 nc
110827	Cyclohexane	1,900 nc	320 (M) nc	2.1E+05 nc
75343	1,1-Dichloroethane	120 ca	2.6 (M) ca	530 ca
107062	1,2-Dichloroethane	36 ca	0.82 (M) ca	33 ca
60297	Diethyl ether	32,000 nc	350 nc	35,000 nc
108203	Diisopropyl ether	14,000 (DD) dev	200 (M) (DD) dev	23,000 (DD) dev
64175	Ethanol	8.2E+07 (EE) st	1.3E+06 (EE) st	6.3E+05 (EE) st
637923	Ethyl-tert-butyl ether (ETBE)	22 (CC) nc	DATA	13,000 nc
100414	Ethylbenzene	81 ca	12 (M) ca	340 ca
106934	Ethylene dibromide	5.5 ca	7.4E-02 (M) ca	1.4 ca
86737	Fluorene	1,700 (S) sol	4.7E+05 nc	4,900 nc
142825	n-Heptane	150 (GW) nc	130 nc	1.2E+05 nc
110543	n-Hexane	29 (GW) nc	25 nc	24,000 nc
67630	Isopropyl alcohol	6.7E+05 nc	9,900 nc	7,000 nc
98828	Isopropyl benzene	18 ca	3.8 (M) ca	81 ca

Table 1. Residential Volatilization to Indoor Air Criteria (VIAC). The following are **restricted** site-specific criteria that apply to a residential house with a **slab-on-grade**, the depth to groundwater submitted for this site (i.e. 8 ft), and USDA soil type of **sand**.

CAS#	Hazardous Substance	Groundwater Not In Contact (GWNIC) (µg/L)	Soil (µg/kg)	Soil Gas** (µg/m^3)
Varies	Mercury (Total)	2.6 nc	22 nc	10 nc
1634044	Methyl-tert-butyl ether (MTBE)	7,200 ca	74 (M) ca	3,300 ca
96377	Methylcyclopentane	91 nc	29 (M) nc	24,000 nc
91576	2-Methylnaphthalene	2,400 nc	1,700 nc	350 nc
91203	Naphthalene	130 ca	67 (M) ca	25 ca
109660	Pentane	40 (M) (GW) nc	36 (M) nc	35,000 nc
85018	Phenanthrene	250 nc	1,700 nc	3.5 nc
1336363	Polychlorinated biphenyls (PCBs)	3.1E-02 (M) (CC) (J) ca	DATA	8.5 (J) ca
103651	n-Propylbenzene	7,500 (DD) dev	1,800 (DD) dev	33,000 (DD) dev
129000	Pyrene	140 (S) sol	2.5E+07 nc	3,500 nc
100425	Styrene	1,000 ca	150 ca	1,500 ca
108883	Toluene	41,000 nc	3,700 nc	1.7E+05 nc
540841	2,2,4-Trimethyl pentane	160 (GW) nc	130 (M) nc	1.2E+05 nc
526738	1,2,3-Trimethylbenzene	1,500 (JT) nc	270 (JT) nc	2,100 (JT) nc
95636	1,2,4-Trimethylbenzene	810 (JT) nc	150 (JT) nc	2,100 (JT) nc
108678	1,3,5-Trimethylbenzene	570 (JT) nc	100 (JT) nc	2,100 (JT) nc
1330207	Xylenes	2,200 (J) nc	280 (J) nc	7,600 (J) nc

Table 2. Residential Volatilization to Indoor Air Criteria (VIAC). The following are **unrestricted** site-specific criteria that apply to a residential house with a **basement**, the depth to groundwater submitted for this site (i.e. 8 ft), and USDA soil type of **sand**.

CAS#	Hazardous Substance	Groundwater In Contact (GWIC) (µg/L)	Soil (µg/kg)	Soil Gas** (µg/m^3)
83329	Acenaphthene	3,900 (S) sol	2.0E+05 nc	7,300 nc
208968	Acenaphthylene	65 nc	DATA	7,300 nc
994058	t-Amyl methyl ether (TAME)	82 nc	34 (M) nc	2,200 nc
120127	Anthracene	43 (S) sol	1.3E+07 nc	35,000 nc
71432	Benzene	1.0 ca	1.7 (M) ca	110 ca
56553	Benzo(a)anthracene	9.4 (S) (MM) sol	1.6E+05 (MM) mut	5.8 (MM) mut
75650	t-Butyl alcohol	17,000 nc	3,200 nc	2,500 nc
104518	n-Butylbenzene	44 nc	550 nc	7,000 nc
135988	sec-Butylbenzene	270 nc	3,800 nc	14 nc
98066	t-Butylbenzene	7.7E-02 (M) nc	0.64 (M) nc	14 nc
110827	Cyclohexane	290 nc	320 (M) nc	2.1E+05 nc
75343	1,1-Dichloroethane	4.7 ca	2.6 (M) ca	530 ca
107062	1,2-Dichloroethane	1.4 ca	0.82 (M) ca	33 ca
60297	Diethyl ether	1,200 nc	350 nc	35,000 nc
108203	Diisopropyl ether	36 (DD) dev	190 (M) (DD) dev	23,000 (DD) dev
64175	Ethanol	1.0E+05 (FF) st	1.3E+06 (EE) st	6.3E+05 (EE) st
637923	Ethyl-tert-butyl ether (ETBE)	22 nc	DATA	13,000 nc
100414	Ethylbenzene	2.8 ca	12 (M) ca	340 ca
106934	Ethylene dibromide	0.13 ca	7.4E-02 (M) ca	1.4 ca
86737	Fluorene	1,700 (S) sol	4.7E+05 nc	4,900 nc
142825	n-Heptane	150 nc	130 nc	1.2E+05 nc
110543	n-Hexane	29 nc	25 nc	24,000 nc
67630	Isopropyl alcohol	53,000 nc	9,800 nc	7,000 nc
98828	Isopropyl benzene	0.60 (M) ca	3.8 (M) ca	81 ca

Table 2. Residential Volatilization to Indoor Air Criteria (VIAC). The following are **unrestricted** site-specific criteria that apply to a residential house with a **basement**, the depth to groundwater submitted for this site (i.e. 8 ft), and USDA soil type of **sand**.

CAS#	Hazardous Substance	Groundwater In Contact (GWIC) (µg/L)	Soil (µg/kg)	Soil Gas** (µg/m^3)
Varies	Mercury (Total)	8.8E-02 nc	22 nc	10 nc
1634044	Methyl-tert-butyl ether (MTBE)	250 ca	74 (M) ca	3,300 ca
96377	Methylcyclopentane	30 (M) nc	29 (M) nc	24,000 nc
91576	2-Methylnaphthalene	66 nc	1,700 nc	350 nc
91203	Naphthalene	4.2 (M) ca	67 (M) ca	25 ca
109660	Pentane	40 (M) nc	36 (M) nc	35,000 nc
85018	Phenanthrene	9.5 nc	1,700 nc	3.5 nc
1336363	Polychlorinated biphenyls (PCBs)	3.1E-02 (M) (J) ca	DATA	8.5 (J) ca
103651	n-Propylbenzene	43 (DD) dev	1,800 (DD) dev	33,000 (DD) dev
129000	Pyrene	140 (S) sol	2.5E+07 nc	3,500 nc
100425	Styrene	33 ca	150 ca	1,500 ca
108883	Toluene	300 (FF) st	3,700 nc	1.7E+05 nc
540841	2,2,4-Trimethyl pentane	160 nc	130 (M) nc	1.2E+05 nc
526738	1,2,3-Trimethylbenzene	43 (JT) nc	270 (JT) nc	2,100 (JT) nc
95636	1,2,4-Trimethylbenzene	25 (JT) nc	150 (JT) nc	2,100 (JT) nc
108678	1,3,5-Trimethylbenzene	18 (JT) nc	100 (JT) nc	2,100 (JT) nc
1330207	Xylenes	75 (J) nc	280 (J) nc	7,600 (J) nc

FOOTNOTES

**Soil gas site-specific volatilization to indoor air (SSVIAC) are applicable for all depths.

- Acceptable Air Values (AAV) endpoint basis used for SSVIAC: (**ca**) = Carcinogenetic; (**nc**) = Non-Carcinogenetic; (**dev**) = Developmental; (**mut**) = Mutagenic cancer; (**st**) = Short-term (i.e., less than chronic exposure).
- Footnote (**#**): Acceptable air concentrations (AAC) cannot be adjusted to a 12-hour exposure time for hazardous substance.
- Footnote **AA**: Health-based groundwater SSVIAC are not available due to insufficient toxicological data. Dissolved-phase methane in groundwater is not explosive; however, if liberated and allowed to accumulate in an enclosed structure the principle health and safety concerns are explosive, flammable, and asphyxiant properties of gas phase methane. The acceptable groundwater concentration is the flammability and explosivity screening level (**FESL**) of 10,000 µg/L.
- Footnote **C**: The health-based SSVIAC exceeds the chemical-specific soil saturation screening level. The person proposing or implementing response activity must document whether additional response activity is required to control non aqueous phase liquid (**NAPL**) to protect against risks associated with NAPL by using methods appropriate for the NAPL present.
- Footnote **CC**: Insufficient chemical-physical input parameters have been identified to allow the development of a health-based SSVIAC using standard methods. The health based SSVIAC for groundwater is developed based solely on the approach that the department uses for shallow groundwater. If groundwater detections are present, soil vapor may be the most appropriate media to evaluate risk posed from the VIAP.
- Footnote **DATA**: Insufficient physical chemical parameters to calculate a health based SSVIAC for specified media. If detections are present in specified media, health-based soil vapor SSVIAC should be used to evaluate risk.
- Footnote **DD**: Hazardous substance causes developmental effects. Residential SSVIAC are protective of both prenatal exposure using a pregnant female receptor and postnatal exposure using a child receptor. Nonresidential SSVIAC are protective of prenatal exposure using a pregnant female receptor. Prenatal developmental effects may occur after an acute (i.e. short-term) or full-term exposure.
- Footnote **EE**: The acceptable air concentration (**AAC**) for the volatile hazardous substances is not derived using standard methods. The hazardous substance may cause adverse human health effects for less than chronic exposures (i.e. short-term or acute). The AAC for these hazardous substances is the acute or intermediate minimum risk level (MRL) developed by the Agency for Toxic Substances and Disease Registry (ATSDR), a United States Environmental Protection Agency Integrated Risk Information System (IRIS) acute reference concentration, or EGLE's Air Quality Division acute initial threshold screening level (ITSL).
- Footnote **FF**: The AAC for the volatile hazardous substances are based on toxicity values that have been identified to have the potential to cause adverse human health effects for less than chronic exposures (i.e. short-term or acute). The short-term exposure for shallow groundwater health based SSVIAC are based on modification of the standard methods by the department to develop applicable shallow groundwater values.
- Footnote **GG**: Health-based SSVIAC for soil vapor are not available due to insufficient toxicological data. The soil vapor value addresses the health and safety concerns of explosive, flammable, and asphyxiant properties of gas phase methane. The acceptable soil vapor concentration is derived based on 25% of the lower explosive level (**LEL**) for methane.
- Footnote **GW**: The calculated health based SSVIAC for a hazardous substance based upon shallow groundwater is considered protective when it is greater than the calculated value for groundwater.
- Footnote **ID**: Requires further evaluation to determine the appropriate media to sample.
- Footnote **J**: Hazardous substance may be present in several isomer forms. Isomer-specific concentrations must be added together for comparison to criteria.
- Footnote **JT**: Hazardous substance may be present in several isomer forms. The health-based SSVIAC may be used for the individual isomer provided that it is the sole isomer detected; however, when multiple isomers are detected in a medium, the isomer-specific concentrations must be added together and compared to the most restrictive health-based SSVIAC of the detected isomers.
- Footnote **M**: The health based SSVIAC may be below target detection limits (**TDL**). In accordance with Sec. 20120a(10) when the TDL for a hazardous substance is greater than the developed health-based SSVIAC, the TDL is used to evaluate the risk posed from the pathway.
- Footnote **MM**: Hazardous substance is a carcinogen with a mutagenic mode of action. The cancer potency values used in calculating health-based SSVIAC are modified using age-dependent adjustment factors for those carcinogenic chemicals identified as mutagenic.
- Footnote **NA**: The hazardous substance does not meet the department's definition of a volatile; therefore, no health based SSVIAC were developed.
- Footnote **NR**: The hazardous substance has not been previously evaluated by the Remediation and Redevelopment Division Toxicology Unit. The identification, collection, and evaluation of toxicological literature and chemical-physical data cannot be completed within the timeframe requested.
- Footnote **S**: Calculated health-based SSVIAC exceeds the hazardous substance-specific water solubility limit; therefore, the water solubility limit is used to evaluate the risk posed from the pathway.
- Footnote **TX**: The Remediation and Redevelopment Division Toxicology Unit has not identified an inhalation toxicity value for the hazardous substance.

Attachment F

Laboratory Analytical Reports

Fibertec
environmental
services

Monday, September 24, 2007

Fibertec Project Number: 25196
Project Identification: 7850 East Jefferson Property/16-070753-02
Submittal Date: 9/20/2007

Ms. Beth Stearns
NTH Consultants, Ltd. - Farmington Hills
38955 Hills Tech Drive
Farmington Hills, MI 48331-3432

Dear Ms. Stearns,

Thank you for selecting Fibertec Environmental Services as your analytical laboratory. The samples you submitted have been analyzed as requested and the results compiled in the enclosed report.

If you have any questions regarding these results or if we may be of further assistance to you, please contact me at (517) 699-0345. Please note samples will be disposed of 30 days after reporting date.

Sincerely,

Daryl P. Strandbergh
Laboratory Director

DPS/kc

Enclosures

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11766 E. Grand River
8660 S. Mackinaw Trail

Holt, MI 48842
Brighton, MI 48116
Cadillac, MI 49601

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T: (231) 775-8368

F: (517) 699-0388
F: (810) 220-3311
F: (231) 775-8584

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-002**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**GP-1 S-1 3-4'**
Project Number:	**16-070753-02**	Client Sample Number:	**GP-1**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72611**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 9.50%.**

Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**
FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;
E = Estimated value; J = Analyte positively identified - estimated value
X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)
Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)								
Acetone	ND	µg/kg	1000	1	V307I21B	9/19/2007	9/22/2007	JLH
Acrylonitrile	ND	µg/kg	100	1	V307I21B	9/19/2007	9/22/2007	JLH
Benzene	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
Bromobenzene	ND	µg/kg	100	1	V307I21B	9/19/2007	9/22/2007	JLH
Bromochloromethane	ND	µg/kg	100	1	V307I21B	9/19/2007	9/22/2007	JLH
Bromodichloromethane	ND	µg/kg	100	1	V307I21B	9/19/2007	9/22/2007	JLH
Bromoform	ND	µg/kg	100	1	V307I21B	9/19/2007	9/22/2007	JLH
Bromomethane	ND	µg/kg	200	1	V307I21B	9/19/2007	9/22/2007	JLH
2-Butanone	ND	µg/kg	750	1	V307I21B	9/19/2007	9/22/2007	JLH
n-Butylbenzene	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
sec-Butylbenzene	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
tert-Butylbenzene	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
Carbon Disulfide	ND	µg/kg	250	1	V307I21B	9/19/2007	9/22/2007	JLH
Carbon Tetrachloride	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
Chlorobenzene	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
Chloroethane	ND	µg/kg	250	1	V307I21B	9/19/2007	9/22/2007	JLH
Chloroform	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
Chloromethane	ND	µg/kg	250	1	V307I21B	9/19/2007	9/22/2007	JLH
2-Chlorotoluene	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
Dibromochloromethane	ND	µg/kg	100	1	V307I21B	9/19/2007	9/22/2007	JLH

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-002**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**GP-1 S-1 3-4'**
Project Number:	**16-070753-02**	Client Sample Number:	**GP-1**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72611**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 9.50%.**

Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**
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X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)
Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)								
1,2-Dibromo-3-chloropropane	ND	µg/kg	10	1	V307I21B	9/19/2007	9/22/2007	JLH
Dibromomethane	ND	µg/kg	250	1	V307I21B	9/19/2007	9/22/2007	JLH
1,2-Dichlorobenzene	ND	µg/kg	100	1	V307I21B	9/19/2007	9/22/2007	JLH
1,3-Dichlorobenzene	ND	µg/kg	100	1	V307I21B	9/19/2007	9/22/2007	JLH
1,4-Dichlorobenzene	ND	µg/kg	100	1	V307I21B	9/19/2007	9/22/2007	JLH
Dichlorodifluoromethane	ND	µg/kg	250	1	V307I21B	9/19/2007	9/22/2007	JLH
1,1-Dichloroethane	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
1,2-Dichloroethane	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
1,1-Dichloroethene	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
cis-1,2-Dichloroethene	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
trans-1,2-Dichloroethene	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
1,2-Dichloropropane	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
cis-1,3-Dichloropropene	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
trans-1,3-Dichloropropene	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
Ethylbenzene	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
Ethylene Dibromide	ND	µg/kg	20	1	V307I21B	9/19/2007	9/22/2007	JLH
2-Hexanone	ND	µg/kg	2500	1	V307I21B	9/19/2007	9/22/2007	JLH
Methyl Iodide	ND	µg/kg	100	1	V307I21B	9/19/2007	9/22/2007	JLH
Isopropylbenzene	ND	µg/kg	250	1	V307I21B	9/19/2007	9/22/2007	JLH
4-Methyl-2-pentanone	ND	µg/kg	2500	1	V307I21B	9/19/2007	9/22/2007	JLH

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-002**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**GP-1 S-1 3-4'**
Project Number:	**16-070753-02**	Client Sample Number:	**GP-1**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72611**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 9.50%.**

Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**
FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;
E = Estimated value; J = Analyte positively identified - estimated value
X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)
Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)								
Methylene Chloride	ND	µg/kg	100	1	V307I21B	9/19/2007	9/22/2007	JLH
MTBE	ND	µg/kg	250	1	V307I21B	9/19/2007	9/22/2007	JLH
Naphthalene	ND	µg/kg	330	1	V307I21B	9/19/2007	9/22/2007	JLH
n-Propylbenzene	ND	µg/kg	100	1	V307I21B	9/19/2007	9/22/2007	JLH
Styrene	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
1,1,1,2-Tetrachloroethane	ND	µg/kg	100	1	V307I21B	9/19/2007	9/22/2007	JLH
1,1,2,2-Tetrachloroethane	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
Tetrachloroethene	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
Toluene	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
1,2,4-Trichlorobenzene	ND	µg/kg	330	1	V307I21B	9/19/2007	9/22/2007	JLH
1,1,1-Trichloroethane	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
1,1,2-Trichloroethane	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
Trichloroethene	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
Trichlorofluoromethane	ND	µg/kg	100	1	V307I21B	9/19/2007	9/22/2007	JLH
1,2,3-Trichloropropane	ND	µg/kg	100	1	V307I21B	9/19/2007	9/22/2007	JLH
1,2,3-Trimethylbenzene	ND	µg/kg	100	1	V307I21B	9/19/2007	9/22/2007	JLH
1,2,4-Trimethylbenzene	ND	µg/kg	100	1	V307I21B	9/19/2007	9/22/2007	JLH
1,3,5-Trimethylbenzene	ND	µg/kg	100	1	V307I21B	9/19/2007	9/22/2007	JLH
Vinyl Chloride	ND	µg/kg	40	1	V307I21B	9/19/2007	9/22/2007	JLH
Xylenes	ND	µg/kg	150	1	V307I21B	9/19/2007	9/22/2007	JLH

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-002A**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**GP-1 S-1 3-4'**
Project Number:	**16-070753-02**	Client Sample Number:	**GP-1**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72611**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 9.50%.**

Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**
FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;
E = Estimated value; J = Analyte positively identified - estimated value
X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)
Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
Dry Weight Determination (ASTM D 2974-87)								
Percent Moisture (Water Content)	**9.5**	%	0.1	1	NA	9/20/2007	9/21/2007	BMG
Michigan 10 Elements by ICP/MS (EPA 3050B/EPA 6020)								
Arsenic	**6600**	µg/kg	100	1	44099	9/24/2007	9/24/2007	EJA
Barium	**57000**	µg/kg	1000	1	44099	9/24/2007	9/24/2007	EJA
Cadmium	**230**	µg/kg	50	1	44099	9/24/2007	9/24/2007	EJA
Chromium	**16000**	µg/kg	500	1	44099	9/24/2007	9/24/2007	EJA
Copper	**19000**	µg/kg	1000	1	44099	9/24/2007	9/24/2007	EJA
Lead	**14000**	µg/kg	1000	1	44099	9/24/2007	9/24/2007	EJA
Selenium	**230**	µg/kg	200	1	44099	9/24/2007	9/24/2007	EJA
Silver	ND	µg/kg	100	1	44099	9/24/2007	9/24/2007	EJA
Zinc	**50000**	µg/kg	1000	1	44099	9/24/2007	9/24/2007	EJA
Mercury by CVAAS (EPA 7471A)								
Mercury	**84**	µg/kg	50	1	44090	9/21/2007	9/21/2007	JLH
Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)								
Acenaphthene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Acenaphthylene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Anthracene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Benzo(a)anthracene	**590**	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Benzo(a)pyrene	**600**	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Benzo(b)fluoranthene	**710**	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-002A**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**GP-1 S-1 3-4'**
Project Number:	**16-070753-02**	Client Sample Number:	**GP-1**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72611**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 9.50%.**

Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**
FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;
E = Estimated value; J = Analyte positively identified - estimated value
X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)
Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)								
Benzo(ghi)perylene	**380**	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Benzo(k)fluoranthene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Chrysene	**590**	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Dibenzo(a,h)anthracene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Fluoranthene	**1700**	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Fluorene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Indeno(1,2,3-cd)pyrene	**400**	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
2-Methylnaphthalene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Phenanthrene	**1500**	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Pyrene	**1300**	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-003**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**GP-2 S-1 .5-1.0'**
Project Number:	**16-070753-02**	Client Sample Number:	**GP-2**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72611**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 7.90%.**

Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**
FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;
E = Estimated value; J = Analyte positively identified - estimated value
X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)
Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)								
Acetone	ND	µg/kg	1000	1	V307I21B	9/19/2007	9/22/2007	JLH
Acrylonitrile	ND	µg/kg	100	1	V307I21B	9/19/2007	9/22/2007	JLH
Benzene	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
Bromobenzene	ND	µg/kg	100	1	V307I21B	9/19/2007	9/22/2007	JLH
Bromochloromethane	ND	µg/kg	100	1	V307I21B	9/19/2007	9/22/2007	JLH
Bromodichloromethane	ND	µg/kg	100	1	V307I21B	9/19/2007	9/22/2007	JLH
Bromoform	ND	µg/kg	100	1	V307I21B	9/19/2007	9/22/2007	JLH
Bromomethane	ND	µg/kg	200	1	V307I21B	9/19/2007	9/22/2007	JLH
2-Butanone	ND	µg/kg	750	1	V307I21B	9/19/2007	9/22/2007	JLH
n-Butylbenzene	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
sec-Butylbenzene	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
tert-Butylbenzene	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
Carbon Disulfide	ND	µg/kg	250	1	V307I21B	9/19/2007	9/22/2007	JLH
Carbon Tetrachloride	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
Chlorobenzene	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
Chloroethane	ND	µg/kg	250	1	V307I21B	9/19/2007	9/22/2007	JLH
Chloroform	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
Chloromethane	ND	µg/kg	250	1	V307I21B	9/19/2007	9/22/2007	JLH
2-Chlorotoluene	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
Dibromochloromethane	ND	µg/kg	100	1	V307I21B	9/19/2007	9/22/2007	JLH

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-003**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**GP-2 S-1 .5-1.0'**
Project Number:	**16-070753-02**	Client Sample Number:	**GP-2**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72611**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 7.90%.**

Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**
FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;
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X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)
Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)								
1,2-Dibromo-3-chloropropane	ND	µg/kg	10	1	V307I21B	9/19/2007	9/22/2007	JLH
Dibromomethane	ND	µg/kg	250	1	V307I21B	9/19/2007	9/22/2007	JLH
1,2-Dichlorobenzene	ND	µg/kg	100	1	V307I21B	9/19/2007	9/22/2007	JLH
1,3-Dichlorobenzene	ND	µg/kg	100	1	V307I21B	9/19/2007	9/22/2007	JLH
1,4-Dichlorobenzene	ND	µg/kg	100	1	V307I21B	9/19/2007	9/22/2007	JLH
Dichlorodifluoromethane	ND	µg/kg	250	1	V307I21B	9/19/2007	9/22/2007	JLH
1,1-Dichloroethane	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
1,2-Dichloroethane	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
1,1-Dichloroethene	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
cis-1,2-Dichloroethene	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
trans-1,2-Dichloroethene	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
1,2-Dichloropropane	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
cis-1,3-Dichloropropene	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
trans-1,3-Dichloropropene	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
Ethylbenzene	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
Ethylene Dibromide	ND	µg/kg	20	1	V307I21B	9/19/2007	9/22/2007	JLH
2-Hexanone	ND	µg/kg	2500	1	V307I21B	9/19/2007	9/22/2007	JLH
Methyl Iodide	ND	µg/kg	100	1	V307I21B	9/19/2007	9/22/2007	JLH
Isopropylbenzene	ND	µg/kg	250	1	V307I21B	9/19/2007	9/22/2007	JLH
4-Methyl-2-pentanone	ND	µg/kg	2500	1	V307I21B	9/19/2007	9/22/2007	JLH

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-003**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**GP-2 S-1 .5-1.0'**
Project Number:	**16-070753-02**	Client Sample Number:	**GP-2**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72611**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 7.90%.**

Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**
FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;
E = Estimated value; J = Analyte positively identified - estimated value
X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)
Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)								
Methylene Chloride	ND	µg/kg	100	1	V307I21B	9/19/2007	9/22/2007	JLH
MTBE	ND	µg/kg	250	1	V307I21B	9/19/2007	9/22/2007	JLH
Naphthalene	ND	µg/kg	330	1	V307I21B	9/19/2007	9/22/2007	JLH
n-Propylbenzene	ND	µg/kg	100	1	V307I21B	9/19/2007	9/22/2007	JLH
Styrene	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
1,1,1,2-Tetrachloroethane	ND	µg/kg	100	1	V307I21B	9/19/2007	9/22/2007	JLH
1,1,2,2-Tetrachloroethane	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
Tetrachloroethene	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
Toluene	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
1,2,4-Trichlorobenzene	ND	µg/kg	330	1	V307I21B	9/19/2007	9/22/2007	JLH
1,1,1-Trichloroethane	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
1,1,2-Trichloroethane	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
Trichloroethene	ND	µg/kg	50	1	V307I21B	9/19/2007	9/22/2007	JLH
Trichlorofluoromethane	ND	µg/kg	100	1	V307I21B	9/19/2007	9/22/2007	JLH
1,2,3-Trichloropropane	ND	µg/kg	100	1	V307I21B	9/19/2007	9/22/2007	JLH
1,2,3-Trimethylbenzene	ND	µg/kg	100	1	V307I21B	9/19/2007	9/22/2007	JLH
1,2,4-Trimethylbenzene	ND	µg/kg	100	1	V307I21B	9/19/2007	9/22/2007	JLH
1,3,5-Trimethylbenzene	ND	µg/kg	100	1	V307I21B	9/19/2007	9/22/2007	JLH
Vinyl Chloride	ND	µg/kg	40	1	V307I21B	9/19/2007	9/22/2007	JLH
Xylenes	ND	µg/kg	150	1	V307I21B	9/19/2007	9/22/2007	JLH

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-003A**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**GP-2 S-1 .5-1.0'**
Project Number:	**16-070753-02**	Client Sample Number:	**GP-2**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72611**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 7.90%.**

Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**
FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;
E = Estimated value; J = Analyte positively identified - estimated value
X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)
Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
Dry Weight Determination (ASTM D 2974-87)								
Percent Moisture (Water Content)	**7.9**	%	0.1	1	NA	9/20/2007	9/21/2007	BMG
Lead, MDEQ Criteria (EPA 0200.2/EPA 6020)								
Lead, Total (Calculated)	**106000**	µg/kg	1000	1	44139	10/1/2007	10/1/2007	EJA
Lead, Fine Fraction	**174000**	µg/kg	1000	1	44139	10/1/2007	10/1/2007	EJA
Lead, Coarse Fraction	**71600**	µg/kg	1000	1	44139	10/1/2007	10/1/2007	EJA
Percent Total Solids	**92.2**	%	0.1	1	44139	10/1/2007	10/1/2007	EJA
Michigan 10 Elements by ICP/MS (EPA 3050B/EPA 6020)								
Arsenic	**5700**	µg/kg	100	1	44099	9/24/2007	9/24/2007	EJA
Barium	**82000**	µg/kg	1000	1	44099	9/24/2007	9/24/2007	EJA
Cadmium	**460**	µg/kg	50	1	44099	9/24/2007	9/24/2007	EJA
Chromium	**13000**	µg/kg	500	1	44099	9/24/2007	9/24/2007	EJA
Copper	**35000**	µg/kg	1000	1	44099	9/24/2007	9/24/2007	EJA
Lead	**100000**	µg/kg	1000	1	44099	9/24/2007	9/24/2007	EJA
Selenium	**390**	µg/kg	200	1	44099	9/24/2007	9/24/2007	EJA
Silver	ND	µg/kg	100	1	44099	9/24/2007	9/24/2007	EJA
Zinc	**200000**	µg/kg	1000	1	44099	9/24/2007	9/24/2007	EJA
Mercury by CVAAS (EPA 7471A)								
Mercury	**160**	µg/kg	50	1	44090	9/21/2007	9/21/2007	JLH
Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)								
Acenaphthene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Acenaphthylene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-003A**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**GP-2 S-1 .5-1.0'**
Project Number:	**16-070753-02**	Client Sample Number:	**GP-2**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72611**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 7.90%.**

Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**
FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;
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X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)
Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)								
Anthracene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Benzo(a)anthracene	**870**	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Benzo(a)pyrene	**920**	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Benzo(b)fluoranthene	**1100**	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Benzo(ghi)perylene	**620**	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Benzo(k)fluoranthene	**440**	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Chrysene	**860**	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Dibenzo(a,h)anthracene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Fluoranthene	**1900**	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Fluorene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Indeno(1,2,3-cd)pyrene	**640**	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
2-Methylnaphthalene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Phenanthrene	**850**	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Pyrene	**1500**	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-004**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**GP-3 S-1 5-6'**
Project Number:	**16-070753-02**	Client Sample Number:	**GP-3**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72611**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 11.8%.**

Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**
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X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)
Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)								
Acetone	ND	µg/kg	1000	1	VE07I23A	9/19/2007	9/23/2007	JAS
Acrylonitrile	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Benzene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Bromobenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Bromochloromethane	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Bromodichloromethane	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Bromoform	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Bromomethane	ND	µg/kg	200	1	VE07I23A	9/19/2007	9/23/2007	JAS
2-Butanone	ND	µg/kg	750	1	VE07I23A	9/19/2007	9/23/2007	JAS
n-Butylbenzene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
sec-Butylbenzene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
tert-Butylbenzene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Carbon Disulfide	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
Carbon Tetrachloride	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Chlorobenzene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Chloroethane	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
Chloroform	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Chloromethane	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
2-Chlorotoluene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Dibromochloromethane	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-004**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**GP-3 S-1 5-6'**
Project Number:	**16-070753-02**	Client Sample Number:	**GP-3**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72611**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 11.8%.**

Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**
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Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)								
1,2-Dibromo-3-chloropropane	ND	µg/kg	10	1	VE07I23A	9/19/2007	9/23/2007	JAS
Dibromomethane	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,2-Dichlorobenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,3-Dichlorobenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,4-Dichlorobenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Dichlorodifluoromethane	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,1-Dichloroethane	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,2-Dichloroethane	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,1-Dichloroethene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
cis-1,2-Dichloroethene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
trans-1,2-Dichloroethene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,2-Dichloropropane	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
cis-1,3-Dichloropropene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
trans-1,3-Dichloropropene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Ethylbenzene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Ethylene Dibromide	ND	µg/kg	20	1	VE07I23A	9/19/2007	9/23/2007	JAS
2-Hexanone	ND	µg/kg	2500	1	VE07I23A	9/19/2007	9/23/2007	JAS
Methyl Iodide	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Isopropylbenzene	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
4-Methyl-2-pentanone	ND	µg/kg	2500	1	VE07I23A	9/19/2007	9/23/2007	JAS

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-004**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**GP-3 S-1 5-6'**
Project Number:	**16-070753-02**	Client Sample Number:	**GP-3**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72611**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 11.8%.**

Definitions:
ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available
FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;
E = Estimated value; J = Analyte positively identified - estimated value
X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)
Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)								
Methylene Chloride	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
MTBE	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
Naphthalene	ND	µg/kg	330	1	VE07I23A	9/19/2007	9/23/2007	JAS
n-Propylbenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Styrene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,1,1,2-Tetrachloroethane	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,1,2,2-Tetrachloroethane	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Tetrachloroethene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Toluene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,2,4-Trichlorobenzene	ND	µg/kg	330	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,1,1-Trichloroethane	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,1,2-Trichloroethane	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Trichloroethene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Trichlorofluoromethane	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,2,3-Trichloropropane	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,2,3-Trimethylbenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,2,4-Trimethylbenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,3,5-Trimethylbenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Vinyl Chloride	ND	µg/kg	40	1	VE07I23A	9/19/2007	9/23/2007	JAS
Xylenes	ND	µg/kg	150	1	VE07I23A	9/19/2007	9/23/2007	JAS

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-004A**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**GP-3 S-1 5-6'**
Project Number:	**16-070753-02**	Client Sample Number:	**GP-3**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72611**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 11.8%.**

Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**
FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;
E = Estimated value; J = Analyte positively identified - estimated value
X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)
Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
Dry Weight Determination (ASTM D 2974-87)								
Percent Moisture (Water Content)	**12**	%	0.1	1	NA	9/20/2007	9/21/2007	BMG
Michigan 10 Elements by ICP/MS (EPA 3050B/EPA 6020)								
Arsenic	**8000**	µg/kg	100	1	44099	9/24/2007	9/24/2007	EJA
Barium	**45000**	µg/kg	1000	1	44099	9/24/2007	9/24/2007	EJA
Cadmium	**200**	µg/kg	50	1	44099	9/24/2007	9/24/2007	EJA
Chromium	**18000**	µg/kg	500	1	44099	9/24/2007	9/24/2007	EJA
Copper	**19000**	µg/kg	1000	1	44099	9/24/2007	9/24/2007	EJA
Lead	**12000**	µg/kg	1000	1	44099	9/24/2007	9/24/2007	EJA
Selenium	ND	µg/kg	200	1	44099	9/24/2007	9/24/2007	EJA
Silver	ND	µg/kg	100	1	44099	9/24/2007	9/24/2007	EJA
Zinc	**51000**	µg/kg	1000	1	44099	9/24/2007	9/24/2007	EJA
Mercury by CVAAS (EPA 7471A)								
Mercury	ND	µg/kg	50	1	44090	9/21/2007	9/21/2007	JLH
Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)								
Acenaphthene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Acenaphthylene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Anthracene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Benzo(a)anthracene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Benzo(a)pyrene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Benzo(b)fluoranthene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-004A**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**GP-3 S-1 5-6'**
Project Number:	**16-070753-02**	Client Sample Number:	**GP-3**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72611**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 11.8%.**

Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**
FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;
E = Estimated value; J = Analyte positively identified - estimated value
X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)
Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)								
Benzo(ghi)perylene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Benzo(k)fluoranthene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Chrysene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Dibenzo(a,h)anthracene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Fluoranthene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Fluorene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Indeno(1,2,3-cd)pyrene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
2-Methylnaphthalene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Phenanthrene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Pyrene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-005**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**GP-4 S-1 4-5'**
Project Number:	**16-070753-02**	Client Sample Number:	**GP-4**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72611**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 9.60%.**

Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**
FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;
E = Estimated value; J = Analyte positively identified - estimated value
X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)
Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)								
Acetone	ND	µg/kg	1000	1	VE07I23A	9/19/2007	9/23/2007	JAS
Acrylonitrile	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Benzene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Bromobenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Bromochloromethane	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Bromodichloromethane	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Bromoform	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Bromomethane	ND	µg/kg	200	1	VE07I23A	9/19/2007	9/23/2007	JAS
2-Butanone	ND	µg/kg	750	1	VE07I23A	9/19/2007	9/23/2007	JAS
n-Butylbenzene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
sec-Butylbenzene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
ert-Butylbenzene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Carbon Disulfide	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
Carbon Tetrachloride	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Chlorobenzene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Chloroethane	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
Chloroform	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Chloromethane	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
-Chlorotoluene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Dibromochloromethane	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-005**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**GP-4 S-1 4-5'**
Project Number:	**16-070753-02**	Client Sample Number:	**GP-4**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72611**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 9.60%.**

Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**
FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;
E = Estimated value; J = Analyte positively identified - estimated value
X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)
Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)								
1,2-Dibromo-3-chloropropane	ND	µg/kg	10	1	VE07I23A	9/19/2007	9/23/2007	JAS
Dibromomethane	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,2-Dichlorobenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,3-Dichlorobenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,4-Dichlorobenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Dichlorodifluoromethane	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,1-Dichloroethane	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,2-Dichloroethane	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,1-Dichloroethene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
cis-1,2-Dichloroethene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
trans-1,2-Dichloroethene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,2-Dichloropropane	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
cis-1,3-Dichloropropene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
trans-1,3-Dichloropropene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Ethylbenzene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Ethylene Dibromide	ND	µg/kg	20	1	VE07I23A	9/19/2007	9/23/2007	JAS
2-Hexanone	ND	µg/kg	2500	1	VE07I23A	9/19/2007	9/23/2007	JAS
Methyl Iodide	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Isopropylbenzene	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
4-Methyl-2-pentanone	ND	µg/kg	2500	1	VE07I23A	9/19/2007	9/23/2007	JAS

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-005**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**GP-4 S-1 4-5'**
Project Number:	**16-070753-02**	Client Sample Number:	**GP-4**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72611**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 9.60%.**

Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**
FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;
E = Estimated value; J = Analyte positively identified - estimated value
X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)
Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)								
Methylene Chloride	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
MTBE	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
Naphthalene	ND	µg/kg	330	1	VE07I23A	9/19/2007	9/23/2007	JAS
n-Propylbenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Styrene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,1,1,2-Tetrachloroethane	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,1,2,2-Tetrachloroethane	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Tetrachloroethene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Toluene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,2,4-Trichlorobenzene	ND	µg/kg	330	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,1,1-Trichloroethane	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,1,2-Trichloroethane	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Trichloroethene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Trichlorofluoromethane	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,2,3-Trichloropropane	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,2,3-Trimethylbenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,2,4-Trimethylbenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,3,5-Trimethylbenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Vinyl Chloride	ND	µg/kg	40	1	VE07I23A	9/19/2007	9/23/2007	JAS
Xylenes	ND	µg/kg	150	1	VE07I23A	9/19/2007	9/23/2007	JAS

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-005A**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**GP-4 S-1 4-5'**
Project Number:	**16-070753-02**	Client Sample Number:	**GP-4**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72611**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 9.60%.**

Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**
FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;
E = Estimated value; J = Analyte positively identified - estimated value
X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)
Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
Dry Weight Determination (ASTM D 2974-87)								
Percent Moisture (Water Content)	**9.6**	%	0.1	1	NA	9/20/2007	9/21/2007	BMG
Michigan 10 Elements by ICP/MS (EPA 3050B/EPA 6020)								
Arsenic	**7000**	µg/kg	100	1	44099	9/24/2007	9/24/2007	EJA
Barium	**54000**	µg/kg	1000	1	44099	9/24/2007	9/24/2007	EJA
Cadmium	**210**	µg/kg	50	1	44099	9/24/2007	9/24/2007	EJA
Chromium	**15000**	µg/kg	500	1	44099	9/24/2007	9/24/2007	EJA
Copper	**17000**	µg/kg	1000	1	44099	9/24/2007	9/24/2007	EJA
Lead	**14000**	µg/kg	1000	1	44099	9/24/2007	9/24/2007	EJA
Selenium	ND	µg/kg	200	1	44099	9/24/2007	9/24/2007	EJA
Silver	ND	µg/kg	100	1	44099	9/24/2007	9/24/2007	EJA
Zinc	**44000**	µg/kg	1000	1	44099	9/24/2007	9/24/2007	EJA
Mercury by CVAAS (EPA 7471A)								
Mercury	ND	µg/kg	50	1	44090	9/21/2007	9/21/2007	JLH
Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)								
Acenaphthene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Acenaphthylene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Anthracene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Benzo(a)anthracene	**340**	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Benzo(a)pyrene	**360**	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Benzo(b)fluoranthene	**410**	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-005A**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**GP-4 S-1 4-5'**
Project Number:	**16-070753-02**	Client Sample Number:	**GP-4**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72611**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 9.60%.**

Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**
FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;
E = Estimated value; J = Analyte positively identified - estimated value
X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)
Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
ynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)								
nzo(ghi)perylene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
nzo(k)fluoranthene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
rysene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
enzo(a,h)anthracene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
oranthene	**770**	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
orene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
eno(1,2,3-cd)pyrene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
fethylnaphthalene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
nanthrene	**420**	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
ene	**650**	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-007**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**GP-5 S-1 1-2'**
Project Number:	**16-070753-02**	Client Sample Number:	**GP-5**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72611**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 12.9%.**

Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**
FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;
E = Estimated value; J = Analyte positively identified - estimated value
X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)
Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)								
Acetone	ND	µg/kg	1000	1	VE07I23A	9/19/2007	9/23/2007	JAS
Acrylonitrile	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Benzene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Bromobenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Bromochloromethane	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Bromodichloromethane	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Bromoform	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Bromomethane	ND	µg/kg	200	1	VE07I23A	9/19/2007	9/23/2007	JAS
2-Butanone	ND	µg/kg	750	1	VE07I23A	9/19/2007	9/23/2007	JAS
n-Butylbenzene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
sec-Butylbenzene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
ert-Butylbenzene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Carbon Disulfide	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
Carbon Tetrachloride	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Chlorobenzene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Chloroethane	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
Chloroform	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Chloromethane	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
2-Chlorotoluene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Dibromochloromethane	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-007**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**GP-5 S-1 1-2'**
Project Number:	**16-070753-02**	Client Sample Number:	**GP-5**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72611**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 12.9%.**

Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**
FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;
E = Estimated value; J = Analyte positively identified - estimated value
X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)
Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
/olatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)								
1,2-Dibromo-3-chloropropane	ND	µg/kg	10	1	VE07I23A	9/19/2007	9/23/2007	JAS
Dibromomethane	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,2-Dichlorobenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,3-Dichlorobenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,4-Dichlorobenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Dichlorodifluoromethane	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
,1-Dichloroethane	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
,2-Dichloroethane	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
,1-Dichloroethene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
is-1,2-Dichloroethene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
rans-1,2-Dichloroethene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
,2-Dichloropropane	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
is-1,3-Dichloropropene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
ans-1,3-Dichloropropene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
thylbenzene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
thylene Dibromide	ND	µg/kg	20	1	VE07I23A	9/19/2007	9/23/2007	JAS
-Hexanone	ND	µg/kg	2500	1	VE07I23A	9/19/2007	9/23/2007	JAS
lethyl Iodide	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
opropylbenzene	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
Methyl-2-pentanone	ND	µg/kg	2500	1	VE07I23A	9/19/2007	9/23/2007	JAS

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-007**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**GP-5 S-1 1-2'**
Project Number:	**16-070753-02**	Client Sample Number:	**GP-5**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72611**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 12.9%.**

Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**
FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;
E = Estimated value; J = Analyte positively identified - estimated value
X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)
Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
/olatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)								
Methylene Chloride	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
MTBE	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
Naphthalene	ND	µg/kg	330	1	VE07I23A	9/19/2007	9/23/2007	JAS
n-Propylbenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Styrene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,1,1,2-Tetrachloroethane	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,1,2,2-Tetrachloroethane	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Tetrachloroethene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Toluene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,2,4-Trichlorobenzene	ND	µg/kg	330	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,1,1-Trichloroethane	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,1,2-Trichloroethane	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Trichloroethene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Trichlorofluoromethane	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,2,3-Trichloropropane	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,2,3-Trimethylbenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,2,4-Trimethylbenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,3,5-Trimethylbenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Vinyl Chloride	ND	µg/kg	40	1	VE07I23A	9/19/2007	9/23/2007	JAS
Xylenes	ND	µg/kg	150	1	VE07I23A	9/19/2007	9/23/2007	JAS

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-007A**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**GP-5 S-1 1-2'**
Project Number:	**16-070753-02**	Client Sample Number:	**GP-5**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72611**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 12.9%.**

Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**
FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;
E = Estimated value; J = Analyte positively identified - estimated value
X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)
Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
)ry Weight Determination (ASTM D 2974-87)								
Percent Moisture (Water Content)	**13**	%	0.1	1	NA	9/20/2007	9/21/2007	BMG
Tichigan 10 Elements by ICP/MS (EPA 3050B/EPA 6020)								
Arsenic	**8000**	µg/kg	100	1	44099	9/24/2007	9/24/2007	EJA
Barium	**90000**	µg/kg	1000	1	44099	9/24/2007	9/24/2007	EJA
Cadmium	**440**	µg/kg	50	1	44099	9/24/2007	9/24/2007	EJA
Chromium	**21000**	µg/kg	500	1	44099	9/24/2007	9/24/2007	EJA
Copper	**18000**	µg/kg	1000	1	44099	9/24/2007	9/24/2007	EJA
Lead	**16000**	µg/kg	1000	1	44099	9/24/2007	9/24/2007	EJA
Selenium	**240**	µg/kg	200	1	44099	9/24/2007	9/24/2007	EJA
Silver	ND	µg/kg	100	1	44099	9/24/2007	9/24/2007	EJA
Zinc	**71000**	µg/kg	1000	1	44099	9/24/2007	9/24/2007	EJA
ercury by CVAAS (EPA 7471A)								
Mercury	**70**	µg/kg	50	1	44090	9/21/2007	9/21/2007	JLH
lynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)								
Acenaphthene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Acenaphthylene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Anthracene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Benzo(a)anthracene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Benzo(a)pyrene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Benzo(b)fluoranthene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-007A**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**GP-5 S-1 1-2'**
Project Number:	**16-070753-02**	Client Sample Number:	**GP-5**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72611**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 12.9%.**

Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**
FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;
E = Estimated value; J = Analyte positively identified - estimated value
X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)
Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)								
Benzo(ghi)perylene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Benzo(k)fluoranthene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Chrysene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Dibenzo(a,h)anthracene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Fluoranthene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Fluorene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Indeno(1,2,3-cd)pyrene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
2-Methylnaphthalene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Phenanthrene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Pyrene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-008**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**GP-6 S-1 7.5-8.5'**
Project Number:	**16-070753-02**	Client Sample Number:	**GP-6**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72611**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 9.00%.**

Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**
FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;
E = Estimated value; J = Analyte positively identified - estimated value
X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)
Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)								
Acetone	ND	µg/kg	1000	1	VE07I23A	9/19/2007	9/23/2007	JAS
Acrylonitrile	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Benzene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Bromobenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Bromochloromethane	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Bromodichloromethane	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Bromoform	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Bromomethane	ND	µg/kg	200	1	VE07I23A	9/19/2007	9/23/2007	JAS
2-Butanone	ND	µg/kg	750	1	VE07I23A	9/19/2007	9/23/2007	JAS
n-Butylbenzene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
sec-Butylbenzene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
ert-Butylbenzene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Carbon Disulfide	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
Carbon Tetrachloride	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Chlorobenzene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Chloroethane	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
Chloroform	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Chloromethane	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
2-Chlorotoluene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Dibromochloromethane	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-008**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**GP-6 S-1 7.5-8.5'**
Project Number:	**16-070753-02**	Client Sample Number:	**GP-6**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72611**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 9.00%.**

Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**
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Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)								
1,2-Dibromo-3-chloropropane	ND	µg/kg	10	1	VE07I23A	9/19/2007	9/23/2007	JAS
Dibromomethane	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,2-Dichlorobenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,3-Dichlorobenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,4-Dichlorobenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Dichlorodifluoromethane	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,1-Dichloroethane	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,2-Dichloroethane	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,1-Dichloroethene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
cis-1,2-Dichloroethene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
trans-1,2-Dichloroethene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,2-Dichloropropane	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
cis-1,3-Dichloropropene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
trans-1,3-Dichloropropene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Ethylbenzene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Ethylene Dibromide	ND	µg/kg	20	1	VE07I23A	9/19/2007	9/23/2007	JAS
2-Hexanone	ND	µg/kg	2500	1	VE07I23A	9/19/2007	9/23/2007	JAS
Methyl Iodide	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Isopropylbenzene	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
4-Methyl-2-pentanone	ND	µg/kg	2500	1	VE07I23A	9/19/2007	9/23/2007	JAS

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-008**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**GP-6 S-1 7.5-8.5'**
Project Number:	**16-070753-02**	Client Sample Number:	**GP-6**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72611**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 9.00%.**

Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**
FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;
E = Estimated value; J = Analyte positively identified - estimated value
X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)
Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)								
Methylene Chloride	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
MTBE	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
Naphthalene	ND	µg/kg	330	1	VE07I23A	9/19/2007	9/23/2007	JAS
n-Propylbenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Styrene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,1,1,2-Tetrachloroethane	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,1,2,2-Tetrachloroethane	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Tetrachloroethene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Toluene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,2,4-Trichlorobenzene	ND	µg/kg	330	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,1,1-Trichloroethane	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,1,2-Trichloroethane	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Trichloroethene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Trichlorofluoromethane	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,2,3-Trichloropropane	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,2,3-Trimethylbenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,2,4-Trimethylbenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,3,5-Trimethylbenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Vinyl Chloride	ND	µg/kg	40	1	VE07I23A	9/19/2007	9/23/2007	JAS
Xylenes	ND	µg/kg	150	1	VE07I23A	9/19/2007	9/23/2007	JAS

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-008A**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**GP-6 S-1 7.5-8.5'**
Project Number:	**16-070753-02**	Client Sample Number:	**GP-6**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72611**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 9.00%.**

Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**
FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;
E = Estimated value; J = Analyte positively identified - estimated value
X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)
Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
Dry Weight Determination (ASTM D 2974-87)								
Percent Moisture (Water Content)	**9.0**	%	0.1	1	NA	9/20/2007	9/21/2007	BMG
Michigan 10 Elements by ICP/MS (EPA 3050B/EPA 6020)								
Arsenic	**6900**	µg/kg	100	1	44099	9/24/2007	9/24/2007	EJA
Barium	**52000**	µg/kg	1000	1	44099	9/24/2007	9/24/2007	EJA
Cadmium	**180**	µg/kg	50	1	44099	9/24/2007	9/24/2007	EJA
Chromium	**16000**	µg/kg	500	1	44099	9/24/2007	9/24/2007	EJA
Copper	**17000**	µg/kg	1000	1	44099	9/24/2007	9/24/2007	EJA
Lead	**8400**	µg/kg	1000	1	44099	9/24/2007	9/24/2007	EJA
Selenium	ND	µg/kg	200	1	44099	9/24/2007	9/24/2007	EJA
Silver	ND	µg/kg	100	1	44099	9/24/2007	9/24/2007	EJA
Zinc	**47000**	µg/kg	1000	1	44099	9/24/2007	9/24/2007	EJA
Mercury by CVAAS (EPA 7471A)								
Mercury	ND	µg/kg	50	1	44090	9/21/2007	9/21/2007	JLH
Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)								
Acenaphthene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Acenaphthylene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Anthracene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Benzo(a)anthracene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Benzo(a)pyrene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Benzo(b)fluoranthene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-008A**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**GP-6 S-1 7.5-8.5'**
Project Number:	**16-070753-02**	Client Sample Number:	**GP-6**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72611**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 9.00%.**

Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**
FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;
E = Estimated value; J = Analyte positively identified - estimated value
X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)
Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)								
Benzo(ghi)perylene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Benzo(k)fluoranthene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Chrysene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Dibenzo(a,h)anthracene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Fluoranthene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Fluorene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Indeno(1,2,3-cd)pyrene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
2-Methylnaphthalene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Phenanthrene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Pyrene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-009**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**GP-7 S-1 7.5-8.5'**
Project Number:	**16-070753-02**	Client Sample Number:	**GP-7**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72611**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 10.6%.**

Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**
FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;
E = Estimated value; J = Analyte positively identified - estimated value
X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)
Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)								
Acetone	ND	µg/kg	1000	1	VE07I23A	9/19/2007	9/23/2007	JAS
Acrylonitrile	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Benzene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Bromobenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Bromochloromethane	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Bromodichloromethane	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Bromoform	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Bromomethane	ND	µg/kg	200	1	VE07I23A	9/19/2007	9/23/2007	JAS
2-Butanone	ND	µg/kg	750	1	VE07I23A	9/19/2007	9/23/2007	JAS
n-Butylbenzene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
sec-Butylbenzene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
tert-Butylbenzene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Carbon Disulfide	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
Carbon Tetrachloride	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Chlorobenzene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Chloroethane	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
Chloroform	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Chloromethane	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
2-Chlorotoluene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Dibromochloromethane	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-009**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**GP-7 S-1 7.5-8.5'**
Project Number:	**16-070753-02**	Client Sample Number:	**GP-7**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72611**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 10.6%.**

Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**
FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;
E = Estimated value; J = Analyte positively identified - estimated value
X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)
Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)								
1,2-Dibromo-3-chloropropane	ND	µg/kg	10	1	VE07I23A	9/19/2007	9/23/2007	JAS
Dibromomethane	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,2-Dichlorobenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,3-Dichlorobenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,4-Dichlorobenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Dichlorodifluoromethane	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,1-Dichloroethane	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,2-Dichloroethane	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,1-Dichloroethene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
cis-1,2-Dichloroethene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
trans-1,2-Dichloroethene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,2-Dichloropropane	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
cis-1,3-Dichloropropene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
trans-1,3-Dichloropropene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Ethylbenzene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Ethylene Dibromide	ND	µg/kg	20	1	VE07I23A	9/19/2007	9/23/2007	JAS
2-Hexanone	ND	µg/kg	2500	1	VE07I23A	9/19/2007	9/23/2007	JAS
Methyl Iodide	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Isopropylbenzene	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
4-Methyl-2-pentanone	ND	µg/kg	2500	1	VE07I23A	9/19/2007	9/23/2007	JAS

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-009**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**GP-7 S-1 7.5-8.5'**
Project Number:	**16-070753-02**	Client Sample Number:	**GP-7**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72611**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 10.6%.**

Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**
FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;
E = Estimated value; J = Analyte positively identified - estimated value
X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)
Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)								
Methylene Chloride	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
MTBE	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
Naphthalene	ND	µg/kg	330	1	VE07I23A	9/19/2007	9/23/2007	JAS
n-Propylbenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Styrene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,1,1,2-Tetrachloroethane	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,1,2,2-Tetrachloroethane	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Tetrachloroethene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Toluene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,2,4-Trichlorobenzene	ND	µg/kg	330	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,1,1-Trichloroethane	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,1,2-Trichloroethane	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Trichloroethene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Trichlorofluoromethane	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,2,3-Trichloropropane	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,2,3-Trimethylbenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,2,4-Trimethylbenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,3,5-Trimethylbenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Vinyl Chloride	ND	µg/kg	40	1	VE07I23A	9/19/2007	9/23/2007	JAS
Xylenes	ND	µg/kg	150	1	VE07I23A	9/19/2007	9/23/2007	JAS

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-009A**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**GP-7 S-1 7.5-8.5'**
Project Number:	**16-070753-02**	Client Sample Number:	**GP-7**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72611**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 10.6%.**

Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**
FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;
E = Estimated value; J = Analyte positively identified - estimated value
X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)
Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
Dry Weight Determination (ASTM D 2974-87)								
Percent Moisture (Water Content)	**11**	%	0.1	1	NA	9/20/2007	9/21/2007	BMG
Michigan 10 Elements by ICP/MS (EPA 3050B/EPA 6020)								
Arsenic	**7500**	µg/kg	100	1	44099	9/24/2007	9/24/2007	EJA
Barium	**49000**	µg/kg	1000	1	44099	9/24/2007	9/24/2007	EJA
Cadmium	**220**	µg/kg	50	1	44099	9/24/2007	9/24/2007	EJA
Chromium	**17000**	µg/kg	500	1	44099	9/24/2007	9/24/2007	EJA
Copper	**18000**	µg/kg	1000	1	44099	9/24/2007	9/24/2007	EJA
Lead	**9500**	µg/kg	1000	1	44099	9/24/2007	9/24/2007	EJA
Selenium	ND	µg/kg	200	1	44099	9/24/2007	9/24/2007	EJA
Silver	ND	µg/kg	100	1	44099	9/24/2007	9/24/2007	EJA
Zinc	**49000**	µg/kg	1000	1	44099	9/24/2007	9/24/2007	EJA
Mercury by CVAAS (EPA 7471A)								
Mercury	ND	µg/kg	50	1	44090	9/21/2007	9/21/2007	JLH
Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)								
Acenaphthene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Acenaphthylene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Anthracene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Benzo(a)anthracene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Benzo(a)pyrene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Benzo(b)fluoranthene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-009A**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**GP-7 S-1 7.5-8.5'**
Project Number:	**16-070753-02**	Client Sample Number:	**GP-7**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72611**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 10.6%.**

Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**
FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;
E = Estimated value; J = Analyte positively identified - estimated value
X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)
Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
'olynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)								
Benzo(ghi)perylene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Benzo(k)fluoranthene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Chrysene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Dibenzo(a,h)anthracene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Fluoranthene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Fluorene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
ndeno(1,2,3-cd)pyrene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
-Methylnaphthalene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Phenanthrene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
yrene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-010**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**Field Blank**
Project Number:	**16-070753-02**	Client Sample Number:	**Field Blank**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72611**

Comments:

Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**
FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;
E = Estimated value; J = Analyte positively identified - estimated value
X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)
Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)								
Acetone	ND	µg/kg	1000	1	VE07I23A	9/19/2007	9/23/2007	JAS
Acrylonitrile	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Benzene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Bromobenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Bromochloromethane	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Bromodichloromethane	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Bromoform	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Bromomethane	ND	µg/kg	200	1	VE07I23A	9/19/2007	9/23/2007	JAS
2-Butanone	ND	µg/kg	750	1	VE07I23A	9/19/2007	9/23/2007	JAS
n-Butylbenzene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
sec-Butylbenzene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
ert-Butylbenzene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Carbon Disulfide	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
Carbon Tetrachloride	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Chlorobenzene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Chloroethane	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
Chloroform	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Chloromethane	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
-Chlorotoluene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Dibromochloromethane	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-010**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**Field Blank**
Project Number:	**16-070753-02**	Client Sample Number:	**Field Blank**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72611**

Comments:

Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**
FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;
E = Estimated value; J = Analyte positively identified - estimated value
X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)
Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)								
1,2-Dibromo-3-chloropropane	ND	µg/kg	10	1	VE07I23A	9/19/2007	9/23/2007	JAS
Dibromomethane	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,2-Dichlorobenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,3-Dichlorobenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,4-Dichlorobenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Dichlorodifluoromethane	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
,1-Dichloroethane	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
,2-Dichloroethane	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
,1-Dichloroethene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
is-1,2-Dichloroethene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
ans-1,2-Dichloroethene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
,2-Dichloropropane	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
is-1,3-Dichloropropene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
ans-1,3-Dichloropropene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
thylbenzene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
thylene Dibromide	ND	µg/kg	20	1	VE07I23A	9/19/2007	9/23/2007	JAS
Hexanone	ND	µg/kg	2500	1	VE07I23A	9/19/2007	9/23/2007	JAS
ethyl Iodide	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
opropylbenzene	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
Methyl-2-pentanone	ND	µg/kg	2500	1	VE07I23A	9/19/2007	9/23/2007	JAS

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-010**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**Field Blank**
Project Number:	**16-070753-02**	Client Sample Number:	**Field Blank**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72611**

Comments:

Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**
FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;
E = Estimated value; J = Analyte positively identified - estimated value
X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)
Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)								
Methylene Chloride	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
2-Methylnaphthalene	ND	µg/kg	330	1	VE07I23A	9/19/2007	9/23/2007	JAS
MTBE	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
Naphthalene	ND	µg/kg	330	1	VE07I23A	9/19/2007	9/23/2007	JAS
n-Propylbenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Styrene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,1,1,2-Tetrachloroethane	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,1,2,2-Tetrachloroethane	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Tetrachloroethene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Toluene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,2,4-Trichlorobenzene	ND	µg/kg	330	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,1,1-Trichloroethane	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,1,2-Trichloroethane	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Trichloroethene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Trichlorofluoromethane	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,2,3-Trichloropropane	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,2,3-Trimethylbenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,2,4-Trimethylbenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,3,5-Trimethylbenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Vinyl Chloride	ND	µg/kg	40	1	VE07I23A	9/19/2007	9/23/2007	JAS

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-010**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**Field Blank**
Project Number:	**16-070753-02**	Client Sample Number:	**Field Blank**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72611**

Comments:

Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**
FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;
E = Estimated value; J = Analyte positively identified - estimated value
X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)
Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)								
Xylenes	ND	µg/kg	150	1	VE07I23A	9/19/2007	9/23/2007	JAS

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-011**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**GP-8 S-1 1-2'**
Project Number:	**16-070753-02**	Client Sample Number:	**GP-8**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72624**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 11.9%.**

Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**
FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;
E = Estimated value; J = Analyte positively identified - estimated value
X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)
Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)								
Acetone	ND	µg/kg	1000	1	VE07I23A	9/19/2007	9/23/2007	JAS
Acrylonitrile	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Benzene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Bromobenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Bromochloromethane	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Bromodichloromethane	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Bromoform	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Bromomethane	ND	µg/kg	200	1	VE07I23A	9/19/2007	9/23/2007	JAS
2-Butanone	ND	µg/kg	750	1	VE07I23A	9/19/2007	9/23/2007	JAS
n-Butylbenzene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
sec-Butylbenzene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
tert-Butylbenzene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Carbon Disulfide	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
Carbon Tetrachloride	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Chlorobenzene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Chloroethane	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
Chloroform	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Chloromethane	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
2-Chlorotoluene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Dibromochloromethane	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-011**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**GP-8 S-1 1-2'**
Project Number:	**16-070753-02**	Client Sample Number:	**GP-8**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72624**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 11.9%.**

Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**
FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;
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X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)
Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)								
1,2-Dibromo-3-chloropropane	ND	µg/kg	10	1	VE07I23A	9/19/2007	9/23/2007	JAS
Dibromomethane	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,2-Dichlorobenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,3-Dichlorobenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,4-Dichlorobenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Dichlorodifluoromethane	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
,1-Dichloroethane	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
,2-Dichloroethane	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
,1-Dichloroethene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
is-1,2-Dichloroethene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
ans-1,2-Dichloroethene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
2-Dichloropropane	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
s-1,3-Dichloropropene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
ans-1,3-Dichloropropene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
hylbenzene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
hylene Dibromide	ND	µg/kg	20	1	VE07I23A	9/19/2007	9/23/2007	JAS
Hexanone	ND	µg/kg	2500	1	VE07I23A	9/19/2007	9/23/2007	JAS
ethyl Iodide	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
propylbenzene	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
Methyl-2-pentanone	ND	µg/kg	2500	1	VE07I23A	9/19/2007	9/23/2007	JAS

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-011**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**GP-8 S-1 1-2'**
Project Number:	**16-070753-02**	Client Sample Number:	**GP-8**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72624**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 11.9%.**

Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**
FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;
E = Estimated value; J = Analyte positively identified - estimated value
X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)
Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)								
Methylene Chloride	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
MTBE	ND	µg/kg	250	1	VE07I23A	9/19/2007	9/23/2007	JAS
Naphthalene	ND	µg/kg	330	1	VE07I23A	9/19/2007	9/23/2007	JAS
n-Propylbenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
Styrene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,1,1,2-Tetrachloroethane	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,1,2,2-Tetrachloroethane	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Tetrachloroethene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
Toluene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,2,4-Trichlorobenzene	ND	µg/kg	330	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,1,1-Trichloroethane	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
1,1,2-Trichloroethane	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
richloroethene	ND	µg/kg	50	1	VE07I23A	9/19/2007	9/23/2007	JAS
richlorofluoromethane	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
2,3-Trichloropropane	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
2,3-Trimethylbenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
2,4-Trimethylbenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
3,5-Trimethylbenzene	ND	µg/kg	100	1	VE07I23A	9/19/2007	9/23/2007	JAS
nyl Chloride	ND	µg/kg	40	1	VE07I23A	9/19/2007	9/23/2007	JAS
lenes	ND	µg/kg	150	1	VE07I23A	9/19/2007	9/23/2007	JAS

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-011A**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**GP-8 S-1 1-2'**
Project Number:	**16-070753-02**	Client Sample Number:	**GP-8**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72624**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 11.9%.**

Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**
FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;
E = Estimated value; J = Analyte positively identified - estimated value
X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)
Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
Dry Weight Determination (ASTM D 2974-87)								
Percent Moisture (Water Content)	**12**	%	0.1	1	NA	9/20/2007	9/21/2007	BMG
Michigan 10 Elements by ICP/MS (EPA 3050B/EPA 6020)								
Arsenic	**6400**	µg/kg	100	1	44099	9/24/2007	9/24/2007	EJA
Barium	**73000**	µg/kg	1000	1	44099	9/24/2007	9/24/2007	EJA
Cadmium	**230**	µg/kg	50	1	44099	9/24/2007	9/24/2007	EJA
Chromium	**19000**	µg/kg	500	1	44099	9/24/2007	9/24/2007	EJA
Copper	**43000**	µg/kg	1000	1	44099	9/24/2007	9/24/2007	EJA
Lead	**24000**	µg/kg	1000	1	44099	9/24/2007	9/24/2007	EJA
Selenium	**230**	µg/kg	200	1	44099	9/24/2007	9/24/2007	EJA
Silver	ND	µg/kg	100	1	44099	9/24/2007	9/24/2007	EJA
Zinc	**130000**	µg/kg	1000	1	44099	9/24/2007	9/24/2007	EJA
Mercury by CVAAS (EPA 7471A)								
Mercury	**99**	µg/kg	50	1	44090	9/21/2007	9/21/2007	JLH
Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)								
Acenaphthene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Acenaphthylene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Anthracene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Benzo(a)anthracene	**510**	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Benzo(a)pyrene	**490**	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Benzo(b)fluoranthene	**570**	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO

Analytical Laboratory Report

Client Identification:	**NTH Consultants, Ltd. - Farmington Hills**	Sample Matrix:	**Soil/Solid**
Fibertec Project Number:	**25196**	Sample Number:	**25196-011A**

Client Sample Information

Project Identification:	**7850 East Jefferson Property**	Client Sample Description:	**GP-8 S-1 1-2'**
Project Number:	**16-070753-02**	Client Sample Number:	**GP-8**
Sample Date:	**9/19/2007**	Chain of Custody Number:	**72624**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 11.9%.**

Definitions:
ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available
FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;
E = Estimated value; J = Analyte positively identified - estimated value
X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)
Y - Spike unrecoverable due to sample dilution.

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)								
Benzo(ghi)perylene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Benzo(k)fluoranthene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Chrysene	**460**	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Dibenzo(a,h)anthracene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Fluoranthene	**1200**	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Fluorene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Indeno(1,2,3-cd)pyrene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
2-Methylnaphthalene	ND	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Phenanthrene	**850**	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO
Pyrene	**940**	µg/kg	330	1	44089	9/24/2007	9/24/2007	HLO

Fibertec
Environmental
Services

QUALITY ASSURANCE REPORT
for
LABORATORY BATCH NUMBER

44089

SEMI-VOLATILES

Sample Matrix :	SOIL/SOLID	Preparation Method :	SW-846 3550B	Analytical Method :	SW-846 8270D - PNA
Inclusive Projects :	VARIOUS	Preparation Date :	9/24/2007	Analysis Date :	9/24-9/25/07
		Preparer(s) Initials:	MP	Analyst(s) Initials :	HLO/GN

Analyte	Laboratory Control Number	LOQ	Units	Reagent Blank		Laboratory Fortified Blank (LFB)						MATRIX SPIKE / MATRIX SPIKE DUPLICATE (MS/MSD)												
				Conc. (mg/Kg) (***)	Flag	Conc. Spiked (mg/Kg)	LFB Conc. (mg/Kg)	LFB Percent Recovery	LCL (%)	UCL (%)	Flag	Laboratory Sample ID	Sample Conc.W (mg/Kg)	Conc.W Spiked (mg/Kg)	MS Conc.W (mg/Kg)	MSD Conc.W (mg/Kg)	MS Percent Recovery	MSD Percent Recovery	LCL (%)	UCL (%)	Flag	RPD MS/MSD (%)	UCL (%)	Flag
Naphthalene	S007005089	0.330	mg/Kg	U		2.67	2.09	78.4	38	112		25202-004	U	2.67	2.22	2.23	83.0	83.4	38	112		0.5	30	
2-Methylnaphthalene	S007005027	0.330	mg/Kg	U		2.67	2.03	76.2	43	116		25202-004	U	2.67	2.09	2.04	78.1	76.5	43	116		2.1	30	
Acenaphthylene	S007005045	0.330	mg/Kg	U		2.67	2.39	89.6	49	120		25202-004	U	2.67	2.48	2.28	92.9	85.6	49	120		8.2	30	
Acenaphthene	S007005044	0.330	mg/Kg	U		2.67	2.34	87.7	48	122		25202-004	U	2.67	2.38	2.28	89.3	85.2	48	122		4.6	30	
Fluorene	S007005082	0.330	mg/Kg	U		2.67	2.54	95.1	50	125		25202-004	U	2.67	2.47	2.31	92.4	86.4	50	125		6.8	30	
Phenanthrene	S007005098	0.330	mg/Kg	U		2.67	2.39	89.5	54	125		25202-004	U	2.67	2.47	2.41	92.6	90.3	54	125		2.5	30	
Anthracene	S007005047	0.330	mg/Kg	U		2.67	2.42	90.7	51	125		25202-004	U	2.67	2.42	2.34	90.5	87.7	51	125		3.2	30	
Fluoranthene	S007005081	0.330	mg/Kg	U		2.67	2.66	99.5	50	132		25202-004	U	2.67	2.53	2.54	94.7	95.1	50	132		0.4	30	
Pyrene	S007005101	0.330	mg/Kg	U		2.67	2.55	95.5	49	130		25202-004	U	2.67	2.40	2.34	90.0	87.5	49	130		2.8	30	
Benz(a)anthracene	S007005055	0.330	mg/Kg	U		2.67	2.53	94.9	52	131		25202-004	U	2.67	2.40	2.34	89.7	87.8	52	131		2.2	30	
Chrysene	S007005071	0.330	mg/Kg	U		2.67	2.13	79.6	51	129		25202-004	U	2.67	2.01	1.98	75.2	74.0	51	129		1.6	30	
Benzo(b)fluoranthene	S007005058	0.330	mg/Kg	U		2.67	2.57	96.4	50	128		25202-004	U	2.67	2.35	2.30	87.9	86.3	50	128		1.8	30	
Benzo(k)fluoranthene	S007005060	0.330	mg/Kg	U		2.67	2.58	96.7	52	126		25202-004	U	2.67	2.44	2.33	91.5	87.2	52	126		4.8	30	
Benzo(a)pyrene	S007005057	0.330	mg/Kg	U		2.67	2.68	100.3	49	126		25202-004	U	2.67	2.42	2.30	90.5	86.0	49	126		5.1	30	
Indeno(1,2,3-cd)pyrene	S007005073	0.330	mg/Kg	U		2.67	2.56	95.8	46	137		25202-004	U	2.67	2.58	2.46	96.5	92.0	46	137		4.7	30	
Dibenz(a,h)anthracene	S007005087	0.330	mg/Kg	U		2.67	1.96	73.4	47	136		25202-004	U	2.67	1.97	1.88	74.0	70.4	47	136		4.9	30	
Benzo(ghi)perylene	S007005059	0.330	mg/Kg	U		2.67	2.51	94.2	41	142		25202-004	U	2.67	2.57	2.54	96.4	95.0	41	142		1.5	30	
4-Terphenyl D-14 (S)**	S007005103		mg/Kg	2.8		3.33	3.04	91.4	38	140		25202-004	2.8	3.33	2.92	2.83	87.7	84.9	38	140		3.3	30	

Codes, Flags :

U	The analyte was not detected at or above the quantitation limit.	W	Result is always reported as "wet weight".
E	The analyte was detected at a concentration greater than the calibration range; therefore the result is estimated.	J	The analyte was detected at a conc. below the quant. limit but above the method detection limit.
DL	The sample was diluted due to sample matrix, therefore QC was not recoverable	B	The analyte was detected in the associated method blank.
*	The value is outside quality control limits	M	Matrix interference has resulted in an elevated quantitation limit or distorted QC result.
K	Reported concentration is proportional to dilution factor and may be exaggerated.	NC	Not calculable.
P	When one or both sample results are <5 times the quantitation limit, the RPD cannot be properly evaluated.	NA	Not applicable.
LOQ	Analytical limit of quantitation.	A	If the sample result is >4 times the amount spiked, the MS recovery cannot be properly evaluated.

Comments :
**Terphenyl(S) is added to all samples at 3.33 mg/Kg, and is therefore presented as a percent recovery in the reagent blank.

9/27/07
Chemist/Date

9/28/07
Quality Assurance Officer/Date

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QUALITY ASSURANCE REPORT
for
LABORATORY BATCH NUMBER

V307I21B

VOLATILES

Sample Matrix	SOIL/SOLID (5035)	Preparation Method	SW-846 5035	Analytical Method	SW-846 8260 FULL
Inclusive Projects	VARIOUS	Preparation Date	9/21/2007	Analysis Date	9/21/2007
		Preparer(s) Initials	JLH	Analyst(s) Initials	JAS

Analyte	RL	Units	Matrix Blank Conc. (mg/Kg) (%**)	Matrix Blank Flag	LFB Conc. Spiked (mg/Kg)	LFB Conc. (mg/Kg)	LFB Percent Recovery	LFB LCL (%)	LFB UCL (%)	LFB Flag
Vinyl chloride	0.05	mg/Kg	U		1.00	1.63	163.1	24	141	*
1,1-Dichloroethene	0.05	mg/Kg	U		1.00	1.40	139.9	54	141	
Methylene chloride	0.05	mg/Kg	U		1.00	1.06	106.3	56	133	
trans-1,2-Dichloroethene	0.05	mg/Kg	U		1.00	1.23	123.3	71	143	
1,1-Dichloroethane	0.05	mg/Kg	U		1.00	1.10	110.4	71	136	
cis-1,2-Dichloroethene	0.05	mg/Kg	U		1.00	1.11	110.6	66	134	
1,1,1-Trichloroethane	0.05	mg/Kg	U		1.00	1.23	122.9	72	137	
Carbontetrachloride	0.05	mg/Kg	U		1.00	1.44	144.3	69	141	*
Benzene	0.05	mg/Kg	U		1.00	1.21	121.2	81	144	
1,2-Dichloropropane	0.05	mg/Kg	U		1.00	1.13	112.7	76	136	
Trichloroethene	0.05	mg/Kg	U		1.00	1.21	121.2	69	157	
Bromodichloromethane	0.05	mg/Kg	U		1.00	1.16	115.8	65	139	
1,1,2-Trichloroethane	0.05	mg/Kg	U		1.00	1.13	112.6	71	130	
Toluene	0.05	mg/Kg	U		1.00	1.20	120.0	82	152	
Dibromochloromethane	0.05	mg/Kg	U		1.00	4.86	485.7	59	133	*
Tetrachloroethene	0.05	mg/Kg	U		1.00	1.38	138.4	40	188	
2-Hexanone	0.05	mg/Kg	U		1.00	1.09	108.5	53	163	
Ethylbenzene	0.05	mg/Kg	U		1.00	1.25	124.9	82	146	
total-Xylene	0.15	mg/Kg	U		3.00	3.74	124.5	81	143	
Styrene	0.05	mg/Kg	U		1.00	1.33	133.3	84	146	
Dibromofluoromethane (S)**			140	*	100	120.7	121	52	136	
Toluene-d8 (S)**			145		100	128.8	129	62	153	
4-Bromofluorobenzene (S)**			148		100	134.0	134	48	151	

MATRIX SPIKE / MATRIX SPIKE DUPLICATE (MS / MSD)

Laboratory Sample ID	Sample Conc.W (mg/Kg)	Conc.W Spiked (mg/Kg)	MS Conc.W (mg/Kg)	MSD Conc.W (mg/Kg)	MS Percent Recovery	MSD Percent Recovery	LCL (%)	UCL (%)	Flag	RPD MS/MSD (%)	UCL (%)	Flag
25196002	U	1.00	1.91	1.97	191	197	22	134	*	3	27	
25196002	U	1.00	1.62	1.64	162	164	60	132	*	1	25	
25196002	U	1.00	1.10	1.10	110	110	56	134		1	34	
25196002	U	1.00	1.41	1.38	141	138	66	140	*	2	25	
25196002	U	1.00	1.23	1.23	123	123	86	134		0	23	
25196002	U	1.00	1.24	1.24	124	124	66	138		0	23	
25196002	U	1.00	1.36	1.37	136	137	66	136	*	1	20	
25196002	U	1.00	1.54	1.55	154	155	72	128	*	1	22	
25196002	U	1.00	1.31	1.32	131	132	64	136		1	23	
25196002	U	1.00	1.22	1.22	122	122	70	130		0	21	
25196002	U	1.00	1.89	1.98	189	198	70	138	*	5	29	
25196002	U	1.00	1.24	1.23	124	123	66	128		1	22	
25196002	U	1.00	1.18	1.13	118	113	58	134		4	25	
25196002	U	1.00	1.24	1.24	124	124	70	134		0	20	
25196002	U	1.00	4.96	4.80	496	480	62	126	*	3	23	
25196002	U	1.00	2.54	2.50	254	250	46	172	*	2	66	
25196002	U	1.00	1.88	1.07	188	107	6	71	*	55	47	*
25196002	U	1.00	1.34	1.32	134	132	66	128	*	2	25	
25196002	U	3.00	4.03	3.94	134	131	69	127	*	2	73	
25196002	U	1.00	1.40	1.37	140	137	64	132	*	2	26	
	120.6	100	99.1	101.0	99	101	52	136				
	145.9	100	118.8	121.7	119	122	62	153				
	149.5	100	116.2	118.1	116	118	48	151				

Codes,Flags :

U	The analyte was not detected at or above the quantitation limit.
E	The analyte was detected at a concentration greater than the calibration range; therefore the result is estimated.
DL	The sample was diluted due to sample matrix, therefore QC was not recoverable
*	The value is outside quality control limits
K	Reported concentration is proportional to dilution factor and may be exaggerated.
P	When one or both sample results are <5 times the quantitation limit, the RPD cannot be properly evaluated.
LOQ	Analytical limit of quantitation
W	Result is always reported as "wet weight"
J	The analyte was detected at a conc. below the quant. limit but above the method detection limit.
B	The analyte was detected in the associated method blank.
M	Matrix interference has resulted in an elevated quantitation limit or distorted QC result.
NC	Not calculable.
NA	Not applicable
A	If the sample result is >4 times the amount spiked, the MS recovery cannot be properly evaluated.

Comments :
**Surrogates (S) are added to all samples at 2.00 mg/Kg, and are presented as a percent recovery in the reagent blank.

Chemist/Date

Quality Assurance Officer/Date

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QUALITY ASSURANCE REPORT
for
LABORATORY BATCH NUMBER

VE07I23A

VOLATILES

Sample Matrix:	SOIL/SOLID (5035)	Preparation Method:	SW-846 5035	Analytical Method:	SW-846 8260 FULL
Inclusive Projects:	VARIOUS	Preparation Date:	9/23/2007	Analysis Date:	9/23/2007
		Preparer(s) Initials:	JAS	Analyst(s) Initials:	JAS

Analyte	RL	Units	Matrix Blank Conc. (mg/Kg) (%**)	Matrix Blank Flag	LFB Conc. Spiked (mg/Kg)	LFB Conc. (mg/Kg)	LFB Percent Recovery	LFB LCL (%)	LFB UCL (%)	LFB Flag
Vinyl chloride	0.05	mg/Kg	U		1.00	0.65	65.4	24	141	
1,1-Dichloroethene	0.05	mg/Kg	U		1.00	1.02	102.1	54	141	
Methylene chloride	0.05	mg/Kg	U		1.00	0.79	78.8	56	133	
trans-1,2-Dichloroethene	0.05	mg/Kg	U		1.00	1.20	120.3	71	143	
1,1-Dichloroethane	0.05	mg/Kg	U		1.00	1.10	109.5	71	136	
cis-1,2-Dichloroethene	0.05	mg/Kg	U		1.00	1.11	110.8	66	134	
1,1,1-Trichloroethane	0.05	mg/Kg	U		1.00	1.28	128.3	72	137	
Carbontetrachloride	0.05	mg/Kg	U		1.00	1.33	133.2	69	141	
Benzene	0.05	mg/Kg	U		1.00	1.04	103.8	81	144	
1,2-Dichloropropane	0.05	mg/Kg	U		1.00	0.94	94.2	76	136	
Trichloroethene	0.05	mg/Kg	U		1.00	1.16	116.0	69	157	
Bromodichloromethane	0.05	mg/Kg	U		1.00	1.04	103.9	65	139	
1,1,2-Trichloroethane	0.05	mg/Kg	U		1.00	0.96	96.0	71	130	
Toluene	0.05	mg/Kg	U		1.00	0.88	88.5	82	152	
Dibromochloromethane	0.05	mg/Kg	U		1.00	0.95	95.1	59	133	
Tetrachloroethene	0.05	mg/Kg	U		1.00	1.06	105.5	40	188	
2-Hexanone	0.05	mg/Kg	U		1.00	1.12	111.8	53	163	
Ethylbenzene	0.05	mg/Kg	U		1.00	1.00	100.0	82	146	
total-Xylene	0.15	mg/Kg	U		3.00	3.00	100.0	81	143	
Styrene	0.05	mg/Kg	U		1.00	0.96	95.6	84	146	
Dibromofluoromethane (S)**			124		100	133.1	133	52	136	
Toluene-d8 (S)**			103		100	94.2	94	62	153	
4-Bromofluorobenzene (S)**			97		100	107.3	107	48	151	

MATRIX SPIKE / MATRIX SPIKE DUPLICATE (MS / MSD)

Laboratory Sample ID	Sample Conc.W (mg/Kg)	Conc.W Spiked (mg/Kg)	MS Conc.W (mg/Kg)	MSD Conc.W (mg/Kg)	MS Percent Recovery	MSD Percent Recovery	LCL (%)	UCL (%)	Flag	RPD MS/MSD (%)	UCL (%)	Flag
25196010	U	1.00	0.76	0.75	76	75	22	134		1	27	
25196010	U	1.00	1.03	0.99	103	99	60	132		3	25	
25196010	U	1.00	0.81	0.81	81	81	56	134		0	34	
25196010	U	1.00	1.14	1.11	114	111	66	140		3	25	
25196010	U	1.00	1.05	1.04	105	104	86	134		1	23	
25196010	U	1.00	1.03	1.01	103	101	66	138		2	23	
25196010	U	1.00	1.25	1.21	125	121	66	136		3	20	
25196010	U	1.00	1.25	1.22	125	122	72	128		2	22	
25196010	U	1.00	1.00	0.98	100	98	64	136		1	23	
25196010	U	1.00	0.91	0.91	91	91	70	130		1	21	
25196010	U	1.00	1.08	1.09	108	109	70	138		0	29	
25196010	U	1.00	1.02	0.99	102	99	66	128		3	22	
25196010	U	1.00	0.89	0.86	89	86	58	134		4	25	
25196010	U	1.00	0.88	0.87	88	87	70	134		1	20	
25196010	U	1.00	0.91	0.87	91	87	62	126		5	23	
25196010	U	1.00	1.49	1.54	149	154	46	172		3	66	
25196010	U	1.00	0.76	0.79	76	79	6	71	*	3	47	
25196010	U	1.00	0.97	0.94	97	94	66	128		3	25	
25196010	U	3.00	2.90	2.81	97	94	69	127		3	73	
25196010	U	1.00	0.92	0.89	92	89	64	132		3	26	
	121.9	100	124.6	123.0	125	123	52	136				
	94.3	100	94.3	95.3	94	95	62	153				
	89.7	100	99.8	97.8	100	98	48	151				

Codes,Flags :

U	The analyte was not detected at or above the quantitation limit.
E	The analyte was detected at a concentration greater than the calibration range, therefore the result is estimated.
DL	The sample was diluted due to sample matrix, therefore QC was not recoverable
*	The value is outside quality control limits
K	Reported concentration is proportional to dilution factor and may be exaggerated.
P	When one or both sample results are <5 times the quantitation limit, the RPD cannot be properly evaluated.
LOQ	Analytical limit of quantitation.
W	Result is always reported as "wet weight"
J	The analyte was detected at a conc. below the quant. limit but above the method detection limit.
B	The analyte was detected in the associated method blank.
M	Matrix interference has resulted in an elevated quantitation limit or distorted QC result.
NC	Not calculable.
NA	Not applicable.
A	If the sample result is >4 times the amount spiked, the MS recovery cannot be properly evaluated.

Comments :
**Surrogates (S) are added to all samples at 2.00 mg/Kg, and are presented as a percent recovery in the reagent blank.

Chemist/Date

ZM 9/25/07
Quality Assurance Officer/Date

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11776 Grand River Ave Brighton, Michigan 48116 Telephone: (810) 220-3300 Facsimile: (810) 220-3311

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Geoprobe
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Brighton, MI 48116
Phone: 810 220 3300
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Chain of Custody # 72611
PAGE 1 of 2

Client Name: NTH CONSULTANTS
Contact Person: JEFF STERNS / CLIFF ANDREWS
Project Name/ Number: 11-070 758-02
7858 EAST JEFFERSON PROPERTY
Purchase Order#

Lab Sample #	Date	Time	Client Sample #	Client Sample Descriptor	MATRIX (SEE RIGHT CORNER FOR CODE)	# OF CONTAINERS	PRESERVED (Y/N)	PARAMETERS: VOC's	PNA's	10 RCI METALS
	9/19			TRIP BLANK	W	1	Y			
	9/19	9:30	GP-1	S-1 3'-4'	S	3	Y			
	9/19	10:25	GP-2	S-1 .5'-1.0'	S	3	Y			
	9/19	11:15	GP-3	S-1 5'-6'	S	3	Y			
	9/19	12:15	GP-4	S-1 4'-5'	S	3	Y			
	9/19		WP-1	S-1 4'-5'	S	3	Y			
	9/19	1:15	GP-5	S-1 1'-2'	S	3	Y			
	9/19	12:15	GP-6	S-1 2.5'-8.5'	S	3	Y			
	9/19	2:30	GP-7	S-1 7.5'-8.5'	S	3	Y			
	9/19			Field Blank	W	1	Y			

Turnaround:
- [ ] 24 hour RUSH (surcharge applies)
- [ ] 48 hour RUSH (surcharge applies)
- [X] 72 hour RUSH (surcharge applies)
- [ ] Standard (5-7 bus. days)
- [ ] Other: Specify

Matrix Code: S Soil; W Water; A Air; C Oil; P Wipe; GW Ground Water; SW Surface Water; WW Waste Water; X Other: Specify

Remarks: Need results by 9-25-07

Comments:

	Date/ Time	
Relinquished By:	9/19/07 4pm	Received By:
Relinquished By:	Date/ Time	Received By: 9/20/07 0945
Relinquished By:	9/20/07 1045	Received By Laboratory: 9-20-07 10:45

LAB USE ONLY:
Fibertec project number:
Laboratory Tracking:
Temperature at Receipt: 2°C

COC Revision: April, 2006

TERMS & CONDITIONS ON BACK

TO:517 699 0388 P.1/2

Fibertec environmental services

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Chain of Custody #

PAGE 1 of 2

Client Name: NTH Consultants

Contact Person: Beth Stearns / Cliff Andrews

Project Name/Number: 16-070 753-02 7850 East Jefferson Property

Purchase Order #

Lab Sample #	Date	Time	Client Sample #	Client Sample Description	MATRIX	# OF CONTAINERS	PRESERVED (Y/N)	VOCs	PNAs	10 MI Metals
	9/19			Trip Blank		1	Y			
	9/19	9:30	GP-1	S-1 3'-4'	S	3	Y	X	X	X
	9/19	10:25	GP-2	S-1 .5'-1.0'	S	3	Y	X	X	X
	9/19	11:15	GP-3	S-1 5'-6'	S	3	Y	X	X	X
	9/19	12:15	GP-4	S-1 4'-5'	S	3	Y	X	X	X
	9/19		Dup-1	S-1 4'-5'	S	3	Y			
	9/19	1:15	GP-5	S-1 1'-2'	S	3	Y	X	X	X
	9/19	2:15	GP-6	S-1 7.5-8.5'	S	3	Y	X	X	X
	9/19	2:30	GP-7	S-1 7.5'-8.5'	S	3	Y	X	X	X
	9/19			Field Blank		1	Y	X		

Turnaround: 24 hour RUSH (surcharge applies); 48 hour RUSH (surcharge applies); X 72 hour RUSH (surcharge applies); Standard (5-7 bus. days); Other: Specify

Matrix Code: S Soil; W Water; A Air; O Oil; P Wipe; GW Ground Water; SW Surface Water; WW Waste Water; X Other: Specify

Remarks: Need results by 9-25-07

Comments:

Relinquished By:	Date/Time	Received By:
Relinquished By:	Date/Time	Received By:
Relinquished By:	Date/Time	Received By Laboratory:

LAB USE ONLY:
Fibertec project number:
Laboratory Tracking:
Temperature at Receipt:

TERMS & CONDITIONS ON BACK

COC Revision: April 2006

Fibertec environmental services

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Industrial Hygiene Services, Inc.
1914 Holloway Drive
Holt, MI 48842
Phone: 517 699 0345
Fax: 517 699 0382
email: asbestos@fibertec.us

Geoprobe
11766 E. Grand River
Brighton, MI 48116
Phone: 810 220 3300
Fax: 810 220 3311

Chain of Custody # 72624

Client Name: NTH Consultants

Contact Person: Beth Stearns / Cliff Andrews

Project Name/ Number: 16-07D753-02

7850 E. Jefferson Property

Purchase Order#

Lab Sample #	Date	Time	Client Sample #	Client Sample Descriptor	MATRIX (SEE RIGHT CORNER FOR CODE)	# OF CONTAINERS	PRESERVED (Y/N)	PARAMETERS: VOCs	PAHs	10 MI METALS
	9/19	3:00	SP-8	S-1 1'-2'	S	3	Y			

Turnaround:
- [ ] 24 hour RUSH (surcharge applies)
- [ ] 48 hour RUSH (surcharge applies)
- [X] 72 hour RUSH (surcharge applies)
- [ ] Standard (5-7 bus. days)
- [ ] Other: Specify

Matrix Code: S Soil; W Water; A Air; O Oil; P Wipe; GW Ground Water; SW Surface Water; WW Waste Water; X Other: Specify

Remarks: Need results by 9-25-07

Comments:

	Date/ Time	
Relinquished By:	9/19/07 4pm	Received By:
Relinquished By:	9/20/07 0945	Received By:
Relinquished By:	9/20/07 1045	Received By Laboratory: 9-20-07 10:45

LAB USE ONLY:
Fibertec project number:
Laboratory Tracking:
Temperature at Receipt: 2°C

TERMS & CONDITIONS ON BACK

COC Revision: April, 2006

Fibertec environmental services

Analytical Laboratory
1914 Holloway Drive
Holt, MI 48842
Phone: 517 699 0345
Fax: 517 699 0388
email: lab@fibertec.us

8660 S. Mackinaw Trail
Cadillac, MI 49601
Phone: 231 775 8368
Fax: 231 775 8584

Industrial Hygiene Services, Inc.
1914 Holloway Drive
Holt, MI 48842
Phone: 517 699 0345
Fax: 517 699 0382
email: asbestos@fibertec.us

Geoprobe
11766 E. Grand River
Brighton, MI 48116
Phone: 810 220 3300
Fax: 810 220 3311

Chain of Custody #

Client Name: NTH Consultants
Contact Person: Beth Stearns / Cliff Andrews
Project Name/ Number: 16-070753-02
7850 E. Jefferson Property
Purchase Order #

Lab Sample #	Date	Time	Client Sample #	Client Sample Descriptor	MATRIX (see matrix codes to the right)	# OF CONTAINERS	PRESERVED (Y/N)	PARAMETERS: VOCs	PAHs	10 MI Metals
	9/19	3:00	GP-8	S-1 1'-2'	S	3	Y	X	X	X

Turnaround:
- 24 hour RUSH surcharge applies
- 48 hour RUSH surcharge applies
- 72 hour RUSH surcharge applies
- Standard (5 business days)
- Other (specify)

X

Matrix Code:
- S Soil
- W Water
- A Air
- O Oil
- P Wipe
- GW Ground Water
- SW Surface Water
- WW Waste Water
- Other (specify)

Remarks: Need results by 9-25-07

Comments:

	Date/ Time	
Relinquished By:		Received By:
Relinquished By:	Date/ Time	Received By:
Relinquished By:	Date/ Time	Received by Laboratory:

LAB USE ONLY:
Fibertec project number:
Laboratory Tracking:
Temperature at Receipt:

TERMS & CONDITIONS ON BACK

COC Revision: April, 2006

Analytical Laboratory Report

Supplemental Report

Report ID: S80482.01(02)
Generated on 04/19/2017

Report to

Attention: Brian Kuberski
ASTI Environmental
10448 Citation Dr.
Suite 100
Brighton, MI 48116

Phone: 810-225-2800 FAX: 810-225-3800
Email: bkuberski@asti-env.com

Addtional Contacts: Brad Buswell, George Kandler, Jeremy Efros

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S80482.01-S80482.07
Project: 10105 / 7850 E. Jefferson
Collected Date: 04/07/2017
Submitted Date/Time: 04/10/2017 13:25
Sampled by: Jeremy Efros
P.O. #:

Table of Contents

Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Report Narrative

Fine and coarse lead added to sample .01 per client request

Laboratory Certifications

Authority	Certification ID
Michigan DEQ	#9956
DOD ELAP/ISO 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods

Method Summary

Method	Version
SM2540B	Standard Method 2540 B 20th Edition
SW3050B	SW 846 Method 3050B Revision 2 December 1996
SW3550C	SW 846 Method 3550C Revision 3 February 2007
SW5035A/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5035A Revision 1 July 2002
SW6020A	SW 846 Method 6020A Revision 1 February 2007
SW7471B	SW 846 Method 7471B Revision 2 February 2007
SW8082A	SW 846 Method 8082A Revision 1 February 2007
SW8270D	SW 846 Method 8270D Revision 4 February 2007

Sample Summary (7 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S80482.01	SB-1 (0.5-1.5')	Soil	04/07/17 09:40
S80482.02	SB-2 (6.5-7.5')	Soil	04/07/17 10:10
S80482.03	SB-3 (9-10')	Soil	04/07/17 10:50
S80482.04	SB-4 (7-8')	Soil	04/07/17 11:40
S80482.05	SB-5 (5-6')	Soil	04/07/17 12:15
S80482.06	Meth Blank	Methanol	04/07/17 00:01
S80482.07	Dup1-S	Soil	04/07/17 00:01

Lab Sample ID: S80482.01
Sample Tag: SB-1 (0.5-1.5')
Collected Date/Time: 04/07/2017 09:40
Matrix: Soil
COC Reference: 102419

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.4	IR
1	4oz Glass	None	Yes	5.4	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
Lead, Coarse Digestion*	Completed			SW3050B	04/19/17 11:00	CCM		
Lead, Fine and Coarse Prep*	Completed			SW3050B	04/19/17 11:00	CCM		
Lead, Fine Digestion*	Completed			SW3050B	04/19/17 11:00	CCM		
Mercury Digestion	Completed			SW7471B	04/13/17 12:00	JRH		
Metal Digestion	Completed			SW3050B	04/12/17 10:00	PER		
PNA Extraction	Completed			SW3550C	04/11/17 17:55	EMR		
Inorganics								
Total Solids*	84	%	1	SM2540B	04/11/17 09:25	JBL		
Total Solids*	85	%	1	SM2540B	04/19/17 11:00	CCM		
Metals								
% Coarse by Weight*	85	%		SW6020A	04/19/17 11:00	CCM		
% Fine by Weight*	15	%		SW6020A	04/19/17 11:00	CCM		
Arsenic	3.63	mg/kg	0.20	SW6020A	04/12/17 15:07	PER	7440-38-2	
Barium	285	mg/kg	1.0	SW6020A	04/12/17 15:07	PER	7440-39-3	
Cadmium	0.42	mg/kg	0.20	SW6020A	04/12/17 15:07	PER	7440-43-9	
Chromium	7.62	mg/kg	0.50	SW6020A	04/12/17 15:07	PER	7440-47-3	
Copper	27.1	mg/kg	0.50	SW6020A	04/12/17 15:07	PER	7440-50-8	
Lead, Coarse	165	mg/kg	0.20	SW6020A	04/19/17 13:46	CCM	7439-92-1	
Lead, Fine	518	mg/kg	0.20	SW6020A	04/19/17 13:48	CCM		
Lead, Total Calculated	217	mg/kg		SW6020A	04/19/17 14:01	CCM	7439-92-1C	
Lead	212	mg/kg	0.20	SW6020A	04/12/17 15:07	PER	7439-92-1	
Mercury	0.187	mg/kg	0.050	SW7471B	04/13/17 14:52	JRH	7439-97-6	
Selenium	Not detected	mg/kg	0.40	SW6020A	04/12/17 15:07	PER	7782-49-2	
Silver	Not detected	mg/kg	0.20	SW6020A	04/12/17 15:07	PER	7440-22-4	
Zinc	189	mg/kg	0.50	SW6020A	04/12/17 15:07	PER	7440-66-6	
Organics - Semi-Volatiles								
Polynuclear Aromatics								
Acenaphthene	Not detected	ug/kg	330	SW8270D	04/12/17 20:48	PL	83-32-9	
Acenaphthylene	Not detected	ug/kg	330	SW8270D	04/12/17 20:48	PL	208-96-8	
Anthracene	Not detected	ug/kg	330	SW8270D	04/12/17 20:48	PL	120-12-7	
Benzo(a)anthracene	500	ug/kg	330	SW8270D	04/12/17 20:48	PL	56-55-3	
Benzo(a)pyrene	530	ug/kg	330	SW8270D	04/12/17 20:48	PL	50-32-8	
Benzo(b)fluoranthene	930	ug/kg	330	SW8270D	04/12/17 20:48	PL	205-99-2	p
Benzo(ghi)perylene	Not detected	ug/kg	330	SW8270D	04/12/17 20:48	PL	191-24-2	
Benzo(k)fluoranthene	1,000	ug/kg	330	SW8270D	04/12/17 20:48	PL	207-08-9	p
Chrysene	530	ug/kg	330	SW8270D	04/12/17 20:48	PL	218-01-9	
Dibenzo(ah)anthracene	Not detected	ug/kg	330	SW8270D	04/12/17 20:48	PL	53-70-3	
Fluoranthene	950	ug/kg	330	SW8270D	04/12/17 20:48	PL	206-44-0	

p-Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.

Lab Sample ID: S80482.01 (continued)
Sample Tag: SB-1 (0.5-1.5')

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Semi-Volatiles (continued)								
Polynuclear Aromatics (continued)								
Fluorene	Not detected	ug/kg	330	SW8270D	04/12/17 20:48	PL	86-73-7	
Indeno(1,2,3-cd)pyrene	Not detected	ug/kg	330	SW8270D	04/12/17 20:48	PL	193-39-5	
2-Methylnaphthalene	Not detected	ug/kg	330	SW8270D	04/12/17 20:48	PL	91-57-6	
Naphthalene	Not detected	ug/kg	330	SW8270D	04/12/17 20:48	PL	91-20-3	
Phenanthrene	610	ug/kg	330	SW8270D	04/12/17 20:48	PL	85-01-8	
Pyrene	890	ug/kg	330	SW8270D	04/12/17 20:48	PL	129-00-0	
Organics - Volatiles								
Volatile Organics 5035								
Acetone	Not detected	ug/kg	1,000	SW5035A/8260C	04/11/17 23:15	JML	67-64-1	
Acrylonitrile	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:15	JML	107-13-1	
Benzene	Not detected	ug/kg	70	SW5035A/8260C	04/11/17 23:15	JML	71-43-2	
Bromobenzene	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:15	JML	108-86-1	
Bromochloromethane	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:15	JML	74-97-5	
Bromodichloromethane	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:15	JML	75-27-4	
Bromoform*	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:15	JML	75-25-2	
Bromomethane	Not detected	ug/kg	300	SW5035A/8260C	04/11/17 23:15	JML	74-83-9	
2-Butanone (MEK)*	Not detected	ug/kg	990	SW5035A/8260C	04/11/17 23:15	JML	78-93-3	
Carbon disulfide	Not detected	ug/kg	300	SW5035A/8260C	04/11/17 23:15	JML	75-15-0	
Carbon tetrachloride	Not detected	ug/kg	70	SW5035A/8260C	04/11/17 23:15	JML	56-23-5	
Chlorobenzene	Not detected	ug/kg	70	SW5035A/8260C	04/11/17 23:15	JML	108-90-7	
Chloroethane	Not detected	ug/kg	300	SW5035A/8260C	04/11/17 23:15	JML	75-00-3	
Chloroform	Not detected	ug/kg	70	SW5035A/8260C	04/11/17 23:15	JML	67-66-3	
Chloromethane	Not detected	ug/kg	300	SW5035A/8260C	04/11/17 23:15	JML	74-87-3	
cis-1,2-Dichloroethene*	Not detected	ug/kg	70	SW5035A/8260C	04/11/17 23:15	JML	156-59-2	
cis-1,3-Dichloropropene	Not detected	ug/kg	70	SW5035A/8260C	04/11/17 23:15	JML	10061-01-5	
Cyclohexane	Not detected	ug/kg	70	SW5035A/8260C	04/11/17 23:15	JML	110-82-7	
1,2-Dibromo-3-chloropropane*	Not detected	ug/kg	300	SW5035A/8260C	04/11/17 23:15	JML	96-12-8	
Dibromochloromethane	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:15	JML	124-48-1	
Dibromomethane	Not detected	ug/kg	300	SW5035A/8260C	04/11/17 23:15	JML	74-95-3	
1,2-Dichlorobenzene	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:15	JML	95-50-1	
1,3-Dichlorobenzene	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:15	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:15	JML	106-46-7	
Dichlorodifluoromethane	Not detected	ug/kg	300	SW5035A/8260C	04/11/17 23:15	JML	75-71-8	
1,1-Dichloroethane	Not detected	ug/kg	70	SW5035A/8260C	04/11/17 23:15	JML	75-34-3	
1,2-Dichloroethane	Not detected	ug/kg	70	SW5035A/8260C	04/11/17 23:15	JML	107-06-2	
1,1-Dichloroethene	Not detected	ug/kg	70	SW5035A/8260C	04/11/17 23:15	JML	75-35-4	
1,2-Dichloropropane	Not detected	ug/kg	70	SW5035A/8260C	04/11/17 23:15	JML	78-87-5	
Diethyl ether	Not detected	ug/kg	300	SW5035A/8260C	04/11/17 23:15	JML	60-29-7	
Ethylbenzene	Not detected	ug/kg	70	SW5035A/8260C	04/11/17 23:15	JML	100-41-4	
1,2-Dibromoethane*	Not detected	ug/kg	30	SW5035A/8260C	04/11/17 23:15	JML	106-93-4	M
Hexachloroethane	Not detected	ug/kg	400	SW5035A/8260C	04/11/17 23:15	JML	67-72-1	
2-Hexanone*	Not detected	ug/kg	3,000	SW5035A/8260C	04/11/17 23:15	JML	591-78-6	
Isopropylbenzene	Not detected	ug/kg	300	SW5035A/8260C	04/11/17 23:15	JML	98-82-8	
Methyl iodide	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:15	JML	74-88-4	
4-Methyl-2-pentanone (MIBK)*	Not detected	ug/kg	3,000	SW5035A/8260C	04/11/17 23:15	JML	108-10-1	
tert-Methyl butyl ether (MTBE)*	Not detected	ug/kg	300	SW5035A/8260C	04/11/17 23:15	JML	1634-04-4	
Methylene chloride	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:15	JML	75-09-2	

M-Result reported to MDL not RDL

Lab Sample ID: S80482.01 (continued)
Sample Tag: SB-1 (0.5-1.5')

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics 5035 (continued)								
2-Methylnaphthalene*	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:15	JML	91-57-6	
Naphthalene*	Not detected	ug/kg	300	SW5035A/8260C	04/11/17 23:15	JML	91-20-3	
n-Butylbenzene	Not detected	ug/kg	70	SW5035A/8260C	04/11/17 23:15	JML	104-51-8	
n-Propylbenzene	Not detected	ug/kg	70	SW5035A/8260C	04/11/17 23:15	JML	103-65-1	
p-Isopropyltoluene	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:15	JML	99-87-6	
sec-Butylbenzene	Not detected	ug/kg	70	SW5035A/8260C	04/11/17 23:15	JML	135-98-8	
Styrene*	Not detected	ug/kg	70	SW5035A/8260C	04/11/17 23:15	JML	100-42-5	
tert-Butylbenzene	Not detected	ug/kg	70	SW5035A/8260C	04/11/17 23:15	JML	98-06-6	
1,1,1,2-Tetrachloroethane	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:15	JML	630-20-6	
1,1,2,2-Tetrachloroethane	Not detected	ug/kg	70	SW5035A/8260C	04/11/17 23:15	JML	79-34-5	
Tetrachloroethene	Not detected	ug/kg	70	SW5035A/8260C	04/11/17 23:15	JML	127-18-4	
Tetrahydrofuran*	Not detected	ug/kg	1,000	SW5035A/8260C	04/11/17 23:15	JML	109-99-9	
Toluene	Not detected	ug/kg	70	SW5035A/8260C	04/11/17 23:15	JML	108-88-3	
trans-1,2-Dichloroethene*	Not detected	ug/kg	70	SW5035A/8260C	04/11/17 23:15	JML	156-60-5	
trans-1,3-Dichloropropene	Not detected	ug/kg	70	SW5035A/8260C	04/11/17 23:15	JML	10061-02-6	
trans-1,4-Dichloro-2-butene	Not detected	ug/kg	70	SW5035A/8260C	04/11/17 23:15	JML	110-57-6	
1,2,3-Trichlorobenzene	Not detected	ug/kg	440	SW5035A/8260C	04/11/17 23:15	JML	87-61-6	
1,2,4-Trichlorobenzene	Not detected	ug/kg	440	SW5035A/8260C	04/11/17 23:15	JML	120-82-1	
1,1,1-Trichloroethane	Not detected	ug/kg	70	SW5035A/8260C	04/11/17 23:15	JML	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/kg	70	SW5035A/8260C	04/11/17 23:15	JML	79-00-5	
Trichloroethene	Not detected	ug/kg	70	SW5035A/8260C	04/11/17 23:15	JML	79-01-6	
Trichlorofluoromethane	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:15	JML	75-69-4	
1,2,3-Trichloropropane*	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:15	JML	96-18-4	
1,2,3-Trimethylbenzene	Not detected	ug/kg	70	SW5035A/8260C	04/11/17 23:15	JML	526-73-8	
1,2,4-Trimethylbenzene	Not detected	ug/kg	70	SW5035A/8260C	04/11/17 23:15	JML	95-63-6	
1,3,5-Trimethylbenzene	Not detected	ug/kg	70	SW5035A/8260C	04/11/17 23:15	JML	108-67-8	
Vinyl chloride	Not detected	ug/kg	70	SW5035A/8260C	04/11/17 23:15	JML	75-01-4	
Total Xylenes	Not detected	ug/kg	200	SW5035A/8260C	04/11/17 23:15	JML	1330-20-7	

Lab Sample ID: S80482.02
Sample Tag: SB-2 (6.5-7.5')
Collected Date/Time: 04/07/2017 10:10
Matrix: Soil
COC Reference: 102419

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.4	IR
1	4oz Glass	None	Yes	5.4	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
Mercury Digestion	Completed			SW7471B	04/13/17 12:00	JRH		
Metal Digestion	Completed			SW3050B	04/12/17 10:00	PER		
PNA Extraction	Completed			SW3550C	04/12/17 19:49	EMR		
Inorganics								
Total Solids*	89	%	1	SM2540B	04/11/17 09:25	JBL		
Metals								
Arsenic	6.28	mg/kg	0.20	SW6020A	04/12/17 13:45	PER	7440-38-2	
Barium	42.7	mg/kg	1.0	SW6020A	04/12/17 13:45	PER	7440-39-3	
Cadmium	Not detected	mg/kg	0.20	SW6020A	04/12/17 13:45	PER	7440-43-9	
Chromium	12.1	mg/kg	0.50	SW6020A	04/12/17 13:45	PER	7440-47-3	
Copper	14.2	mg/kg	0.50	SW6020A	04/12/17 13:45	PER	7440-50-8	
Lead	14.7	mg/kg	0.20	SW6020A	04/12/17 13:45	PER	7439-92-1	
Mercury	0.068	mg/kg	0.050	SW7471B	04/13/17 15:01	JRH	7439-97-6	
Selenium	Not detected	mg/kg	0.40	SW6020A	04/12/17 13:45	PER	7782-49-2	
Silver	Not detected	mg/kg	0.20	SW6020A	04/12/17 13:45	PER	7440-22-4	
Zinc	26.5	mg/kg	0.50	SW6020A	04/12/17 13:45	PER	7440-66-6	
Organics - Semi-Volatiles								
Polynuclear Aromatics								
Acenaphthene	Not detected	ug/kg	330	SW8270D	04/13/17 23:06	PL	83-32-9	
Acenaphthylene	Not detected	ug/kg	330	SW8270D	04/13/17 23:06	PL	208-96-8	
Anthracene	Not detected	ug/kg	330	SW8270D	04/13/17 23:06	PL	120-12-7	
Benzo(a)anthracene	Not detected	ug/kg	330	SW8270D	04/13/17 23:06	PL	56-55-3	
Benzo(a)pyrene	Not detected	ug/kg	330	SW8270D	04/13/17 23:06	PL	50-32-8	
Benzo(b)fluoranthene	Not detected	ug/kg	330	SW8270D	04/13/17 23:06	PL	205-99-2	
Benzo(ghi)perylene	Not detected	ug/kg	330	SW8270D	04/13/17 23:06	PL	191-24-2	
Benzo(k)fluoranthene	Not detected	ug/kg	330	SW8270D	04/13/17 23:06	PL	207-08-9	
Chrysene	Not detected	ug/kg	330	SW8270D	04/13/17 23:06	PL	218-01-9	
Dibenzo(ah)anthracene	Not detected	ug/kg	330	SW8270D	04/13/17 23:06	PL	53-70-3	
Fluoranthene	Not detected	ug/kg	330	SW8270D	04/13/17 23:06	PL	206-44-0	
Fluorene	Not detected	ug/kg	330	SW8270D	04/13/17 23:06	PL	86-73-7	
Indeno(1,2,3-cd)pyrene	Not detected	ug/kg	330	SW8270D	04/13/17 23:06	PL	193-39-5	
2-Methylnaphthalene	Not detected	ug/kg	330	SW8270D	04/13/17 23:06	PL	91-57-6	
Naphthalene	Not detected	ug/kg	330	SW8270D	04/13/17 23:06	PL	91-20-3	
Phenanthrene	Not detected	ug/kg	330	SW8270D	04/13/17 23:06	PL	85-01-8	
Pyrene	Not detected	ug/kg	330	SW8270D	04/13/17 23:06	PL	129-00-0	
Organics - Volatiles								
Volatile Organics 5035								
Acetone	Not detected	ug/kg	1,000	SW5035A/8260C	04/11/17 23:36	JML	67-64-1	

Lab Sample ID: S80482.02 (continued)
Sample Tag: SB-2 (6.5-7.5')

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics 5035 (continued)								
Acrylonitrile	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:36	JML	107-13-1	
Benzene	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:36	JML	71-43-2	
Bromobenzene	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:36	JML	108-86-1	
Bromochloromethane	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:36	JML	74-97-5	
Bromodichloromethane	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:36	JML	75-27-4	
Bromoform*	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:36	JML	75-25-2	
Bromomethane	Not detected	ug/kg	200	SW5035A/8260C	04/11/17 23:36	JML	74-83-9	
2-Butanone (MEK)*	Not detected	ug/kg	870	SW5035A/8260C	04/11/17 23:36	JML	78-93-3	
Carbon disulfide	Not detected	ug/kg	300	SW5035A/8260C	04/11/17 23:36	JML	75-15-0	
Carbon tetrachloride	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:36	JML	56-23-5	
Chlorobenzene	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:36	JML	108-90-7	
Chloroethane	Not detected	ug/kg	300	SW5035A/8260C	04/11/17 23:36	JML	75-00-3	
Chloroform	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:36	JML	67-66-3	
Chloromethane	Not detected	ug/kg	300	SW5035A/8260C	04/11/17 23:36	JML	74-87-3	
cis-1,2-Dichloroethene*	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:36	JML	156-59-2	
cis-1,3-Dichloropropene	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:36	JML	10061-01-5	
Cyclohexane	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:36	JML	110-82-7	
1,2-Dibromo-3-chloropropane*	Not detected	ug/kg	300	SW5035A/8260C	04/11/17 23:36	JML	96-12-8	
Dibromochloromethane	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:36	JML	124-48-1	
Dibromomethane	Not detected	ug/kg	300	SW5035A/8260C	04/11/17 23:36	JML	74-95-3	
1,2-Dichlorobenzene	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:36	JML	95-50-1	
1,3-Dichlorobenzene	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:36	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:36	JML	106-46-7	
Dichlorodifluoromethane	Not detected	ug/kg	300	SW5035A/8260C	04/11/17 23:36	JML	75-71-8	
1,1-Dichloroethane	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:36	JML	75-34-3	
1,2-Dichloroethane	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:36	JML	107-06-2	
1,1-Dichloroethene	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:36	JML	75-35-4	
1,2-Dichloropropane	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:36	JML	78-87-5	
Diethyl ether	Not detected	ug/kg	200	SW5035A/8260C	04/11/17 23:36	JML	60-29-7	
Ethylbenzene	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:36	JML	100-41-4	
1,2-Dibromoethane*	Not detected	ug/kg	20	SW5035A/8260C	04/11/17 23:36	JML	106-93-4	M
Hexachloroethane	Not detected	ug/kg	300	SW5035A/8260C	04/11/17 23:36	JML	67-72-1	
2-Hexanone*	Not detected	ug/kg	3,000	SW5035A/8260C	04/11/17 23:36	JML	591-78-6	
Isopropylbenzene	Not detected	ug/kg	300	SW5035A/8260C	04/11/17 23:36	JML	98-82-8	
Methyl iodide	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:36	JML	74-88-4	
4-Methyl-2-pentanone (MIBK)*	Not detected	ug/kg	3,000	SW5035A/8260C	04/11/17 23:36	JML	108-10-1	
tert-Methyl butyl ether (MTBE)*	Not detected	ug/kg	200	SW5035A/8260C	04/11/17 23:36	JML	1634-04-4	
Methylene chloride	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:36	JML	75-09-2	
2-Methylnaphthalene*	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:36	JML	91-57-6	
Naphthalene*	Not detected	ug/kg	300	SW5035A/8260C	04/11/17 23:36	JML	91-20-3	
n-Butylbenzene	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:36	JML	104-51-8	
n-Propylbenzene	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:36	JML	103-65-1	
p-Isopropyltoluene	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:36	JML	99-87-6	
sec-Butylbenzene	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:36	JML	135-98-8	
Styrene*	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:36	JML	100-42-5	
tert-Butylbenzene	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:36	JML	98-06-6	
1,1,1,2-Tetrachloroethane	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:36	JML	630-20-6	
1,1,2,2-Tetrachloroethane	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:36	JML	79-34-5	

M-Result reported to MDL not RDL

Lab Sample ID: S80482.02 (continued)
Sample Tag: SB-2 (6.5-7.5')

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics 5035 (continued)								
Tetrachloroethene	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:36	JML	127-18-4	
Tetrahydrofuran*	Not detected	ug/kg	1,000	SW5035A/8260C	04/11/17 23:36	JML	109-99-9	
Toluene	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:36	JML	108-88-3	
trans-1,2-Dichloroethene*	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:36	JML	156-60-5	
trans-1,3-Dichloropropene	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:36	JML	10061-02-6	
trans-1,4-Dichloro-2-butene	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:36	JML	110-57-6	
1,2,3-Trichlorobenzene	Not detected	ug/kg	380	SW5035A/8260C	04/11/17 23:36	JML	87-61-6	
1,2,4-Trichlorobenzene	Not detected	ug/kg	380	SW5035A/8260C	04/11/17 23:36	JML	120-82-1	
1,1,1-Trichloroethane	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:36	JML	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:36	JML	79-00-5	
Trichloroethene	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:36	JML	79-01-6	
Trichlorofluoromethane	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:36	JML	75-69-4	
1,2,3-Trichloropropane*	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:36	JML	96-18-4	
1,2,3-Trimethylbenzene	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:36	JML	526-73-8	
1,2,4-Trimethylbenzene	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:36	JML	95-63-6	
1,3,5-Trimethylbenzene	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:36	JML	108-67-8	
Vinyl chloride	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:36	JML	75-01-4	
Total Xylenes	Not detected	ug/kg	200	SW5035A/8260C	04/11/17 23:36	JML	1330-20-7	

Lab Sample ID: S80482.03
Sample Tag: SB-3 (9-10')
Collected Date/Time: 04/07/2017 10:50
Matrix: Soil
COC Reference: 102419

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.4	IR
1	4oz Glass	None	Yes	5.4	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
Mercury Digestion	Completed			SW7471B	04/13/17 12:00	JRH		
Metal Digestion	Completed			SW3050B	04/12/17 10:00	PER		
PNA Extraction	Completed			SW3550C	04/12/17 19:49	EMR		
Inorganics								
Total Solids*	89	%	1	SM2540B	04/11/17 09:25	JBL		
Metals								
Arsenic	2.36	mg/kg	0.20	SW6020A	04/12/17 14:36	PER	7440-38-2	
Barium	99.4	mg/kg	1.0	SW6020A	04/12/17 14:36	PER	7440-39-3	
Cadmium	Not detected	mg/kg	0.20	SW6020A	04/12/17 14:36	PER	7440-43-9	
Chromium	5.67	mg/kg	0.50	SW6020A	04/12/17 14:36	PER	7440-47-3	
Copper	6.58	mg/kg	0.50	SW6020A	04/12/17 14:36	PER	7440-50-8	
Lead	37.7	mg/kg	0.20	SW6020A	04/12/17 14:36	PER	7439-92-1	
Mercury	0.190	mg/kg	0.050	SW7471B	04/13/17 14:54	JRH	7439-97-6	
Selenium	Not detected	mg/kg	0.40	SW6020A	04/12/17 14:36	PER	7782-49-2	
Silver	Not detected	mg/kg	0.20	SW6020A	04/12/17 14:36	PER	7440-22-4	
Zinc	41.3	mg/kg	0.50	SW6020A	04/12/17 14:36	PER	7440-66-6	
Organics - Semi-Volatiles								
Polynuclear Aromatics								
Acenaphthene	Not detected	ug/kg	330	SW8270D	04/15/17 03:05	PL	83-32-9	
Acenaphthylene	Not detected	ug/kg	330	SW8270D	04/15/17 03:05	PL	208-96-8	
Anthracene	Not detected	ug/kg	330	SW8270D	04/15/17 03:05	PL	120-12-7	
Benzo(a)anthracene	660	ug/kg	330	SW8270D	04/15/17 03:05	PL	56-55-3	
Benzo(a)pyrene	630	ug/kg	330	SW8270D	04/15/17 03:05	PL	50-32-8	
Benzo(b)fluoranthene	1,040	ug/kg	330	SW8270D	04/15/17 03:05	PL	205-99-2	p
Benzo(ghi)perylene	Not detected	ug/kg	330	SW8270D	04/15/17 03:05	PL	191-24-2	
Benzo(k)fluoranthene	1,120	ug/kg	330	SW8270D	04/15/17 03:05	PL	207-08-9	p
Chrysene	700	ug/kg	330	SW8270D	04/15/17 03:05	PL	218-01-9	
Dibenzo(ah)anthracene	Not detected	ug/kg	330	SW8270D	04/15/17 03:05	PL	53-70-3	
Fluoranthene	1,250	ug/kg	330	SW8270D	04/15/17 03:05	PL	206-44-0	
Fluorene	Not detected	ug/kg	330	SW8270D	04/15/17 03:05	PL	86-73-7	
Indeno(1,2,3-cd)pyrene	Not detected	ug/kg	330	SW8270D	04/15/17 03:05	PL	193-39-5	
2-Methylnaphthalene	Not detected	ug/kg	330	SW8270D	04/15/17 03:05	PL	91-57-6	
Naphthalene	Not detected	ug/kg	330	SW8270D	04/15/17 03:05	PL	91-20-3	
Phenanthrene	1,070	ug/kg	330	SW8270D	04/15/17 03:05	PL	85-01-8	
Pyrene	1,660	ug/kg	330	SW8270D	04/15/17 03:05	PL	129-00-0	

p-Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.

Lab Sample ID: S80482.03 (continued)
Sample Tag: SB-3 (9-10')

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles								
Volatile Organics 5035								
Acetone	Not detected	ug/kg	1,000	SW5035A/8260C	04/11/17 23:56	JML	67-64-1	
Acrylonitrile	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:56	JML	107-13-1	
Benzene	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:56	JML	71-43-2	
Bromobenzene	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:56	JML	108-86-1	
Bromochloromethane	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:56	JML	74-97-5	
Bromodichloromethane	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:56	JML	75-27-4	
Bromoform*	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:56	JML	75-25-2	
Bromomethane	Not detected	ug/kg	200	SW5035A/8260C	04/11/17 23:56	JML	74-83-9	
2-Butanone (MEK)*	Not detected	ug/kg	920	SW5035A/8260C	04/11/17 23:56	JML	78-93-3	
Carbon disulfide	Not detected	ug/kg	300	SW5035A/8260C	04/11/17 23:56	JML	75-15-0	
Carbon tetrachloride	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:56	JML	56-23-5	
Chlorobenzene	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:56	JML	108-90-7	
Chloroethane	Not detected	ug/kg	300	SW5035A/8260C	04/11/17 23:56	JML	75-00-3	
Chloroform	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:56	JML	67-66-3	
Chloromethane	Not detected	ug/kg	300	SW5035A/8260C	04/11/17 23:56	JML	74-87-3	
cis-1,2-Dichloroethene*	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:56	JML	156-59-2	
cis-1,3-Dichloropropene	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:56	JML	10061-01-5	
Cyclohexane	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:56	JML	110-82-7	
1,2-Dibromo-3-chloropropane*	Not detected	ug/kg	300	SW5035A/8260C	04/11/17 23:56	JML	96-12-8	
Dibromochloromethane	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:56	JML	124-48-1	
Dibromomethane	Not detected	ug/kg	300	SW5035A/8260C	04/11/17 23:56	JML	74-95-3	
1,2-Dichlorobenzene	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:56	JML	95-50-1	
1,3-Dichlorobenzene	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:56	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:56	JML	106-46-7	
Dichlorodifluoromethane	Not detected	ug/kg	300	SW5035A/8260C	04/11/17 23:56	JML	75-71-8	
1,1-Dichloroethane	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:56	JML	75-34-3	
1,2-Dichloroethane	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:56	JML	107-06-2	
1,1-Dichloroethene	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:56	JML	75-35-4	
1,2-Dichloropropane	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:56	JML	78-87-5	
Diethyl ether	Not detected	ug/kg	200	SW5035A/8260C	04/11/17 23:56	JML	60-29-7	
Ethylbenzene	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:56	JML	100-41-4	
1,2-Dibromoethane*	Not detected	ug/kg	20	SW5035A/8260C	04/11/17 23:56	JML	106-93-4	M
Hexachloroethane	Not detected	ug/kg	400	SW5035A/8260C	04/11/17 23:56	JML	67-72-1	
2-Hexanone*	Not detected	ug/kg	3,000	SW5035A/8260C	04/11/17 23:56	JML	591-78-6	
Isopropylbenzene	Not detected	ug/kg	300	SW5035A/8260C	04/11/17 23:56	JML	98-82-8	
Methyl iodide	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:56	JML	74-88-4	
4-Methyl-2-pentanone (MIBK)*	Not detected	ug/kg	3,000	SW5035A/8260C	04/11/17 23:56	JML	108-10-1	
tert-Methyl butyl ether (MTBE)*	Not detected	ug/kg	200	SW5035A/8260C	04/11/17 23:56	JML	1634-04-4	
Methylene chloride	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:56	JML	75-09-2	
2-Methylnaphthalene*	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:56	JML	91-57-6	
Naphthalene*	Not detected	ug/kg	300	SW5035A/8260C	04/11/17 23:56	JML	91-20-3	
n-Butylbenzene	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:56	JML	104-51-8	
n-Propylbenzene	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:56	JML	103-65-1	
p-Isopropyltoluene	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:56	JML	99-87-6	
sec-Butylbenzene	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:56	JML	135-98-8	
Styrene*	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:56	JML	100-42-5	
tert-Butylbenzene	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:56	JML	98-06-6	
1,1,1,2-Tetrachloroethane	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:56	JML	630-20-6	

M-Result reported to MDL not RDL

Lab Sample ID: S80482.03 (continued)
Sample Tag: SB-3 (9-10')

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics 5035 (continued)								
1,1,2,2-Tetrachloroethane	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:56	JML	79-34-5	
Tetrachloroethene	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:56	JML	127-18-4	
Tetrahydrofuran*	Not detected	ug/kg	1,000	SW5035A/8260C	04/11/17 23:56	JML	109-99-9	
Toluene	130	ug/kg	60	SW5035A/8260C	04/11/17 23:56	JML	108-88-3	
trans-1,2-Dichloroethene*	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:56	JML	156-60-5	
trans-1,3-Dichloropropene	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:56	JML	10061-02-6	
trans-1,4-Dichloro-2-butene	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:56	JML	110-57-6	
1,2,3-Trichlorobenzene	Not detected	ug/kg	410	SW5035A/8260C	04/11/17 23:56	JML	87-61-6	
1,2,4-Trichlorobenzene	Not detected	ug/kg	410	SW5035A/8260C	04/11/17 23:56	JML	120-82-1	
1,1,1-Trichloroethane	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:56	JML	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:56	JML	79-00-5	
Trichloroethene	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:56	JML	79-01-6	
Trichlorofluoromethane	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:56	JML	75-69-4	
1,2,3-Trichloropropane*	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 23:56	JML	96-18-4	
1,2,3-Trimethylbenzene	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:56	JML	526-73-8	
1,2,4-Trimethylbenzene	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:56	JML	95-63-6	
1,3,5-Trimethylbenzene	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:56	JML	108-67-8	
Vinyl chloride	Not detected	ug/kg	60	SW5035A/8260C	04/11/17 23:56	JML	75-01-4	
Total Xylenes	Not detected	ug/kg	200	SW5035A/8260C	04/11/17 23:56	JML	1330-20-7	

Lab Sample ID: S80482.04
Sample Tag: SB-4 (7-8')
Collected Date/Time: 04/07/2017 11:40
Matrix: Soil
COC Reference: 102419

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.4	IR
1	4oz Glass	None	Yes	5.4	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
Extraction, PCB	Completed			SW3550C	04/12/17 11:17	PLB		
Mercury Digestion	Completed			SW7471B	04/13/17 12:00	JRH		
Metal Digestion	Completed			SW3050B	04/12/17 10:00	PER		
PNA Extraction	Completed			SW3550C	04/12/17 19:49	EMR		
Inorganics								
Total Solids*	84	%	1	SM2540B	04/11/17 09:25	JBL		
Metals								
Arsenic	0.98	mg/kg	0.20	SW6020A	04/12/17 13:49	PER	7440-38-2	
Barium	50.5	mg/kg	1.0	SW6020A	04/12/17 13:49	PER	7440-39-3	
Cadmium	Not detected	mg/kg	0.20	SW6020A	04/12/17 13:49	PER	7440-43-9	
Chromium	5.99	mg/kg	0.50	SW6020A	04/12/17 13:49	PER	7440-47-3	
Copper	14.1	mg/kg	0.50	SW6020A	04/12/17 13:49	PER	7440-50-8	
Lead	44.6	mg/kg	0.20	SW6020A	04/12/17 13:49	PER	7439-92-1	
Mercury	0.215	mg/kg	0.050	SW7471B	04/13/17 14:56	JRH	7439-97-6	
Selenium	Not detected	mg/kg	0.40	SW6020A	04/12/17 13:49	PER	7782-49-2	
Silver	Not detected	mg/kg	0.20	SW6020A	04/12/17 13:49	PER	7440-22-4	
Zinc	31.2	mg/kg	0.50	SW6020A	04/12/17 13:49	PER	7440-66-6	
Organics - PCBs/Pesticides								
PCB List								
PCB-1016	Not detected	ug/kg	330	SW8082A	04/12/17 17:35	JAN	12674-11-2	
PCB-1242	Not detected	ug/kg	330	SW8082A	04/12/17 17:35	JAN	53469-21-9	
PCB-1221	Not detected	ug/kg	330	SW8082A	04/12/17 17:35	JAN	11104-28-2	
PCB-1232	Not detected	ug/kg	330	SW8082A	04/12/17 17:35	JAN	11141-16-5	
PCB-1248	Not detected	ug/kg	330	SW8082A	04/12/17 17:35	JAN	12672-29-6	
PCB-1254	Not detected	ug/kg	330	SW8082A	04/12/17 17:35	JAN	11097-69-1	
PCB-1260	Not detected	ug/kg	330	SW8082A	04/12/17 17:35	JAN	11096-82-5	
Organics - Semi-Volatiles								
Polynuclear Aromatics								
Acenaphthene	Not detected	ug/kg	330	SW8270D	04/13/17 23:24	PL	83-32-9	
Acenaphthylene	Not detected	ug/kg	330	SW8270D	04/13/17 23:24	PL	208-96-8	
Anthracene	Not detected	ug/kg	330	SW8270D	04/13/17 23:24	PL	120-12-7	
Benzo(a)anthracene	Not detected	ug/kg	330	SW8270D	04/13/17 23:24	PL	56-55-3	
Benzo(a)pyrene	Not detected	ug/kg	330	SW8270D	04/13/17 23:24	PL	50-32-8	
Benzo(b)fluoranthene	Not detected	ug/kg	330	SW8270D	04/13/17 23:24	PL	205-99-2	
Benzo(ghi)perylene	Not detected	ug/kg	330	SW8270D	04/13/17 23:24	PL	191-24-2	
Benzo(k)fluoranthene	Not detected	ug/kg	330	SW8270D	04/13/17 23:24	PL	207-08-9	
Chrysene	Not detected	ug/kg	330	SW8270D	04/13/17 23:24	PL	218-01-9	
Dibenzo(ah)anthracene	Not detected	ug/kg	330	SW8270D	04/13/17 23:24	PL	53-70-3	

Lab Sample ID: S80482.04 (continued)
Sample Tag: SB-4 (7-8')

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Semi-Volatiles (continued)								
Polynuclear Aromatics (continued)								
Fluoranthene	Not detected	ug/kg	330	SW8270D	04/13/17 23:24	PL	206-44-0	
Fluorene	Not detected	ug/kg	330	SW8270D	04/13/17 23:24	PL	86-73-7	
Indeno(1,2,3-cd)pyrene	Not detected	ug/kg	330	SW8270D	04/13/17 23:24	PL	193-39-5	
2-Methylnaphthalene	Not detected	ug/kg	330	SW8270D	04/13/17 23:24	PL	91-57-6	
Naphthalene	Not detected	ug/kg	330	SW8270D	04/13/17 23:24	PL	91-20-3	
Phenanthrene	Not detected	ug/kg	330	SW8270D	04/13/17 23:24	PL	85-01-8	
Pyrene	Not detected	ug/kg	330	SW8270D	04/13/17 23:24	PL	129-00-0	
Organics - Volatiles								
Volatile Organics 5035								
Acetone	Not detected	ug/kg	1,000	SW5035A/8260C	04/12/17 00:17	JML	67-64-1	
Acrylonitrile	Not detected	ug/kg	100	SW5035A/8260C	04/12/17 00:17	JML	107-13-1	
Benzene	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:17	JML	71-43-2	
Bromobenzene	Not detected	ug/kg	100	SW5035A/8260C	04/12/17 00:17	JML	108-86-1	
Bromochloromethane	Not detected	ug/kg	100	SW5035A/8260C	04/12/17 00:17	JML	74-97-5	
Bromodichloromethane	Not detected	ug/kg	100	SW5035A/8260C	04/12/17 00:17	JML	75-27-4	
Bromoform*	Not detected	ug/kg	100	SW5035A/8260C	04/12/17 00:17	JML	75-25-2	
Bromomethane	Not detected	ug/kg	300	SW5035A/8260C	04/12/17 00:17	JML	74-83-9	
2-Butanone (MEK)*	Not detected	ug/kg	1,000	SW5035A/8260C	04/12/17 00:17	JML	78-93-3	
Carbon disulfide	Not detected	ug/kg	300	SW5035A/8260C	04/12/17 00:17	JML	75-15-0	
Carbon tetrachloride	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:17	JML	56-23-5	
Chlorobenzene	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:17	JML	108-90-7	
Chloroethane	Not detected	ug/kg	300	SW5035A/8260C	04/12/17 00:17	JML	75-00-3	
Chloroform	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:17	JML	67-66-3	
Chloromethane	Not detected	ug/kg	300	SW5035A/8260C	04/12/17 00:17	JML	74-87-3	
cis-1,2-Dichloroethene*	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:17	JML	156-59-2	
cis-1,3-Dichloropropene	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:17	JML	10061-01-5	
Cyclohexane	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:17	JML	110-82-7	
1,2-Dibromo-3-chloropropane*	Not detected	ug/kg	300	SW5035A/8260C	04/12/17 00:17	JML	96-12-8	
Dibromochloromethane	Not detected	ug/kg	100	SW5035A/8260C	04/12/17 00:17	JML	124-48-1	
Dibromomethane	Not detected	ug/kg	300	SW5035A/8260C	04/12/17 00:17	JML	74-95-3	
1,2-Dichlorobenzene	Not detected	ug/kg	100	SW5035A/8260C	04/12/17 00:17	JML	95-50-1	
1,3-Dichlorobenzene	Not detected	ug/kg	100	SW5035A/8260C	04/12/17 00:17	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/kg	100	SW5035A/8260C	04/12/17 00:17	JML	106-46-7	
Dichlorodifluoromethane	Not detected	ug/kg	300	SW5035A/8260C	04/12/17 00:17	JML	75-71-8	
1,1-Dichloroethane	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:17	JML	75-34-3	
1,2-Dichloroethane	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:17	JML	107-06-2	
1,1-Dichloroethene	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:17	JML	75-35-4	
1,2-Dichloropropane	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:17	JML	78-87-5	
Diethyl ether	Not detected	ug/kg	300	SW5035A/8260C	04/12/17 00:17	JML	60-29-7	
Ethylbenzene	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:17	JML	100-41-4	
1,2-Dibromoethane*	Not detected	ug/kg	30	SW5035A/8260C	04/12/17 00:17	JML	106-93-4	M
Hexachloroethane	Not detected	ug/kg	400	SW5035A/8260C	04/12/17 00:17	JML	67-72-1	
2-Hexanone*	Not detected	ug/kg	3,000	SW5035A/8260C	04/12/17 00:17	JML	591-78-6	
Isopropylbenzene	Not detected	ug/kg	300	SW5035A/8260C	04/12/17 00:17	JML	98-82-8	
Methyl iodide	Not detected	ug/kg	100	SW5035A/8260C	04/12/17 00:17	JML	74-88-4	
4-Methyl-2-pentanone (MIBK)*	Not detected	ug/kg	3,000	SW5035A/8260C	04/12/17 00:17	JML	108-10-1	
tert-Methyl butyl ether (MTBE)*	Not detected	ug/kg	300	SW5035A/8260C	04/12/17 00:17	JML	1634-04-4	

M-Result reported to MDL not RDL

Lab Sample ID: S80482.04 (continued)
Sample Tag: SB-4 (7-8')

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics 5035 (continued)								
Methylene chloride	Not detected	ug/kg	100	SW5035A/8260C	04/12/17 00:17	JML	75-09-2	
2-Methylnaphthalene*	Not detected	ug/kg	100	SW5035A/8260C	04/12/17 00:17	JML	91-57-6	
Naphthalene*	Not detected	ug/kg	300	SW5035A/8260C	04/12/17 00:17	JML	91-20-3	
n-Butylbenzene	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:17	JML	104-51-8	
n-Propylbenzene	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:17	JML	103-65-1	
p-Isopropyltoluene	Not detected	ug/kg	100	SW5035A/8260C	04/12/17 00:17	JML	99-87-6	
sec-Butylbenzene	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:17	JML	135-98-8	
Styrene*	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:17	JML	100-42-5	
tert-Butylbenzene	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:17	JML	98-06-6	
1,1,1,2-Tetrachloroethane	Not detected	ug/kg	100	SW5035A/8260C	04/12/17 00:17	JML	630-20-6	
1,1,2,2-Tetrachloroethane	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:17	JML	79-34-5	
Tetrachloroethene	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:17	JML	127-18-4	
Tetrahydrofuran*	Not detected	ug/kg	1,000	SW5035A/8260C	04/12/17 00:17	JML	109-99-9	
Toluene	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:17	JML	108-88-3	
trans-1,2-Dichloroethene*	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:17	JML	156-60-5	
trans-1,3-Dichloropropene	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:17	JML	10061-02-6	
trans-1,4-Dichloro-2-butene	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:17	JML	110-57-6	
1,2,3-Trichlorobenzene	Not detected	ug/kg	450	SW5035A/8260C	04/12/17 00:17	JML	87-61-6	
1,2,4-Trichlorobenzene	Not detected	ug/kg	450	SW5035A/8260C	04/12/17 00:17	JML	120-82-1	
1,1,1-Trichloroethane	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:17	JML	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:17	JML	79-00-5	
Trichloroethene	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:17	JML	79-01-6	
Trichlorofluoromethane	Not detected	ug/kg	100	SW5035A/8260C	04/12/17 00:17	JML	75-69-4	
1,2,3-Trichloropropane*	Not detected	ug/kg	100	SW5035A/8260C	04/12/17 00:17	JML	96-18-4	
1,2,3-Trimethylbenzene	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:17	JML	526-73-8	
1,2,4-Trimethylbenzene	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:17	JML	95-63-6	
1,3,5-Trimethylbenzene	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:17	JML	108-67-8	
Vinyl chloride	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:17	JML	75-01-4	
Total Xylenes	Not detected	ug/kg	200	SW5035A/8260C	04/12/17 00:17	JML	1330-20-7	

Lab Sample ID: S80482.05
Sample Tag: SB-5 (5-6')
Collected Date/Time: 04/07/2017 12:15
Matrix: Soil
COC Reference: 102419

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.4	IR
1	4oz Glass	None	Yes	5.4	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
Extraction, PCB	Completed			SW3550C	04/12/17 11:17	PLB		
Mercury Digestion	Completed			SW7471B	04/13/17 12:00	JRH		
Metal Digestion	Completed			SW3050B	04/12/17 10:00	PER		
PNA Extraction	Completed			SW3550C	04/12/17 19:49	EMR		
Inorganics								
Total Solids*	82	%	1	SM2540B	04/11/17 09:25	JBL		
Metals								
Arsenic	2.35	mg/kg	0.20	SW6020A	04/12/17 13:51	PER	7440-38-2	
Barium	33.2	mg/kg	1.0	SW6020A	04/12/17 13:51	PER	7440-39-3	
Cadmium	0.46	mg/kg	0.20	SW6020A	04/12/17 13:51	PER	7440-43-9	
Chromium	5.01	mg/kg	0.50	SW6020A	04/12/17 13:51	PER	7440-47-3	
Copper	133	mg/kg	0.50	SW6020A	04/12/17 13:51	PER	7440-50-8	
Lead	69.0	mg/kg	0.20	SW6020A	04/12/17 13:51	PER	7439-92-1	
Mercury	Not detected	mg/kg	0.050	SW7471B	04/13/17 14:57	JRH	7439-97-6	
Selenium	Not detected	mg/kg	0.40	SW6020A	04/12/17 13:51	PER	7782-49-2	
Silver	Not detected	mg/kg	0.20	SW6020A	04/12/17 13:51	PER	7440-22-4	
Zinc	293	mg/kg	0.50	SW6020A	04/12/17 13:51	PER	7440-66-6	
Organics - PCBs/Pesticides								
PCB List								
PCB-1016	Not detected	ug/kg	330	SW8082A	04/12/17 17:46	JAN	12674-11-2	
PCB-1242	Not detected	ug/kg	330	SW8082A	04/12/17 17:46	JAN	53469-21-9	
PCB-1221	Not detected	ug/kg	330	SW8082A	04/12/17 17:46	JAN	11104-28-2	
PCB-1232	Not detected	ug/kg	330	SW8082A	04/12/17 17:46	JAN	11141-16-5	
PCB-1248	Not detected	ug/kg	330	SW8082A	04/12/17 17:46	JAN	12672-29-6	
PCB-1254	Not detected	ug/kg	330	SW8082A	04/12/17 17:46	JAN	11097-69-1	
PCB-1260	Not detected	ug/kg	330	SW8082A	04/12/17 17:46	JAN	11096-82-5	
Organics - Semi-Volatiles								
Polynuclear Aromatics								
Acenaphthene	Not detected	ug/kg	330	SW8270D	04/13/17 23:43	PL	83-32-9	
Acenaphthylene	Not detected	ug/kg	330	SW8270D	04/13/17 23:43	PL	208-96-8	
Anthracene	420	ug/kg	330	SW8270D	04/13/17 23:43	PL	120-12-7	
Benzo(a)anthracene	820	ug/kg	330	SW8270D	04/13/17 23:43	PL	56-55-3	I
Benzo(a)pyrene	760	ug/kg	330	SW8270D	04/13/17 23:43	PL	50-32-8	I
Benzo(b)fluoranthene	1,290	ug/kg	330	SW8270D	04/13/17 23:43	PL	205-99-2	Ip
Benzo(ghi)perylene	410	ug/kg	330	SW8270D	04/13/17 23:43	PL	191-24-2	I
Benzo(k)fluoranthene	1,390	ug/kg	330	SW8270D	04/13/17 23:43	PL	207-08-9	Ip

I-Matrix interference with internal standard
p-Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.

Lab Sample ID: S80482.05 (continued)
Sample Tag: SB-5 (5-6')

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Semi-Volatiles (continued)								
Polynuclear Aromatics (continued)								
Chrysene	810	ug/kg	330	SW8270D	04/13/17 23:43	PL	218-01-9	I
Dibenzo(ah)anthracene	Not detected	ug/kg	330	SW8270D	04/13/17 23:43	PL	53-70-3	I
Fluoranthene	1,900	ug/kg	330	SW8270D	04/13/17 23:43	PL	206-44-0	
Fluorene	Not detected	ug/kg	330	SW8270D	04/13/17 23:43	PL	86-73-7	
Indeno(1,2,3-cd)pyrene	420	ug/kg	330	SW8270D	04/13/17 23:43	PL	193-39-5	I
2-Methylnaphthalene	Not detected	ug/kg	330	SW8270D	04/13/17 23:43	PL	91-57-6	
Naphthalene	Not detected	ug/kg	330	SW8270D	04/13/17 23:43	PL	91-20-3	
Phenanthrene	1,640	ug/kg	330	SW8270D	04/13/17 23:43	PL	85-01-8	
Pyrene	2,340	ug/kg	330	SW8270D	04/13/17 23:43	PL	129-00-0	I
Polynuclear Aromatics (Replicate 01)								
Acenaphthene	Not detected	ug/kg	330	SW8270D	04/14/17 22:27	PL	83-32-9	
Acenaphthylene	Not detected	ug/kg	330	SW8270D	04/14/17 22:27	PL	208-96-8	
Anthracene	380	ug/kg	330	SW8270D	04/14/17 22:27	PL	120-12-7	
Benzo(a)anthracene	720	ug/kg	330	SW8270D	04/14/17 22:27	PL	56-55-3	
Benzo(a)pyrene	600	ug/kg	330	SW8270D	04/14/17 22:27	PL	50-32-8	
Benzo(b)fluoranthene	1,010	ug/kg	330	SW8270D	04/14/17 22:27	PL	205-99-2	p
Benzo(ghi)perylene	350	ug/kg	330	SW8270D	04/14/17 22:27	PL	191-24-2	
Benzo(k)fluoranthene	1,090	ug/kg	330	SW8270D	04/14/17 22:27	PL	207-08-9	p
Chrysene	690	ug/kg	330	SW8270D	04/14/17 22:27	PL	218-01-9	
Dibenzo(ah)anthracene	Not detected	ug/kg	330	SW8270D	04/14/17 22:27	PL	53-70-3	
Fluoranthene	1,580	ug/kg	330	SW8270D	04/14/17 22:27	PL	206-44-0	
Fluorene	Not detected	ug/kg	330	SW8270D	04/14/17 22:27	PL	86-73-7	
Indeno(1,2,3-cd)pyrene	Not detected	ug/kg	330	SW8270D	04/14/17 22:27	PL	193-39-5	
2-Methylnaphthalene	Not detected	ug/kg	330	SW8270D	04/14/17 22:27	PL	91-57-6	
Naphthalene	Not detected	ug/kg	330	SW8270D	04/14/17 22:27	PL	91-20-3	
Phenanthrene	1,540	ug/kg	330	SW8270D	04/14/17 22:27	PL	85-01-8	
Pyrene	1,810	ug/kg	330	SW8270D	04/14/17 22:27	PL	129-00-0	
Organics - Volatiles								
Volatile Organics 5035								
Acetone	Not detected	ug/kg	1,000	SW5035A/8260C	04/12/17 00:37	JML	67-64-1	
Acrylonitrile	Not detected	ug/kg	100	SW5035A/8260C	04/12/17 00:37	JML	107-13-1	
Benzene	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:37	JML	71-43-2	
Bromobenzene	Not detected	ug/kg	100	SW5035A/8260C	04/12/17 00:37	JML	108-86-1	
Bromochloromethane	Not detected	ug/kg	100	SW5035A/8260C	04/12/17 00:37	JML	74-97-5	
Bromodichloromethane	Not detected	ug/kg	100	SW5035A/8260C	04/12/17 00:37	JML	75-27-4	
Bromoform*	Not detected	ug/kg	100	SW5035A/8260C	04/12/17 00:37	JML	75-25-2	
Bromomethane	Not detected	ug/kg	300	SW5035A/8260C	04/12/17 00:37	JML	74-83-9	
2-Butanone (MEK)*	Not detected	ug/kg	1,100	SW5035A/8260C	04/12/17 00:37	JML	78-93-3	
Carbon disulfide	Not detected	ug/kg	400	SW5035A/8260C	04/12/17 00:37	JML	75-15-0	
Carbon tetrachloride	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:37	JML	56-23-5	
Chlorobenzene	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:37	JML	108-90-7	
Chloroethane	Not detected	ug/kg	400	SW5035A/8260C	04/12/17 00:37	JML	75-00-3	
Chloroform	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:37	JML	67-66-3	
Chloromethane	Not detected	ug/kg	400	SW5035A/8260C	04/12/17 00:37	JML	74-87-3	
cis-1,2-Dichloroethene*	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:37	JML	156-59-2	

I-Matrix interference with internal standard
p-Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.

Lab Sample ID: S80482.05 (continued)
Sample Tag: SB-5 (5-6')

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics 5035 (continued)								
cis-1,3-Dichloropropene	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:37	JML	10061-01-5	
Cyclohexane	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:37	JML	110-82-7	
1,2-Dibromo-3-chloropropane*	Not detected	ug/kg	400	SW5035A/8260C	04/12/17 00:37	JML	96-12-8	
Dibromochloromethane	Not detected	ug/kg	100	SW5035A/8260C	04/12/17 00:37	JML	124-48-1	
Dibromomethane	Not detected	ug/kg	400	SW5035A/8260C	04/12/17 00:37	JML	74-95-3	
1,2-Dichlorobenzene	Not detected	ug/kg	100	SW5035A/8260C	04/12/17 00:37	JML	95-50-1	
1,3-Dichlorobenzene	Not detected	ug/kg	100	SW5035A/8260C	04/12/17 00:37	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/kg	100	SW5035A/8260C	04/12/17 00:37	JML	106-46-7	
Dichlorodifluoromethane	Not detected	ug/kg	400	SW5035A/8260C	04/12/17 00:37	JML	75-71-8	
1,1-Dichloroethane	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:37	JML	75-34-3	
1,2-Dichloroethane	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:37	JML	107-06-2	
1,1-Dichloroethene	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:37	JML	75-35-4	
1,2-Dichloropropane	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:37	JML	78-87-5	
Diethyl ether	Not detected	ug/kg	300	SW5035A/8260C	04/12/17 00:37	JML	60-29-7	
Ethylbenzene	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:37	JML	100-41-4	
1,2-Dibromoethane*	Not detected	ug/kg	30	SW5035A/8260C	04/12/17 00:37	JML	106-93-4	M
Hexachloroethane	Not detected	ug/kg	400	SW5035A/8260C	04/12/17 00:37	JML	67-72-1	
2-Hexanone*	Not detected	ug/kg	4,000	SW5035A/8260C	04/12/17 00:37	JML	591-78-6	
Isopropylbenzene	Not detected	ug/kg	400	SW5035A/8260C	04/12/17 00:37	JML	98-82-8	
Methyl iodide	Not detected	ug/kg	100	SW5035A/8260C	04/12/17 00:37	JML	74-88-4	
4-Methyl-2-pentanone (MIBK)*	Not detected	ug/kg	4,000	SW5035A/8260C	04/12/17 00:37	JML	108-10-1	
tert-Methyl butyl ether (MTBE)*	Not detected	ug/kg	300	SW5035A/8260C	04/12/17 00:37	JML	1634-04-4	
Methylene chloride	Not detected	ug/kg	100	SW5035A/8260C	04/12/17 00:37	JML	75-09-2	
2-Methylnaphthalene*	Not detected	ug/kg	100	SW5035A/8260C	04/12/17 00:37	JML	91-57-6	
Naphthalene*	Not detected	ug/kg	400	SW5035A/8260C	04/12/17 00:37	JML	91-20-3	
n-Butylbenzene	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:37	JML	104-51-8	
n-Propylbenzene	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:37	JML	103-65-1	
p-Isopropyltoluene	Not detected	ug/kg	100	SW5035A/8260C	04/12/17 00:37	JML	99-87-6	
sec-Butylbenzene	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:37	JML	135-98-8	
Styrene*	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:37	JML	100-42-5	
tert-Butylbenzene	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:37	JML	98-06-6	
1,1,1,2-Tetrachloroethane	Not detected	ug/kg	100	SW5035A/8260C	04/12/17 00:37	JML	630-20-6	
1,1,2,2-Tetrachloroethane	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:37	JML	79-34-5	
Tetrachloroethene	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:37	JML	127-18-4	
Tetrahydrofuran*	Not detected	ug/kg	1,000	SW5035A/8260C	04/12/17 00:37	JML	109-99-9	
Toluene	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:37	JML	108-88-3	
trans-1,2-Dichloroethene*	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:37	JML	156-60-5	
trans-1,3-Dichloropropene	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:37	JML	10061-02-6	
trans-1,4-Dichloro-2-butene	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:37	JML	110-57-6	
1,2,3-Trichlorobenzene	Not detected	ug/kg	460	SW5035A/8260C	04/12/17 00:37	JML	87-61-6	
1,2,4-Trichlorobenzene	Not detected	ug/kg	460	SW5035A/8260C	04/12/17 00:37	JML	120-82-1	
1,1,1-Trichloroethane	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:37	JML	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:37	JML	79-00-5	
Trichloroethene	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:37	JML	79-01-6	
Trichlorofluoromethane	Not detected	ug/kg	100	SW5035A/8260C	04/12/17 00:37	JML	75-69-4	
1,2,3-Trichloropropane*	Not detected	ug/kg	100	SW5035A/8260C	04/12/17 00:37	JML	96-18-4	
1,2,3-Trimethylbenzene	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:37	JML	526-73-8	
1,2,4-Trimethylbenzene	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:37	JML	95-63-6	

M-Result reported to MDL not RDL

Lab Sample ID: S80482.05 (continued)
Sample Tag: SB-5 (5-6')

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics 5035 (continued)								
1,3,5-Trimethylbenzene	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:37	JML	108-67-8	
Vinyl chloride	Not detected	ug/kg	70	SW5035A/8260C	04/12/17 00:37	JML	75-01-4	
Total Xylenes	Not detected	ug/kg	200	SW5035A/8260C	04/12/17 00:37	JML	1330-20-7	

Lab Sample ID: S80482.06
Sample Tag: Meth Blank
Collected Date/Time: 04/07/2017 00:01
Matrix: Methanol
COC Reference: 102419

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.4	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles								
Volatile Organics 5035								
Acetone	Not detected	ug/kg	1,000	SW5035A/8260C	04/11/17 20:12	JML	67-64-1	
Acrylonitrile	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 20:12	JML	107-13-1	
Benzene	Not detected	ug/kg	50	SW5035A/8260C	04/11/17 20:12	JML	71-43-2	
Bromobenzene	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 20:12	JML	108-86-1	
Bromochloromethane	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 20:12	JML	74-97-5	
Bromodichloromethane	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 20:12	JML	75-27-4	
Bromoform*	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 20:12	JML	75-25-2	
Bromomethane	Not detected	ug/kg	200	SW5035A/8260C	04/11/17 20:12	JML	74-83-9	
2-Butanone (MEK)*	Not detected	ug/kg	750	SW5035A/8260C	04/11/17 20:12	JML	78-93-3	
Carbon disulfide	Not detected	ug/kg	300	SW5035A/8260C	04/11/17 20:12	JML	75-15-0	
Carbon tetrachloride	Not detected	ug/kg	50	SW5035A/8260C	04/11/17 20:12	JML	56-23-5	
Chlorobenzene	Not detected	ug/kg	50	SW5035A/8260C	04/11/17 20:12	JML	108-90-7	
Chloroethane	Not detected	ug/kg	300	SW5035A/8260C	04/11/17 20:12	JML	75-00-3	
Chloroform	Not detected	ug/kg	50	SW5035A/8260C	04/11/17 20:12	JML	67-66-3	
Chloromethane	Not detected	ug/kg	300	SW5035A/8260C	04/11/17 20:12	JML	74-87-3	
cis-1,2-Dichloroethene*	Not detected	ug/kg	50	SW5035A/8260C	04/11/17 20:12	JML	156-59-2	
cis-1,3-Dichloropropene	Not detected	ug/kg	50	SW5035A/8260C	04/11/17 20:12	JML	10061-01-5	
Cyclohexane	Not detected	ug/kg	50	SW5035A/8260C	04/11/17 20:12	JML	110-82-7	
1,2-Dibromo-3-chloropropane*	Not detected	ug/kg	300	SW5035A/8260C	04/11/17 20:12	JML	96-12-8	
Dibromochloromethane	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 20:12	JML	124-48-1	
Dibromomethane	Not detected	ug/kg	300	SW5035A/8260C	04/11/17 20:12	JML	74-95-3	
1,2-Dichlorobenzene	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 20:12	JML	95-50-1	
1,3-Dichlorobenzene	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 20:12	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 20:12	JML	106-46-7	
Dichlorodifluoromethane	Not detected	ug/kg	300	SW5035A/8260C	04/11/17 20:12	JML	75-71-8	
1,1-Dichloroethane	Not detected	ug/kg	50	SW5035A/8260C	04/11/17 20:12	JML	75-34-3	
1,2-Dichloroethane	Not detected	ug/kg	50	SW5035A/8260C	04/11/17 20:12	JML	107-06-2	
1,1-Dichloroethene	Not detected	ug/kg	50	SW5035A/8260C	04/11/17 20:12	JML	75-35-4	
1,2-Dichloropropane	Not detected	ug/kg	50	SW5035A/8260C	04/11/17 20:12	JML	78-87-5	
Diethyl ether	Not detected	ug/kg	200	SW5035A/8260C	04/11/17 20:12	JML	60-29-7	
Ethylbenzene	Not detected	ug/kg	50	SW5035A/8260C	04/11/17 20:12	JML	100-41-4	
1,2-Dibromoethane*	Not detected	ug/kg	20	SW5035A/8260C	04/11/17 20:12	JML	106-93-4	M
Hexachloroethane	Not detected	ug/kg	300	SW5035A/8260C	04/11/17 20:12	JML	67-72-1	
2-Hexanone*	Not detected	ug/kg	3,000	SW5035A/8260C	04/11/17 20:12	JML	591-78-6	
Isopropylbenzene	Not detected	ug/kg	300	SW5035A/8260C	04/11/17 20:12	JML	98-82-8	
Methyl iodide	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 20:12	JML	74-88-4	
4-Methyl-2-pentanone (MIBK)*	Not detected	ug/kg	3,000	SW5035A/8260C	04/11/17 20:12	JML	108-10-1	
tert-Methyl butyl ether (MTBE)*	Not detected	ug/kg	200	SW5035A/8260C	04/11/17 20:12	JML	1634-04-4	
Methylene chloride	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 20:12	JML	75-09-2	
2-Methylnaphthalene*	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 20:12	JML	91-57-6	
Naphthalene*	Not detected	ug/kg	300	SW5035A/8260C	04/11/17 20:12	JML	91-20-3	

M-Result reported to MDL not RDL

Lab Sample ID: S80482.06 (continued)
Sample Tag: Meth Blank

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics 5035 (continued)								
n-Butylbenzene	Not detected	ug/kg	50	SW5035A/8260C	04/11/17 20:12	JML	104-51-8	
n-Propylbenzene	Not detected	ug/kg	50	SW5035A/8260C	04/11/17 20:12	JML	103-65-1	
p-Isopropyltoluene	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 20:12	JML	99-87-6	
sec-Butylbenzene	Not detected	ug/kg	50	SW5035A/8260C	04/11/17 20:12	JML	135-98-8	
Styrene*	Not detected	ug/kg	50	SW5035A/8260C	04/11/17 20:12	JML	100-42-5	
tert-Butylbenzene	Not detected	ug/kg	50	SW5035A/8260C	04/11/17 20:12	JML	98-06-6	
1,1,1,2-Tetrachloroethane	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 20:12	JML	630-20-6	
1,1,2,2-Tetrachloroethane	Not detected	ug/kg	50	SW5035A/8260C	04/11/17 20:12	JML	79-34-5	
Tetrachloroethene	Not detected	ug/kg	50	SW5035A/8260C	04/11/17 20:12	JML	127-18-4	
Tetrahydrofuran*	Not detected	ug/kg	1,000	SW5035A/8260C	04/11/17 20:12	JML	109-99-9	
Toluene	Not detected	ug/kg	50	SW5035A/8260C	04/11/17 20:12	JML	108-88-3	
trans-1,2-Dichloroethene*	Not detected	ug/kg	50	SW5035A/8260C	04/11/17 20:12	JML	156-60-5	
trans-1,3-Dichloropropene	Not detected	ug/kg	50	SW5035A/8260C	04/11/17 20:12	JML	10061-02-6	
trans-1,4-Dichloro-2-butene	Not detected	ug/kg	50	SW5035A/8260C	04/11/17 20:12	JML	110-57-6	
1,2,3-Trichlorobenzene	Not detected	ug/kg	330	SW5035A/8260C	04/11/17 20:12	JML	87-61-6	
1,2,4-Trichlorobenzene	Not detected	ug/kg	330	SW5035A/8260C	04/11/17 20:12	JML	120-82-1	
1,1,1-Trichloroethane	Not detected	ug/kg	50	SW5035A/8260C	04/11/17 20:12	JML	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/kg	50	SW5035A/8260C	04/11/17 20:12	JML	79-00-5	
Trichloroethene	Not detected	ug/kg	50	SW5035A/8260C	04/11/17 20:12	JML	79-01-6	
Trichlorofluoromethane	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 20:12	JML	75-69-4	
1,2,3-Trichloropropane*	Not detected	ug/kg	100	SW5035A/8260C	04/11/17 20:12	JML	96-18-4	
1,2,3-Trimethylbenzene	Not detected	ug/kg	50	SW5035A/8260C	04/11/17 20:12	JML	526-73-8	
1,2,4-Trimethylbenzene	Not detected	ug/kg	50	SW5035A/8260C	04/11/17 20:12	JML	95-63-6	
1,3,5-Trimethylbenzene	Not detected	ug/kg	50	SW5035A/8260C	04/11/17 20:12	JML	108-67-8	
Vinyl chloride	Not detected	ug/kg	50	SW5035A/8260C	04/11/17 20:12	JML	75-01-4	
Total Xylenes	Not detected	ug/kg	200	SW5035A/8260C	04/11/17 20:12	JML	1330-20-7	

Lab Sample ID: S80482.07
Sample Tag: Dup1-S
Collected Date/Time: 04/07/2017 00:01
Matrix: Soil
COC Reference: 102419

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	MeOH	Yes	5.4	IR
1	4oz Glass	None	Yes	5.4	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Extraction / Prep.								
Extraction, PCB	Completed			SW3550C	04/12/17 11:17	PLB		
Mercury Digestion	Completed			SW7471B	04/13/17 12:00	JRH		
Metal Digestion	Completed			SW3050B	04/12/17 10:00	PER		
PNA Extraction	Completed			SW3550C	04/12/17 19:49	EMR		
Inorganics								
Total Solids*	78	%	1	SM2540B	04/11/17 09:25	JBL		
Metals								
Arsenic	0.40	mg/kg	0.20	SW6020A	04/12/17 13:53	PER	7440-38-2	
Barium	79.5	mg/kg	1.0	SW6020A	04/12/17 13:53	PER	7440-39-3	
Cadmium	Not detected	mg/kg	0.20	SW6020A	04/12/17 13:53	PER	7440-43-9	
Chromium	8.11	mg/kg	0.50	SW6020A	04/12/17 13:53	PER	7440-47-3	
Copper	16.0	mg/kg	0.50	SW6020A	04/12/17 13:53	PER	7440-50-8	
Lead	8.10	mg/kg	0.20	SW6020A	04/12/17 13:53	PER	7439-92-1	
Mercury	0.101	mg/kg	0.050	SW7471B	04/13/17 14:59	JRH	7439-97-6	
Selenium	Not detected	mg/kg	0.40	SW6020A	04/12/17 13:53	PER	7782-49-2	
Silver	Not detected	mg/kg	0.20	SW6020A	04/12/17 13:53	PER	7440-22-4	
Zinc	21.1	mg/kg	0.50	SW6020A	04/12/17 13:53	PER	7440-66-6	
Organics - PCBs/Pesticides								
PCB List								
PCB-1016	Not detected	ug/kg	330	SW8082A	04/12/17 17:57	JAN	12674-11-2	
PCB-1242	Not detected	ug/kg	330	SW8082A	04/12/17 17:57	JAN	53469-21-9	
PCB-1221	Not detected	ug/kg	330	SW8082A	04/12/17 17:57	JAN	11104-28-2	
PCB-1232	Not detected	ug/kg	330	SW8082A	04/12/17 17:57	JAN	11141-16-5	
PCB-1248	Not detected	ug/kg	330	SW8082A	04/12/17 17:57	JAN	12672-29-6	
PCB-1254	Not detected	ug/kg	330	SW8082A	04/12/17 17:57	JAN	11097-69-1	
PCB-1260	Not detected	ug/kg	330	SW8082A	04/12/17 17:57	JAN	11096-82-5	
Organics - Semi-Volatiles								
Polynuclear Aromatics								
Acenaphthene	Not detected	ug/kg	330	SW8270D	04/14/17 00:01	PL	83-32-9	
Acenaphthylene	Not detected	ug/kg	330	SW8270D	04/14/17 00:01	PL	208-96-8	
Anthracene	Not detected	ug/kg	330	SW8270D	04/14/17 00:01	PL	120-12-7	
Benzo(a)anthracene	Not detected	ug/kg	330	SW8270D	04/14/17 00:01	PL	56-55-3	
Benzo(a)pyrene	Not detected	ug/kg	330	SW8270D	04/14/17 00:01	PL	50-32-8	
Benzo(b)fluoranthene	Not detected	ug/kg	330	SW8270D	04/14/17 00:01	PL	205-99-2	
Benzo(ghi)perylene	Not detected	ug/kg	330	SW8270D	04/14/17 00:01	PL	191-24-2	
Benzo(k)fluoranthene	Not detected	ug/kg	330	SW8270D	04/14/17 00:01	PL	207-08-9	
Chrysene	Not detected	ug/kg	330	SW8270D	04/14/17 00:01	PL	218-01-9	
Dibenzo(ah)anthracene	Not detected	ug/kg	330	SW8270D	04/14/17 00:01	PL	53-70-3	

Lab Sample ID: S80482.07 (continued)
Sample Tag: Dup1-S

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Semi-Volatiles (continued)								
Polynuclear Aromatics (continued)								
Fluoranthene	Not detected	ug/kg	330	SW8270D	04/14/17 00:01	PL	206-44-0	
Fluorene	Not detected	ug/kg	330	SW8270D	04/14/17 00:01	PL	86-73-7	
Indeno(1,2,3-cd)pyrene	Not detected	ug/kg	330	SW8270D	04/14/17 00:01	PL	193-39-5	
2-Methylnaphthalene	Not detected	ug/kg	330	SW8270D	04/14/17 00:01	PL	91-57-6	
Naphthalene	Not detected	ug/kg	330	SW8270D	04/14/17 00:01	PL	91-20-3	
Phenanthrene	Not detected	ug/kg	330	SW8270D	04/14/17 00:01	PL	85-01-8	
Pyrene	Not detected	ug/kg	330	SW8270D	04/14/17 00:01	PL	129-00-0	
Organics - Volatiles								
Volatile Organics 5035								
Acetone	Not detected	ug/kg	2,000	SW5035A/8260C	04/12/17 00:57	JML	67-64-1	
Acrylonitrile	Not detected	ug/kg	200	SW5035A/8260C	04/12/17 00:57	JML	107-13-1	
Benzene	Not detected	ug/kg	80	SW5035A/8260C	04/12/17 00:57	JML	71-43-2	
Bromobenzene	Not detected	ug/kg	200	SW5035A/8260C	04/12/17 00:57	JML	108-86-1	
Bromochloromethane	Not detected	ug/kg	200	SW5035A/8260C	04/12/17 00:57	JML	74-97-5	
Bromodichloromethane	Not detected	ug/kg	200	SW5035A/8260C	04/12/17 00:57	JML	75-27-4	
Bromoform*	Not detected	ug/kg	200	SW5035A/8260C	04/12/17 00:57	JML	75-25-2	
Bromomethane	Not detected	ug/kg	300	SW5035A/8260C	04/12/17 00:57	JML	74-83-9	
2-Butanone (MEK)*	Not detected	ug/kg	1,100	SW5035A/8260C	04/12/17 00:57	JML	78-93-3	
Carbon disulfide	Not detected	ug/kg	400	SW5035A/8260C	04/12/17 00:57	JML	75-15-0	
Carbon tetrachloride	Not detected	ug/kg	80	SW5035A/8260C	04/12/17 00:57	JML	56-23-5	
Chlorobenzene	Not detected	ug/kg	80	SW5035A/8260C	04/12/17 00:57	JML	108-90-7	
Chloroethane	Not detected	ug/kg	400	SW5035A/8260C	04/12/17 00:57	JML	75-00-3	
Chloroform	Not detected	ug/kg	80	SW5035A/8260C	04/12/17 00:57	JML	67-66-3	
Chloromethane	Not detected	ug/kg	400	SW5035A/8260C	04/12/17 00:57	JML	74-87-3	
cis-1,2-Dichloroethene*	Not detected	ug/kg	80	SW5035A/8260C	04/12/17 00:57	JML	156-59-2	
cis-1,3-Dichloropropene	Not detected	ug/kg	80	SW5035A/8260C	04/12/17 00:57	JML	10061-01-5	
Cyclohexane	Not detected	ug/kg	80	SW5035A/8260C	04/12/17 00:57	JML	110-82-7	
1,2-Dibromo-3-chloropropane*	Not detected	ug/kg	400	SW5035A/8260C	04/12/17 00:57	JML	96-12-8	
Dibromochloromethane	Not detected	ug/kg	200	SW5035A/8260C	04/12/17 00:57	JML	124-48-1	
Dibromomethane	Not detected	ug/kg	400	SW5035A/8260C	04/12/17 00:57	JML	74-95-3	
1,2-Dichlorobenzene	Not detected	ug/kg	200	SW5035A/8260C	04/12/17 00:57	JML	95-50-1	
1,3-Dichlorobenzene	Not detected	ug/kg	200	SW5035A/8260C	04/12/17 00:57	JML	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/kg	200	SW5035A/8260C	04/12/17 00:57	JML	106-46-7	
Dichlorodifluoromethane	Not detected	ug/kg	400	SW5035A/8260C	04/12/17 00:57	JML	75-71-8	
1,1-Dichloroethane	Not detected	ug/kg	80	SW5035A/8260C	04/12/17 00:57	JML	75-34-3	
1,2-Dichloroethane	Not detected	ug/kg	80	SW5035A/8260C	04/12/17 00:57	JML	107-06-2	
1,1-Dichloroethene	Not detected	ug/kg	80	SW5035A/8260C	04/12/17 00:57	JML	75-35-4	
1,2-Dichloropropane	Not detected	ug/kg	80	SW5035A/8260C	04/12/17 00:57	JML	78-87-5	
Diethyl ether	Not detected	ug/kg	300	SW5035A/8260C	04/12/17 00:57	JML	60-29-7	
Ethylbenzene	Not detected	ug/kg	80	SW5035A/8260C	04/12/17 00:57	JML	100-41-4	
1,2-Dibromoethane*	Not detected	ug/kg	30	SW5035A/8260C	04/12/17 00:57	JML	106-93-4	M
Hexachloroethane	Not detected	ug/kg	500	SW5035A/8260C	04/12/17 00:57	JML	67-72-1	
2-Hexanone*	Not detected	ug/kg	4,000	SW5035A/8260C	04/12/17 00:57	JML	591-78-6	
Isopropylbenzene	Not detected	ug/kg	400	SW5035A/8260C	04/12/17 00:57	JML	98-82-8	
Methyl iodide	Not detected	ug/kg	200	SW5035A/8260C	04/12/17 00:57	JML	74-88-4	
4-Methyl-2-pentanone (MIBK)*	Not detected	ug/kg	4,000	SW5035A/8260C	04/12/17 00:57	JML	108-10-1	
tert-Methyl butyl ether (MTBE)*	Not detected	ug/kg	300	SW5035A/8260C	04/12/17 00:57	JML	1634-04-4	

M-Result reported to MDL not RDL

Lab Sample ID: S80482.07 (continued)
Sample Tag: Dup1-S

Analysis	Results	Units	RL	Method	Run Date/Time	Tech	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics 5035 (continued)								
Methylene chloride	Not detected	ug/kg	200	SW5035A/8260C	04/12/17 00:57	JML	75-09-2	
2-Methylnaphthalene*	Not detected	ug/kg	200	SW5035A/8260C	04/12/17 00:57	JML	91-57-6	
Naphthalene*	Not detected	ug/kg	400	SW5035A/8260C	04/12/17 00:57	JML	91-20-3	
n-Butylbenzene	Not detected	ug/kg	80	SW5035A/8260C	04/12/17 00:57	JML	104-51-8	
n-Propylbenzene	Not detected	ug/kg	80	SW5035A/8260C	04/12/17 00:57	JML	103-65-1	
p-Isopropyltoluene	Not detected	ug/kg	200	SW5035A/8260C	04/12/17 00:57	JML	99-87-6	
sec-Butylbenzene	Not detected	ug/kg	80	SW5035A/8260C	04/12/17 00:57	JML	135-98-8	
Styrene*	Not detected	ug/kg	80	SW5035A/8260C	04/12/17 00:57	JML	100-42-5	
tert-Butylbenzene	Not detected	ug/kg	80	SW5035A/8260C	04/12/17 00:57	JML	98-06-6	
1,1,1,2-Tetrachloroethane	Not detected	ug/kg	200	SW5035A/8260C	04/12/17 00:57	JML	630-20-6	
1,1,2,2-Tetrachloroethane	Not detected	ug/kg	80	SW5035A/8260C	04/12/17 00:57	JML	79-34-5	
Tetrachloroethene	Not detected	ug/kg	80	SW5035A/8260C	04/12/17 00:57	JML	127-18-4	
Tetrahydrofuran*	Not detected	ug/kg	2,000	SW5035A/8260C	04/12/17 00:57	JML	109-99-9	
Toluene	Not detected	ug/kg	80	SW5035A/8260C	04/12/17 00:57	JML	108-88-3	
trans-1,2-Dichloroethene*	Not detected	ug/kg	80	SW5035A/8260C	04/12/17 00:57	JML	156-60-5	
trans-1,3-Dichloropropene	Not detected	ug/kg	80	SW5035A/8260C	04/12/17 00:57	JML	10061-02-6	
trans-1,4-Dichloro-2-butene	Not detected	ug/kg	80	SW5035A/8260C	04/12/17 00:57	JML	110-57-6	
1,2,3-Trichlorobenzene	Not detected	ug/kg	500	SW5035A/8260C	04/12/17 00:57	JML	87-61-6	
1,2,4-Trichlorobenzene	Not detected	ug/kg	500	SW5035A/8260C	04/12/17 00:57	JML	120-82-1	
1,1,1-Trichloroethane	Not detected	ug/kg	80	SW5035A/8260C	04/12/17 00:57	JML	71-55-6	
1,1,2-Trichloroethane	Not detected	ug/kg	80	SW5035A/8260C	04/12/17 00:57	JML	79-00-5	
Trichloroethene	Not detected	ug/kg	80	SW5035A/8260C	04/12/17 00:57	JML	79-01-6	
Trichlorofluoromethane	Not detected	ug/kg	200	SW5035A/8260C	04/12/17 00:57	JML	75-69-4	
1,2,3-Trichloropropane*	Not detected	ug/kg	200	SW5035A/8260C	04/12/17 00:57	JML	96-18-4	
1,2,3-Trimethylbenzene	Not detected	ug/kg	80	SW5035A/8260C	04/12/17 00:57	JML	526-73-8	
1,2,4-Trimethylbenzene	Not detected	ug/kg	80	SW5035A/8260C	04/12/17 00:57	JML	95-63-6	
1,3,5-Trimethylbenzene	Not detected	ug/kg	80	SW5035A/8260C	04/12/17 00:57	JML	108-67-8	
Vinyl chloride	Not detected	ug/kg	80	SW5035A/8260C	04/12/17 00:57	JML	75-01-4	
Total Xylenes	Not detected	ug/kg	200	SW5035A/8260C	04/12/17 00:57	JML	1330-20-7	

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

102419

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Jeremy Efros / Brian Kuberski
COMPANY: ASTI Environmental
ADDRESS: 10448 Citation Drive #100
CITY: Brighton STATE: MI ZIP CODE: 48116
PHONE NO.: 810-360-9710 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: jefros@asti-env.com / bkuberski@asti-env.com QUOTE NO.:

INVOICE TO

CONTACT NAME: ☐ SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS:

PROJECT NO./NAME: 10105 / 7850 E Jefferson
SAMPLER(S) - PLEASE PRINT/SIGN NAME:

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☐ Other

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	VOCs	PNAs	Mich 10 Metals	PCBs
50482.01	4/7/17	0940	SB-1 (0.5-1.5')	S	2	1					1		X	X	X	
.02		1010	SB-2 (6.5-7.5')	S	2	1					1		X	X	X	
.03		1050	SB-3 (9-10')	S	2	1					1		X	X	X	
.04		1140	SB-4 (7-8')	S	2	1					1		X	X	X	X
.05	↓	1215	SB-5 (5-6')	S	2	1					1		X	X	X	X
.06	—		Meth Blank	S	1						1		X			
.07	4/7/17	—	Dupl-5	S	2	1					1		X	X	X	X

RELINQUISHED BY: SIGNATURE/ORGANIZATION	Jeremy Efros / Sampler	DATE 4/10/17	TIME 1225
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 4/10/17	TIME 1225
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE 4/10/17	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	Sam Smith	DATE 4/10/17	TIME 1325

RELINQUISHED BY: SIGNATURE/ORGANIZATION — DATE — TIME
RECEIVED BY: SIGNATURE/ORGANIZATION — DATE — TIME

SEAL NO. — SEAL INTACT YES ☐ NO ☐ — INITIALS
SEAL NO. — SEAL INTACT YES ☐ NO ☐ — INITIALS

NOTES: TEMP. ON ARRIVAL 5.4

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Fibertec
environmental
services

Wednesday, July 24, 2019

Fibertec Project Number:	91643
Project Identification:	3-10105 /3-10105
Submittal Date:	07/19/2019

Mr. Brian Kuberski
Applied Science & Technology, Inc. - Brighton
10448 Citation
Suite 100
Brighton, MI 48116

Dear Mr. Kuberski,

Thank you for selecting Fibertec Environmental Services as your analytical laboratory. The samples you submitted have been analyzed in accordance with NELAC standards and the results compiled in the attached report. Any exceptions to NELAC compliance are noted in the report. These results apply only to those samples submitted. Please note TO-15 samples will be disposed of 7 calendar days after the reporting date. All other samples will be disposed of 30 days after the reporting date.

If you have any questions regarding these results or if we may be of further assistance to you, please contact me at (517) 699-0345.

Sincerely,

Stephan. Wallace

By Stephannie Wallace at 5:22 PM, Jul 24, 2019

For Daryl P. Strandbergh
Laboratory Director

Enclosures

Client Identification:	**Applied Science & Technology, Inc. - Brighton**	Sample Description:	**SG-1**	Chain of Custody:	**178541**
Client Project Name:	**3-10105**	Sample No:		Collect Date:	**07/18/19**
Client Project No:	**3-10105**	Sample Matrix:	**Air**	Collect Time:	**09:38**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Polynuclear Aromatic Hydrocarbons - Modified for GC/MS **Aliquot ID: 91643-001** **Matrix: Air**
Method: NIOSH 5515 (Modified)/EPA TO-13A (Modified) **Description: SG-1**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
‡ 1. Acenaphthene (SIM)	U	L+	µg/m3	5.0	0.086	07/23/19	PS19G23L	07/23/19	SG19G23A	GJP
‡ 2. Acenaphthylene (SIM)	U	L+	µg/m3	5.0	0.086	07/23/19	PS19G23L	07/23/19	SG19G23A	GJP
‡ 3. Anthracene (SIM)	U	L+	µg/m3	5.0	0.086	07/23/19	PS19G23L	07/23/19	SG19G23A	GJP
‡ 4. Benzo(a)anthracene (SIM)	**5.8**	J+	µg/m3	2.6	0.086	07/23/19	PS19G23L	07/23/19	SG19G23A	GJP
‡ 5. Benzo(a)pyrene (SIM)	U	L+	µg/m3	5.0	0.086	07/23/19	PS19G23L	07/23/19	SG19G23A	GJP
‡ 6. Benzo(b)fluoranthene (SIM)	U	L+	µg/m3	5.0	0.086	07/23/19	PS19G23L	07/23/19	SG19G23A	GJP
‡ 7. Benzo(ghi)perylene (SIM)	U	L+	µg/m3	5.6	0.086	07/23/19	PS19G23L	07/23/19	SG19G23A	GJP
‡ 8. Benzo(k)fluoranthene (SIM)	U	L+	µg/m3	4.9	0.086	07/23/19	PS19G23L	07/23/19	SG19G23A	GJP
‡ 9. Chrysene (SIM)	U	L+	µg/m3	4.5	0.086	07/23/19	PS19G23L	07/23/19	SG19G23A	GJP
‡ 10. Dibenzo(a,h)anthracene (SIM)	U	L+	µg/m3	4.5	0.086	07/23/19	PS19G23L	07/23/19	SG19G23A	GJP
‡ 11. Fluoranthene (SIM)	U	L+	µg/m3	4.1	0.086	07/23/19	PS19G23L	07/23/19	SG19G23A	GJP
‡ 12. Fluorene (SIM)	U	L+	µg/m3	5.0	0.086	07/23/19	PS19G23L	07/23/19	SG19G23A	GJP
‡ 13. Indeno(1,2,3-cd)pyrene (SIM)	U	L+	µg/m3	4.2	0.086	07/23/19	PS19G23L	07/23/19	SG19G23A	GJP
‡ 14. 2-Methylnaphthalene (SIM)	U	L+	µg/m3	5.0	0.086	07/23/19	PS19G23L	07/23/19	SG19G23A	GJP
‡ 15. Naphthalene (SIM)	U		µg/m3	5.0	0.086	07/23/19	PS19G23L	07/23/19	SG19G23A	GJP
‡ 16. Phenanthrene (SIM)	**4.1**	V+	µg/m3	2.0	0.086	07/23/19	PS19G23L	07/23/19	SG19G23A	GJP
‡ 17. Pyrene (SIM)	U	L+	µg/m3	6.2	0.086	07/23/19	PS19G23L	07/23/19	SG19G23A	GJP

Client Identification:	**Applied Science & Technology, Inc. - Brighton**	Sample Description:	**SG-2**	Chain of Custody:	**178541**
Client Project Name:	**3-10105**	Sample No:		Collect Date:	**07/18/19**
Client Project No:	**3-10105**	Sample Matrix:	**Air**	Collect Time:	**09:40**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Polynuclear Aromatic Hydrocarbons - Modified for GC/MS **Aliquot ID: 91643-002** **Matrix: Air**
Method: NIOSH 5515 (Modified)/EPA TO-13A (Modified) **Description: SG-2**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
‡ 1. Acenaphthene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/23/19	SG19G23A	GJP
‡ 2. Acenaphthylene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/23/19	SG19G23A	GJP
‡ 3. Anthracene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/23/19	SG19G23A	GJP
‡ 4. Benzo(a)anthracene (SIM)	U	J+	µg/m3	3.0	0.084	07/23/19	PS19G23L	07/23/19	SG19G23A	GJP
‡ 5. Benzo(a)pyrene (SIM)	U	L+	µg/m3	1.4	0.084	07/23/19	PS19G23L	07/23/19	SG19G23A	GJP
‡ 6. Benzo(b)fluoranthene (SIM)	U	L+	µg/m3	1.3	0.084	07/23/19	PS19G23L	07/23/19	SG19G23A	GJP
‡ 7. Benzo(ghi)perylene (SIM)	U	L+	µg/m3	1.7	0.084	07/23/19	PS19G23L	07/23/19	SG19G23A	GJP
‡ 8. Benzo(k)fluoranthene (SIM)	U	L+	µg/m3	1.4	0.084	07/23/19	PS19G23L	07/23/19	SG19G23A	GJP
‡ 9. Chrysene (SIM)	U	L+	µg/m3	1.6	0.084	07/23/19	PS19G23L	07/23/19	SG19G23A	GJP
‡ 10. Dibenzo(a,h)anthracene (SIM)	U	L+	µg/m3	2.0	0.084	07/23/19	PS19G23L	07/23/19	SG19G23A	GJP
‡ 11. Fluoranthene (SIM)	U	L+	µg/m3	1.8	0.084	07/23/19	PS19G23L	07/23/19	SG19G23A	GJP
‡ 12. Fluorene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/23/19	SG19G23A	GJP
‡ 13. Indeno(1,2,3-cd)pyrene (SIM)	U	L+	µg/m3	2.0	0.084	07/23/19	PS19G23L	07/23/19	SG19G23A	GJP
‡ 14. 2-Methylnaphthalene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/23/19	SG19G23A	GJP
‡ 15. Naphthalene (SIM)	U		µg/m3	5.0	0.084	07/23/19	PS19G23L	07/23/19	SG19G23A	GJP
‡ 16. Phenanthrene (SIM)	U	L+	µg/m3	2.0	0.084	07/23/19	PS19G23L	07/23/19	SG19G23A	GJP
‡ 17. Pyrene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/23/19	SG19G23A	GJP

Client Identification:	**Applied Science & Technology, Inc. - Brighton**	Sample Description:	**SG-3**	Chain of Custody:	**178541**
Client Project Name:	**3-10105**	Sample No:		Collect Date:	**07/18/19**
Client Project No:	**3-10105**	Sample Matrix:	**Air**	Collect Time:	**09:42**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Polynuclear Aromatic Hydrocarbons - Modified for GC/MS **Aliquot ID: 91643-003** **Matrix: Air**
Method: NIOSH 5515 (Modified)/EPA TO-13A (Modified) **Description: SG-3**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
‡ 1. Acenaphthene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 2. Acenaphthylene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 3. Anthracene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 4. Benzo(a)anthracene (SIM)	U	J+	µg/m3	3.5	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 5. Benzo(a)pyrene (SIM)	U	L+	µg/m3	1.7	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 6. Benzo(b)fluoranthene (SIM)	U	L+	µg/m3	2.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 7. Benzo(ghi)perylene (SIM)	U	L+	µg/m3	1.8	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 8. Benzo(k)fluoranthene (SIM)	U	L+	µg/m3	1.6	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 9. Chrysene (SIM)	U	L+	µg/m3	2.1	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 10. Dibenzo(a,h)anthracene (SIM)	U	L+	µg/m3	2.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 11. Fluoranthene (SIM)	U	L+	µg/m3	2.3	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 12. Fluorene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 13. Indeno(1,2,3-cd)pyrene (SIM)	U	L+	µg/m3	2.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 14. 2-Methylnaphthalene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 15. Naphthalene (SIM)	U		µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 16. Phenanthrene (SIM)	U	L+	µg/m3	2.3	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 17. Pyrene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP

Client Identification:	**Applied Science & Technology, Inc. - Brighton**	Sample Description:	**SG-4**	Chain of Custody:	**178541**
Client Project Name:	**3-10105**	Sample No:		Collect Date:	**07/18/19**
Client Project No:	**3-10105**	Sample Matrix:	**Air**	Collect Time:	**09:44**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Polynuclear Aromatic Hydrocarbons - Modified for GC/MS **Aliquot ID: 91643-004** **Matrix: Air**
Method: NIOSH 5515 (Modified)/EPA TO-13A (Modified) **Description: SG-4**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
‡ 1. Acenaphthene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 2. Acenaphthylene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 3. Anthracene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 4. Benzo(a)anthracene (SIM)	U	J+	µg/m3	3.3	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 5. Benzo(a)pyrene (SIM)	U	L+	µg/m3	1.4	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 6. Benzo(b)fluoranthene (SIM)	U	L+	µg/m3	1.6	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 7. Benzo(ghi)perylene (SIM)	U	L+	µg/m3	1.7	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 8. Benzo(k)fluoranthene (SIM)	U	L+	µg/m3	1.6	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 9. Chrysene (SIM)	U	L+	µg/m3	1.9	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 10. Dibenzo(a,h)anthracene (SIM)	U	L+	µg/m3	2.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 11. Fluoranthene (SIM)	U	L+	µg/m3	2.4	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 12. Fluorene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 13. Indeno(1,2,3-cd)pyrene (SIM)	U	L+	µg/m3	2.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 14. 2-Methylnaphthalene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 15. Naphthalene (SIM)	U		µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 16. Phenanthrene (SIM)	U	L+	µg/m3	2.2	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 17. Pyrene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP

Client Identification:	**Applied Science & Technology, Inc. - Brighton**	Sample Description:	**SG-5**	Chain of Custody:	**178541**
Client Project Name:	**3-10105**	Sample No:		Collect Date:	**07/18/19**
Client Project No:	**3-10105**	Sample Matrix:	**Air**	Collect Time:	**09:46**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Polynuclear Aromatic Hydrocarbons - Modified for GC/MS **Aliquot ID: 91643-005** **Matrix: Air**
Method: NIOSH 5515 (Modified)/EPA TO-13A (Modified) **Description: SG-5**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
‡ 1. Acenaphthene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 2. Acenaphthylene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 3. Anthracene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 4. Benzo(a)anthracene (SIM)	U	J+	µg/m3	3.1	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 5. Benzo(a)pyrene (SIM)	U	L+	µg/m3	1.3	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 6. Benzo(b)fluoranthene (SIM)	U	L+	µg/m3	1.3	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 7. Benzo(ghi)perylene (SIM)	U	L+	µg/m3	1.4	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 8. Benzo(k)fluoranthene (SIM)	U	L+	µg/m3	1.5	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 9. Chrysene (SIM)	U	L+	µg/m3	1.5	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 10. Dibenzo(a,h)anthracene (SIM)	U	L+	µg/m3	2.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 11. Fluoranthene (SIM)	U	L+	µg/m3	2.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 12. Fluorene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 13. Indeno(1,2,3-cd)pyrene (SIM)	U	L+	µg/m3	2.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 14. 2-Methylnaphthalene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 15. Naphthalene (SIM)	U		µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 16. Phenanthrene (SIM)	U	L+	µg/m3	2.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 17. Pyrene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP

Client Identification:	**Applied Science & Technology, Inc. - Brighton**	Sample Description:	**SG-6**	Chain of Custody:	**178541**
Client Project Name:	**3-10105**	Sample No:		Collect Date:	**07/18/19**
Client Project No:	**3-10105**	Sample Matrix:	**Air**	Collect Time:	**10:55**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Polynuclear Aromatic Hydrocarbons - Modified for GC/MS **Aliquot ID: 91643-006** **Matrix: Air**
Method: NIOSH 5515 (Modified)/EPA TO-13A (Modified) **Description: SG-6**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
‡ 1. Acenaphthene (SIM)	U	L+	µg/m3	5.0	0.086	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 2. Acenaphthylene (SIM)	U	L+	µg/m3	5.0	0.086	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 3. Anthracene (SIM)	U	L+	µg/m3	5.0	0.086	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 4. Benzo(a)anthracene (SIM)	U	J+	µg/m3	3.0	0.086	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 5. Benzo(a)pyrene (SIM)	U	L+	µg/m3	1.3	0.086	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 6. Benzo(b)fluoranthene (SIM)	U	L+	µg/m3	1.6	0.086	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 7. Benzo(ghi)perylene (SIM)	U	L+	µg/m3	1.3	0.086	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 8. Benzo(k)fluoranthene (SIM)	U	L+	µg/m3	1.6	0.086	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 9. Chrysene (SIM)	U	L+	µg/m3	1.7	0.086	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 10. Dibenzo(a,h)anthracene (SIM)	U	L+	µg/m3	2.0	0.086	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 11. Fluoranthene (SIM)	U	L+	µg/m3	2.0	0.086	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 12. Fluorene (SIM)	U	L+	µg/m3	5.0	0.086	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 13. Indeno(1,2,3-cd)pyrene (SIM)	U	L+	µg/m3	2.0	0.086	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 14. 2-Methylnaphthalene (SIM)	U	L+	µg/m3	5.0	0.086	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 15. Naphthalene (SIM)	U		µg/m3	5.0	0.086	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 16. Phenanthrene (SIM)	U	L+	µg/m3	2.0	0.086	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 17. Pyrene (SIM)	U	L+	µg/m3	5.0	0.086	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP

Client Identification:	**Applied Science & Technology, Inc. - Brighton**	Sample Description:	**SG-7**	Chain of Custody:	**178541**
Client Project Name:	**3-10105**	Sample No:		Collect Date:	**07/18/19**
Client Project No:	**3-10105**	Sample Matrix:	**Air**	Collect Time:	**10:57**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Polynuclear Aromatic Hydrocarbons - Modified for GC/MS **Aliquot ID: 91643-007** **Matrix: Air**
Method: NIOSH 5515 (Modified)/EPA TO-13A (Modified) **Description: SG-7**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
‡ 1. Acenaphthene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 2. Acenaphthylene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 3. Anthracene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 4. Benzo(a)anthracene (SIM)	U	J+	µg/m3	3.1	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 5. Benzo(a)pyrene (SIM)	U	L+	µg/m3	1.4	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 6. Benzo(b)fluoranthene (SIM)	U	L+	µg/m3	1.6	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 7. Benzo(ghi)perylene (SIM)	U	L+	µg/m3	1.5	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 8. Benzo(k)fluoranthene (SIM)	U	L+	µg/m3	1.3	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 9. Chrysene (SIM)	U	L+	µg/m3	1.7	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 10. Dibenzo(a,h)anthracene (SIM)	U	L+	µg/m3	2.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 11. Fluoranthene (SIM)	U	L+	µg/m3	2.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 12. Fluorene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 13. Indeno(1,2,3-cd)pyrene (SIM)	U	L+	µg/m3	2.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 14. 2-Methylnaphthalene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 15. Naphthalene (SIM)	U		µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 16. Phenanthrene (SIM)	U	L+	µg/m3	2.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 17. Pyrene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP

Client Identification:	**Applied Science & Technology, Inc. - Brighton**	Sample Description:	**SG-8**	Chain of Custody:	**178541**
Client Project Name:	**3-10105**	Sample No:		Collect Date:	**07/18/19**
Client Project No:	**3-10105**	Sample Matrix:	**Air**	Collect Time:	**10:59**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Polynuclear Aromatic Hydrocarbons - Modified for GC/MS **Aliquot ID: 91643-008** **Matrix: Air**
Method: NIOSH 5515 (Modified)/EPA TO-13A (Modified) **Description: SG-8**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
‡ 1. Acenaphthene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 2. Acenaphthylene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 3. Anthracene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 4. Benzo(a)anthracene (SIM)	U	J+	µg/m3	3.1	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 5. Benzo(a)pyrene (SIM)	U	L+	µg/m3	1.3	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 6. Benzo(b)fluoranthene (SIM)	U	L+	µg/m3	1.5	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 7. Benzo(ghi)perylene (SIM)	U	L+	µg/m3	1.4	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 8. Benzo(k)fluoranthene (SIM)	U	L+	µg/m3	1.4	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 9. Chrysene (SIM)	U	L+	µg/m3	1.7	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 10. Dibenzo(a,h)anthracene (SIM)	U	L+	µg/m3	2.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 11. Fluoranthene (SIM)	U	L+	µg/m3	1.9	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 12. Fluorene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 13. Indeno(1,2,3-cd)pyrene (SIM)	U	L+	µg/m3	2.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 14. 2-Methylnaphthalene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 15. Naphthalene (SIM)	U		µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 16. Phenanthrene (SIM)	U	L+	µg/m3	2.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 17. Pyrene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP

Client Identification:	**Applied Science & Technology, Inc. - Brighton**	Sample Description:	**SG-9**	Chain of Custody:	**178541**
Client Project Name:	**3-10105**	Sample No:		Collect Date:	**07/18/19**
Client Project No:	**3-10105**	Sample Matrix:	**Air**	Collect Time:	**11:00**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Polynuclear Aromatic Hydrocarbons - Modified for GC/MS **Aliquot ID: 91643-009** **Matrix: Air**
Method: NIOSH 5515 (Modified)/EPA TO-13A (Modified) **Description: SG-9**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
‡ 1. Acenaphthene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 2. Acenaphthylene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 3. Anthracene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 4. Benzo(a)anthracene (SIM)	U	J+	µg/m3	2.7	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 5. Benzo(a)pyrene (SIM)	U	L+	µg/m3	1.3	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 6. Benzo(b)fluoranthene (SIM)	U	L+	µg/m3	1.3	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 7. Benzo(ghi)perylene (SIM)	U	L+	µg/m3	1.3	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 8. Benzo(k)fluoranthene (SIM)	U	L+	µg/m3	1.3	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 9. Chrysene (SIM)	U	L+	µg/m3	1.3	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 10. Dibenzo(a,h)anthracene (SIM)	U	L+	µg/m3	2.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 11. Fluoranthene (SIM)	U	L+	µg/m3	1.6	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 12. Fluorene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 13. Indeno(1,2,3-cd)pyrene (SIM)	U	L+	µg/m3	2.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 14. 2-Methylnaphthalene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 15. Naphthalene (SIM)	U		µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 16. Phenanthrene (SIM)	U	L+	µg/m3	2.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 17. Pyrene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP

Client Identification:	**Applied Science & Technology, Inc. - Brighton**	Sample Description:	**SG-10**	Chain of Custody:	**178541**
Client Project Name:	**3-10105**	Sample No:		Collect Date:	**07/18/19**
Client Project No:	**3-10105**	Sample Matrix:	**Air**	Collect Time:	**11:02**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Polynuclear Aromatic Hydrocarbons - Modified for GC/MS **Aliquot ID: 91643-010** **Matrix: Air**
Method: NIOSH 5515 (Modified)/EPA TO-13A (Modified) **Description: SG-10**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
‡ 1. Acenaphthene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 2. Acenaphthylene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 3. Anthracene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 4. Benzo(a)anthracene (SIM)	U	J+	µg/m3	2.5	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 5. Benzo(a)pyrene (SIM)	U	L+	µg/m3	1.3	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 6. Benzo(b)fluoranthene (SIM)	U	L+	µg/m3	1.3	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 7. Benzo(ghi)perylene (SIM)	U	L+	µg/m3	1.3	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 8. Benzo(k)fluoranthene (SIM)	U	L+	µg/m3	1.3	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 9. Chrysene (SIM)	U	L+	µg/m3	1.3	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 10. Dibenzo(a,h)anthracene (SIM)	U	L+	µg/m3	2.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 11. Fluoranthene (SIM)	U	L+	µg/m3	1.6	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 12. Fluorene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 13. Indeno(1,2,3-cd)pyrene (SIM)	U	L+	µg/m3	2.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 14. 2-Methylnaphthalene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 15. Naphthalene (SIM)	U		µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 16. Phenanthrene (SIM)	U	L+	µg/m3	2.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 17. Pyrene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP

Client Identification:	**Applied Science & Technology, Inc. - Brighton**	Sample Description:	**Dup-SG**	Chain of Custody:	**178542**
Client Project Name:	**3-10105**	Sample No:		Collect Date:	**07/18/19**
Client Project No:	**3-10105**	Sample Matrix:	**Air**	Collect Time:	**12:03**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

Polynuclear Aromatic Hydrocarbons - Modified for GC/MS **Aliquot ID: 91643-011** **Matrix: Air**
Method: NIOSH 5515 (Modified)/EPA TO-13A (Modified) **Description: Dup-SG**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
‡ 1. Acenaphthene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 2. Acenaphthylene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 3. Anthracene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 4. Benzo(a)anthracene (SIM)	U	J+	µg/m3	2.6	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 5. Benzo(a)pyrene (SIM)	U	L+	µg/m3	1.3	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 6. Benzo(b)fluoranthene (SIM)	U	L+	µg/m3	1.3	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 7. Benzo(ghi)perylene (SIM)	U	L+	µg/m3	1.3	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 8. Benzo(k)fluoranthene (SIM)	U	L+	µg/m3	1.3	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 9. Chrysene (SIM)	U	L+	µg/m3	1.3	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 10. Dibenzo(a,h)anthracene (SIM)	U	L+	µg/m3	2.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 11. Fluoranthene (SIM)	U	L+	µg/m3	1.3	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 12. Fluorene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 13. Indeno(1,2,3-cd)pyrene (SIM)	U	L+	µg/m3	2.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 14. 2-Methylnaphthalene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 15. Naphthalene (SIM)	U		µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 16. Phenanthrene (SIM)	U	L+	µg/m3	2.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP
‡ 17. Pyrene (SIM)	U	L+	µg/m3	5.0	0.084	07/23/19	PS19G23L	07/24/19	SG19G23A	GJP

Definitions/ Qualifiers:

A: Spike recovery or precision unusable due to dilution.
B: The analyte was detected in the associated method blank.
E: The analyte was detected at a concentration greater than the calibration range, therefore the result is estimated.
J: The concentration is an estimated value.
M: Modified Method
U: The analyte was not detected at or above the reporting limit.
X: Matrix Interference has resulted in a raised reporting limit or distorted result.
W: Results reported on a wet-weight basis.
***:** Value reported is outside QC limits

Exception Summary:

J+ : The result is an estimated quantity, but the result may be biased high.
L+ : Recovery in the associated laboratory sample (LCS) exceeds the upper control limit. Results may be biased high.
V+ : Recovery in the associated continuing calibration verification sample (CCV) exceeds the upper control limit. Results may be biased high.

Analysis Locations:

All analyses performed in Holt.

NELAP ACCREDITED TNI LABORATORY

Accreditation Number(s):

T104704518-19-8 (TX)

Fibertec environmental services

Analytical Laboratory
1914 Holloway Drive
Holt, MI 48842
Phone: 517 699 0345
Fax: 517 699 0388
email: lab@fibertec.us

8660 S. Mackinaw Trail
Cadillac, MI 49601
Phone: 231 775 8368
Fax: 231 775 8584

Industrial Hygiene Services, Inc.
1914 Holloway Drive
Holt, MI 48842
Phone: 517 699 0345
Fax: 517 699 0382
email: asbestos@fibertecihs.com

Geoprobe
11766 E. Grand River Rd.
Brighton, MI 48116
Phone: 810 220 3300
Fax: 810 220 3311

Chain of Custody # **178541**
PAGE 1 of 2

Client Name: ASTI Environmental
Contact Person: Brian Kubersk i
Project Name/ Number: 3-10105
Email distribution list: bkubersk i@asti-env.com mdykla@asti-env.com
Quote#
Purchase Order#

Date	Time	Sample #	Client Sample Descriptor	MATRIX (SEE RIGHT CORNER FOR CODE)	# OF CONTAINERS	PARAMETERS: PNA's	HOLD SAMPLE
7-18-19	9:38		SG-1	A	1	X	
	9:40		SG-2				
	9:42		SG-3				
	9:44		SG-4				
	9:46		SG-5				
	10 55		SG-6				
	1057		SG-7				
	1059		SG-8				
	1100		SG-9				
	1102		SG-10				

Matrix Code: S Soil; A Air; O Oil; P Wipe; GW Ground Water; SW Surface Water; WW Waste Water; X Other: Specify

Deliverables: Level 2; Level 3; Level 4; EDD

Remarks:

RCVD BY LAB
JUL 19 2019
Initial: DG

Comments:

Sampled/Relinquished By: Mitchel Dykla	Date/ Time 7-18-19 14:14	Received By: Brian Scott
Relinquished By: Brian Scott	Date/ Time	Received By: [illegible] 7/19/19 12:50
Relinquished By: [illegible]	Date/ Time 7/19/19 2:06	Received By Laboratory: [illegible]

Turnaround Time ALL RESULTS WILL BE SENT BY THE END OF THE BUSINESS DAY

_____1 bus. day _____2 bus. days X 3 bus. days _____4 bus. days

_____5-7 bus. days (standard) Other (specify time/date requirement): _____

LAB USE ONLY

Fibertec project number: 91643
Temperature upon receipt at Lab: 4.0 °C

RCVD ON ICE

Please see back for terms and conditions

Fibertec environmental services

Analytical Laboratory
1914 Holloway Drive
Holt, MI 48842
Phone: 517 699 0345
Fax: 517 699 0388
email: lab@fibertec.us

8660 S. Mackinaw Trail
Cadillac, MI 49601
Phone: 231 775 8368
Fax: 231 775 8584

Industrial Hygiene Services, Inc.
1914 Holloway Drive
Holt, MI 48842
Phone: 517 699 0345
Fax: 517 699 0382
email: asbestos@fibertecihs.com

Geoprobe
11766 E. Grand River Rd.
Brighton, MI 48116
Phone: 810 220 3300
Fax: 810 220 3311

Chain of Custody # 178542
PAGE 2 of 2

Client Name: ASTI Environmental
Contact Person: Brian Kuberski
Project Name/ Number: 3-10105
Email distribution list: bKuberski@asti-env.com mdykla@asti-env.com
Quote#
Purchase Order#

Date	Time	Sample #	Client Sample Descriptor	MATRIX (SEE RIGHT CORNER FOR CODE)	# OF CONTAINERS	PARAMETERS: PNA's	HOLD SAMPLE
7-18-19	12:03		Dup-SG	A	1	X	

Matrix Code: S Soil; A Air; O Oil; P Wipe; GW Ground Water; SW Surface Water; WW Waste Water; X Other: Specify

Deliverables: Level 2; Level 3; Level 4; EDD

Remarks:

Comments:

Sampled/Relinquished By: Mitchel Dyble	Date/ Time 7-18-19 14:14	Received By: Russ Scott
Relinquished By: Russ Scott	Date/ Time	Received By: Mike Shade 7/19/19 12:50
Relinquished By: Mike Shade	Date/ Time 7/19/19 2:06	Received By Laboratory:

Turnaround Time ALL RESULTS WILL BE SENT BY THE END OF THE BUSINESS DAY

_____1 bus. day _____2 bus. days X 3 bus. days _____4 bus. days

_____5-7 bus. days (standard) Other (specify time/date requirement): _____

LAB USE ONLY

Fibertec project number: 91643

Temperature upon receipt at Lab: 4.0°C

RCV'D ON ICE

Please see back for terms and conditions

Attachment G

Soil Gas Sampling Forms

Soil Gas Sampling Form

Sample ID: SG-1

Sampler Name: Mitchel DyKla

Project Number: 3-10105 Date: 7-18-19

Project Name: 7850 E. Jefferson, Detroit

Location: 7850 E. Jefferson Ave, Wayne County, Detroit, MI

Weather Conditions: 83° Sunny Rain Within 24 Hours No

Slab Thickness (Inches): — (for vapor pin installation) _____

Soil Gas Screen Depth: 4.5' - 5' (for soil gas well installation)

Tubing Diameter .17"ID x .25"OD Tubing type polyethylene

Tracer Gas Leak Test

Purge Start Time: 9:17 Purge Rate 150-200 mL/min

Collect after purge before helium injection

Interior He reading <1 Exterior He Reading <1

Helium Injection Time 9:19

Interior He reading >1 Exterior He Reading <1

Sample Collection Information

% Oxygen — % CO_2 —

% Methane —

Regulator ID: —

Canister ID: —

Sampling Start Time: 9:38

Initial BottleVac Pressure ("Hg): —

Sampling End Time: 10:38

Final BottleVac Pressure ("Hg): —

Notes: PNA Sampling ; Pump: LASK-1

Soil Gas Sampling Form

Sample ID: SG-2

Sampler Name: Mitchel DyKla

Project Number: 3-10105 Date: 7-18-19

Project Name: 7850 E. Jefferson, Detroit

Location: 7850 E. Jefferson Ave, Wayne County, Detroit, MI

Weather Conditions: 83° Sunny Rain Within 24 Hours No

Slab Thickness (Inches): — (for vapor pin installation) _____

Soil Gas Screen Depth: 4.5' - 5' (for soil gas well installation)

Tubing Diameter .17"ID x .25"OD Tubing type polyethylene

Tracer Gas Leak Test

Purge Start Time: 9:23 Purge Rate 150-200 ml/min

Collect after purge before helium injection

Interior He reading <1 Exterior He Reading <1

Helium Injection Time 9:25

Interior He reading >1 Exterior He Reading <1

Sample Collection Information

% Oxygen — % CO_2 —

% Methane —

Regulator ID: —

Canister ID: —

Sampling Start Time: 9:40

Initial BottleVac Pressure ("Hg): —

Sampling End Time: 10:40

Final BottleVac Pressure ("Hg): —

Notes: PNA Sampling ; pump: LASK-2

Soil Gas Sampling Form

Sample ID: SG-3

Sampler Name: Mitchel DyKla

Project Number: 3-10105 Date: 7-18-19

Project Name: 7850 E. Jefferson, Detroit

Location: 7850 E. Jefferson Ave, Wayne County, Detroit, MI

Weather Conditions: 83° Sunny Rain Within 24 Hours No

Slab Thickness (Inches): — (for vapor pin installation) _____

Soil Gas Screen Depth: 4.5' - 5' (for soil gas well installation)

Tubing Diameter .17"ID x .25"OD Tubing type polyethylene

Tracer Gas Leak Test

Purge Start Time: 9:27 Purge Rate 150-200 mL/min

Collect after purge before helium injection

Interior He reading <1 Exterior He Reading <1

Helium Injection Time 9:29

Interior He reading >1 Exterior He Reading <1

Sample Collection Information

% Oxygen — % CO_2 —

% Methane —

Regulator ID: —

Canister ID: —

Sampling Start Time: 9:42

Initial BottleVac Pressure ("Hg): —

Sampling End Time: 10:42

Final BottleVac Pressure ("Hg): —

Notes: PNA Sampling ; pump: LASK-5

Soil Gas Sampling Form

Sample ID: SG-4

Sampler Name: Mitchel DyKla

Project Number: 3-10105 Date: 7-18-19

Project Name: 7850 E Jefferson, Detroit

Location: 7850 E. Jefferson Ave, Wayne County, Detroit, MI

Weather Conditions: 83° Sunny Rain Within 24 Hours No

Slab Thickness (Inches): — (for vapor pin installation) _____

Soil Gas Screen Depth: 4.5' - 5' (for soil gas well installation)

Tubing Diameter .17"ID x .25"OD Tubing type polyethylene

Tracer Gas Leak Test

Purge Start Time: 9:32 Purge Rate 150-200 mL/min

Collect after purge before helium injection

Interior He reading <1 Exterior He Reading <1

Helium Injection Time 9:34

Interior He reading >1 Exterior He Reading <1

Sample Collection Information

% Oxygen — % CO_2 —

% Methane —

Regulator ID: —

Canister ID: —

Sampling Start Time: 9:44

Initial BottleVac Pressure ("Hg): —

Sampling End Time: 10:44

Final BottleVac Pressure ("Hg): —

Notes: PNA Sampling ; pump: LASK-7

Soil Gas Sampling Form

Sample ID: SG-5

Sampler Name: Mitchel DyKla

Project Number: 3-10105 Date: 7-18-19

Project Name: 7850 E. Jefferson, Detroit

Location: 7850 E. Jefferson Ave, Wayne County, Detroit, MI

Weather Conditions: 83° Sunny Rain Within 24 Hours No

Slab Thickness (Inches): — (for vapor pin installation) _____

Soil Gas Screen Depth: 4.5' - 5' (for soil gas well installation)

Tubing Diameter .17"ID x .25"OD Tubing type polyethylene

Tracer Gas Leak Test

Purge Start Time: 9:37 Purge Rate 150-200 mL/min

Collect after purge before helium injection

Interior He reading <1 Exterior He Reading <1

Helium Injection Time 9:39

Interior He reading >1 Exterior He Reading <1

Sample Collection Information

% Oxygen — % CO_2 —

% Methane —

Regulator ID: —

Canister ID: —

Sampling Start Time: 9:46

Initial BottleVac Pressure ("Hg): —

Sampling End Time: 10:46

Final BottleVac Pressure ("Hg): —

Notes: PNA Sampling ; pump: LAS K-8

Soil Gas Sampling Form

Sample ID: SG-6

Sampler Name: Mitchel DyKla

Project Number: 3-10105 Date: 7-18-19

Project Name: 7850 E. Jefferson, Detroit

Location: 7850 E. Jefferson Ave, Wayne County, Detroit, MI

Weather Conditions: 83° Sunny Rain Within 24 Hours No

Slab Thickness (Inches): — (for vapor pin installation) _____

Soil Gas Screen Depth: 4.5' - 5' (for soil gas well installation)

Tubing Diameter .17"ID x .25"OD Tubing type polyethylene

Tracer Gas Leak Test

Purge Start Time: 9:50 Purge Rate 150-200 mL/min

Collect after purge before helium injection

Interior He reading <1 Exterior He Reading <1

Helium Injection Time 9:52

Interior He reading >1 Exterior He Reading <1

Sample Collection Information

% Oxygen — % CO_2 —

% Methane —

Regulator ID: —

Canister ID: —

Sampling Start Time: 10:55

Initial BottleVac Pressure ("Hg): —

Sampling End Time: 11:55

Final BottleVac Pressure ("Hg): —

Notes: PNA Sampling ; pump: LASK-1

Soil Gas Sampling Form

Sample ID: SG-7

Sampler Name: Mitchel DyKla

Project Number: 3-10105 Date: 7-18-19

Project Name: 7850 E. Jefferson, Detroit

Location: 7850 E. Jefferson Ave, Wayne County, Detroit, MI

Weather Conditions: 83° Sunny Rain Within 24 Hours No

Slab Thickness (Inches): — (for vapor pin installation) _____

Soil Gas Screen Depth: 4.5' - 5' (for soil gas well installation)

Tubing Diameter .17"ID x .25"OD Tubing type polyethylene

Tracer Gas Leak Test

Purge Start Time: 9:54 Purge Rate 150-200 ml/min

Collect after purge before helium injection

Interior He reading <1 Exterior He Reading <1

Helium Injection Time 9:66

Interior He reading >1 Exterior He Reading <1

Sample Collection Information

% Oxygen — % CO_2 —

% Methane —

Regulator ID: —

Canister ID: —

Sampling Start Time: 10:57

Initial BottleVac Pressure ("Hg): —

Sampling End Time: 11:57

Final BottleVac Pressure ("Hg): —

Notes: PNA Sampling ; pump: LASK-7

Soil Gas Sampling Form

Sample ID: SG-8

Sampler Name: Mitchel DyKla

Project Number: 3-10105 Date: 7-18-19

Project Name: 7850 E. Jefferson, Detroit

Location: 7850 E. Jefferson Ave, Wayne County, Detroit, MI

Weather Conditions: 83° Sunny Rain Within 24 Hours No

Slab Thickness (Inches): — (for vapor pin installation) _____

Soil Gas Screen Depth: 4.5' - 5' (for soil gas well installation)

Tubing Diameter .17"ID x .25"OD Tubing type polyethylene

Tracer Gas Leak Test

Purge Start Time: 9:58 Purge Rate 150-200 ml/min

Collect after purge before helium injection

Interior He reading <1 Exterior He Reading <1

Helium Injection Time 10:00

Interior He reading >1 Exterior He Reading <1

Sample Collection Information

% Oxygen — % CO_2 —

% Methane —

Regulator ID: —

Canister ID: —

Sampling Start Time: 10:59

Initial BottleVac Pressure ("Hg): —

Sampling End Time: 11:59

Final BottleVac Pressure ("Hg): —

Notes: PNA Sampling ; pump: LASK-5

Soil Gas Sampling Form

Sample ID: SG-9

Sampler Name: Mitchel DyKla

Project Number: 3-10105 Date: 7-18-19

Project Name: 7850 E Jefferson, Detroit

Location: 7850 E. Jefferson Ave, Wayne County, Detroit, MI

Weather Conditions: 83° Sunny Rain Within 24 Hours No

Slab Thickness (Inches): — (for vapor pin installation) _____

Soil Gas Screen Depth: 4.5' - 5' (for soil gas well installation)

Tubing Diameter .17"ID x .25"OD Tubing type polyethylene

Tracer Gas Leak Test

Purge Start Time: 10:02 Purge Rate 150-200 mL/min

Collect after purge before helium injection

Interior He reading <1 Exterior He Reading <1

Helium Injection Time 10:04

Interior He reading >1 Exterior He Reading <1

Sample Collection Information

% Oxygen — % CO_2 —

% Methane —

Regulator ID: —

Canister ID: —

Sampling Start Time: 11:00

Initial BottleVac Pressure ("Hg): —

Sampling End Time: 12:00

Final BottleVac Pressure ("Hg): —

Notes: PNA Sampling ; pump: LAS K-2

Soil Gas Sampling Form

Sample ID: SG-10

Sampler Name: Mitchel DyKla

Project Number: 3-10105 Date: 7-18-19

Project Name: 7850 E. Jefferson, Detroit

Location: 7850 E. Jefferson Ave, Wayne County, Detroit, MI

Weather Conditions: 83° Sunny Rain Within 24 Hours No

Slab Thickness (Inches): — (for vapor pin installation) _____

Soil Gas Screen Depth: 4.5' - 5' (for soil gas well installation)

Tubing Diameter .17"ID x .25"OD Tubing type polyethylene

Tracer Gas Leak Test

Purge Start Time: 10:07 Purge Rate 150-200 mL/min

Collect after purge before helium injection

Interior He reading <1 Exterior He Reading <1

Helium Injection Time 10:09

Interior He reading >1 Exterior He Reading <1

Sample Collection Information

% Oxygen — % CO_2 —

% Methane —

Regulator ID: —

Canister ID: —

Sampling Start Time: 11:02

Initial BottleVac Pressure ("Hg): —

Sampling End Time: 12:02

Final BottleVac Pressure ("Hg): —

Notes: PNA Sampling ; pump: LASK-8

Soil Gas Sampling Form

Sample ID: Dup-SG

Sampler Name: Mitchel Dykla

Project Number: 3-10105 Date: 7-18-19

Project Name: 7850 E. Jefferson, Detroit

Location: 7850 E. Jefferson Ave, Wayne County, Detroit, MI

Weather Conditions: 83° Sunny Rain Within 24 Hours No

Slab Thickness (Inches): _____ (for vapor pin installation) _____

Soil Gas Screen Depth: 4.5'-5' (for soil gas well installation)

Tubing Diameter .17ID x .25OD Tubing type Polyethylene

Tracer Gas Leak Test

Purge Start Time: 10:07 Purge Rate 150-200 mL/min

Collect after purge before helium injection

Interior He reading <1 Exterior He Reading <1

Helium Injection Time 10:09

Interior He reading >1 Exterior He Reading <1

Sample Collection Information

% Oxygen — % CO_2 —

% Methane —

Regulator ID: —

Canister ID: —

Sampling Start Time: 12:03

Initial BottleVac Pressure ("Hg): —

Sampling End Time: 13:03

Final BottleVac Pressure ("Hg): —

Notes: PNA Sampling; pump: LASK-8 [SG-10]

Attachment H

Environmental Lease Agreement

LEASE AGREEMENT ADDENDUM FOR
PROPERTY USE RESTRICTIONS

This Lease Agreement Addendum is entered into on **[*lease_start_date*]** between 7850 Limited Dividend Housing Authority, LLC ("Lessor") and ***[head of household_name*]** ("Lessee") and ***[co-head, if applicable]*** who will be residing in Apartment ***[apt_nbr]*** at ***[address_line1, address_line2, city, state, zip]*** (the "Leased Premises") pursuant to that certain lease agreement entered into between Lessor and Lessee on this date and into which this Lease Agreement Addendum is incorporated (the "Lease Agreement").

Due to the limited presence of hazardous substances in soil present at the Leased Premises from prior use of the property, the Leased Premises are considered contaminated under Michigan's environmental laws and it is necessary for residents to know and adhere to certain Property use restrictions.

Direct Contact with Soil

The contaminated soils are located from 18 inches to 10 feet below ground surface and do not represent an unacceptable risk to persons using the parking lot, sidewalks, or landscaped grounds on the Property for normal activities. Prohibited activities include the planting of flowers and/or vegetables, installation of satellite dishes, digging below an existing surface cover to play in the dirt, digging for treasures or artifacts and/or any activity that disrupts or extends below the current landscape surface of the property.

Any contaminated soils that may exist on the Property have been covered with barriers to prevent exposure, that include concrete and or asphalt and or a minimum of 18 – 24 inches of clean soil overlying a demarcation layer (orange fabric). Resident, its agents, guests, or invitees, shall not disturb, excavate, or penetrate lawn and landscaped areas or any exposure barrier on the Property.

If a resident should observe an area of exposed soil or orange fabric, he or she should avoid contact with the area and immediately contact the site manager so that repairs can be made.

Volatilization to Indoor Air

Contaminants have been identified in soils on the Property that are considered "volatile" and at concentrations that if allowed to enter into the indoor air space may have an adverse effect on the health of building residents. The potential risk from these contaminants is being prevented by a system (sub-slab depressurization systems) installed below the slab of the building. The system includes PVC piping that is labeled "Caution – Vapor Mitigation Pipe - May contain hazardous compounds" and must not be disturbed. If a resident should observe damage to this piping, he or she should immediately contact the site manager. The mitigation system also includes an alarm on the first floor of the building. If an alarm for the system is heard or a red, blue, or yellow light is

flashing, the tenant is asked to immediately contact site management or maintenance at_____.

RESIDENT(S):

_____ Signed Date: _____ (Resident)

_____ Signed Date: _____ (Resident)

LESSOR:

By:_____ Signed Date: _____

Attachment I

Contaminated Soil notification Form

CONTAMINATED SOIL NOTIFICATION FORM

7850 E Jefferson, Detroit, Wayne County

DATE: _____

To Whom It May Concern

This notice serves to advise that certain compounds exist in soil present at the above-referenced property at concentrations that can pose an unacceptable exposure from direct contact with these soils. The compounds include the metals arsenic and lead and one or more of compounds known as polynuclear aromatic hydrocarbons (PNAs). Due to the limited testing of soils over the entire site, it is presumed these compounds are present at concentrations in excess of the acceptable concentrations for both residential and nonresidential use. However, these concentrations do not pose a long-term threat to utility workers or landscape personnel, whose exposure would be of short duration in comparison to the assumptions used to calculate the nonresidential exposure risk.

The compounds have been identified and are presumed to be in soils at varying depths between the surface and 10 feet below ground surface (bgs). Contractors and utility personnel, performing activities at the property where they are likely to or will come in contact with the soil at the Subject Property are advised to take proper safety measures. Any soil or groundwater removed from the Subject Property must be characterized for proper disposal at a licensed facility, which must be documented.

Please sign below to acknowledge that you have been notified of the presence of contaminated soils at the property, advised to undertake the actions necessary to avoid contact with the soils, and that you understand and will comply with the above conditions regarding proper characterization and disposal of soil and or groundwater from the property.

_____

My Signature in Acknowledgement of the Above

_____

Please Print Your Name

_____

Employer Name, Address and Phone Number

_____

_____

Attachment J

Exposure Barrier Operation, Maintenance, and Monitoring Plan

OPERATIONS, MAINTENANCE AND MONITORING PLAN (OM&M)
7850 E. JEFFERSON AVENUE
DETROIT, MI

The exposure barriers identified below are designed to prevent contact with the near surface soils present at the property that contain certain hazardous substances at concentrations that do or could pose an unacceptable exposure if residents of the property were to come in direct contact with these soils.

Exposure Barriers

The exposure barriers (i.e., protective cover) at the property consist of the following:

- Existing building floor slabs,
- Asphalt paved drive/parking areas, and concrete walkways. Schematics of the concrete and asphalt barriers are attached to this OM&M plan.
- Landscaped areas where the exposure barrier is comprised of:
  - a demarcation barrier (TerraTex N04 orange fabric),
  - underlying a 18" clean soil layer consisting of sand, topsoil, and
  - a several inches of large nugget size mulch. A schematic of the landscape soil barrier is attached to attached to this OM&M plan.
- Lawn areas where the exposure barrier is comprised of:
  - a demarcation barrier (TerraTex N04 orange fabric),
  - underlying a 18" clean soil layer consisting of sand, topsoil, and
  - a vegetative cover (grass). A schematic of the green space soil barrier is attached to attached to this OM&M plan.
- Playscape area where the exposure barrier is comprised of:
  - demarcation barrier (orange fabric),
  - underlying 24 inches of clean sand and
  - four inches of rubber mulch at the surface.

  A schematic of the playscape barrier is attached to this OM&M plan.

Inspections

The exposure barriers are expected to be maintained in as close to "as constructed" condition as possible. To assure they are, certain inspections and maintenance activities must be conducted and are to be followed.

Regular visual inspections of the exposure barriers are performed by the Operator's representative designated as the Responsible Person and observations are recorded and kept on file. Each inspection must include a walkthrough of the entire site to document the following:

- Condition of all surface covers;
- Whether repairs are needed to ensure that direct contact with underlying soils does not occur; and,
- Actions required to repair or replace the surface cover, including the timeline for repair and/or replacement following identification of an issue.

Inspection Schedule

The barriers will be inspected on the following basis:

- Building Slabs shall be inspected and documented monthly.
- Asphalt paved areas and concrete walks shall be inspected and documented monthly.
- Landscaped areas shall be inspected and documented monthly.
- Playscape area shall be inspected and documented weekly

Each area is to be inspected for the following conditions with the results recorded on the inspection log:

- *Paved surface cover areas*: Inspect and record the condition of the paved surface cover areas, including the existing building slab, concrete/asphalt paved driveways and parking areas, and concrete walkways (sidewalks).

  These areas are to be inspected by maintenance personnel monthly or as a result of a tenant complaint. Damaged pavement with the potential for sub-grade soil exposure is to be repaired or replaced by a paving contractor as necessary to prevent direct contact exposure with the sub-grade soil. If repairs cannot be completed within one week, the area will be delineated with snow fencing and caution tape until repairs are complete.

- Lawn areas are to be inspected and documented by maintenance personnel a monthly. Any observed bare spots, holes, etc. noted as part of the daily maintenance and property inspection activities will be assessed to determine if repair is necessary. Inspection findings will be documented on an Inspection Form.
  - Any exposed soils greater than 2” in depth due to erosion or wear are be repaired within one week.
  - Any missing or sparse vegetative cover are to be repaired within one week.
  - If the weather during the summer months includes a prolonged period of below average rainfall or the grass in the green space areas is observed to be distressed, the lawn areas will be watered with sprinklers or other means operated by maintenance staff or landscape contractors.

- Landscaped areas are to be inspected and documented by maintenance personnel documented monthly. Any observed bare spots, holes, etc. noted as part of the daily maintenance and property inspection activities will be assessed to determine if repair is necessary. Inspection findings will be documented on an Inspection Form.
  - Any exposed soils greater than 2” in depth due to erosion or wear are be repaired within one week.
  - Any areas where mulch is observed to be sparse or missing should be re-mulched within one week.
  - If the weather during the summer months includes a prolonged period of below average rainfall or the vegetation in the landscaped areas is observed to be distressed, the vegetation will be watered with sprinklers or other means operated by maintenance staff or landscape contractors.

- The playscape area is to be inspected by maintenance on a weekly basis and documentation may be done monthly, as long as no breaches in the barrier are observed. Inspection findings will be documented on an Inspection Form.
  - Any areas of reduced mulch near equipment shall be repaired within one week.
  - Indications of compacted mulch shall be repaired within one week.

- Indications of compaction or wear of soil under mulch shall be repaired within one week.
- Indications of erosion of mulch or soil under the mulch from water shall be repaired within one week.

If repairs cannot be completed within the specified time for either the landscape, lawn or playscape area, the area will be cordoned off with snow fencing and caution tape until repairs are complete.

The services of landscape and paving contractors will be retained to effect major repairs as necessary. Minor repairs can be completed by maintenance personnel at the discretion of management.

All repairs must be documented with records kept in a maintenance notebook kept on site, with copies maintained by the management company.

Prohibited Activities

Certain activities will be prohibited in the barrier areas. Tenants shall not plant or disturb the lawn and landscaped areas. Notification of prohibited activities shall be supplied to tenants at time of the lease. Any plantings completed by site personal or landscaping companies shall be monitored to verify that the demarcation barrier was not breached. No plantings of gardens shall be completed on the Subject Property.

Operations and Maintenance

Excavation required for maintenance activities (e.g., utility repair) must only be performed after notice to, and under the oversight of, the Responsible Person. Appropriate notification procedures, dust control, soil management protocols and track out control procedures, etc., must be followed. The replacement materials for the maintenance activities shall be similar to the material removed or more rigorous.

Due to the structural nature of the building features, it is not anticipated that breaches of these exposure barriers will occur. However, exposure barriers consisting of paved and non-paved areas require routine maintenance, repair, and inspections. In the event of a significant breach, expedited isolation and repair procedures must be implemented. This must be done within one week for both paved area repairs and for non-paved area repairs.

Pavement maintenance is performed routinely to keep pavement, under normal conditions of traffic and weather, as nearly as possible in its as-constructed condition. Cracks, holes, depressions, and other types of distress are the visible evidence of pavement wear. Early detection and repair of minor defects is performed to minimize more significant deterioration. Repairs may include rubberized asphalt. Seasonal inspection and cleaning of drainage systems is also performed.

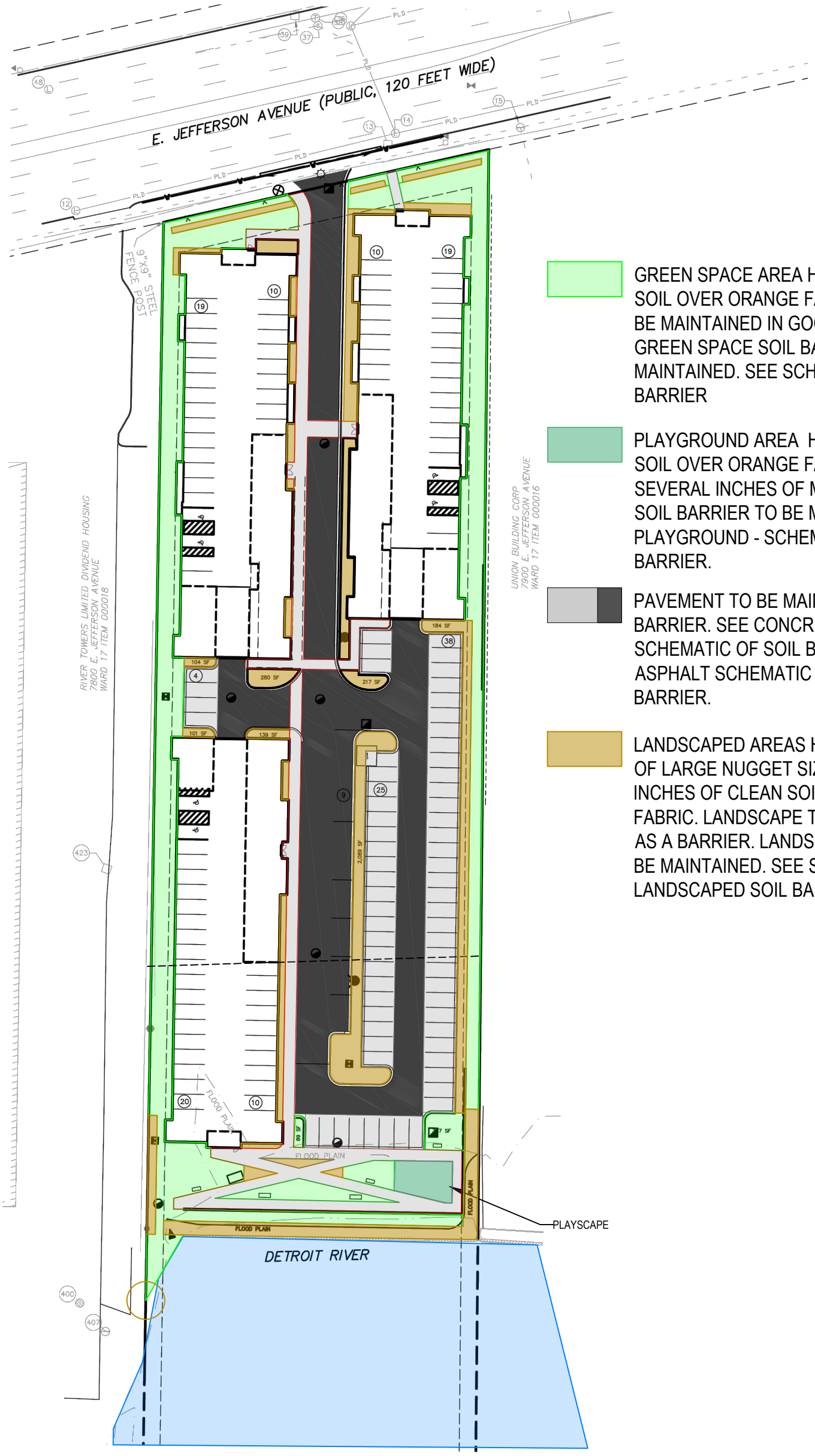
Landscaped and lawn area maintenance is performed seasonally (e.g., fertilizer, weed control, over-seeding, aeriation, etc.) to keep landscaped areas as nearly as possible in its as-constructed condition. Holes, depressions, or visual observation of surface cover soils are visible evidence of landscape wear. Early detection and repair of landscaping defects is performed to minimize more significant deterioration. Seasonal inspection and mulch cover replacement of landscape bed materials is also performed. Areas of sparse or damaged lawn

are to be addressed with the addition of seed and straw/straw mat or sod. Signs shall be posted to notify lawn service companies from mowing the area.

The playscape area maintenance shall be performed seasonally. Any location within the playground area where it is observed that the mulch is less than 2 inches is to be replaced with 2 inches of mulch within 72 hours. It is anticipated that the mulch will compact over time and an additional inch of mulch will be added to the playscape area every other year or more frequent depending on use. Any indications of wear to the soil under the mulch will be replaced with additional clean soil to as-built conditions.

Attachment

Figure 1 Exposure Barrier Map
Green Space Soil Barrier Schematic
Landscape Area Soil Barrier Schematic
Playscape Soil Barrier Schematic
Asphalt Soil Barrier Schematic
Concrete Soil Barrier Schematic
Inspection Form



0 70 140 210

Approximate Scale in Feet

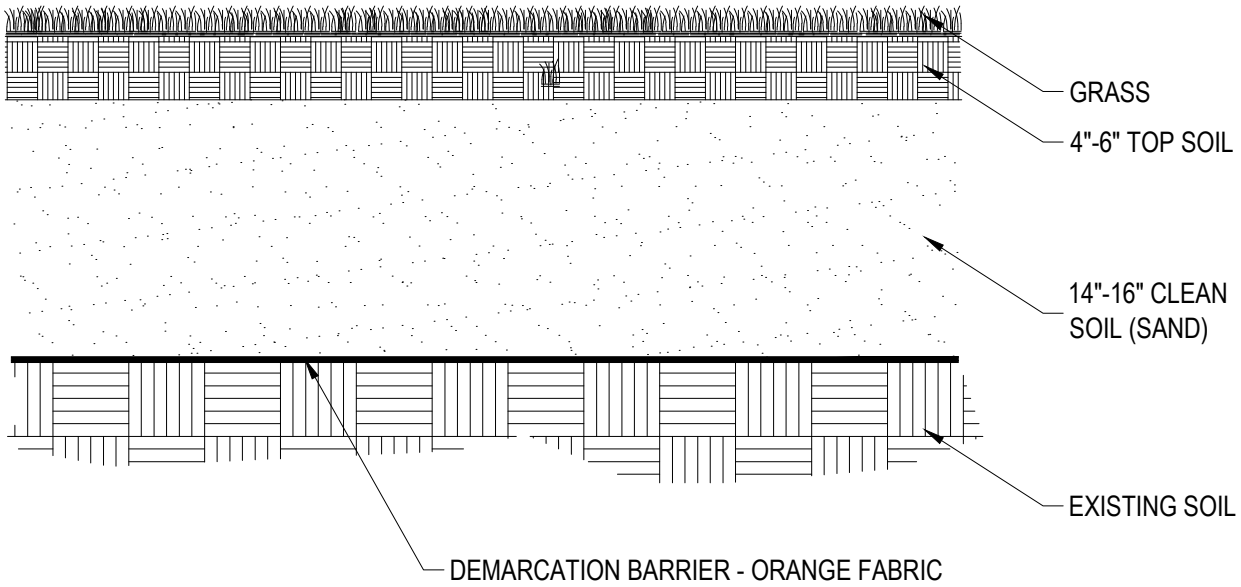
7850 E. Jefferson Ave.

7850 E Jefferson, Detroit, MI

7850-9%-1 LDHA, LLC ; 7850-4%-1 LDHA, LLC
7850-9%-2 LDHA, LLC ; 7850-4%-2 LDHA, LLC
ASTI Project 3-10105, JRN, May 14, 2021

ASTI Environmental

Figure 1 - Soil Barrier Map



Greenspace Schematic

Not To Scale

7850 E. Jefferson Ave Detroit, MI

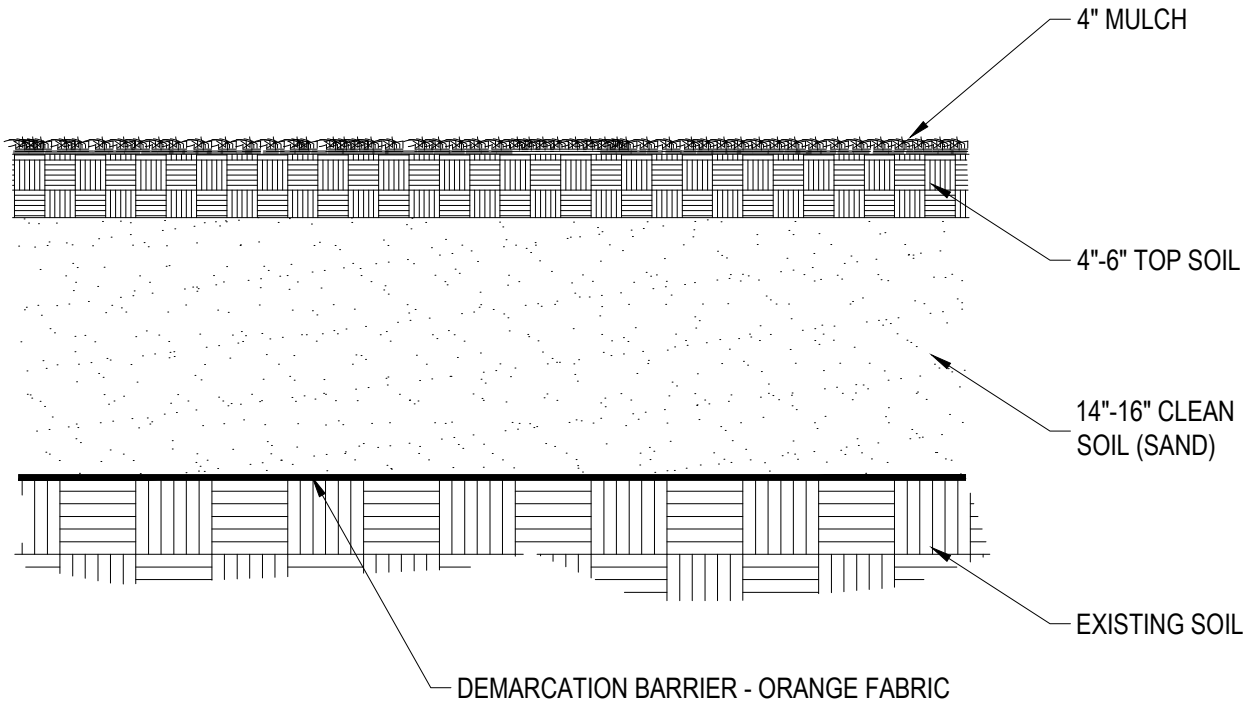
ASTI Environmental

7850-9%-1 LDHA, LLC ; 7850-4%-1 LDHA, LLC

7850-9%-2 LDHA, LLC ; 7850-4%-2 LDHA, LLC

Greenspace - Schematic of Soil Barrier

ASTI Project 3-10105 JRN, April 27, 2021



Landscape Area Schematic

Not To Scale

7850 E. Jefferson Ave Detroit, MI

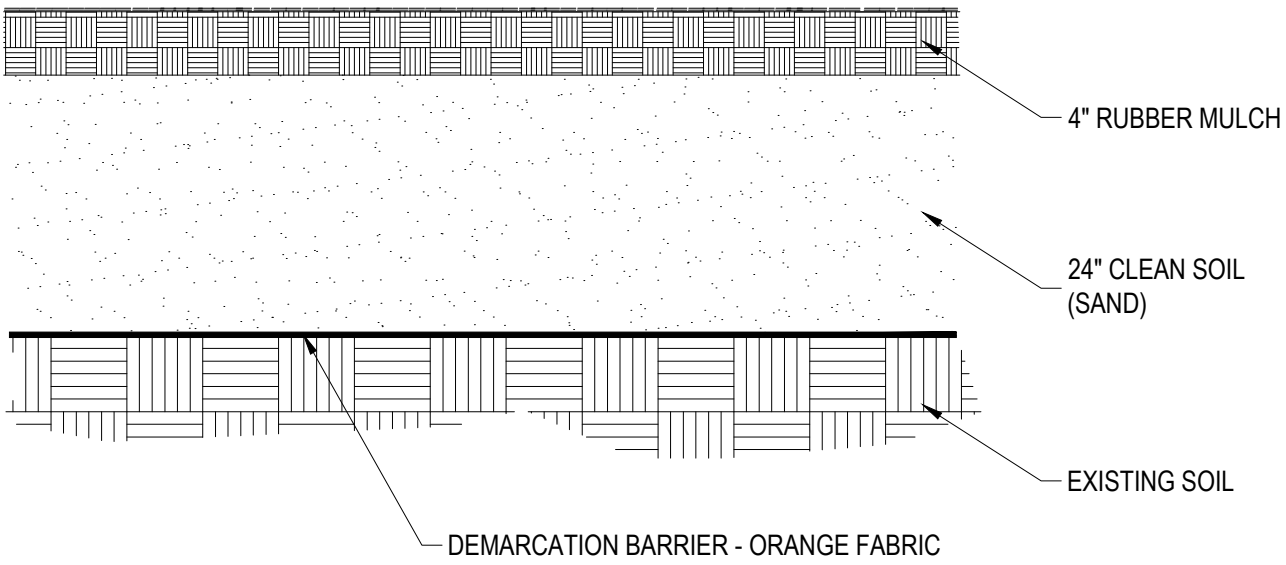
ASTI Environmental

7850-9%-1 LDHA, LLC ; 7850-4%-1 LDHA, LLC

7850-9%-2 LDHA, LLC ; 7850-4%-2 LDHA, LLC

Lanscape Area - Schematic of Soil Barrier

ASTI Project 3-10105 JRN, April 28, 2021



Play Scape Schematic

Not To Scale

7850 E. Jefferson Ave Detroit, MI

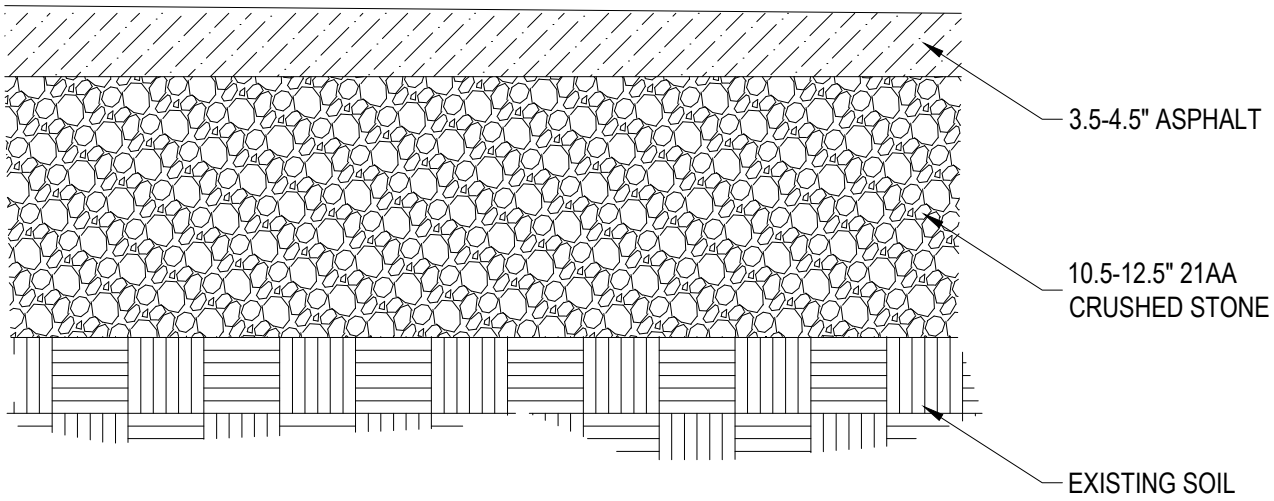
ASTI Environmental

7850-9%-1 LDHA, LLC ; 7850-4%-1 LDHA, LLC

7850-9%-2 LDHA, LLC ; 7850-4%-2 LDHA, LLC

Play Scape - Schematic of Soil Barrier

ASTI Project 3-10105 JRN, April 28, 2021



Asphalt Schematic

Not To Scale

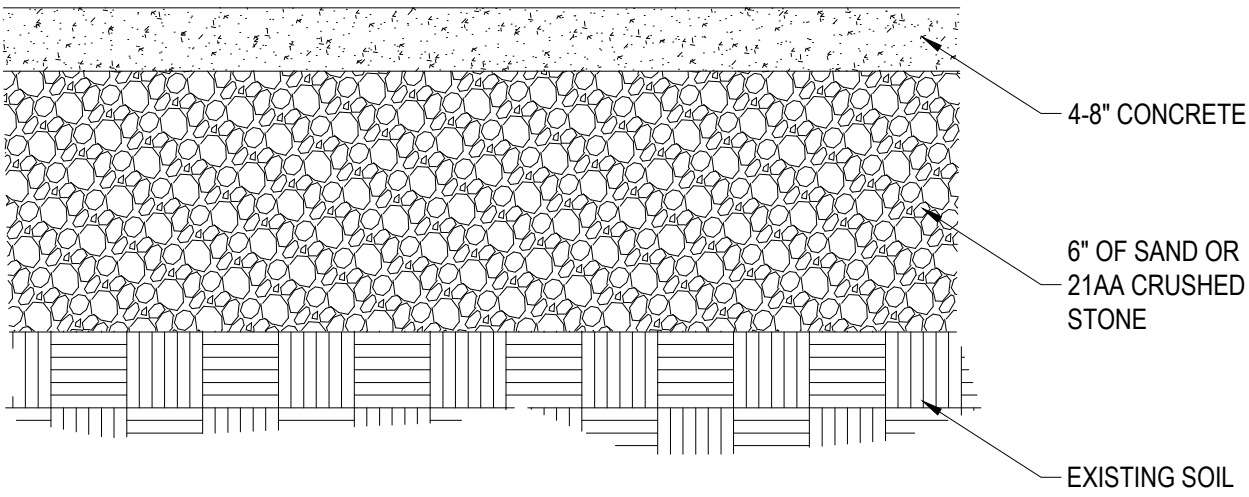
7850 E. Jefferson Ave Detroit, MI

ASTI Environmental

7850-9%-1 LDHA, LLC ; 7850-4%-1 LDHA, LLC
7850-9%-2 LDHA, LLC ; 7850-4%-2 LDHA, LLC

Asphalt - Schematic of Soil Barrier

ASTI Project 3-10105 JRN, April 27, 2021



Concrete Walk Schematic

Not To Scale

7850 E. Jefferson Ave Detroit, MI

ASTI Environmental

7850-9%-1 LDHA, LLC ; 7850-4%-1 LDHA, LLC

7850-9%-2 LDHA, LLC ; 7850-4%-2 LDHA, LLC

Concrete Walk - Schematic of Soil Barrier

ASTI Project 3-10105 JRN, April 27, 2021

Month: _____
Year: _____

Exposure Barrier Inspection Form
7850 E. Jefferson, Detroit, Michigan

Instructions: Please refer to the attached Figure 1 for inspection areas. Note the condition of the barrier in each of areas in the designated space on this form. Sign and date form. If any damage is noted, record a description of the damage and follow the procedures outlined in the Exposure Barrier Inspection and Maintenance Plan. If repairs are necessary, coordinate the repairs, indicate what the repair consisted of, when they were completed, and initial the appropriate space on this form.

Asphalt or Concrete Pavement – Inspected Monthly			
Inspection	Yes	No	Comments:
Exposed soil or pavement underlayment			
Cracks in pavement			
Locations of standing water			
Potholes			

Landscaped/Lawn Areas – Inspected Monthly			
Inspection	Yes	No	Comments:
Exposed soil			
Sparse or stressed vegetative cover.			
Ruts or holes observed			
Indications of erosion such as rain trails or exposed roots of vegetation			
Reduced or missing mulch			

Playscape Area – Inspected Weekly			
Inspection	Yes	No	Comments:
Ruts or holes observed			
Reduced mulch (less than two inches) in playscape area.			

Building Floor Slab – Inspected Monthly			
Inspection	Yes	No	Comments:
Settlement of slab			
Cracks observed in slab			

Notes:

Repairs Necessary?
No / Yes If Yes, Date Repaired _____ Initials _____

Inspector: _____

Signature: _____ Date: _____

Attachment K

Vapor Mitigation System Design and Installation Plan

APPENDIX K

Vapor Mitigation System Design and Installation Plan

7850 E. Jefferson Avenue
Detroit, Michigan

June 4, 2021

Report Prepared By:

Mr. Bruce Bawkon, Engineer
Mr. Brian Kuberski, Project Manager

ASTI Project No. 3-10105

Plan Prepared by:

Brian Kuberski, EP
Project Manager

Plan Prepared and Reviewed by:

Bruce Bawkon
Engineer

ASTI ENVIRONMENTAL

TABLE OF CONTENTS

1.0 VAPOR MITIGATION SYSTEMS DESIGN

The following sections describe the design for the vapor mitigations systems to be installed on the Subject Property. The sheets for the sub-slab depressurization systems (SSDS) are included in this Attachment.

1.1 Design Overview

Compounds detected above the VIAC were identified at various locations on the Subject Property. To mitigate the potential volatilization to indoor air exposure, sub slab depressurization systems have been designed and will be installed beneath the slabs of the buildings. The system is designed to create a vacuum below the slab using a fan that will generate a sufficient negative pressure to prevent the flux of air from contaminated soil from migrating through the slab or wall into the buildings.

The fans will discharge air from the subsurface to the ambient air above the building roof through exhaust piping. The SSDS is designed to capture vapor from across the entire footprint of the buildings.

The SSDSs were designed by a Professional Engineer; figures and schematics of the SSDS are included as Attachment. The building and foundation plans were provided by the project architect and engineers to ASTI for development of the SSDS. The plans for the buildings include a four-inch-thick slab and will include concrete foundations for the building columns under the slab with footers along the exterior walls. The location of the column foundations is depicted on Sheet 2 of the SSDS plans. The plans will be submitted with the construction package to the City of Detroit for review to determine/document compliance with the City fire and building codes.

1.2 Design Components

The design of the SSDS was based on the subsurface investigations, the proposed building construction, and expected radius of influence. The location and details of the SSDS are included on Sheet 2- in Attachment A.

1.2.1 Subsurface Piping, Vapor Barrier, and Monitoring Pins

The SSDS will include the installation of horizontal piping placed in a trench with a minimum layer of 18 inches of MDOT 6A stone in the trench. A minimum of 8 inches of MDOT 6A stone will be installed in other locations below the buildings. The horizontal piping below the slab will consist of 4-inch diameter schedule 40 perforated PVC piping. A calculation with the piping flow rate and estimated static pressure is included in Attachment B. The horizontal piping will be placed under the slab as indicated in the plan. The perforated PVC pipe will be installed as a loop system that will be connected to solid PVC pipe risers to fans on the roof.

A barrier designed to resist gas and moisture transmissions will be installed below the slab of each building with the intent of improving the radius of influence of the SSDS. The Vaporblock Plus 20 barrier, Vapor Seal Tape, and Pour-N-Seal, will provide a longer response time in the event the SSDS is shut down or in case of a fan malfunction. The Vaporblock Plus 20 barrier is a seven-layer barrier constructed with polyethylene and ethylene vinyl alcohol resins. Prior to placement of the Vaporblock Plus 20 barrier, a non-woven geotextile fabric shall be placed down. The Vaporblock Plus 20 barrier shall be lapped over the footers and column foundations and sealed with butyl seal tape. The concrete surfaces will be primed and are to be dry and clean before application of the tape. The Vaporblock Plus 20 barrier material shall be overlapped by a minimum of six inches and all seams are to be sealed with Vaporbond Tape. All seals around penetrations such as for plumbing and conduit are to be sealed with Vaporbond Tape or placement of VaporBoot according to manufacturer's recommendations. A geotextile fabric shall be placed over the Vaporblock Plus 20 barrier to protect the barrier.

The buildings will include elevator pits with sumps. The sumps will be placed within the concrete floor of the elevator pit. The concrete floor and sides of the elevator pit will be lined with a layer of Vaporblock Plus 20 barrier and geotextile and will not be in contact with surrounding soil. The discharge for the sump will be above the pit level. A detail of the barrier for the elevator pit is depicted on Sheet 13 of the SSDS plan.

Pressure monitoring points will also be installed in the first-floor slab of each building, extending below the Vaporblock Plus 20 barrier. The pressure monitoring points will be the Vapor Pin® Sampling Device Insert. Locations of the of the pressure monitoring points are depicted on Sheets 2 and 3 of the SSDS plans in Attachment A. The Standard Operation Procedure for the Installation of the Vapor Pin Sampling Device is included on Sheet 13 of the SSDS plan. A threaded rod will be placed through the barrier to provide support for the

insert. The insert will be sealed to the barrier and will be perpendicular to the concrete slab to allow for a stainless-steel cover to be flush with the floor. A Vapor Pin® will be installed in each insert after the concrete has set and the rod removed.

Installation of the Vaporblock Plus 20 barrier and installation of the concrete floor over the barrier will be documented with notes and photographs. The documentation will include photographs of the sealing of the barrier along the foundation edges, penetrations, exterior walls, and elevator shaft. The floors of each building will be inspected after installation of the concrete slab to determine if there are any cracks in the slab. Cracks in the slab will be sealed with a silicone sealant (Geocel 8150). The information on Geocel 8150 is included in Attachment B.

1.2.2 Vent Riser Piping

Vertical piping will be solid 4-inch diameter schedule 40 PVC pipe that will be connected to the horizontal vapor collection piping. The riser pipes will be installed within the walls of the building and will include supports to secure the piping. The piping shall be secured with hangers or strapping. Support shall be no less than one for every 10 feet of vertical piping and no less than one per 4 feet of horizontal piping. The installation of the hangers or strapping shall not pierce the PVC piping. The riser pipes will be permanently sealed with a primer and solvent welding (PVC Glue) at all joints except where a flexible coupling is needed. The riser pipes will penetrate the roof of the building with a roof boot A total of four riser pipes will be installed in each building at the locations shown on Sheets 2 and 3 of SSDS plans. Vertical risers located within the parking garage area of the buildings will include insulation. The riser pipes will be labeled "Vapor Mitigation Pipe – May Contain Volatile Organic Compounds" at each building level 4-6 feet above the floor level and at least one label above the roof line. The exhaust pipes are to be located at least 20 feet or more from any opening or vent and will be documented with photographs and as-built plans. The exhaust risers will also be placed above the edge of roof and at least a minimum of 12 inches above the roof surface. Installation and sealing of the piping will be documented by notes and photographs.

Tenants will be notified at the time of lease of the presence of the SSDS at each of the apartment buildings on the Subject Property. The notification will include language to not disturb the piping and who to contact if damage to the piping is observed.

1.2.3 Mitigation Fans

All fans for the system are rated for exterior use and are weatherproof. The specific fan characteristics for the project are based on the estimated radius of influence and expected air flow. All fans are to be installed by a qualified installer and in accordance with the fan manufacturer instructions. All fans installed for the systems must be vertical and installed with flexible couplings to allow for repair or easy change of the fan. The fan exhaust will have a rain deflector.

A Festa AMG Legend fan is to be installed at each riser vent location. A fan curve with the estimated operating static pressure and flow rate is included in Attachment B. The exhaust pipes will penetrate the roof and will include removable couplings or a flexible connection for the fan and vent pipe. All flexible couplings used shall comply with ASTM 5926, ASTM C1173, or an equivalent method. The flexible coupling will need to be fitted to the fan so that the connection is air and water-tight. Access to the roof will be via a stairwell, with permission to access the roof provided by the property management company retained by the owner. Each fan will be connected to a dedicated circuit by a licensed electrician with the circuit breaker on the electrical panel marked as “Vapor Fan Circuit DO NOT TURN OFF ” indicating that the breaker is connected to the SSDS.

The Festa AMG Legend fan to be utilized at each location has a maximum rated flow of 382 cubic feet per minute (cfm) of air at 0.0 inches WC. It is anticipated that the fan will operate at 150 cfm at 1.6 inches WC. Details and manufacturer installation instructions for the fans are included in Appendix B.

1.2.4 Pressure Gauges, Alarm, and Labels

Each fan location will have a Dwyer model 2-5010 magnehelic gauge with a range of 0 – 10 inches WC to measure the fan operating pressure. The gauge will be installed at eye level on the first floor of the buildings.

A Radon Away RSA1 Alarm will be installed at each riser pipe with an audible and visual alarm to monitor minimum fan intake pressure based on the settings required to maintain the established pressure gradient at the monitoring points established on Sheet 3. The Radon Away RSA1 Alarm unit is battery powered and provides alerts when power failure, vacuum loss, or low battery power occurs. The alarm is preset to provide a visual and audible alarm if there is a reduction in pressure, low battery, or a complete loss of pressure. The alarms will

be placed in the first floor of the buildings at eye level. Maintenance or management staff will be trained to check the alarms during normal daily operations at the Subject Property for low battery alarms or loss of pressure alarm. A label will be applied adjacent to the alarm with information on what to do if an alarm sounds and who to contact. The label will also include a reminder that the batteries are to be changed yearly. The date of the change in batteries will be based on the start date of the alarm. In addition, tenants will be notified if an alarm is heard to contact site management or maintenance. Information and installation instructions for the alarm are included in Attachment B.

Each fan location will have a port installed above the fan to allow for sampling of the exhaust. Following startup of the systems, each fan discharge location will be sampled for VOCs by method TO-15, volatile PNAs by Method NIOSH 5515M/TO-13AM, and mercury by Method NIOSH 6009. Fan discharge rate will also be recorded. The results of the stack testing will be used to calculate the emissions.

As indicated in prior sections, labels will be applied to the system components. Labels will be applied to the following.

- Exhaust piping on each building level 4-6 feet above the floor level and at least one label above the roof line above the fan for the system. The label shall be labeled "Caution Vapor Mitigation Pipe – May Contain Hazardous Substances".
- A label shall be applied to the exhaust piping above the alarm and shall be labeled "Vapor Mitigation System Alarm. If alarm is sounding or a red, blue, or yellow light is flashing, immediately contact maintenance or site manager at ( ) - .
- Labels will be applied to the electrical circuits in the electrical panels and shall be labeled "Vapor Fan Circuit – DO NOT TURN OFF".
- Labels shall be applied to the fan electrical switches and labeled "Vapor Mitigation Fan Switch – DO NOT TURN OFF"
- Labels shall be applied to the electrical outlet and fan and labeled "Vapor Mitigation Fan – DO NOT UNPLUG"

Examples of the labels with dimensions are included on Sheet 14 of the SSD plan. The labels shall be made of durable weatherproof material and a color to differentiate the label from the background that the label is being applied. Locations of the labels are indicated on Sheet 12 of the SSDS plan.

1.2.5 Installation Documentation

The installation of the system will be completed by an insured mitigation contractor with experience installing systems. Documentation of the installation of the system according to the plan will be completed by ASTI and will include the information on Sheet 15 and the following:

- Installation of sub-grade piping and aggregate in accordance with the plan
- Installation of the vapor barrier in accordance with the plan
- Sample port was installed on the piping
- Manometer or magnehelic is installed
- All pipe joints and connections were permanently sealed
- All exhaust piping was secured
- Piping is completed with an exhaust stack at least 12 inches above the roof line
- Discharge point is at least 20 feet from any opening into the building
- Fan is secured to the piping and electrical was completed by a licensed electrician
- Fan installed on a separate circuit
- Alarm is installed and functioning
- Combustion appliances were checked for back drafting with a four-gas meter
- Vapor mitigation system labels were applied to piping, electrical panel, electrical switches, electrical outlets, fan, and alarm and where the labels were applied.
- Monitoring pin locations were installed according to plan

Documentation will be completed by field notes and photographs. A checklist will be utilized to confirm that the proper information is collected. The checklist will either be the Vapor Intrusion Mitigation System Post-Installation Verification Checklist contained in the Interstate Technology & Regulatory Council (ITRC) Technical Resources for Vapor Mitigation Training dated December 2020 or similar checklist completed by ASTI. A copy of the ITRC Vapor Intrusion Mitigation System Post-Installation Verification Checklist is included in this attachment and can be used as the checklist includes all the components of this SSDS. The documentation is to be completed to verify that the system was installed to the specifications of this plan and documentation shall be complete for each building,

1.2.6 System Prove Out and Commissioning

The effectiveness of the system will be evaluated by utilizing the pressure monitoring pins for the monitoring of the pressure under the slab. The locations of the pressure monitoring pins within the slab of each building are depicted on Sheets 2 and 3 in Attachment A. The proposed

pressure monitoring pins will be placed at locations near exterior walls (approximately four feet off the wall) and near the center of the building and will include a removable cap to protect the vapor pins. The proposed monitoring pins are located to monitor the farthest distant from the exhaust piping, locations between column foundations, stairwells, and ground contact rooms with separate footers to verify overlap of the radius of influence. The negative pressure to be maintained by the system is a minimum of -0.02 inches of water column (WC) at each vapor pin monitoring point. Based on the operating characteristics of other systems, a minimum 25-foot radius of influence will cause a minimum -0.02" WC from the horizontal piping locations as shown on Sheet 2 in Attachment A. The anticipated radius of influence is based on other similar systems installed and monitored by ASTI.

To document a minimum 25-foot radius of influence and an overlapping pressure gradient, a PFE testing will be completed after the system is installed. The PFE test will consist of operating each of the four (4) extraction fans individually and the collection of pressure readings from all pressure monitoring pins while each fan is running individually. ASTI will record the pressure readings from each monitoring pin. The PFE testing will be completed during worst case scenario including closed building conditions, operation of the garage ventilation system, operation of heating/cooling system, and operation of vent fans. The pressure readings from the operation of each individual fan will be recorded to determine the radius of influence for the system for each individual fan location. After operation of the individual fans, all the fans for the building will be started and the pressure readings recorded from each monitoring point. If the PFE test determines that -0.02" WC is not achieved at any monitoring point and there is not overlap in the radius of influence causing dead zones, the following options will be evaluated to determine the most appropriate option to achieve the necessary radius of influence:

1. The system will be started and pressure monitoring will be completed daily for the four days as the soil under the slab may have moisture limiting the radius of influence. Operation of the fans may dry the soil causing a greater radius of influence. If the measurements are still not achieving -0.02" WC with operation of all the fans for the building after four days, options 2 or 3 will be implemented.
2. The fan(s) will be changed based on the readings obtained from the PFE test including the readings from the magnehlic/manometer on the discharge riser pipe. Data collected from the operation of the individual fans will be evaluated to determine if one or all the fans will be changed. A PFE test will be completed after the fan change. If the PFE test determines that there is overlap of the entire system, all the fans for the

system will remain on. If the FPE test determines that -0.02" WC is not achieved at all monitoring points indicating there is not overlap in the radius of influence causing dead zones, options 1 and 3 will be evaluated. Repeated as necessary.

3. Additional suction locations will be installed as needed to address the deficiency in the radius of influence. The fan utilized for the additional suction location will be based on the results of the PFE test completed. A PFE test will be competed following the installation of the new suction location(s) and new fan(s). Documentation of the installation of the new suction location(s) and fan(s) will be completed as described above. If the PFE test determines that -0.02" WC is not achieved and there is not overlap in the radius of influence causing dead zones, options 1 and 2 will be evaluated. Repeated as necessary.

Emergency natural gas generators are to be installed for each building and will automatically turn on to assure the SSDS has continual power in the event of a power outage. 7850 LDHA, LLC will undertake all actions necessary to bring the SSDS back on-line and assure it is functioning as designed in no more than seven (7) days from the day the system or any single fan is down/off. With the use of emergency generators and multiple fans (4) at each building, a situation where complete loss of negative pressure under the building is highly unlikely. If a complete shutdown of the system occurs for greater than a week, interim mitigation measures will be employed to prevent the potential for unacceptable exposure.

Following completion of the PFE testing, commissioning of the system will be completed consisting of the following.

- Four days after completion of PFE testing (four events)
- Weekly for first month after startup (four events)
- Monthly for four months (4 events)
- Quarterly thereafter to account for seasonal variations (4 events)

The monitoring schedule will be modified if there are changes to the building that could affect the system, change to the system, or readings are less -0.02 inches of WC during monitoring. The monitoring will change to at least a minimum of weekly following the above changes then revert to monthly and quarterly based on the above schedule of monitoring.

Following startup of the system, the following will be completed.

- Completion of as-built plans

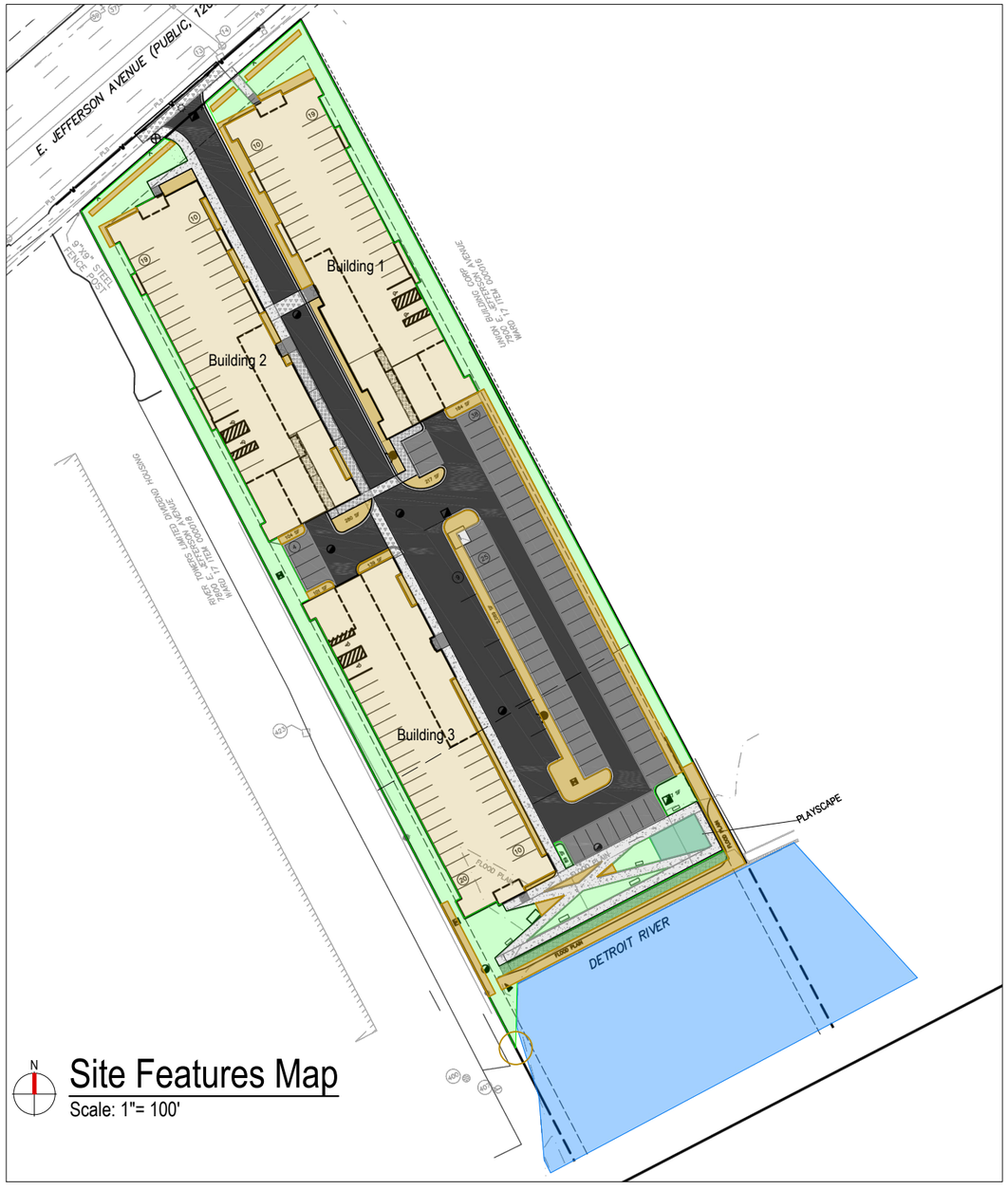
- Completion of Operation, Maintenance, and Monitoring Manual. The OM&M Manual will be produced by ASTI for 7850 LDHA LLC and it is anticipated that ASTI will complete the necessary OM&M for the first year of SSDS operation. A separate, more targeted OM&M will be completed for the client or management company that will be responsible for future OM&M.
- Training will be conducted for maintenance or site manager on the systems, collecting readings from the systems, and what to do in the event of an alarm or system failure.
- Notification will be provided to tenants regarding the system and their response if an alarm is sounded for the system.

ATTACHMENTS

Attachment A

Vapor System Mitigation Plan

VAPOR MITIGATION SYSTEM
7850 E JEFFERSON AVE
DETROIT , WAYNE COUNTY, MICHIGAN



N

Site Features Map

Scale: 1"= 100'

N

Site Location Map

Scale: NTS

Drawing Index

Architectural Plans provided by:
HOOKER | DE JONG Architects & Engineers
316 Morris Avenue, Studio Suite 410
Muskegon, MI 49440

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THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

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ASTI Environmental

7850 E Jefferson Ave. Detroit, Wayne County, MI

Client: 7850-9%-1 LDHA, LLC ; 7850-4%-1 LDHA, LLC ; 7850-9%-2 LDHA, LLC ; 7850-4%-2 LDHA, LLC

ASTI Project # 10105, JRN, June 3, 2021

Sheet 1 - Cover Sheet

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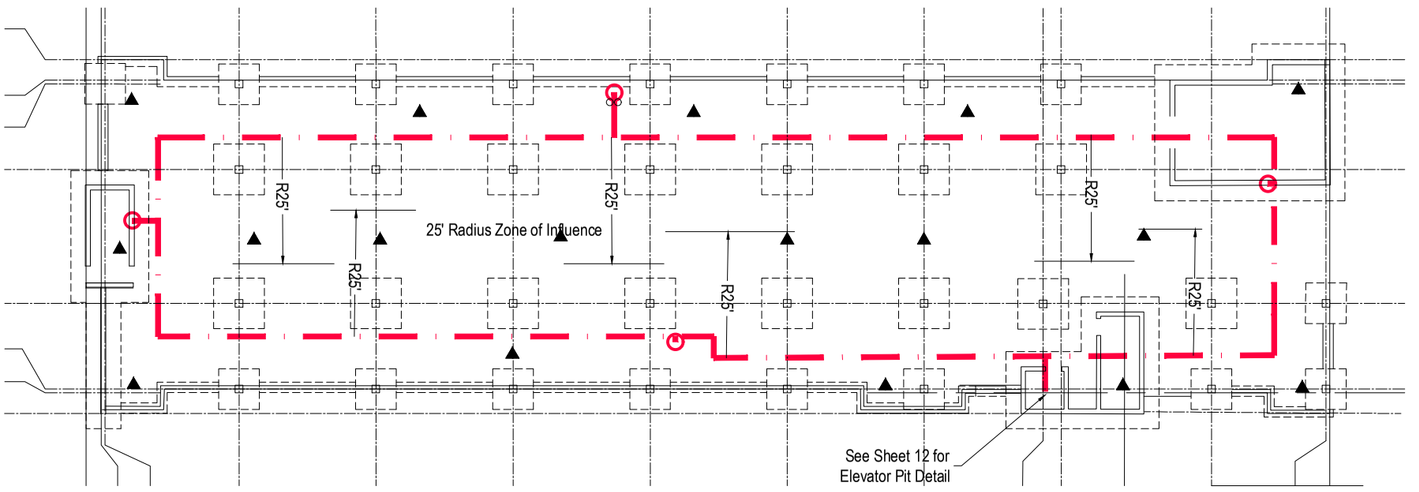
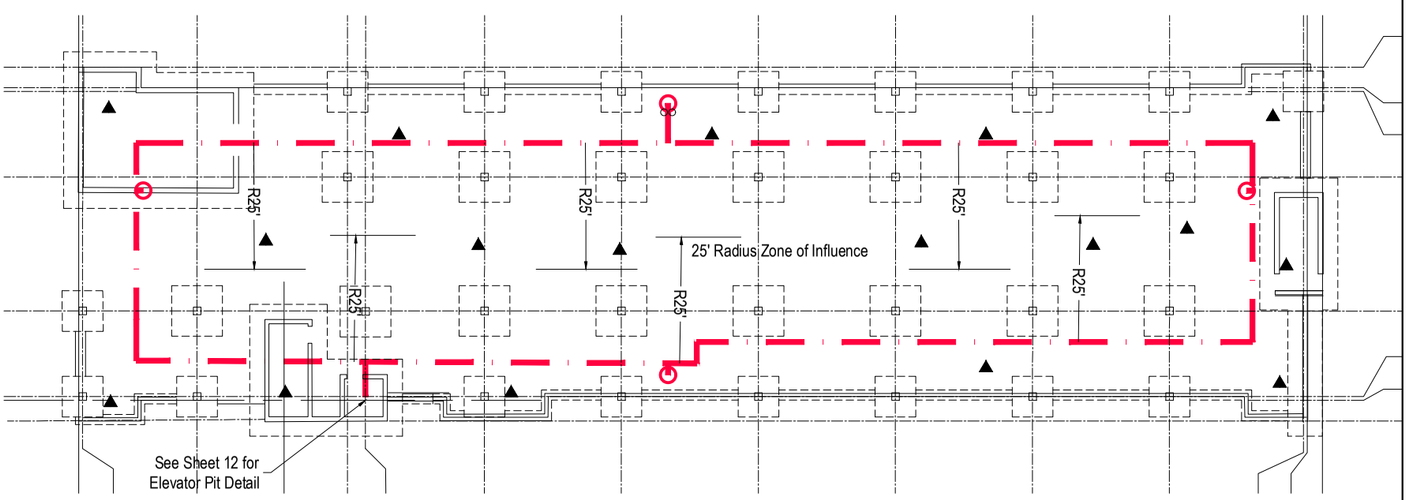
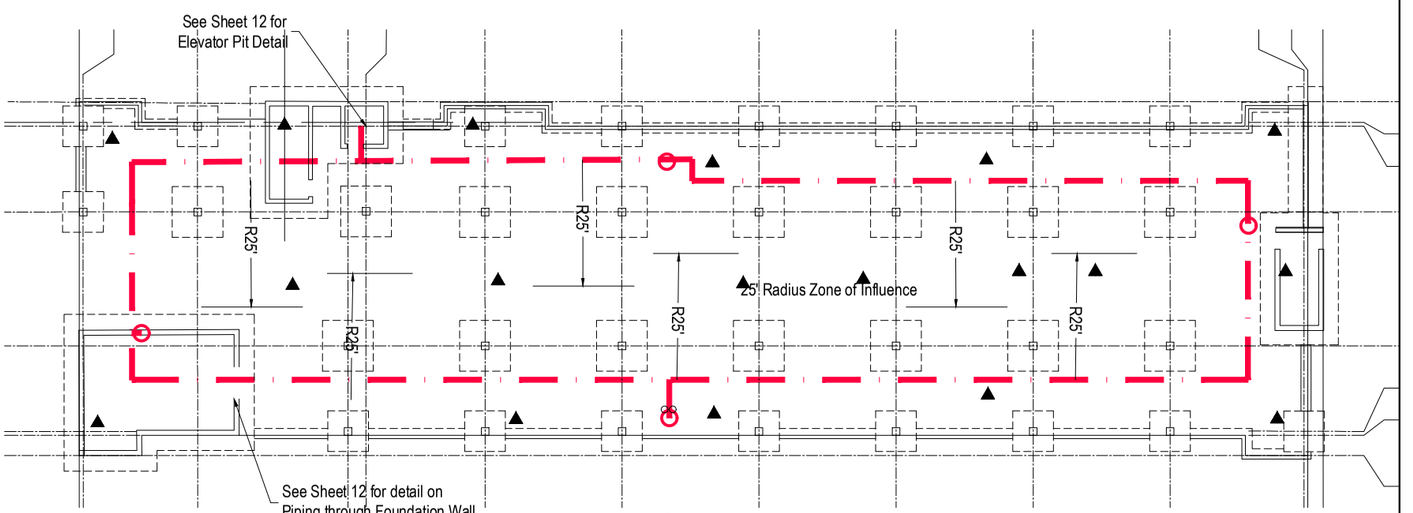


3/2 BLDG 3 - FOUNDATION PLAN



2/2 BLDG 2 - FOUNDATION PLAN



1/2 BLDG 1 - FOUNDATION PLAN

LEGEND

- 4" SCH 40 PVC PIPE - GAS COLLECTION
- 4" SCH 40 PVC PIPE VENTED TO ROOF
- VAPOR PIN LOCATION (To be installed on 1st Floor - See Sheet 13 for detail)
- BOLLARDS PLACED IN FRONT OF 4" SCH 40 PVC PIPE

GRAPHIC SCALE
0 15 30 60
1 inch = 30 ft.
Paper Size = (11x17)

7850 E Jefferson Ave. Detroit, Wayne County, MI

ASTI Environmental

Client: 7850-9%-1 LDHA, LLC ; 7850-4%-1 LDHA, LLC ; 7850-9%-2 LDHA, LLC ; 7850-4%-2 LDHA, LLC

Sheet 2 - Foundation Plans

ASTI Project 4-10105, JRN, June 3, 2021

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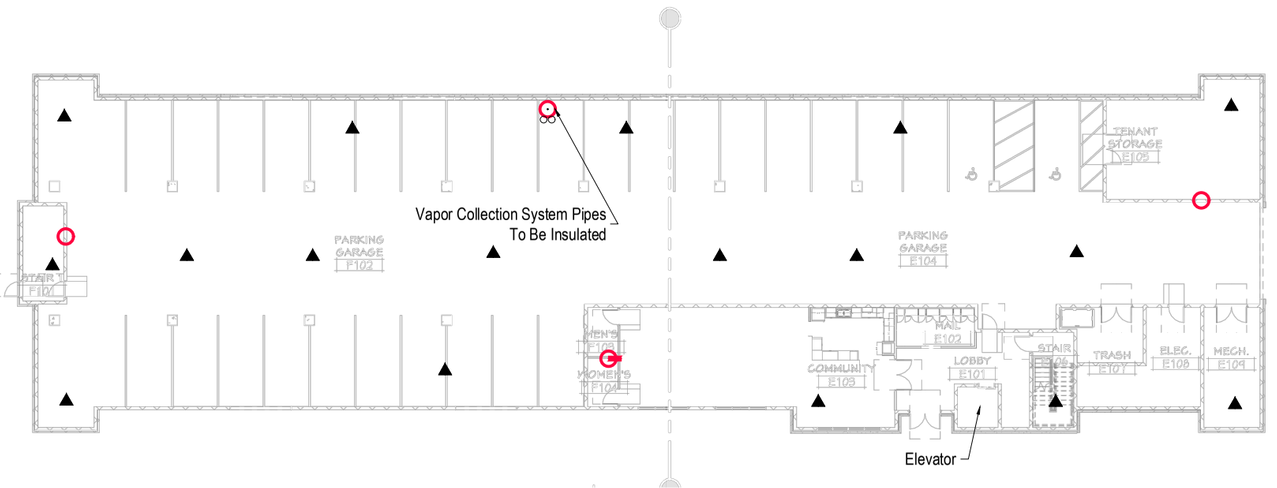
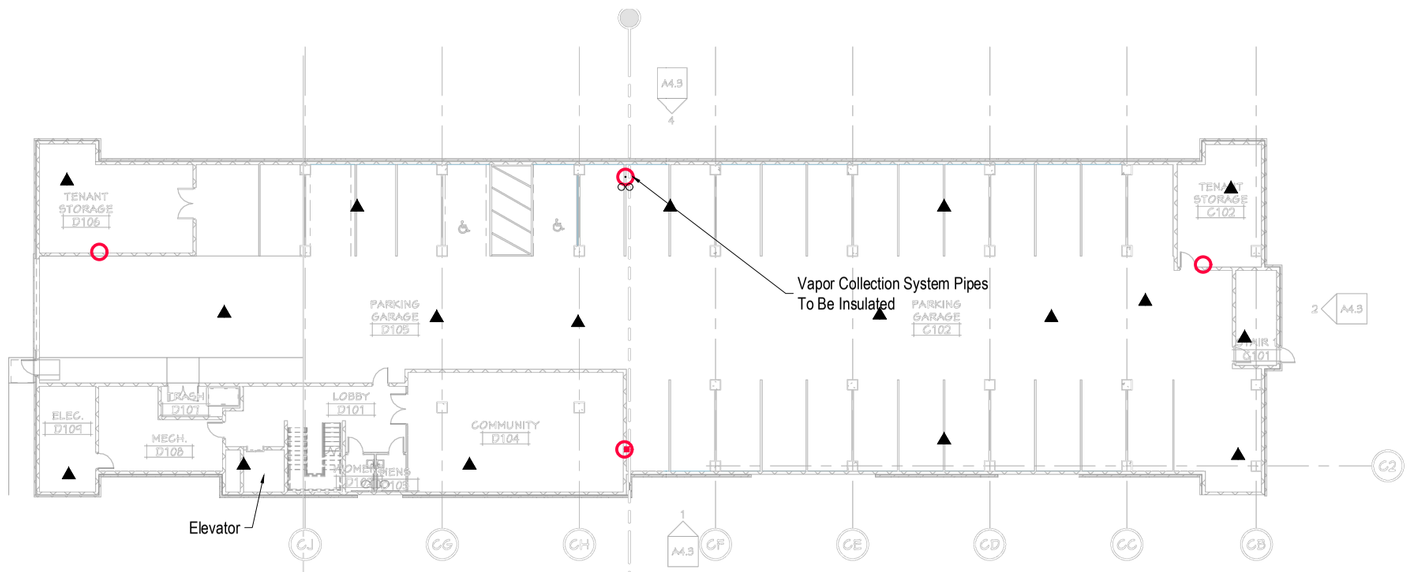
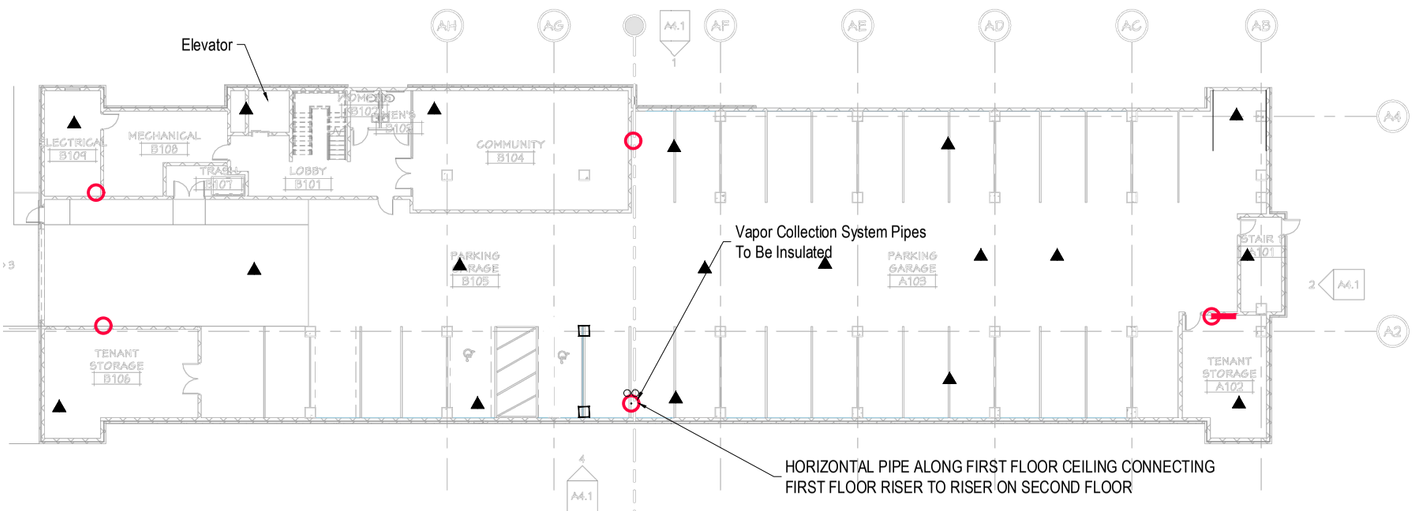


3/3 BLDG 3 - OVERALL FIRST FLOOR PLAN



2/3 BLDG 2 - OVERALL FIRST FLOOR PLAN



1/3 BLDG 1 - OVERALL FIRST FLOOR PLAN

GRAPHIC SCALE
0 15 30 60
1 inch = 30 ft.
Paper Size = (11x17)

LEGEND

- 4" SCH 40 PVC PIPE VENTED TO ROOF
- BOLLARDS PLACED IN FRONT OF 4" SCH 40 PVC PIPE
- VAPOR PIN

NOTE: Vertical risers within the parking garage will be insulated.

7850 E Jefferson Ave. Detroit, Wayne County, MI

ASTI Environmental

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Sheet 3 - First Floor Plans

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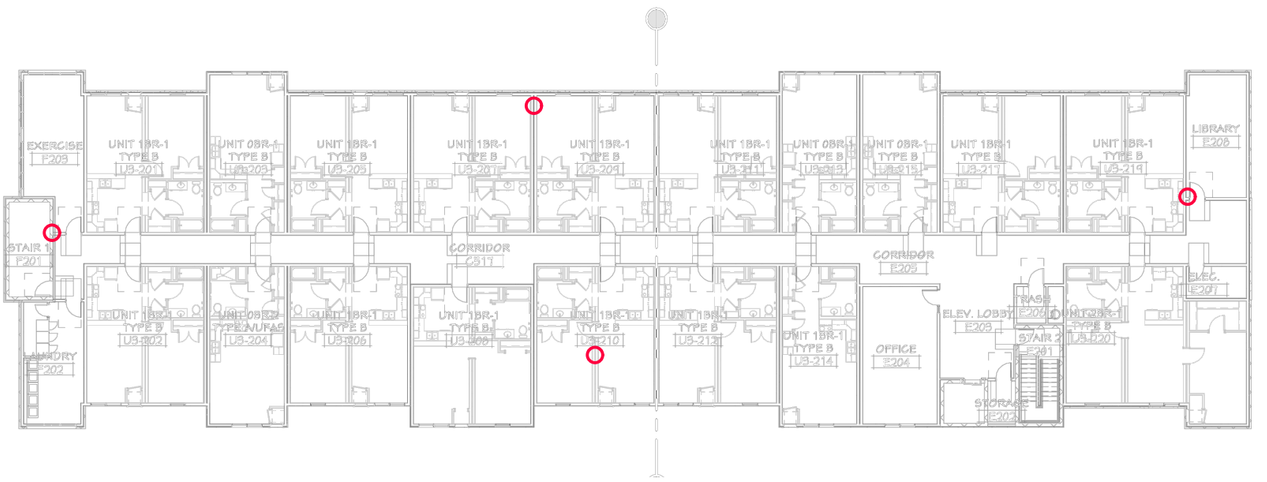
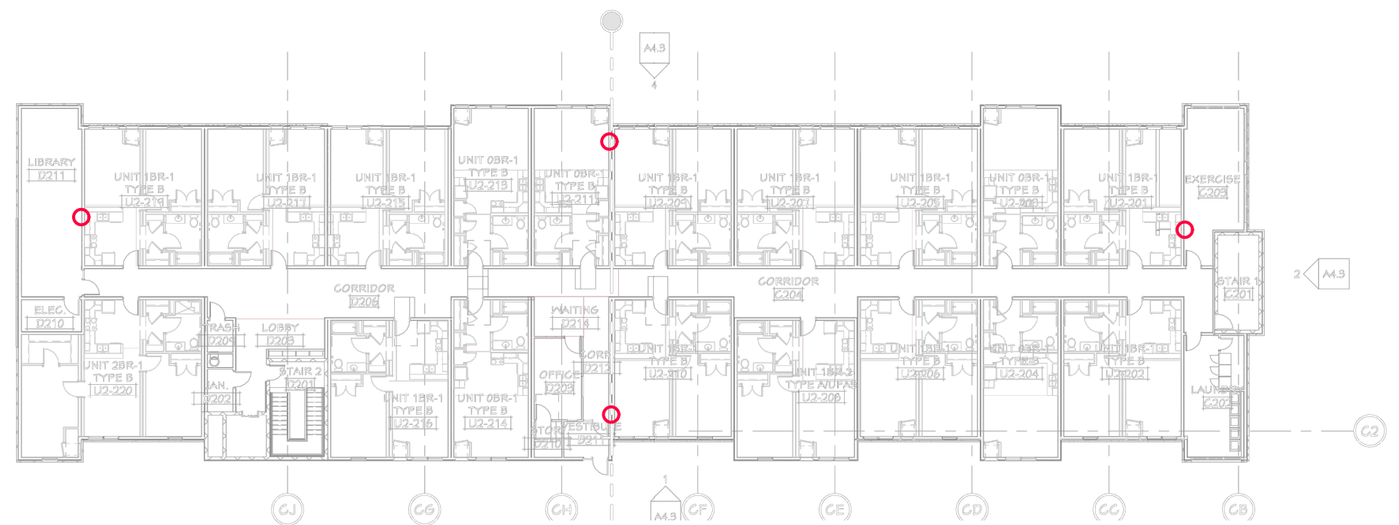
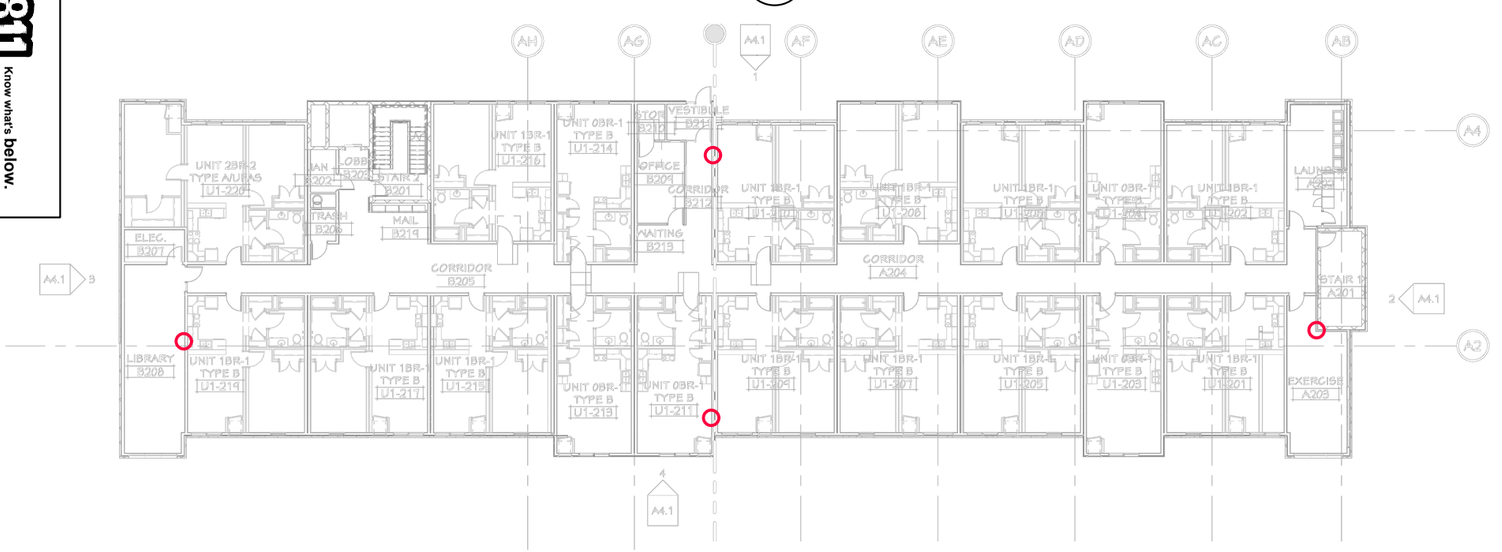


3/4 BLDG 3 - OVERALL SECOND FLOOR PLAN



2/4 BLDG 2 - OVERALL SECOND FLOOR PLAN



1/4 BLDG 1 - OVERALL SECOND FLOOR PLAN

LEGEND

4" SCH 40 PVC PIPE VENTED TO ROOF

GRAPHIC SCALE

0 15 30 60

1 inch = 30 ft.
Paper Size = (11x17)

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Detroit, Wayne County, MI

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Sheet 4 - 2nd Floor Plans

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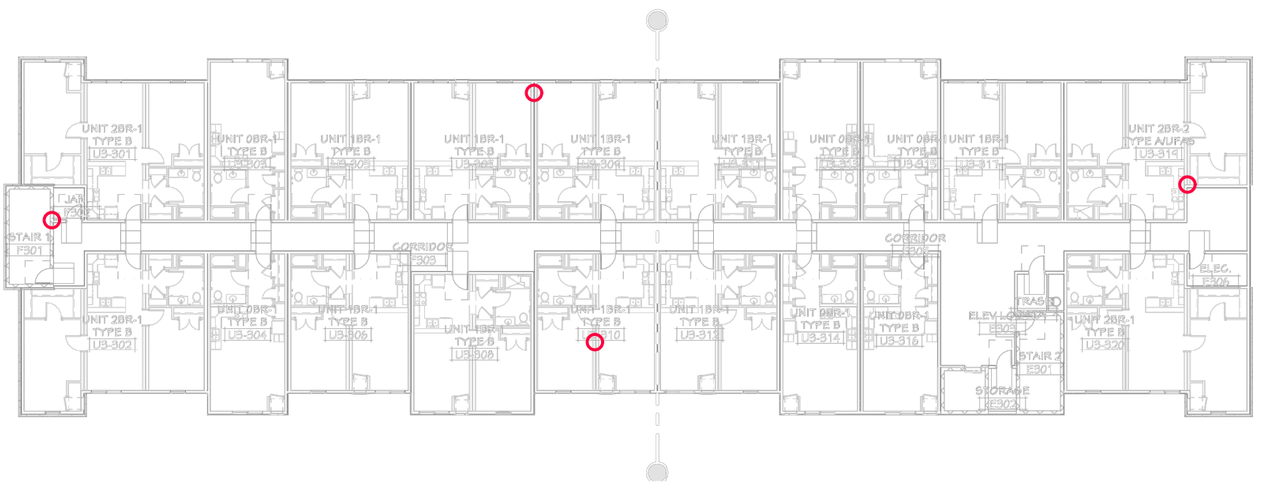
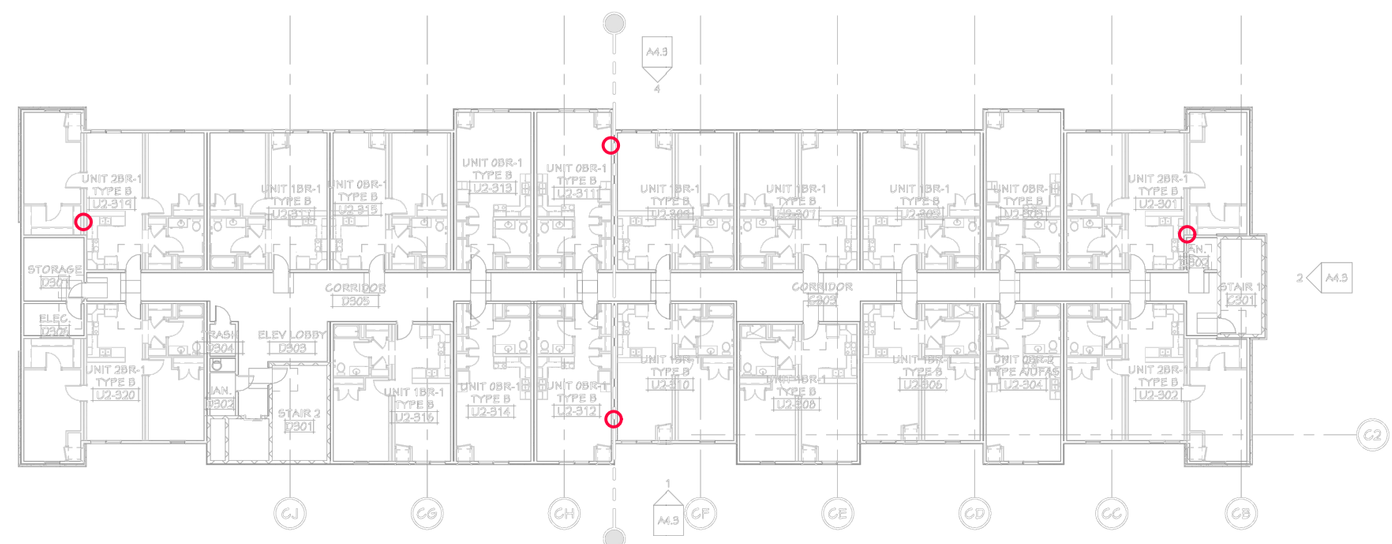
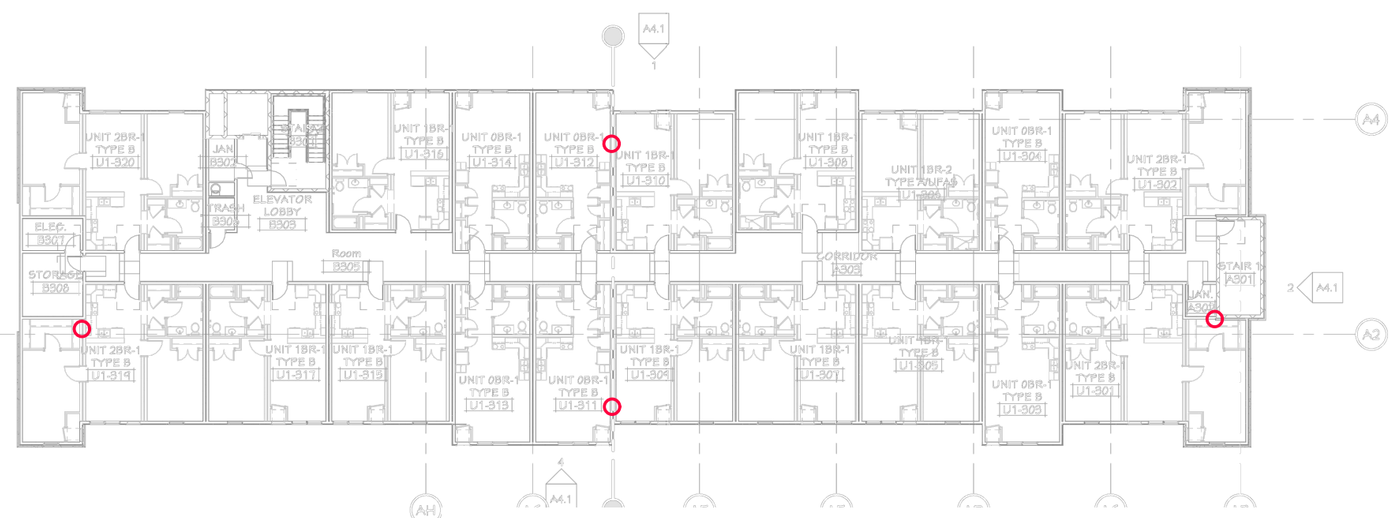


3/5 BLDG 3 - OVERALL THIRD FLOOR PLAN



2/5 BLDG 2 - OVERALL THIRD FLOOR PLAN



1/5 BLDG 1 - OVERALL THIRD FLOOR PLAN

LEGEND

O 4" SCH 40 PVC PIPE VENTED TO ROOF

GRAPHIC SCALE

0 15 30 60

1 inch = 30 ft.
Paper Size = (11x17)

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Sheet 5 - 3rd Floor Plans

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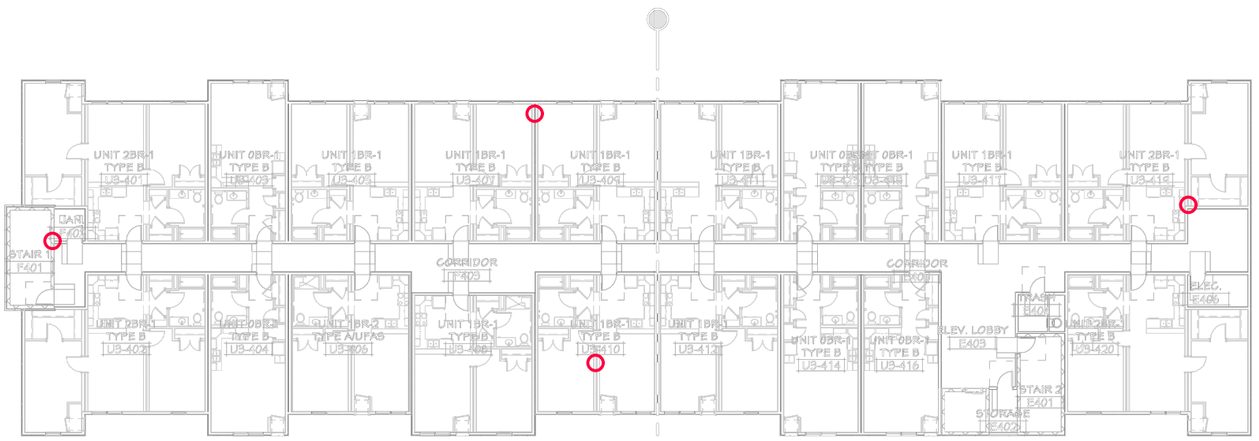
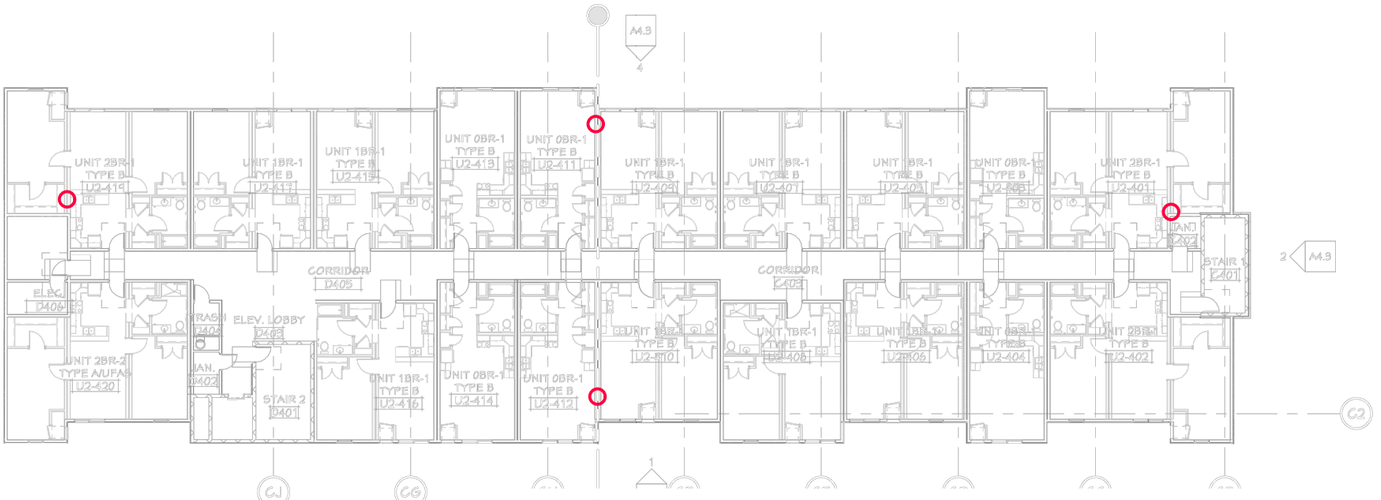
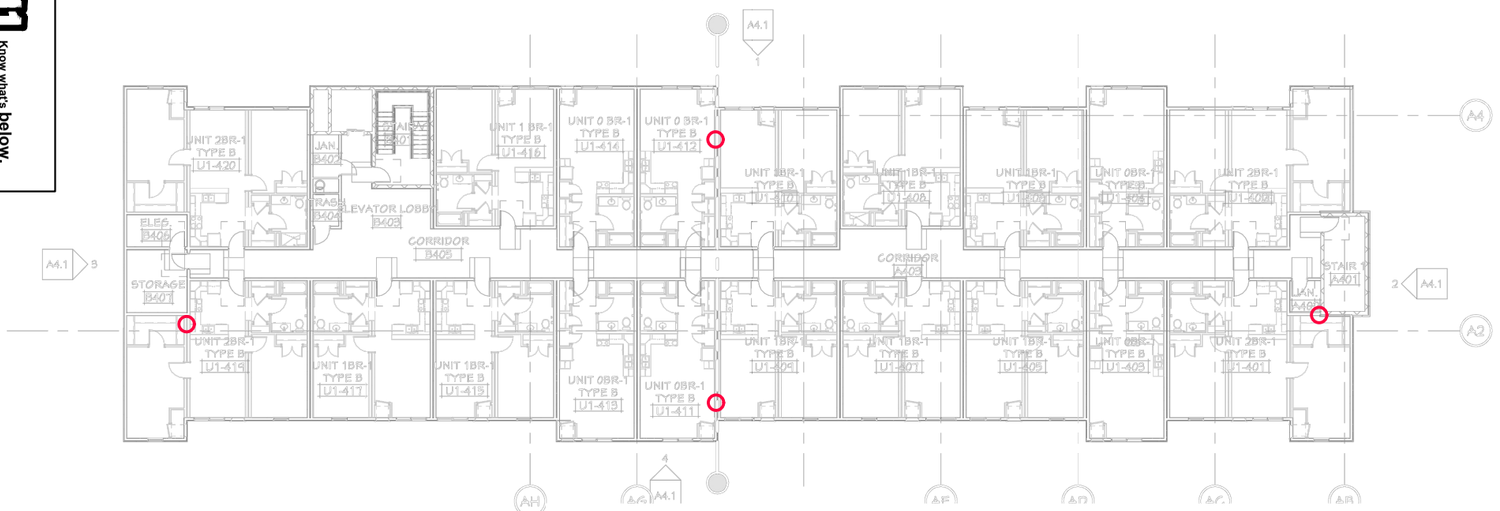


3/6 BLDG 3 - OVERALL FOURTH FLOOR PLAN

A0.4 1/16" = 1'-0"



2/6 BLDG 2 - OVERALL FOURTH FLOOR PLAN



1/6 BLDG 1 - OVERALL FOURTH FLOOR PLAN

LEGEND

4" SCH 40 PVC PIPE VENTED TO ROOF

GRAPHIC SCALE

0 15 30 60

1 inch = 30 ft.
Paper Size = (11x17)

7850 E Jefferson Ave.

Detroit, Wayne County, MI

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Client: 7850-9%-1 LDHA, LLC ; 7850-4%-1 LDHA, LLC ; 7850-9%-2 LDHA, LLC ; 7850-4%-2 LDHA, LLC

Sheet 6 - 4th Floor Plans

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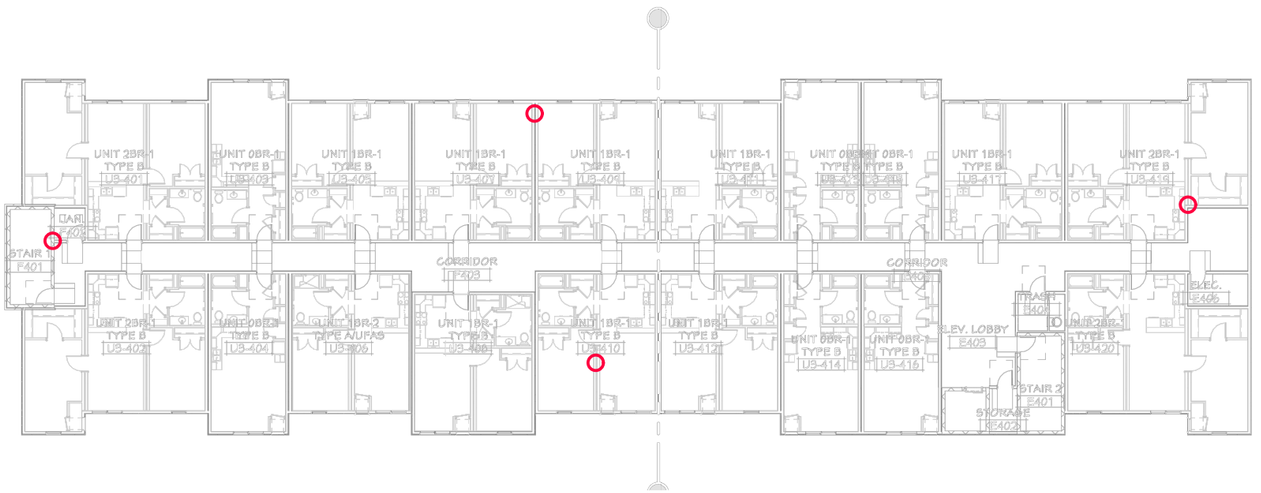
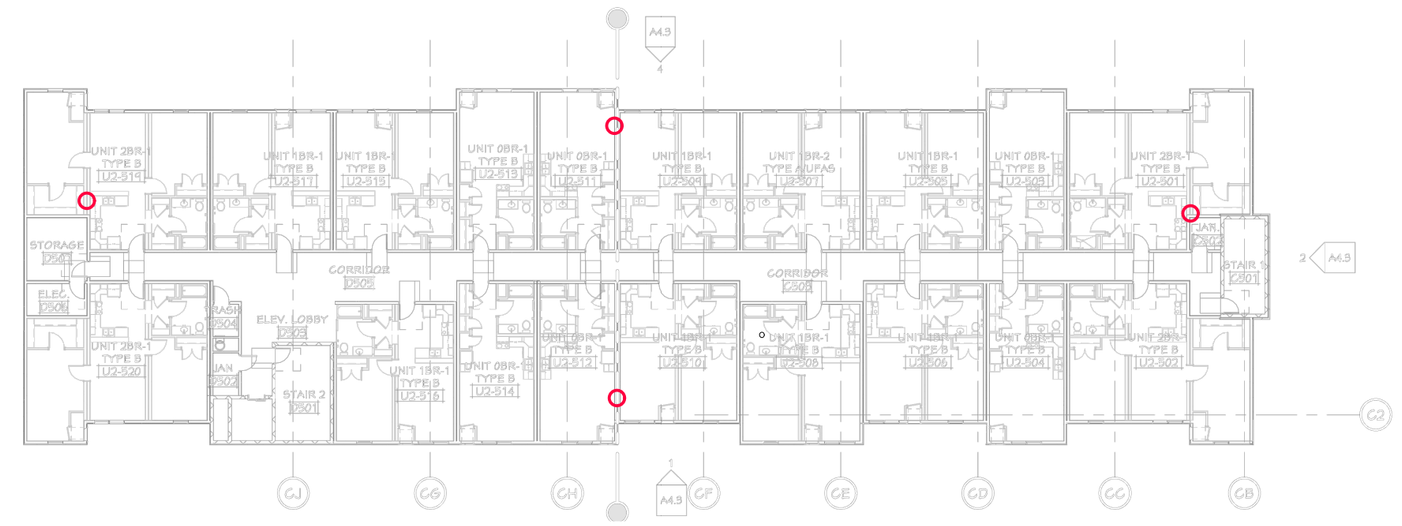
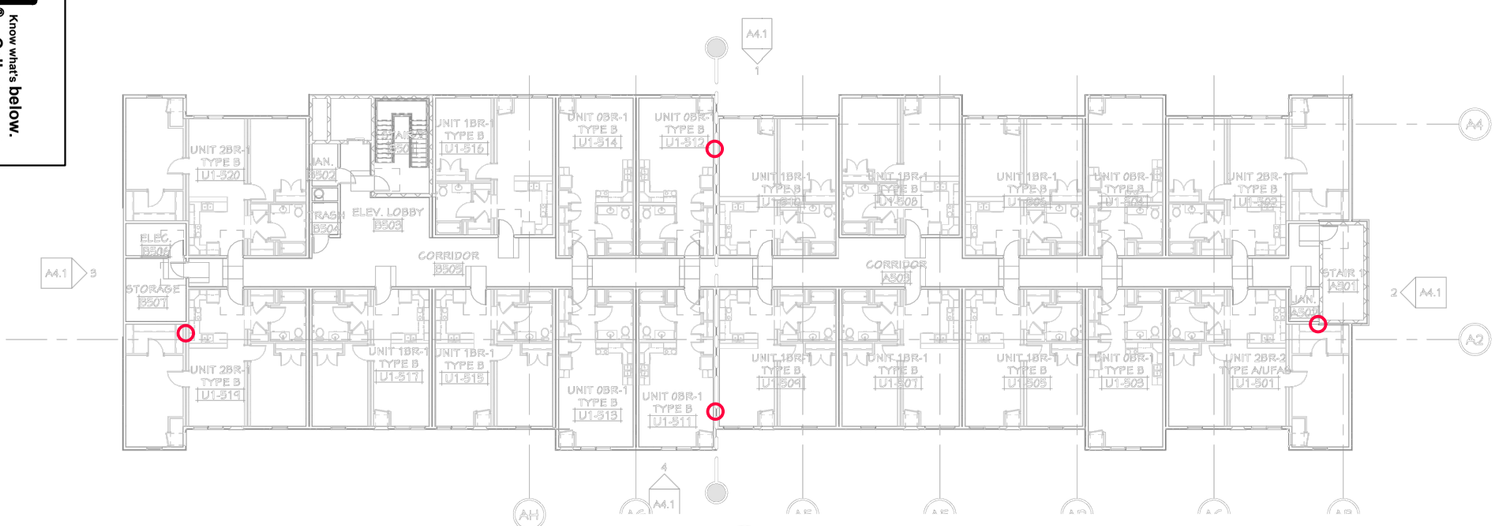


3/7 BLDG 3 - OVERALL FIFTH FLOOR PLAN



2/7 BLDG 2 - OVERALL FIFTH FLOOR PLAN



1/7 BLDG 1 - OVERALL FIFTH FLOOR PLAN

LEGEND

○ 4" SCH 40 PVC PIPE VENTED TO ROOF

GRAPHIC SCALE

0 15 30 60

1 inch = 30 ft.
Paper Size = (11x17)

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Client: 7850-9%-1 LDHA, LLC ; 7850-4%-1 LDHA, LLC ; 7850-9%-2 LDHA, LLC ; 7850-4%-2 LDHA, LLC

Sheet 7 - 5th Floor Plans

ASTI Project 4-10105, JRN, June 3, 2021

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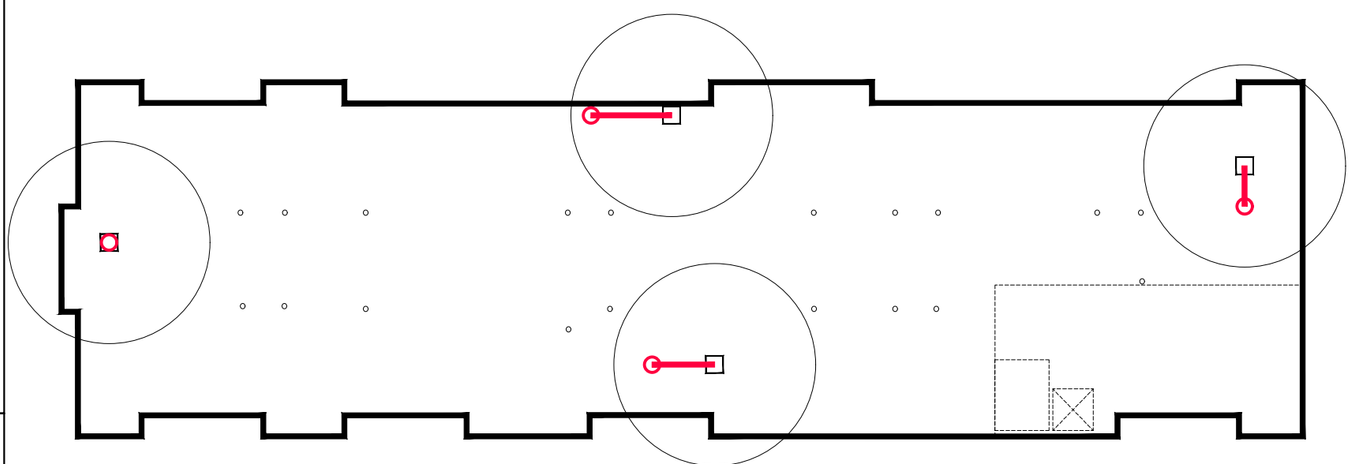
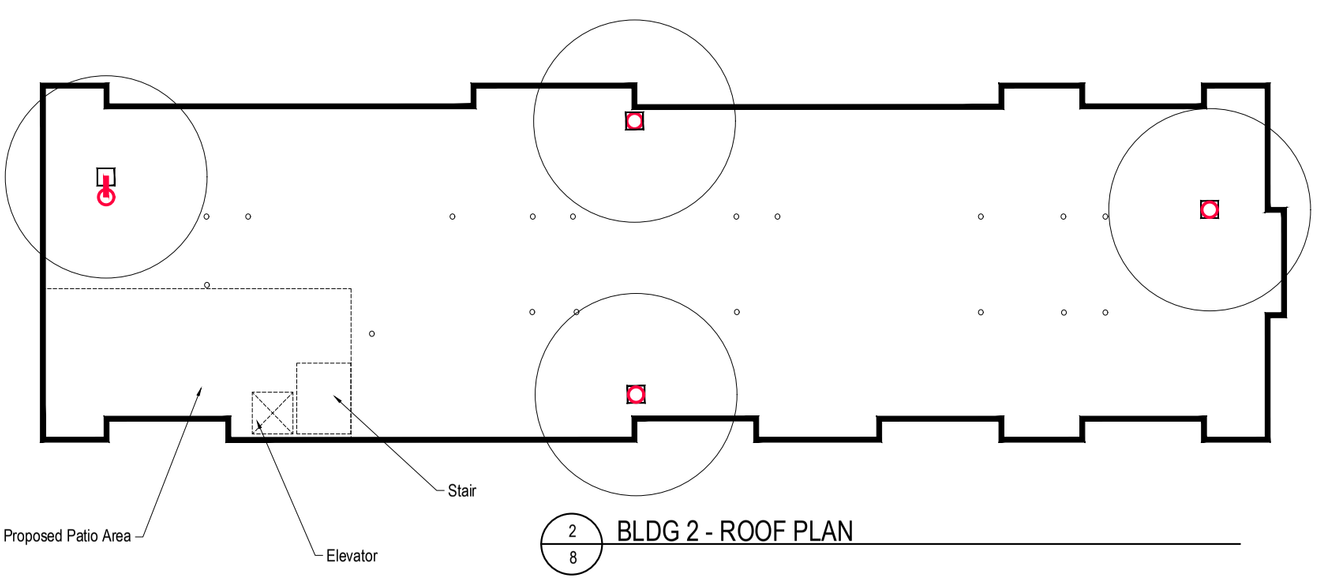
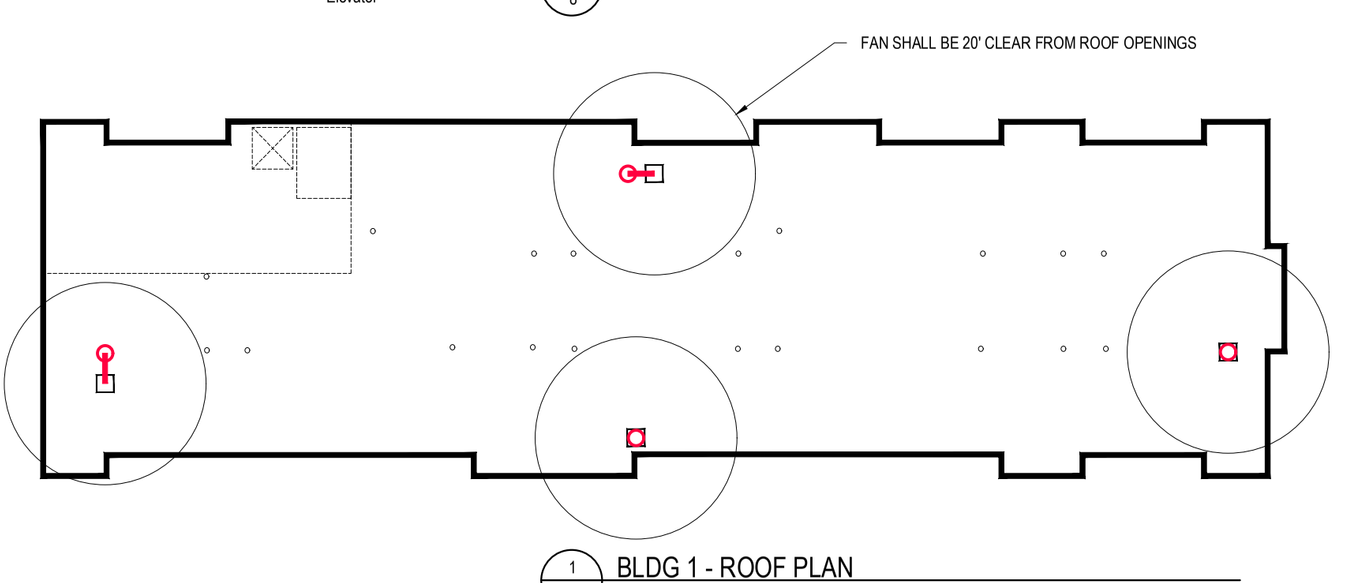


3/8 BLDG 3 - ROOF PLAN



2/8 BLDG 2 - ROOF PLAN



1/8 BLDG 1 - ROOF PLAN

GRAPHIC SCALE
0 15 30 60
1 inch = 30 ft.
Paper Size = (11x17)

LEGEND

- 4" SCH 40 PVC PIPE VENTED TO ROOF MOUNTED FAN
- 4" SCH 40 PVC PIPE VENTED TO ROOF MOUNTED FAN CONNECTED WITH HORIZONTAL PIPE SLOPED AT 0.003 FT/FT - DRAIN BACK TO RISER
- PLUMBING VENT

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Detroit, Wayne County, MI

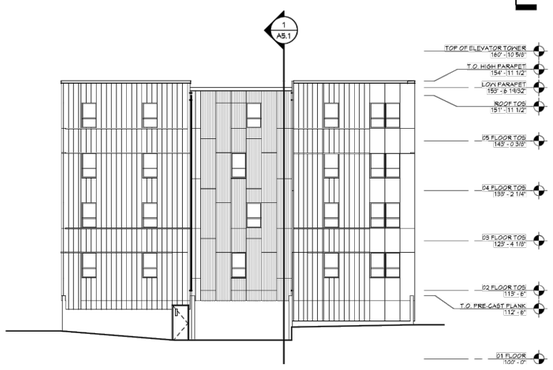
ASTI Environmental

Client: 7850-9%-1 LDHA, LLC ; 7850-4%-1 LDHA, LLC ; 7850-9%-2 LDHA, LLC ; 7850-4%-2 LDHA, LLC

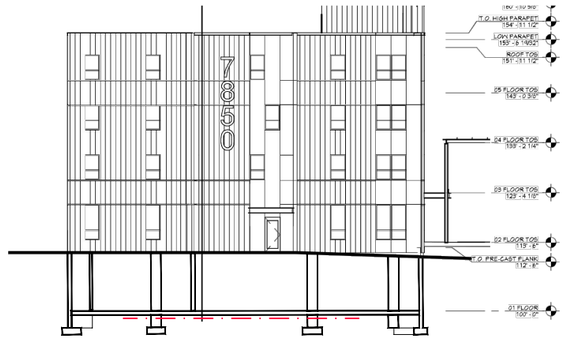
Sheet 8 - Roof Plan

ASTI Project 4-10105, JRN, June 3, 2021

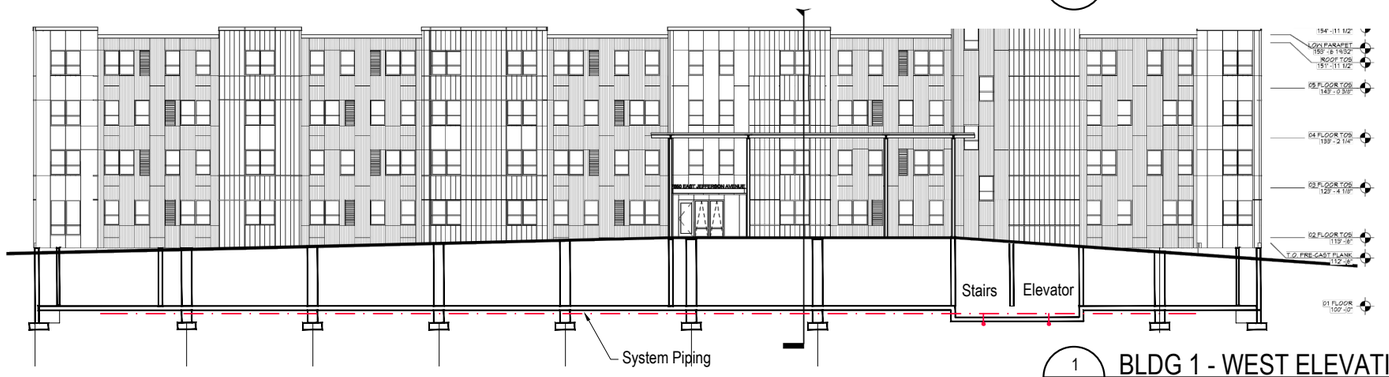
4 / 9 BLDG 1 - EAST ELEVATION



3 / 9 BLDG 1 - SOUTH ELEVATION



2 / 9 BLDG 1 - NORTH ELEVATION



1 / 9 BLDG 1 - WEST ELEVATION

CONSTRUCTION SITE SAFETY IS THE RESPONSIBILITY OF THE CONTRACTOR. NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

811 Know what's **below.** **Call** before you dig.

LEGEND

— · — 4" SCH 40 PVC PIPE

GRAPHIC SCALE
0 15 30 60
1 inch = 30 ft.
Paper Size = (11x17)

ASTI Environmental

Sheet 9 - Building Elevations

7850 E Jefferson Ave.

Detroit, Wayne County, MI

Client: 7850-9%-1 LDHA, LLC ; 7850-4%-1 LDHA, LLC ; 7850-9%-2 LDHA, LLC ; 7850-4%-2 LDHA, LLC

ASTI Project # 10105, JRN, June 3, 2021

Y:\Project Files\Current and Closed\10000-10999\10100-10199\10105 7850 E. Jefferson, Detroit\4-10105 Mitigation Design\CAD\4-10105 SSD 11x17.dwg; 6/3/2021 11:21 AM;

2/10 BLDG 2 - EAST ELEVATION

1/10 BLDG 2 - SOUTH ELEVATION

LEGEND

— · — 4" SCH 40 PVC PIPE

GRAPHIC SCALE

0 15 30 60

1 inch = 30 ft.
Paper Size = (11x17)

ASTI Environmental

7850 E Jefferson Ave. Detroit, Wayne County, MI

Client: 7850-9%-1 LDHA, LLC ; 7850-4%-1 LDHA, LLC ; 7850-9%-2 LDHA, LLC ; 7850-4%-2 LDHA, LLC

ASTI Project # 10105, JRN, June 3, 2021

Sheet 10 - Building Elevations

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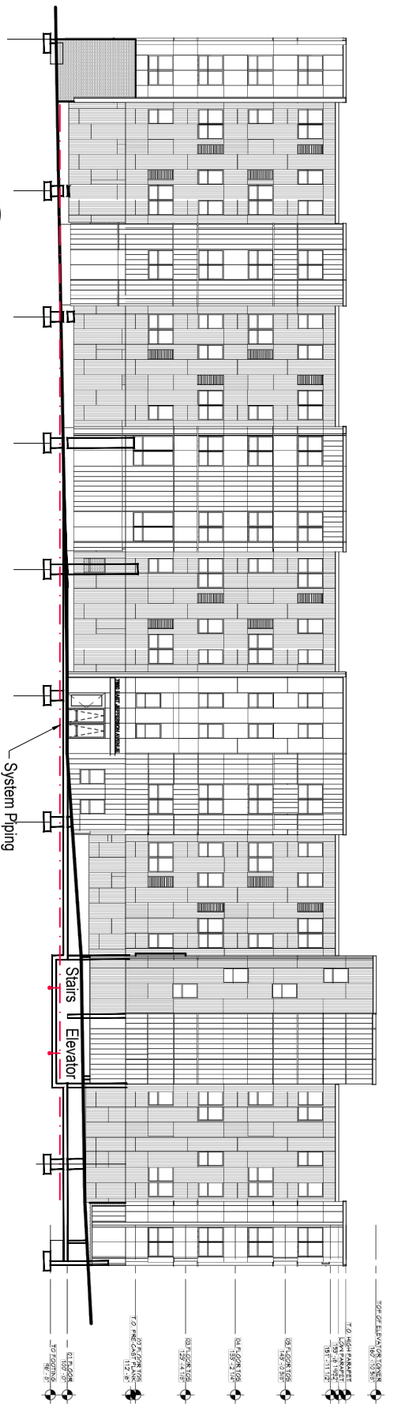
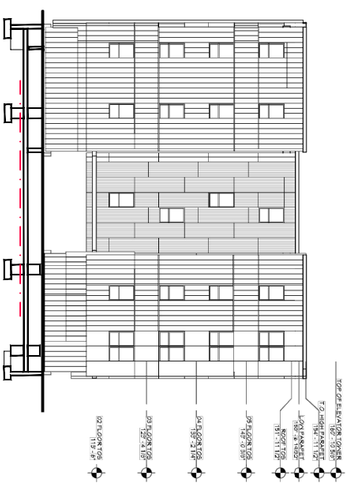
1/11 BLDG 3 - EAST ELEVATION



2/11 BLDG 2 - NORTH ELEVATION



LEGEND

4" SCH 40 PVC PIPE

GRAPHIC SCALE

0 15 30 60

1 inch = 30 ft.
Paper Size = (11x17)

7850 E Jefferson Ave.

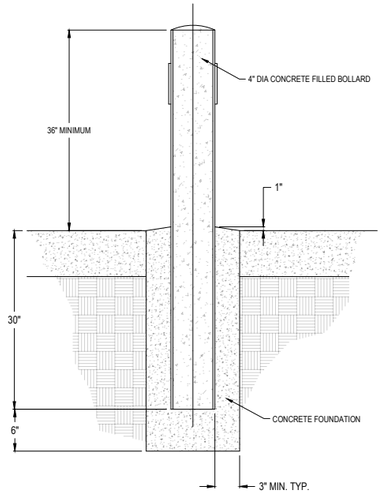
Detroit, Wayne County, MI

ASTI Environmental

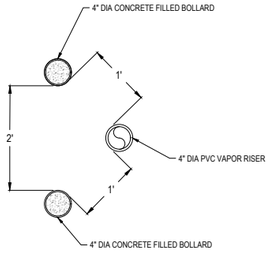
Client: 7850-9%-1 LDHA, LLC ; 7850-4%-1 LDHA, LLC ; 7850-9%-2 LDHA, LLC ; 7850-4%-2 LDHA, LLC

Sheet 11 - Building Elevations

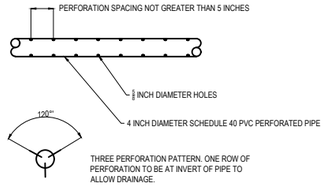
ASTI Project 4-10105, JRN, June 3, 2021



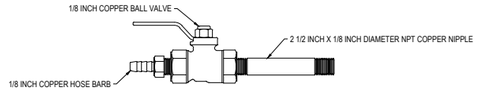
TYPICAL BALLARD DETAIL
Not To Scale



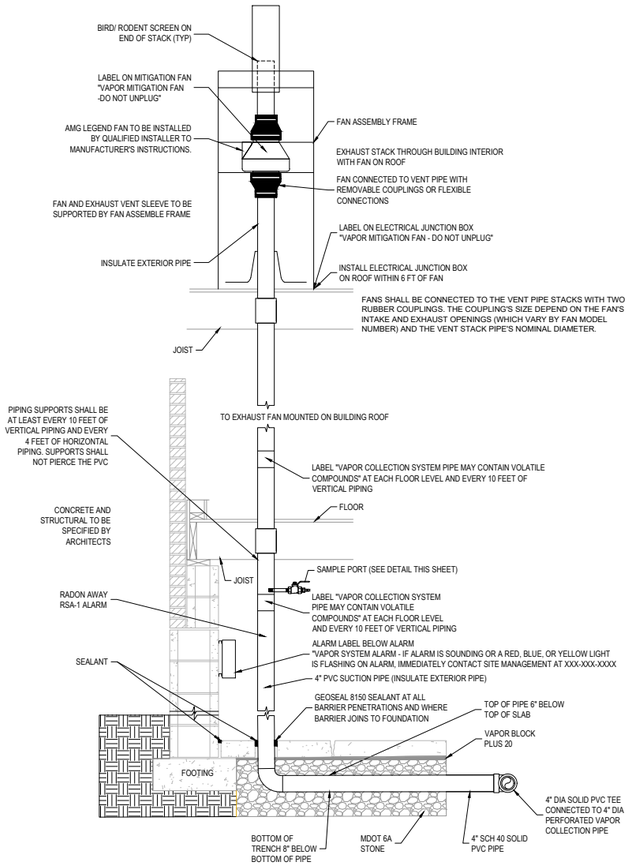
TYPICAL BALLARD PLAN VIEW
Not To Scale



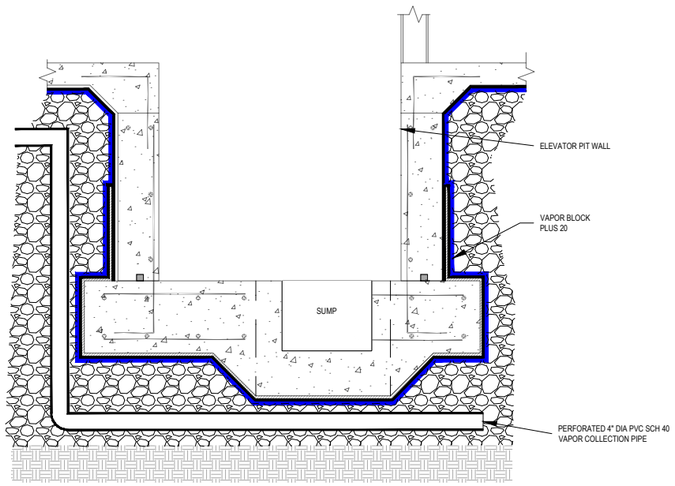
VAPOR COLLECTION PERFORATED PIPE DETAIL
Not To Scale



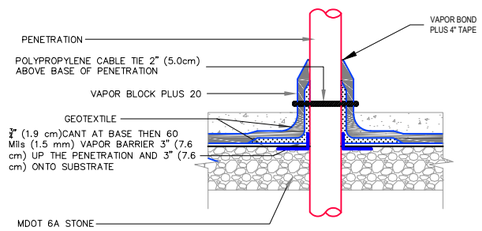
SAMPLE PORT
Not To Scale



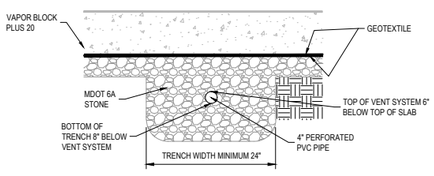
RISER PIPE AND FAN DETAIL
Not To Scale



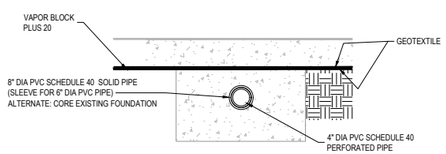
ELEVATOR PIT
Not To Scale



PENETRATIONS
Not To Scale



PERFORATED PVC PIPE TRENCH DETAIL
Not To Scale



PIPE SLEEVE IN FOUNDATION
Not To Scale

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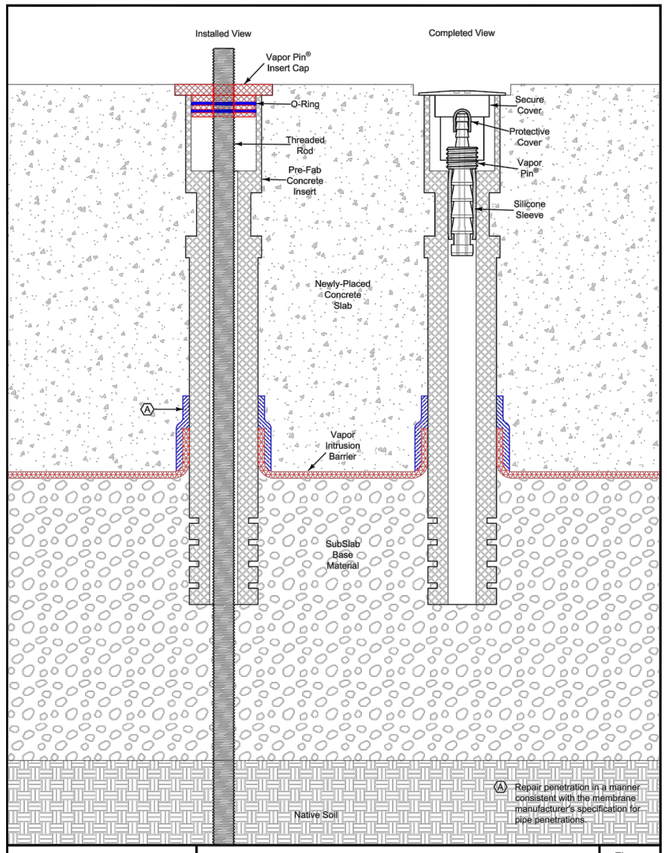
Sheet 12 - Piping and Trench Detail Sheet

7850 E Jefferson Ave. Detroit, Wayne County, MI

Client: 7850-9%-1 LDHA, LLC ; 7850-4%-1 LDHA, LLC ; 7850-9%-2 LDHA, LLC ; 7850-4%-2 LDHA, LLC

ASTI Project 4-10105, JRN, June 3, 2021



VaporPin®

Vapor Pin® Insert with Cap,
Vapor Pin Enterprises, Inc.

Figure 1

VAPOR PIN DETAIL
Not To Scale

Installation Procedure (New Construction):

1) Check for buried obstacles (pipes, electrical lines, etc.) prior to proceeding.

2) Locate the desired position (horizontally and vertically) of the top of the Vapor Pin® Insert.

3) Pierce the barrier with a threaded rod of sufficient length to extend slightly above the elevation of the finished floor and into the subgrade a sufficient depth to provide support for the Vapor Pin® Insert. Make sure the rod is perpendicular to the proposed floor surface. Avoid bending the rod, as it may inhibit its removal after the concrete has cured. Also avoid damaging the threads on the rod.

4) Dry fit the Vapor Pin® Insert and trim, or extend the length. Extend the length by sliding the Insert into a length of 1.5 inch diameter schedule 40 PVC pipe. The insert and pipe can be joined using PVC cement or similar material. Allow sufficient time for the adhesive to cure prior to sampling. Vent holes may be added at the bottom of the Insert or PVC extension to promote air flow.

5) Assemble the Vapor Pin® Insert and Cap by pressing the Cap into the top of the Insert. Position the assembly on the threaded rod so that the top of the Cap lies flush with the elevation of the finished floor. It is important that the position of the Insert be perpendicular to the slab so that the Vapor Pin® Secure Cover meets uniformly with the floor.

6) Marry the barrier to the Insert per the manufacture's specification prior to pouring the concrete slab.

7) After the concrete has set, remove the threaded rod and Cap and install the Vapor Pin® or FLX-VP Vapor Pin® product in the Insert.

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Sheet 13 - Vapor Pin Detail Sheet

7850 E Jefferson Ave. Detroit, Wayne County, MI

Client: 7850-9%-1 LDHA, LLC ; 7850-4%-1 LDHA, LLC ; 7850-9%-2 LDHA, LLC ; 7850-4%-2 LDHA, LLC

ASTI Project # 10105, JRN, June 3, 2021

VAPOR FAN CIRCUIT
DO NOT TURN OFF

LABEL FOR ELECTRICAL CIRCUIT
Actual Size

VAPOR MITIGATION FAN SWITCH

DO NOT TURN OFF

LABEL FOR FAN ELECTRICAL SWITCH
Actual Size

VAPOR MITIGATION FAN
DO NOT UNPLUG

LABEL FOR ELECTRICAL OUTLET AND FAN
Actual Size

CAUTION - VAPOR MITIGATION PIPE

MAY CONTAIN HAZARDOUS COMPOUNDS

LABEL FOR EXHAUST PIPING
Actual Size

VAPOR MITIGATION
SYSTEM ALARM

IF ALARM IS
SOUNDING OR A RED,
BLUE, OR YELLOW
LIGHT IS FLASHING,
IMMEDIATELY
CONTACT
MAINTENANCE OR
SITE MANAGER AT
(___) - ___ - _____

LABEL FOR ALARM
Actual Size

Y:\Project Files\Current and Closed\10000-10999\10100-10199\10105 7850 E. Jefferson, Detroit\4-10105 Mitigation Design\CAD\4-10105 SSD 11x17.dwg; 6/3/2021 11:21 AM;

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Sheet 14 - Proposed Label Detail Sheet

7850 E Jefferson Ave. Detroit, Wayne County, MI

Client: 7850-9%-1 LDHA, LLC ; 7850-4%-1 LDHA, LLC ;
7850-9%-2 LDHA, LLC ; 7850-4%-2 LDHA, LLC

ASTI Project # 10105, JRN, June 3, 2021

SOIL GAS COLLECTION SYSTEM FOR VOLATILE ORGANIC VAPORS

Soil Gas Collection System for Volatile Organic Vapors

Underground Utilities - The contractor is responsible for contacting MISS DIG and a private utility locator prior to start of construction. Utilities locations are approximate and should not be considered accurate.

Sealing Gaps and Joints in Slabs - All gaps, control joints, isolation joints, construction joints, shall be sealed for the purpose of preventing air leakage into the gas-permeable layer. The slab should be cast tight to walls, support columns, pipes, and conduits. When control, isolation, construction, expansion, or other joints are used, space shall be provided for filling gaps with backer rod and sealing the joints with 100% silicone caulk. The gap width shall be according to the caulk or sealant manufacturer's specifications. Caulks and sealants shall be applied according to the manufacturers' instructions. When sealing is undertaken, gaps and joints should be dry, clean, and free of loose material. Concrete shall have cured for a minimum of 28 days before caulks or sealants are applied to it. Any joint that allows enough air leakage to reduce sub-slab pressure field extension should be sealed.

Sealing Pipe Rough-Ins - Openings around plumbing pipes and utilities that have been placed in sleeved or other openings that penetrate the slab shall be filled with a sealant as permitted by code, shall be used to create an airtight seal.

Sealing Slab Penetrations - Slab penetrations for utility pipes and conduits are to be sealed when the slab is cast by pouring the concrete tight to them. Whenever any utility or pipe, especially the suction point pipe, has a gap around it, that gap shall be sealed. Sealing by *(1)* widening the gap, inserting polyethylene backer rod, and sealed with silicone caulk, or *(2)* filling the gap with low shrink mortar or grout.

Sealing Slab Openings Intentionally Provided for Future Use - When an opening has been cast into the slab for subsequent use, that opening shall be appropriately sealed before the building is occupied. If the opening was cast to install utilities that should be connected before occupancy, the opening shall be filled with concrete poured tight to the utility pipes and conduits after the utilities have been brought through the opening. If the opening was cast anticipating use after occupancy, the opening shall be filled with aggregate to a level appropriate to support a thin concrete slab. Filling a small opening in a slab with expanding foam is permitted provided that the opening is smaller than a person's foot print, is not in a walkway, and that it had been left open intentionally for a known future use.

Sealing Gas-Permeable Layer - The gas-permeable layer shall be sealed at the top and sides with Raven Butyl Seal 2-sided tape and Vapor Bond Plus 4" tape.

Sealing Top of Gas-Permeable Layer - Slab penetrations and openings around pipes, conduits, and other objects shall be sealed. The slab should be poured tight to the foundation walls and the objects that penetrate the slab. When the slab is not poured tight to foundation walls and tight to penetrating objects, all joints and openings shall be sealed with silicone caulk. The floor wall cold joint shall be sealed with silicone caulk when expansion joints are used. The penetration may also be sealed with Vapor Bond.

Sealing Sides of Gas-Permeable Layer - Foundation walls and footings (or curtain walls) seal the Vapor Block Plus 20 on the sides. Openings around utility pipes and conduits and other penetrations under the slab shall be sealed. Pipes and conduits shall be air and water tight. Open ends of conduits shall not terminate in the gas-permeable layer or in the soil below.

*Soil-Gas-Retarder V*apor barrier membrane consisting of Vapor Block Plus 20 shall be placed under concrete slabs. The membrane shall be as specified on the plans.

The edges of the membrane shall be secured to the foundations and other structures that penetrate the membrane with a Vapor Block Plus 4" tape according to the membrane manufacturer's specifications. At locations where the PVC vent pipe passes through the vapor barrier membrane, the pipe shall be secured to a boot that is secured to the membrane.

Smoke Test - Smoke test to be performed by vapor barrier installer. Note time, date, project name, inspector name, temperature and weather conditions on testing log. In addition, record humidity, barometric pressure, and wind speed/direction. Confirm wind speed is below 15 mph. Cap other vent outlet(s) not being used. Maintain operation of smoke generator/blower system for at least 15 minutes following purging of membrane. Thoroughly inspect entire membrane surface. Use fluorescent paint or chalk to mark/label any leak locations. Mark/label leak locations on testing log.

Sub Gas-Permeable Layers - The gas permeable layer shall be crushed stone 1" to 1-1/2" (MDOT 6A) minimum 40% void space.

Vent Stack Pipes - The minimum requirements for the vent stack pipes and their discharge are all of the following (with locations shown on Sheet 8):

(1) The vent stack pipe shall be vertical and its discharge upward, unobstructed, outside the structure, at least 10 ft (3 m) above the ground level, above the edge of the roof, and shall also meet the separation requirements of (2) and (3) below. Whenever practicable, vent stack pipes shall terminate above the highest roof of the building.

(2) if the discharge point is not at least 3 ft (1 m) above the top of any window, door, or other opening into conditioned or otherwise occupiable spaces of the structure, the end of the vent stack pipe shall be 20 ft (6 m) or more away from such openings. Chimney flues shall be considered openings into conditioned or otherwise occupiable space.

(3) The end of the vent stack pipe shall be 10 ft (3 m) or more away from any opening into the conditioned or other occupiable spaces of an adjacent building. Chimney flues of adjacent buildings shall be considered openings into conditioned or otherwise occupiable space.

(4) For vent stack pipes which penetrate the roof, the point of discharge shall be at least 12 in. (0.3 m) above the surface of the roof. For vent stack pipes attached to or penetrating the sides of buildings, the point of discharge shall be vertical and a minimum of 12 in. (0.3 m) above the edge of the roof and in such a position that it can neither be covered with snow, or other materials nor be filled with water from the roof or an overflowing gutter.

(5) When a horizontal run of vent stack pipe penetrates the gable end walls, the piping outside the structure shall be routed to a vertical position so that the discharge point meets the requirements of sections *(1)*, *(2)*, *(3)*. and *(4)* above.

(6) Points of discharge that are not in a direct line of sight from openings into conditioned or otherwise occupiable space because of intervening objects, such as dormers, chimneys, windows around the corner, and so forth shall meet the separation requirements of sections *(1)*, *(2)*, *(3)*, *(4)*, and *(5)*above.

System Solid and Perforated PVC Pipe - The vapor collection system and vent system shall be PVC pipe with a minimum wall thickness equal to or greater than that of Schedule 40. For system piping described by a standard dimension ratio (SDR) series number, the pipe series shall be DR 17 or less.

System Piping Supports - Pipe support hardware that is manufactured to support drain waste vent (DWV) piping above ground shall be used to support system piping. Horizontal and vertical runs of system piping shall be supported in accordance with applicable building codes for DWV pipe of the same type and size. The vent stack pipe shall be braced above and below the place where the fan should be installed and at the roof penetration. The pipe supports should not interfere with installed pipe insulation. Fans should be supported by the vent stack pipes; the fan housings should not support the vent stacks. Installing and replacing a fan without moving/removing the vent stack pipe by which it should be supported is required.

Pipe and Fan Insulation - The pipe insulation should be designed or selected to fit the piping. Location of piping to include insulation as shown on Sheet 3.

Pipe Identification Labeling and Marking - System piping that is located inside the building, and that extends above the building's ground covering slabs, shall be labeled or marked to identify it as organic vapor system piping.

Pipe Labels - A permanent label or distinctive marking that can be read at a distance of 6 ft (2 m) shall be applied to the system piping (or its insulation) on each floor of the building, at locations such that at least one label is visible from any accessible location along the piping, whether or not it is to be visible following completion of the building. The label should read: "Vapor Mitigation System Pipe" or have other wording that identifies the pipe as part of a soil gas collection system.

System Maintenance and Information Label - A label that identifies the system maintenance provider, identifies the state contact, and shows the system's installation/activation date(s) shall be applied near the organic vapor system label.

Specifications and Installation Requirements for Soil Depressurization Systems

Fan Performance - The Fans will be a AMG Festa Legend with a performance of at least 150 cfm of air at a static pressure of 1.6 in. w.g. and at least 20 cfm at a minimum static pressure of 2.5 in. w.g. Fans shall be connected to inlet and discharge pipe with two rubber couplings. The coupling's size depends on the fan's intake and exhaust openings (which vary by fan model) and the vent stack pipe's nominal diameter. See Sheet 12 for details.

Fan and Couplings - The fan type is a radial blade with belt or direct couple arrangement with motor.

System Fan Mounting Space and Piping Accessibility - Vent stacks shall be accessible for subsequent installation of fans and system monitors. The accessible space reserved for the fans shall occupy an imaginary cylinder, standing on end, which is 24 in. (60 cm) or more in diameter, shall be centered about the axis of the vent stack pipe, and shall extend for a minimum vertical distance of 3 ft (90 cm).

Fans should not be installed until it can operate continuously; moisture from vent stacks can damage installed fans that are not operating.

Maintain all Fire Ratings - All fire protections required by the applicable building code shall be preserved.

Electrical Enclosures and Junction Boxes - All electrical enclosures and junction boxes shall be NEMA 4 rated.

Electrical Service - Contractor shall verify suitable power source at the light pole or determine if capacity of existing conduit is suitable for addition wire to power fan motor and controls. If sufficient power is not available at the light pole, contractor shall coordinate location and installation of new electric service from building.

Back Up Electric Service - Contractor to provide and install natural gas generator with automatic start up when service outage occurs.

Accessibility for Fan Installation - Vent stacks shall be routed to ensure accessibility to suitable space for future fan installation and servicing. Suitable spaces for fans located within the main building shell are outside the thermal envelope of the building in unconditioned areas and above occupiable space.

Fan and Couplings - Fans shall be connected to the vent stack pipes with two rubber couplings. The coupling's size depends on the fan's intake and exhaust openings (which vary by fan model number) and the vent stack pipe's nominal diameter. See Sheet 12 for details.

Fan Location - The fans and all positively pressured portions of the suction pipe shall be located in unconditioned space above all occupiable space or outside the building as indicated on Sheet 8 of the plans.

Installing Fan - The fans shall be installed in a vertical section of the vent stack pipe and in a vertical orientation, to prevent condensed water and precipitation from accumulating in the fans. The fans and system piping outside a thermal envelope shall be insulated.

Above Roof Fan Installation - Fans shall be securely attached to the top of the vent stacks by their bottom coupling. An 8 to 24 in. (20 to 60 cm) length of pipe shall be inserted into the fan's top coupling and firmly secured. The pipe extending above the top coupling shall be firmly attached to the roof's support structure supported by a weather proof structure that is firmly attached to the building's structure.

System Monitor Location - The system monitors, manometer gauge and audible alarm shall be mounted on the riser pipe where it can easily be seen daily or where it can easily be heard. The proposed locations of the alarms are indicated on Sheet 12 of the plans.

System Monitor Type - The system monitor will be operated by the vent stack's suction pressure and will produce visual or audible warnings of system abnormal operation. In addition the monitor will be capable of having its calibration quickly verified on site and shall respond quickly to pressure changes.

System Monitor Setup - The system's nominal operating suction pressure shall be marked on the monitor's display for the visual alarm. The nominal operating suction pressure shall be the initial suction pressure reading at system startup time. The range of acceptable operating suction pressures should also be indicated on the visual warning monitor's display. Custom monitor setups reflecting site differences are required because each soil depressurization system has a different normal operating suction pressure and this pressure varies due to changing weather and soil conditions.

Accessibility for System Monitor - Access to the visual or audible system status indicator will be provided at a location where the system status can easily be obtained on a daily basis. Also the location of the system monitor shall be suitable for installing and servicing a plastic tube connecting the monitor to the vent stack.

System Monitor's Connections - The length of small diameter flexible plastic or rubber tubing, that usually connects the monitor and vent stack shall be secured and protected.

Electrical Junction Box for Fans to be Installed Above the Roof - An electrical junction box, located under the roof, shall be installed. The wires from a non-switched electric circuit shall be present in the fan's junction box. The fans, when installed above the roof, shall be hard wired to these junction boxes to avoid the unpredictable operation of ground fault interrupt devices required for rooftop receptacles. The disconnecting device shall be installed above the roof and near the fans.

Disconnecting Means - A Disconnecting Means is a switch, a plugged cord, or a circuit's over current device. A disconnecting means shall be present in the electric circuit powering fans.

Electrical Junction Box for System Monitor - Electrical junction boxes are to be located near the system monitor. The system monitor shall be connected to a non-switched circuit not used by the fan.

The Circuit Lists - When a junction box for a fan or system monitor, or both, is installed and wired, the circuit list posted on the circuit breaker enclosure shall be updated to include the fan and monitor.

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Sheet 15 - Specifications

7850 E Jefferson Ave.

Detroit, Wayne County, MI

Client: 7850-9%-1 LDHA, LLC ; 7850-4%-1 LDHA, LLC ; 7850-9%-2 LDHA, LLC ; 7850-4%-2 LDHA, LLC

ASTI Project # 10105, JRN, June 3, 2021

Attachment B

System Component Information

VAPORBLOCK® PLUS™ VBP20

UNDER-SLAB VAPOR / GAS BARRIER

RAVEN

PRODUCT DESCRIPTION

VaporBlock® Plus™ is a seven-layer co-extruded barrier made using high quality virgin-grade polyethylene and EVOH resins to provide unmatched impact strength as well as superior resistance to gas and moisture transmission. VaporBlock® Plus™ 20 is more than 100 times less permeable than typical high-performance polyethylene vapor retarders against Methane, Radon, and other harmful VOCs. Tested and verified for unsurpassed protection against BTEX, HS, TCE, PCE, methane, radon, other toxic chemicals and odors.

VaporBlock® Plus™ 20 multi-layer gas barrier is manufactured with the latest EVOH barrier technology to mitigate hazardous vapor intrusion from damaging indoor air quality, and the safety and health of building occupants. VBP20 is one of the most effective underslab gas barriers in the building industry today far exceeding ASTM E-1745 (Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs) Class A, B and C requirements. Available in a 20 (Class A) mil thicknesses designed to meet the most stringent requirements. VaporBlock® Plus™ 20 is produced within the strict guidelines of our ISO 9001 Certified Management System.

PRODUCT USE

VaporBlock® Plus™ 20 resists gas and moisture migration into the building envelop when properly installed to provide protection from toxic/harmful chemicals. It can be installed as part of a passive or active control system extending across the entire building including floors, walls and crawl spaces. When installed as a passive system it is recommended to also include a ventilated system with sump(s) that could be converted to an active control system with properly designed ventilation fans.

VaporBlock® Plus™ 20 works to protect your flooring and other moisture-sensitive furnishings in the building's interior from moisture and water vapor migration, greatly reducing condensation, mold and degradation.

SIZE & PACKAGING

VaporBlock® Plus™ 20 is available in 10' x 150' rolls to maximize coverage. All rolls are folded on heavy-duty cores for ease in handling and installation. Other custom sizes with factory welded seams are available based on minimum volume requirements. Installation instructions and ASTM E-1745 classifications accompany each roll.

Under-Slab Vapor/Gas Retarder

PRODUCT	PART #
VaporBlock® Plus™ 20	VBP20

APPLICATIONS

- Radon Barrier
- Methane Barrier
- VOC Barrier
- Brownfields Barrier
- Vapor Intrusion Barrier
- Under-Slab Vapor Retarder
- Foundation Wall Vapor Retarder

VaporBlock® Plus™
UNDERSLAB VAPOR RETARDER / GAS BARRIER

VAPORBLOCK® PLUS™ VBP20

UNDER-SLAB VAPOR / GAS BARRIER

PROPERTIES	TEST METHOD	VAPORBLOCK® PLUS™ 20 IMPERIAL	VAPORBLOCK® PLUS™ 20 METRIC
Appearance		White/Gold	
Thickness, Nominal		20 mil	0.51 mm
Weight		102 lbs/MSF	498 g/m^2
Classification	ASTM E 1745	CLASS A, B & C	
[3] Tensile Strength	ASTM E 154 Section 9 (D-882)	58 lbf	102 N
Impact Resistance	ASTM D 1709	2600 g	
Permeance (new material)	ASTM E 154 Section 7 ASTM E 96 Procedure B	0.0098 Perms grains/(ft^2·hr·in·Hg)	0.0064 Perms g/(24hr·m^2·mm Hg)
Permeance (after conditioning) (same measurement as above permeance)	ASTM E 154 Section 8, E96 Section 11, E96 Section 12, E96 Section 13, E96	0.0079 0.0079 0.0097 0.0113	0.0052 0.0052 0.0064 0.0074
WVTR	ASTM E 96 Procedure B	0.0040 grains/hr-ft^2	0.0028 gm/hr-m^2
Benzene Permeance	See Note [6]	1.13 x 10^{-10} m^2/sec or 3.62 x 10^{-13} m/s	
Toluene Permeance	See Note [6]	1.57 x 10^{-10} m^2/sec or 1.46 x 10^{-13} m/s	
Ethylbenzene Permeance	See Note [6]	1.23 x 10^{-10} m^2/sec or 3.34 x 10^{-14} m/s	
M & P-Xylenes Permeance	See Note [6]	1.17 x 10^{-10} m^2/sec or 3.81 x 10^{-14} m/s	
O-Xylene Permeance	See Note [6]	1.10 x 10^{-10} m^2/sec or 3.43 x 10^{-14} m/s	
Hydrogen Sulfide	See Note [9]	1.92E^{-09} m/s	
Trichloroethylene (TCE)	See Note [6]	7.66 x 10^{-11} m^2/sec or 1.05 x 10^{-14} m/s	
Perchloroethylene (PCE)	See Note [6]	7.22 x 10^{-11} m^2/sec or 1.04 x 10^{-14} m/s	
Radon Diffusion Coeffiecient	K124/02/95	< 1.1 x 10^{-13} m^2/s	
Methane Permeance	ASTM D 1434	3.68E^{-12} m/s Gas Transmission Rate (GTR): 0.32 mL/m^2•day•atm	
Maximum Static Use Temperature		180° F	82° C
Minimum Static Use Temperature		- 70° F	- 57° C

[3] Tests are an average of machine and transverse directions.

[5] Raven Industries performs seam testing at 20" per minute.

[6] Aqueous Phase Film Permeance.
Permeation of Volatile Organic Compounds through EVOH Thin Film Membranes and Coextruded LLDPE/EVOH/LLDPE Geomembranes, McWatters and Rowe, Journal of Geotechnical and Geoenvironmental Engineering© ASCE/ September 2015. (Permeation is the Permeation Coefficient adjusted to actual film thickness - calculated at 1 kg/m^3.) The study used to determine PCE and TCE is titled: Evaluation of diffusion of PCE & TCE through high performance geomembranes by Di Battista and Rowe, Queens University 8 Feb 2018.

[9] The study used to determine diffusion coefficients is titled: Hydrogen Sulfide (H_2S) Transport through Simulated Interim Covers with Conventional and Co-Extruded Ethylene-Vinyl Alcohol (EVOH) Geomembranes.

VaporBlock® Plus™ Placement

All instructions on architectural or structural drawings should be reviewed and followed.

Detailed installation instructions accompany each roll of VaporBlock® Plus™ and can also be located at www.ravenefd.com.

ASTM E-1643 also provides general installation information for vapor retarders.

VaporBlock® Plus™ UNDERSLAB VAPOR RETARDER / GAS BARRIER

VaporBlock® Plus™ is a seven-layer co-extruded barrier made using high quality virgin-grade polyethylene and EVOH resins to provide unmatched impact strength as well as superior resistance to gas and moisture transmission.

Scan QR Code to download current technical data sheets via the Raven website.

Note: To the best of our knowledge, unless otherwise stated, these are typical property values and are intended as guides only, not as specification limits. Chemical resistance, odor transmission, longevity as well as other performance criteria is not implied or given and actual testing must be performed for applicability in specific applications and/or conditions. RAVEN INDUSTRIES MAKES NO WARRANTIES AS TO THE FITNESS FOR A SPECIFIC USE OR MERCHANTABILITY OF PRODUCTS REFERRED TO, no guarantee of satisfactory results from reliance upon contained information or recommendations and disclaims all liability for resulting loss or damage. Limited Warranty available at www.RavenEFD.com

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RAVEN

ACCESSORIES

SEAMING TAPES & OTHER ACCESSORIES FOR PLASTIC SHEETING

From tie-down fasteners to field seaming tape, Raven Industries has the accessories you need to maximize your film's versatility and minimize installation time on the job.

ACCESSORY TAPES AND EPOXY

VaporBond™ Tape (TVB4)

VaporBond™ Tape is a white single-sided tape that combines a heavy-duty, weather-resistant polyethylene backing with an aggressive rubber adhesive. VaporBond™ Tape offers excellent seaming capabilities for our materials with an "Easy Tear" feature to reduce installation time. TVB4 has a WVTR of 0.18 perms per ASTM D3833. Typical applications include vapor retarders, covers and liners.
Available in 4" x 210' roll.

R25B Tape (R25B)

R25B Tape is a single-sided aggressive synthetic elastomeric adhesive that bonds instantly to properly prepared polyethylene and polypropylene. The black polymer backing and adhesive is specially formulated to provide years of performance even in direct sunlight. A poly release liner provides for ease of installation.
Available in 4" x 100' roll.

VaporSeal™ Tape (TVSP4/TVSP12)

VaporSeal™ Tape is a patent pending single-sided 7-layer gas barrier tape with a release liner for ease of installation. The backing contains a layer of highly impermeable EVOH designed to block migration of radon, methane, and VOC's. An aggressive acrylic adhesive provides outstanding adhesion to polyethylene over a wide temperature range. Typical uses include joining, repairing and sealing gas/moisture barriers.
Available in 4" x 160' and 12" x 50' rolls.

Butyl Seal Tape (TP2BR / TP6BR)

Butyl Seal is a double-sided reinforced aggressive black butyl rubber tape used to join panels of polyethylene and polypropylene together by overlapping the edges and applying Butyl Seal in between. It is also used to adhere to concrete walls and footings when properly prepared. Butyl Seal is non-hardening and flexible.
Available in 2" x 50' and 6" x 50' rolls.

VaporBoot™ Tape (TBOOT)

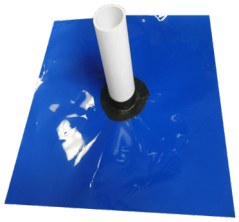
VaporBoot™ Tape is a single-sided elastomeric butyl tape used to complete pipe boot installations (sealing the boot to the pipe). The 100% stretchable butyl adhesive features excellent adhesion values and 3-D stretching that can be easily molded to multiple surfaces without any creases and folds.
Available in 2" x 16.4' roll.

POUR-N-SEAL™ (PNS1G)

POUR-N-SEAL™ is a gray two part epoxy used to seal around multi-pipe penetrations in areas where pipe boots are not practical, when installing underslab barriers. The POUR-N-SEAL™ system installation guide references a 1" x 25 lineal feet adhesive-backed foam to form a dam around multi-pipe penetrations to contain POUR-N-SEAL™ during the setting process. The 1" x 25 ft. adhesive-backed foam is sold seperately as FOAM25.

ADDITIONAL ACCESSORIES

VaporBoot™ System (VBOOT)



The VaporBoot™ System is designed to assist in securing pipe and other penetrations that run vertically through the vapor retarder material. The VaporBoot™ System offers a quick solution and is delivered to the jobsite in a complete package. VaporBoots are produced from high performance VaporBlock® material.

Package Contents:
25 - VaporBoots (18" x 18", w/precut center marker)
1 - roll of VaporBoot Tape

VaporBoot™ Plus Preformed Pipe Boots (VBPBT)

VaporBoot™ Plus Preformed Pipe Boots are produced from heavy 40 mil co-extruded polyethylene and barrier resins for excellent strength and durability. The preformed boots are stepped to fit 1" to 4" wide pipe penetrations. VaporBoot™ Plus Preformed Pipe Boots are available in quantities of 12 per box.

ACCESSORIES

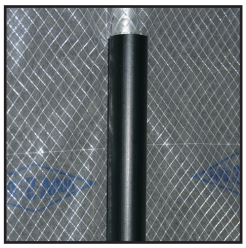
SEAMING TAPES & OTHER ACCESSORIES FOR PLASTIC SHEETING

ADDITIONAL ACCESSORIES (CONTINUED)

Dura♦Skrim® Reinforced Sandbags

Dura♦Skrim® reinforced sandbags are used to secure large covers and liners to prevent wind damage. Sandbags are produced with strong Dura♦Skrim® 8 & 12 mil reinforced polyethylene. These 15" wide x 24" long bags are designed to hold 35 lbs. Sandbags are also available in other Raven reinforced materials with minimum order requirements.
11.8" Cable Ties are also available.

Dura-Clip™ (CLIP11)



These full size clips are 11" long and fit most commercial scaffolding. Dura-Clip™ will securely fasten your poly sheeting to scaffolding, reducing wind whip and increasing the life of your enclosure. The Dura-Clip™ is normally placed about every 3' onto the enclosure.

Tie-Down Buttons (BUTI) & Tarp Grabbers (BUTEZ)

Tie-Down Buttons and Tarp Grabbers help keep plastic sheeting securely in place. Tie-Down Buttons are designed to eliminate traditional grommets in plastic sheeting up to 10 mil thick and are reusable plastic fittings that are easy to install in any position. Tarp Grabbers are up to 4 times stronger than a brass grommet and are typically used in heavier plastic sheeting from 10 mil to 30 mil thick. Great for equipment covers, large storage covers and truck tarps.

Raven Welding Rod

Raven Welding Rod is used for field seaming, repairs and detail work, such as installing pipe boots. Packaged in 25 lb spools, it is available in 4mm and 5mm sizes to fit most brands of extrusion guns. Raven Welding Rod is made from a thermally UV stabilized LLDPE resin and is available in both black and white to correspond with the color of geomembranes being utilized.

TAPE ACCESSORY PROPERTIES

PROPERTIES	VaporBond Tape (TVB4)	VaporSeal Tape (TVSP4 / TVSP12)	VaporBoot Tape (TBOOT)	R25B Tape (R25B)	Butyl Seal Tape (TP2BR / TP6BR)
BACKING	6.7 mil Polyethylene	7 mil EVOH/LLDPE	30 mil EPDM	8 mil Multi-Polymer	N/A
ADHESIVE	3.3 mil Rubber Based Pressure-Sensitive	2 mil Acrylic Adhesive Pressure-Sensitive	20 mil Butyl Rubber	17 mil Synthetic Elastomeric	40 mil Butyl Rubber
COLOR	White	Silver	Black	Black	Black
TYPE	Single Sided	Single Sided	Single Sided	Single Sided	Double Sided
SIZE	4" x 210'	4" x 160' / 12" x 50'	2" x 16.4'	4" x 100'	2" x 50' / 6" x 50'
ROLLS PER CASE	12	12 / 4	64	6	16 / 4
WEIGHT PER CASE	45 lbs	50 lbs / 18 lbs	45 lbs	33 lbs	47 lbs / 20 lbs
ADHESION VALUES	35 oz. / in. (to steel)	80 oz. / in. (to steel)	145 oz. / in. (to steel)	144 oz. / in. (to steel)	88 oz. / in. (to steel)
PERMS	0.081 g/(24h*100 in^2)	0.014 g/(24h*100 in^2)	N/A	<0.005 g/(24h*100 in^2)	0.82 g/(24h*100 in^2)
SERVICE TEMP.	-40° F to +180° F	-40° F to +190° F	+14° F to +122° F	+20° F to +180° F	0° F to +170° F
MIN. APPLICATION TEMP.	50° F	50° F	14° F	35° F	35° F
IDEAL STORAGE TEMP. / HUMIDITY	70° F w/ 40-50 %	60°-80° F w/ 40-60 %	70° F w/ 70 %	70° F w/ 40-50 %	70° F w/ 40-50 %

Scan QR Code to download current technical data sheets via the Raven website.

Note: To the best of our knowledge, unless otherwise stated, these are typical property values and are intended as guides only, not as specification limits. Chemical resistance, odor transmission, longevity as well as other performance criteria is not implied or given and actual testing must be performed for applicability in specific applications and/or conditions. RAVEN INDUSTRIES MAKES NO WARRANTIES AS TO THE FITNESS FOR A SPECIFIC USE OR MERCHANTABILITY OF PRODUCTS REFERRED TO, no guarantee of satisfactory results from reliance upon contained information or recommendations and disclaims all liability for resulting loss or damage. Limited Warranty available at www.RavenEFD.com

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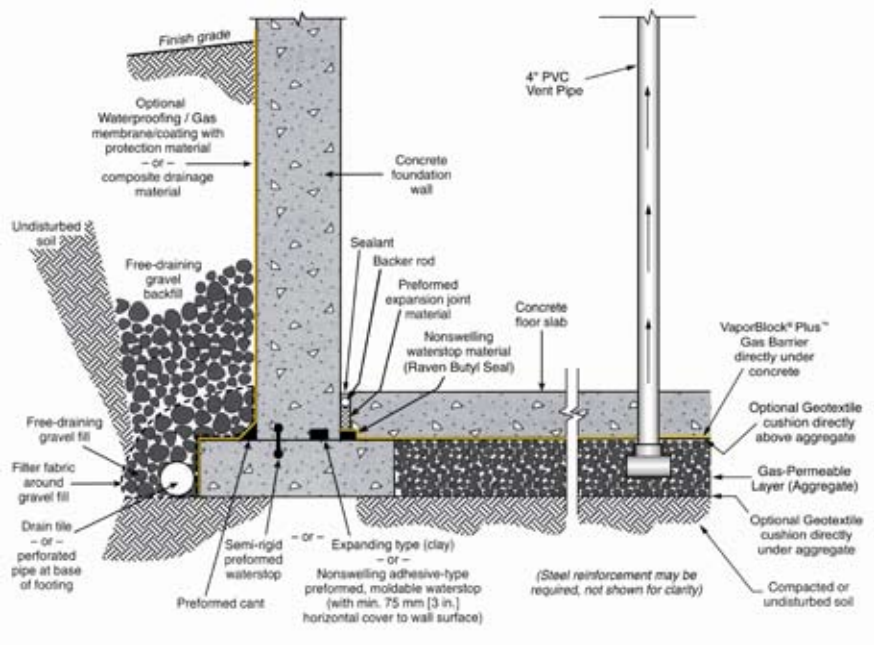
VaporBlock® Plus™
UNDERSLAB VAPOR RETARDER / GAS BARRIER

INSTALLATION GUIDELINES

Please Note: *Read these instructions thoroughly before installation to ensure proper use of* ***VaporBlock® Plus™****. ASTM E 1465, ASTM E 2121 and, ASTM E 1643 also provide valuable information regarding the installation of vapor / gas barriers. When installing this product, contractors shall conform to all applicable local, state and federal regulations and laws pertaining to residential and commercial building construction.*

- **When VaporBlock Plus gas barrier is used as part of an active control system for radon or other gas, a ventilation system will be required.**
- **If designed as a passive system, it is recommended to install a ventilation system that could be converted to an active system if needed.**

Materials List:
VaporBlock® Plus™ Vapor / Gas Barrier
VaporBond Plus 4" Foil Seaming Tape
Butyl Seal 2-Sided Tape
VaporBoot Plus Pipe Boots 12/Box (recommended)
VaporBoot Tape (optional)



Elements of a moisture/gas-resistant floor system. General illustration only.
(Note: This example shows multiple options for waterstop placement.

VAPORBLOCK® PLUS™ PLACEMENT

1.1. Level and tamp or roll granular base as specified. A base for a gas-reduction system may require a 4" to 6" gas permeable layer of clean coarse aggregate as specified by your architectural or structural drawings after installation of the recommended gas collection system. In this situation, a cushion layer consisting of a non-woven geotextile fabric placed directly under **VaporBlock® Plus™** will help protect the barrier from damage due to possible sharp coarse aggregate.

1.2. Unroll **VaporBlock Plus** running the longest dimension parallel with the direction of the pour and pull open all folds to full width. (Fig. 1)

1.3. Lap **VaporBlock Plus** over the footings and seal with Raven Butyl Seal tape at the footing-wall connection. Prime concrete surfaces and assure they are dry and clean prior to applying Raven Butyl Seal Tape. Apply even and firm pressure with a rubber roller. Overlap joints a minimum of 6" and seal overlap with Raven VaporBond Tape. When used as a gas

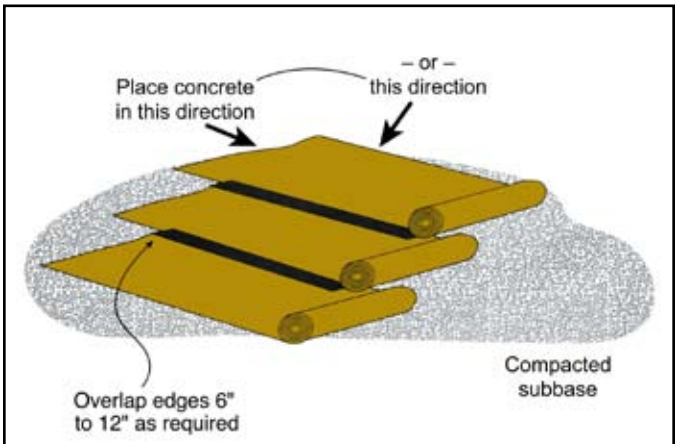


Fig. 1: VaporBlock Plus Overlaping Roll-out Method

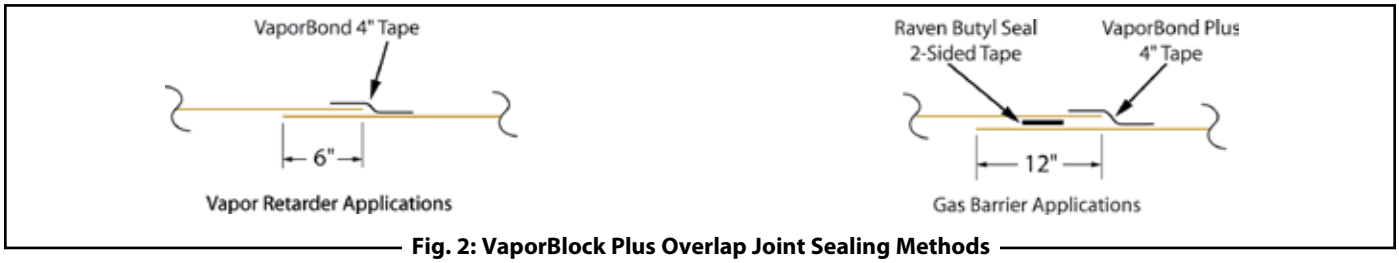


Fig. 2: VaporBlock Plus Overlap Joint Sealing Methods

SINGLE PENETRATION PIPE BOOT INSTALLATION

barrier, overlap joints a minimum of 12" and seal in-between overlap with 2-sided Raven Butyl Seal Tape. Then seal with VaporBond Plus Tape centered on the overlap seam. (Fig. 2)

1.4. Seal around all plumbing, conduit, support columns or other penetrations that come through the **VaporBlock Plus** membrane. Pipes four inches or smaller can be sealed with Raven VaporBoot Plus preformed pipe boots. VaporBoot Plus preformed pipe boots are formed in steps for 1", 2", 3" and 4" PVC pipe or IPS size and are sold in units of 12 per box (Fig. 3 & 5).

Pipe boots may also be fabricated from excess **VaporBlock Plus** membrane (Fig. 4 & 6) and sealed with VaporBoot Tape or VaporBond Plus Tape (sold separately).

Reminder Note: All holes or penetrations through the membrane will need a patch cut to a minimum of 12" from the opening in all directions.

To fabricate pipe boots from **VaporBlock Plus** excess material (see Fig. 4 & 6 for A-F):

A) Cut a square large enough to overlap 12" in all directions.

B) Mark where to cut opening on the center of the square and cut four to eight slices about 3/8" less than the diameter of the pipe.

C) Force the square over the pipe leaving the tightly stretched cut area around the bottom of the pipe with approximately a 1/2" of the boot material running vertically up the pipe. *(no more than a 1/2" of stretched boot material is recommended)*

D) Once boot is positioned, seal the perimeter to the membrane by applying 2-sided Raven Butyl Seal Tape in between the two layers. Secure boot down firmly over the membrane taking care not to have any large folds or creases.

E) Use VaporBoot Tape or VaporBond Plus Tape to secure the boot to the pipe.

VaporBoot Tape (option) – fold tape in half lengthwise, remove half of the release liner and wrap around the pipe allowing 1" extra for overlap sealing. Peel off the second half of the release liner and work the tape outward gradually forming a complete seal.

VaporBond Plus Tape (option) - Tape completely around pipe overlapping the to get a tight seal against the pipe.

F) Complete the process by taping over the boot perimeter edge with VaporBond Plus Tape to create a monolithic membrane between the surface of the slab and gas/ moisture sources below and at the slab perimeter. (Fig. 4 & 6)

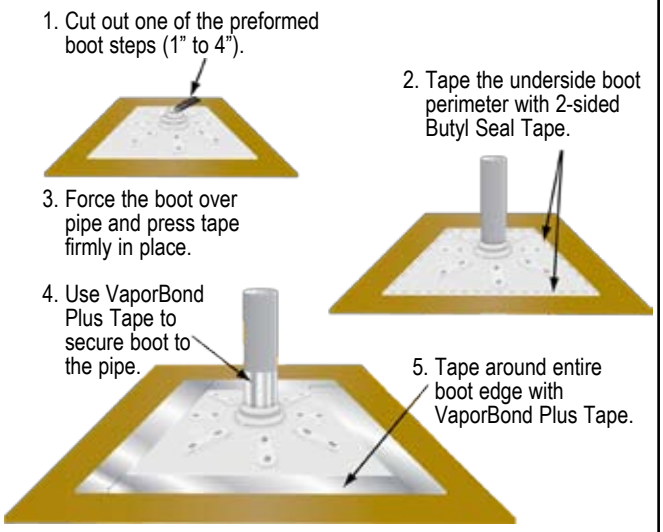


Fig. 3

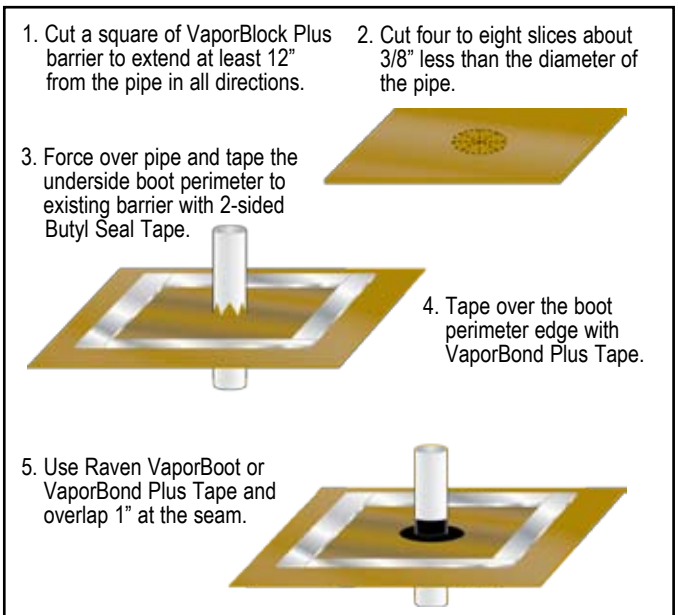


Fig. 4

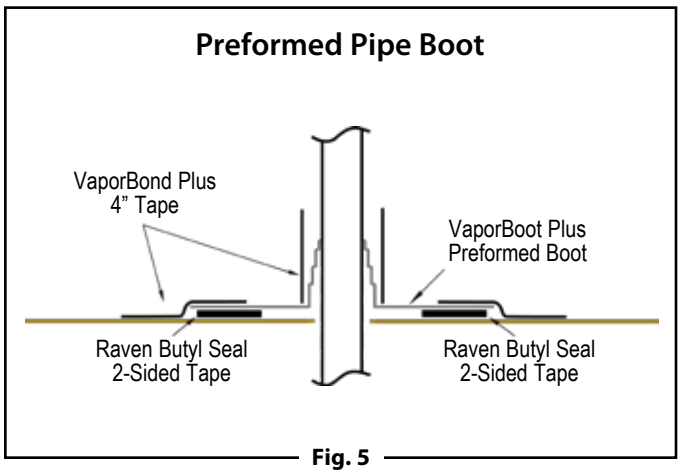


Fig. 5

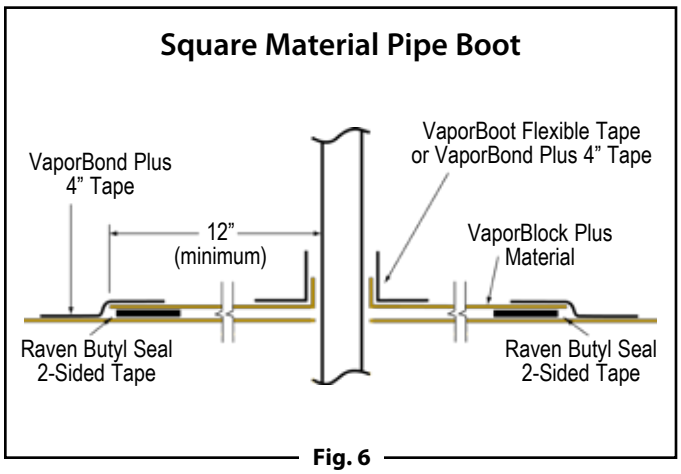


Fig. 6

MULTIPLE PENETRATION PIPE BOOT INSTALLATION

1.5. For side-by-side multiple penetrations;

A) Cut a patch large enough to overlap 12″ in all directions (Fig. 7) of penetrations.

B) Mark where to cut openings and cut four to eight slices about 3/8″ less than the diameter of the penetration for each.

C) Slide patch material over penetration to achieve a tight fit.

D) Once patch is positioned, seal the perimeter to the membrane by applying 2-sided Raven Butyl Seal Tape in-between the two layers. (Fig. 8)

E) After applying Raven Butyl Seal Tape between the patch and membrane, tape around each of the penetrations and the patch with VaporBond Plus 4″ foil tape. (Fig. 9) For additional protection apply an acceptable polyurethane elastomeric sealant around the penetrations. (Fig. 10)

1.6. Holes or openings through **VaporBlock Plus** are to be repaired by cutting a piece of **VaporBlock Plus** 12″ larger in all directions from the opening. Seal the patch to the barrier with 2-sided Raven Butyl Seal Tape and seal the edges of the patch with VaporBond Plus Tape.

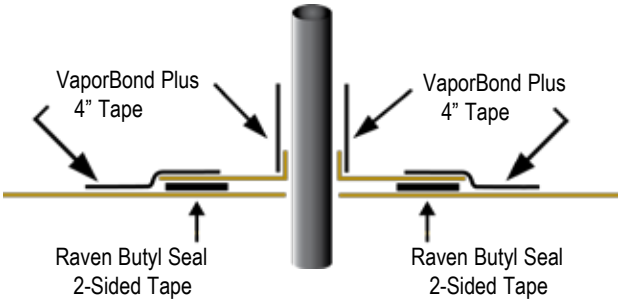


Fig. 6

Cut a patch large enough to overlap 12" in all directions and slide over penetrations (Make openings as tight as possible.)

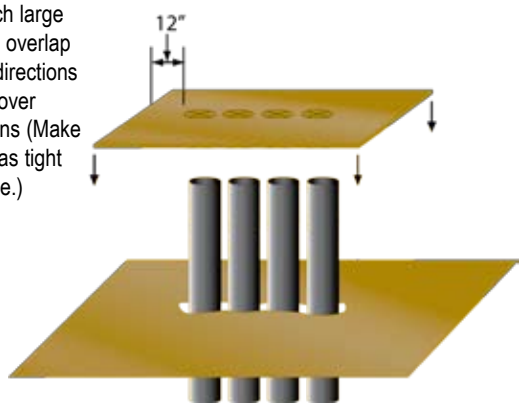


Fig. 7

Once the overlay patch is positioned, seal the perimeter to the membrane by applying 2-sided Raven Butyl Seal Tape in-between the two layers.

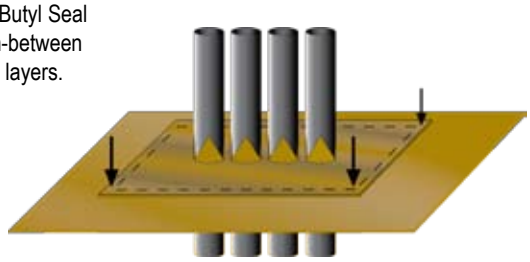


Fig. 8

After applying Raven Butyl Seal Tape between the patch and membrane, tape around the perimeter of the penetration and the patch with VaporBond Plus 4" foil Tape

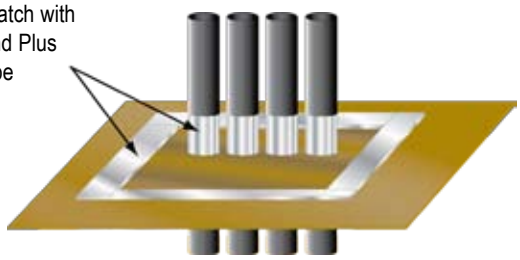


Fig. 9

For additional protection apply an acceptable polyurethane elastomeric sealant around the penetrations.

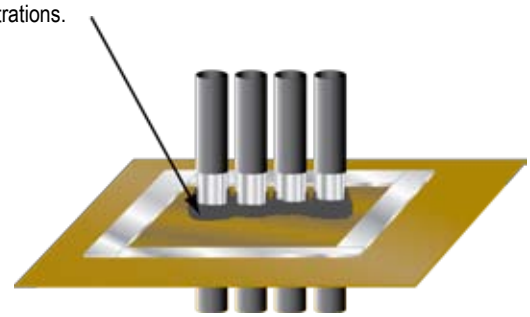


Fig. 10

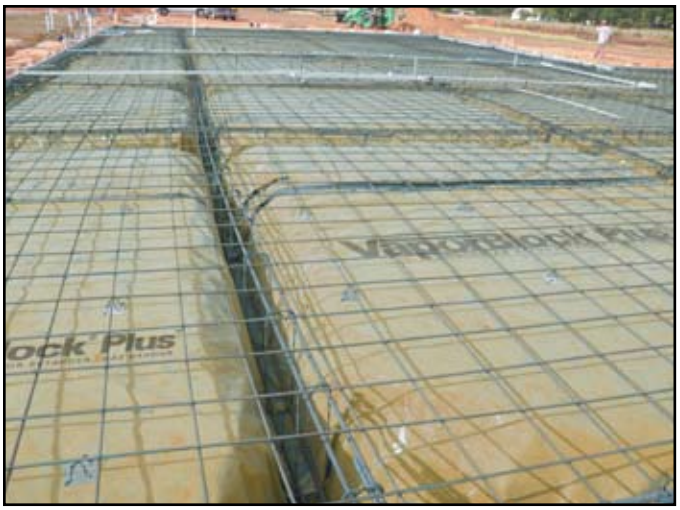
VAPORBLOCK® PLUS™ PROTECTION

2.1. When installing reinforcing steel and utilities, in addition to the placement of concrete, take precaution to protect **VaporBlock Plus**. Carelessness during installation can damage the most puncture–resistant membrane. Sheets of plywood cushioned with geotextile fabric temporarily placed on **VaporBlock Plus** provide for additional protection in high traffic areas including concrete buggies.

2.2. Use only brick-type or chair-type reinforcing bar supports to protect **VaporBlock Plus** from puncture.

2.3. Avoid driving stakes through **VaporBlock Plus**. If this cannot be avoided, each individual hole must be repaired per section 1.6.

2.4. If a cushion or blotter layer is required in the design between **VaporBlock Plus** and the slab, additional care should be given if sharp crushed rock is used. Washed rock will provide less chance of damage during placement. Care must be taken to protect blotter layer from precipitation before concrete is placed.



Note: To the best of our knowledge, these are typical installation procedures and are intended as guidelines only. Architectural or structural drawings must be reviewed and followed as well on a project basis. NO WARRANTIES ARE MADE AS TO THE FITNESS FOR A SPECIFIC USE OR MERCHANTABILITY OF PRODUCTS OR GUIDELINES REFERRED TO, no guarantee of satisfactory results from reliance upon contained information or recommendations and we disclaim all liability for resulting loss or damage.

RAVEN INDUSTRIES

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Toll Free: 800-635-3456

ISO 9001:2000
CERTIFIED MANAGEMENT SYSTEM

www.vaporblockplus.com

6/09 EFD 1127

Geocel
Setting the Standard®

TECHNICAL DATA

8150® 100% Silicone High Performance Neutral Cure Sealant

1. PRODUCT NAME:
8150® 100% Silicone High Performance Neutral Cure Sealant

2. MANUFACTURER:
Geocel Products Group A Business Unit of The Sherwin-Williams Company ("Geocel Products Group") Cleveland, OH 44115
Phone: (800) 348-7615
Fax: (800) 348-7009
www.GeocelUSA.com

3. PRODUCT DESCRIPTION:
8150 Sealant is a neutral cure, high performance, high modulus, one component silicone with excellent adhesion to both porous and non-porous surfaces. It provides joint movement capability of ±25% with excellent weatherability. Ideal for a variety of construction and industrial applications.

Product Benefits:
- 100% Silicone
- Neutral cure, high modulus
- Versatile, high performance
- Excellent adhesion to porous and non-porous surfaces
- Excellent weatherability
- High movement capability of ±25%

Basic Uses:
- Galvanizing joints
- Building, glazing, and industrial sealing applications
- Perimeter sealing around many types of building frames
- Sealing construction joints in brickwork, concrete, and stone subject to movement up to ±25%
- Sealing between pre-cast concrete panels

Adheres to: Aluminum, glass, wood, metal, concrete, and other common building substrates

Composition and Materials: 8150 Sealant is a neutral cure (oxime), one component, high modulus silicone component, high modulus silicone featuring a non-corrosive curing mechanism with excellent movement capabilities (± 25%). Has exceptional unprimed adhesion to many common substrates and high resistance to ultraviolet light, ozone, and moisture. Dry tools easily to a smooth, attractive finish and has good tear resistance. The rubber-like properties are maintained throughout its lifetime.

Grade: Gun grade consistency

Primer: Not required on most surfaces. If primerless adhesion to a particular substrate is in question, a test application is recommended. Contact Geocel Products Group's Technical Service Department for further information.

Packaging: 10.3 fl. oz. cartridge

Colors: Clear and white

Applicable Standards: Meets or exceeds the following specifications:
- U.S. Fed. Spec. TT-S-001543A (COM-NBS) Class A and TTS-00230CC (COM-NBS) Class A
- ASTM C 920, Type S, Grade NS, Class 25 Use NT, M, G, A, O
- CAN/CGSB-19, 13-M87, Class MCG-2-25-A-L

Limitations:
- Product is not recommended for exterior, below grade use
- Product is not recommended for continuous water immersion
- Do not use in applications over tar, asphalt, or materials that bleed oils, plasticizers, or solvents
- Do not use on marble substrates
- Do not use in applications in airtight enclosures as the sealant requires atmospheric moisture to cure
- Do not use on horizontal traffic joints
- Do not use on brass, copper, or other sensitive metals as discoloration may occur
- Product may stress-craze polycarbonate materials

4. INSTALLATION:
Joint Design: 8150 Sealant should have a ratio of approximately twice the joint width to sealant depth. The sealant depth should be not less than 3/16" (4.8 mm) minimum and not greater than 1/2" (12.7mm) maximum.

Surface Preparation: Clean loose particles from surface. Surfaces must be clean, dry, and totally dust free.

Width-to-Depth Recommendations
(in inches):

Width	1/4	3/8	1/2	5/8	3/4	7/8	1
Depth	3/16	3/16	1/4	3/8	3/8	3/8	1/2

Joint Backing: Use backing material to maintain proper joint depth.

Elongation: 709% - Clear; 608% - White

Tack Free: 1 hour

Cure: 24 hours

Application and Tooling: Apply with conventional caulking equipment, filling joint completely. Warm tube if temperature is below 40° F (4° C) for easier gunning. Dry tool with light pressure immediately after applying. Tooling time is 4 - 8 minutes.

Painting: 8150 Silicone Sealant is 100% silicone and is not paintable.

Cleaning: Remove 8150 Sealant from gun and tools before it cures. This may be done by scraping and use of solvents such as MEK (lacquer thinner), xylene, Toluol or chlorinated solvents. Cured materials may be removed by cutting with sharp tools. Observe manufacturer's precautions when using toxic or flammable solvents.

Storage Life: One year

Warning: Harmful or fatal if swallowed. If swallowed, call a physician immediately. May be harmful if inhaled in an enclosed space. Use only in a well-ventilated area. Avoid prolonged skin contact. **KEEP OUT OF REACH OF CHILDREN**

5. AVAILABILITY AND COST:

Available from various lumber yards, hardware stores, home centers, construction material and industrial distributors. Cost and further technical data are available from your local Geocel Products Group representative or from our office.

6. LIMITED WARRANTY:

If when applied according to label directions this product fails to perform in accordance with its published literature, upon satisfactory evidence of product failure, and as your sole remedy, we will either replace the product at no cost or refund the original purchase price for that portion of product that fails to perform in accordance with this limited warranty. Labor or costs associated with labor are not included. THIS LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING MERCHANTABILITY, WHICH ARE ALL DISCLAIMED AND/OR LIMITED IN DURATION TO THE EXTENT PERMITTED BY LAW. WE SHALL NOT BE LIABLE FOR INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING LOST PROFITS) FROM ANY CAUSE WHATSOEVER AND SUCH DAMAGES ARE EXPRESSLY EXCLUDED. Some states do not allow the exclusion or limitation of incidental or consequential damages or how long an implied warranty lasts, so the above limitation or exclusion may not apply to you. This limited warranty gives you specific legal rights, and you may also have other rights which vary from state to state

7. MAINTENANCE:

No maintenance should be required. If sealant is damaged, remove the bead, thoroughly clean joint, and reseal with 8150 Sealant.

8. TECHNICAL SERVICES:

Geocel Products Group representatives throughout the U.S. are available to provide technical assistance. Our in-house technical staff and laboratory facilities are equipped to respond to specific requests for further information.

THEORETICAL YIELD
Per 10.3 fl. oz. Cartridge

Joint Size	Linear Feet
1/4” x 1/4	24.8
1/4" x 3/8”	16.5
1/4" x 1/2"	12.4
1/2" x 3/8”	8.7
1/2" x 1/2"	6.2
3/4" x 1/2"	4.1

For additional product information, refer to the product spec sheet located at www.GeocelUSA.com.nd/or application testing.

SAFETY DATA SHEET

GC68125

Section 1. Identification

Product name : Geocel® 8150® 100% Silicone High Performance Neutral Cure Sealant Clear

Product code : GC68125

Other means of identification : Not available.

Product type : Liquid.

Relevant identified uses of the substance or mixture and uses advised against

Paint or paint related material.

Manufacturer : Geocel Products Group
A Business Unit of the Sherwin-Williams Company
101 W. Prospect Avenue
Cleveland, Ohio 44115

Emergency telephone number of the company : US / Canada: (800) 424-9300
Mexico: SETIQ 01-800-00-214-00 / (52) 55-5559-1588 24 hours / 365 days a year

Product Information Telephone Number : US / Canada: (800) 348-7615
Mexico: Not Available

Regulatory Information Telephone Number : US / Canada: (216) 566-2902
Mexico: Not Available

Transportation Emergency Telephone Number : US / Canada: (800) 424-9300
Mexico: SETIQ 01-800-00-214-00 / (52) 55-5559-1588 24 hours / 365 days a year

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A
SKIN SENSITIZATION - Category 1
TOXIC TO REPRODUCTION (Fertility) - Category 1B
TOXIC TO REPRODUCTION (Unborn child) - Category 1B
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2

Percentage of the mixture consisting of ingredient(s) of unknown acute oral toxicity: 10.3%
Percentage of the mixture consisting of ingredient(s) of unknown acute dermal toxicity: 10.3%
Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: 12.9%

GHS label elements

Hazard pictograms :

Signal word : Danger

Section 2. Hazards identification

Hazard statements : Causes serious eye irritation.
May cause an allergic skin reaction.
May damage fertility or the unborn child.
May cause damage to organs through prolonged or repeated exposure.

Precautionary statements

General : Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand.

Prevention : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves. Wear eye or face protection. Wear protective clothing. Do not breathe vapor. Wash hands thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace.

Response : Get medical attention if you feel unwell. IF exposed or concerned: Get medical attention. IF ON SKIN: Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

Storage : Store locked up.

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Supplemental label elements None known.

Please refer to the SDS for additional information. Keep out of reach of children. Do not transfer contents to other containers for storage.

Hazards not otherwise classified : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Other means of identification : Not available.

CAS number/other identifiers

Ingredient name	% by weight	CAS number
Methyl Tris(methylethylketoxime)silane	≥10 - ≤25	22984-54-9
Amorphous Silica	≥10 - ≤25	7631-86-9
Methyl Ethyl Ketoxime	≤2.9	96-29-7
Octamethylcyclotetrasiloxane	<1	556-67-2
Dibutyltin Dilaurate	<1	77-58-7

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Section 4. First aid measures

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Skin contact : Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : No known significant effects or critical hazards.

Skin contact : May cause an allergic skin reaction.

Ingestion : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations

Skin contact : Adverse symptoms may include the following:
irritation
redness
reduced fetal weight
increase in fetal deaths
skeletal malformations

Ingestion : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments : No specific treatment.

Section 4. First aid measures

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides
metal oxide/oxides

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Section 6. Accidental release measures

Large spill : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits (OSHA United States)

Ingredient name	CAS #	Exposure limits
Methyl Tris(methylethylketoxime)silane	22984-54-9	None.
Amorphous Silica	7631-86-9	**NIOSH REL (United States, 10/2016).** TWA: 6 mg/m³ 10 hours.
Methyl Ethyl Ketoxime	96-29-7	**AIHA WEEL (United States, 7/2018). Skin sensitizer.** TWA: 10 ppm 8 hours.
Octamethylcyclotetrasiloxane	556-67-2	**AIHA WEEL (United States, 7/2018).** TWA: 10 ppm 8 hours.
Dibutyltin Dilaurate	77-58-7	**ACGIH TLV (United States, 3/2019). Absorbed through skin.** TWA: 0.1 mg/m³, (as Sn) 8 hours. STEL: 0.2 mg/m³, (as Sn) 15 minutes. **NIOSH REL (United States, 10/2016). Absorbed through skin.** TWA: 0.1 mg/m³, (as Sn) 10 hours. **OSHA PEL (United States, 5/2018).**

Section 8. Exposure controls/personal protection

		TWA: 0.1 mg/m³, (as Sn) 8 hours.

Occupational exposure limits (Canada)

Ingredient name	CAS #	Exposure limits
Methyl Ethyl Ketoxime	96-29-7	**AIHA WEEL (United States, 7/2018). Skin sensitizer.** TWA: 10 ppm 8 hours.
Octamethylcyclotetrasiloxane	556-67-2	**AIHA WEEL (United States, 7/2018).** TWA: 10 ppm 8 hours.

Occupational exposure limits (Mexico)

	CAS #	Exposure limits
Dibutyltin Dilaurate	77-58-7	**NOM-010-STPS-2014 (Mexico, 4/2016). Absorbed through skin.** TWA: 0.1 mg/m³, (as Sn) 8 hours. STEL: 0.2 mg/m³, (as Sn) 15 minutes.

Appropriate engineering controls : If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Appearance

Physical state : Liquid.

Color : Not available.

Odor : Not available.

Odor threshold : Not available.

pH : Not available.

Melting point/freezing point : Not available.

Boiling point/boiling range : 151°C (303.8°F)

Flash point : Closed cup: 94°C (201.2°F) [Pensky-Martens Closed Cup]

Evaporation rate : 0.24 (butyl acetate = 1)

Flammability (solid, gas) : Not available.

Lower and upper explosive (flammable) limits : Lower: 1%
Upper: 5%

Vapor pressure : 0.27 kPa (2 mm Hg) [at 20°C]

Vapor density : 3 [Air = 1]

Relative density : 1.02

Solubility : Not available.

Partition coefficient: n-octanol/water : Not available.

Auto-ignition temperature : Not available.

Decomposition temperature : Not available.

Viscosity : Kinematic (40°C (104°F)): >0.205 cm^2/s (>20.5 cSt)

Molecular weight : Not applicable.

Aerosol product

Heat of combustion : 5.856 kJ/g

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data.

Incompatible materials : No specific data.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Methyl Ethyl Ketoxime	LD50 Oral	Rat	930 mg/kg	-
Octamethylcyclotetrasiloxane	LC50 Inhalation Vapor	Rat	36 g/m³	4 hours
	LD50 Dermal	Rat	1770 mg/kg	-
	LD50 Oral	Rat	1540 mg/kg	-
Dibutyltin Dilaurate	LD50 Oral	Rat	2071 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Amorphous Silica	Eyes - Mild irritant	Rabbit	-	24 hours 25 mg	-
Methyl Ethyl Ketoxime	Eyes - Severe irritant	Rabbit	-	100 Ul	-
Octamethylcyclotetrasiloxane	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
Dibutyltin Dilaurate	Eyes - Moderate irritant	Rabbit	-	24 hours 100 mg	-
	Skin - Severe irritant	Rabbit	-	500 mg	-

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Classification

Product/ingredient name	OSHA	IARC	NTP
Amorphous Silica	-	3	-

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Dibutyltin Dilaurate	Category 1	Not determined	Not determined

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
Methyl Tris(methylethylketoxime)silane	Category 2	Not determined	Not determined
Dibutyltin Dilaurate	Category 1	Oral	Not determined

Aspiration hazard

Not available.

Section 11. Toxicological information

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : No known significant effects or critical hazards.

Skin contact : May cause an allergic skin reaction.

Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations

Skin contact : Adverse symptoms may include the following:
irritation
redness
reduced fetal weight
increase in fetal deaths
skeletal malformations

Ingestion : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : May cause damage to organs through prolonged or repeated exposure. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : May damage the unborn child.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : May damage fertility.

Numerical measures of toxicity

Section 11. Toxicological information

Acute toxicity estimates

Route	ATE value
Oral	32085 mg/kg
Dermal	37950 mg/kg

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Methyl Ethyl Ketoxime	Acute LC50 843000 µg/l Fresh water	Fish - Pimephales promelas	96 hours
Octamethylcyclotetrasiloxane	Acute LC50 >1000 ppm Fresh water	Fish - Oncorhynchus mykiss	4 days
	Chronic NOEC 1 to 29 µg/l	Algae - Pseudokirchneriella subcapitata	96 hours
	Chronic NOEC 7.9 µg/l Fresh water	Daphnia - Daphnia magna	21 days
	Chronic NOEC 4.4 µg/l Fresh water	Fish - Oncorhynchus mykiss - Egg	93 days
Dibutyltin Dilaurate	Chronic EC10 >2 mg/l Fresh water	Algae - Scenedesmus subspicatus	96 hours

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
Methyl Ethyl Ketoxime	-	2.5 to 5.8	low
Octamethylcyclotetrasiloxane	-	13400	high
Dibutyltin Dilaurate	-	2.91	low

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	DOT Classification	TDG Classification	Mexico Classification	IATA	IMDG
UN number	Not regulated.	Not regulated.	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-	-	-
Transport hazard class(es)	-	-	-	-	-
Packing group	-	-	-	-	-
Environmental hazards	No.	No.	No.	No.	No.
Additional information	-	-	-	-	-

Special precautions for user : Multi-modal shipping descriptions are provided for informational purposes and do not consider container sizes. The presence of a shipping description for a particular mode of transport (sea, air, etc.), does not indicate that the product is packaged suitably for that mode of transport. All packaging must be reviewed for suitability prior to shipment, and compliance with the applicable regulations is the sole responsibility of the person offering the product for transport. People loading and unloading dangerous goods must be trained on all of the risks deriving from the substances and on all actions in case of emergency situations.

Transport in bulk according to Annex II of MARPOL and the IBC Code : Not available.

Proper shipping name : Not available.

Ship type : Not available.

Pollution category : Not available.

Section 15. Regulatory information

SARA 313

SARA 313 (40 CFR 372.45) supplier notification can be found on the Environmental Data Sheet.

California Prop. 65

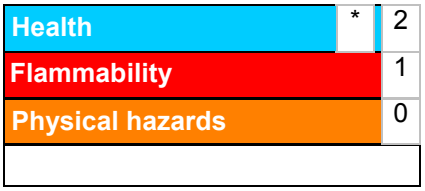
Not applicable.

International regulations

International lists : **Australia inventory (AICS)**: Not determined.
China inventory (IECSC): Not determined.
Japan inventory (ENCS): Not determined.
Japan inventory (ISHL): Not determined.
Korea inventory (KECI): Not determined.
New Zealand Inventory of Chemicals (NZIoC): Not determined.
Philippines inventory (PICCS): Not determined.
Taiwan Chemical Substances Inventory (TCSI): Not determined.
Thailand inventory: Not determined.
Turkey inventory: Not determined.
Vietnam inventory: Not determined.

Section 16. Other information

Hazardous Material Information System (U.S.A.)



The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on SDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

Procedure used to derive the classification

Classification	Justification
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A	Calculation method
SKIN SENSITIZATION - Category 1	Calculation method
TOXIC TO REPRODUCTION (Fertility) - Category 1B	Calculation method
TOXIC TO REPRODUCTION (Unborn child) - Category 1B	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2	Calculation method

History

Date of printing : 3/6/2020

Date of issue/Date of revision : 3/6/2020

Date of previous issue : 12/10/2019

Version : 6

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
N/A = Not available
SGG = Segregation Group
UN = United Nations

Indicates information that has changed from previously issued version.

Notice to reader

It is recommended that each customer or recipient of this Safety Data Sheet (SDS) study it carefully and consult resources, as necessary or appropriate, to become aware of and understand the data contained in this SDS and any hazards associated with the product. This information is provided in good faith and believed to be accurate as of the effective date herein. However, no warranty, express or implied, is given. The information presented here applies only to the product as shipped. The addition of any material can change the composition, hazards and risks of the product. Products shall not be repackaged, modified, or tinted except as specifically instructed by the manufacturer, including but not limited to the incorporation of products not specified by the manufacturer, or the use or addition of products in proportions not specified by the manufacturer. Regulatory requirements are subject to change and may differ between various locations and jurisdictions. The customer/buyer/user is responsible to ensure that his activities comply with all country, federal, state, provincial or local laws. The conditions for use of the product are not under the control of the manufacturer; the customer/buyer/user is responsible to determine the conditions necessary for the safe use of this product. The customer/buyer/user

Section 16. Other information

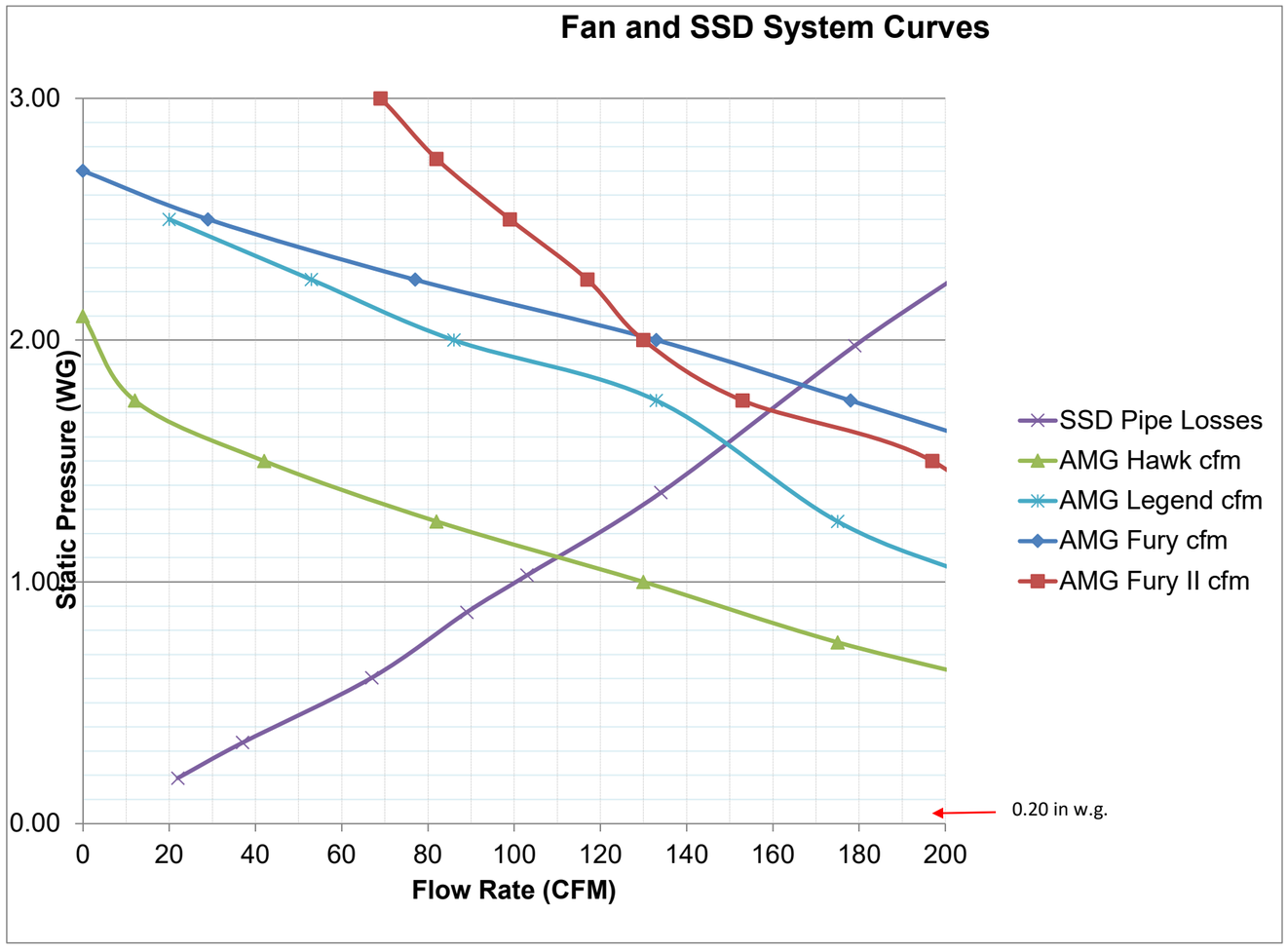
should not use the product for any purpose other than the purpose shown in the applicable section of this SDS without first referring to the supplier and obtaining written handling instructions. Due to the proliferation of sources for information such as manufacturer-specific SDS, the manufacturer cannot be responsible for SDSs obtained from any other source.

ASTI ENVIRONMENTAL

Ginosko Development
7850 E. Jefferson, Detroit

JOB 4-10105 Jefferson
SHEET NO. 2 OF 2
CALCULATED BY ____ DATE ____
CHECKED BY ____ DATE ____
SCALE ____

System curve based on 200 ft of 6 inch pipe and 4 90° elbows

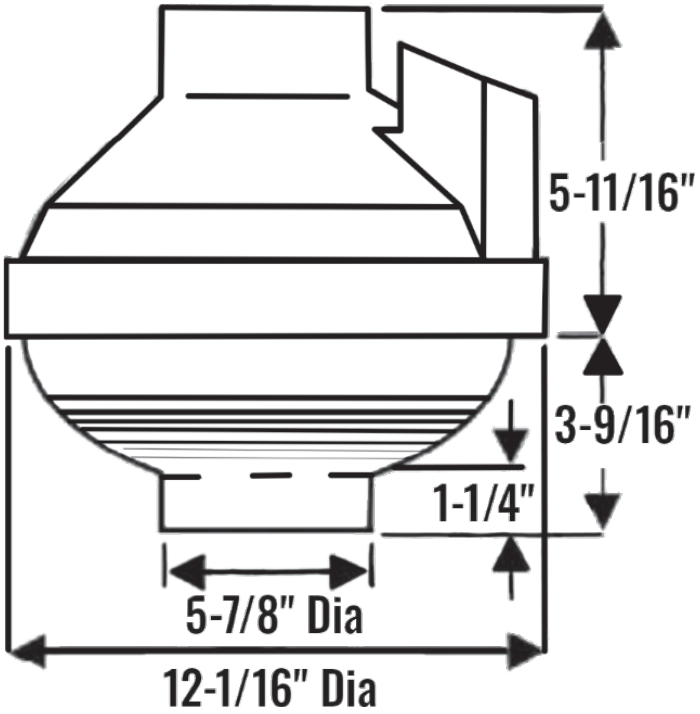


AMG Legend


ELECTRIC FAN
AMGLEGEND
Festa Manufacturing Enterprises LLC
TP


ELECTRIC FAN
AMGLEGEND
Festa Manufacturing Enterprises LLC
TP

Legend Tech Specs



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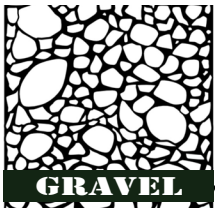


Structures varying from 2,000 to 5,000 sq. ft.
Porous subslab, such as gravel.
Great for most large footprint, newer built homes.

Performance Figures, CFM at Static Pressure in W.G.										
0"	0.25"	0.5"	0.75"	1.0"	1.25"	1.5"	1.75"	2.0"	2.25"	2.5"
345	310	287	264	242	215	176	136	77	25	6

Max Flow	Max Pressure	Volts	Watts	Max Amps	Speed
345 CFM	2.6" w.g.	115V, 60 Hz	105 W	1.62	2480 RPM

Fits to 6" Fernco Couplers

Installation & Wiring Instructions for AMG In-Line Centrifugal Duct Fans

Model: AMG Spirit, Fury, Legend, Hawk, Maverick, Prowler, Eagle, Eagle Extreme

IMPORTANT NOTE: DO NOT CONNECT THE POWER SUPPLY UNTIL THE FAN IS COMPLETELY INSTALLED. MAKE SURE THE ELECTRICAL SERVICE TO THE FAN IS LOCKED IN "OFF" POSITION.

PLEASE READ AND SAVE THESE INSTRUCTIONS:

Warning – To reduce the risk of fire, electric shock or injury to persons, observe the following:

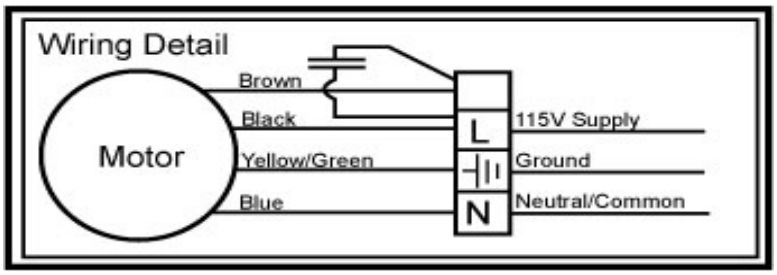
1. This unit is only for use in the manner intended by the manufacturer. If you have any questions contact the manufacturer Festa Manufacturing Enterprises LLC.
2. Installation work and electrical wiring must be done by qualified person'(s) in accordance with all applicable codes and standards, including fire-rated construction.
3. Sufficient air is needed for proper combustion and exhausting of gases through the flue, (chimney) of fuel burning equipment to prevent back drafting. Follow the heating equipment manufacturer's guideline and safety standards such as those published by the National Fire Protection Association (NFPA), and the American Society for Heating, Refrigeration and Air Conditioning Engineers (ASHRAE), and the local code authorities.
4. When cutting or drilling into wall or ceiling, do not damage electrical wiring and other hidden utilities.
5. Ducted fans must always be vented to the outdoors.
6. These units can be mounted indoors or outdoors.
7. Do not use these fans with solid state speed controllers.
8. The electric motor is protected by an internal overheat device to prevent/minimize motor damage. If the motor stops working, immediate inspection should be carried out by suitably qualified persons.
9. Before servicing or cleaning the unit, switch power off at service panel and lock the service disconnecting means to prevent power from being switched on accidentally. When the service disconnecting means cannot be locked, securely fasten a prominent warning device, such as a tag, to the service panel.
10. Do not use in a window.
11. If this unit is to be installed over a tub or shower, it must be marked as appropriate for the application and be connected to a GFCI (Ground Fault Circuit Interrupter) – protected branch circuit.
12. Never place a switch where it can be reached from a tub or shower.
13. CAUTION: For General Ventilating Use Only. Do Not use to Exhaust Hazardous Or Explosive Materials and Vapours.
14. CAUTION: This unit has an unguarded impeller. Do Not Use in Locations Readily Accessible To People or Animals.
15. For Canadian Users: Use only with solid state speed control device model KBMC-13BV manufactured by KBElectonics

Installation of FME AMG PATRIOT Radon Fans

The FME AMG PATRIOT Fan can be mounted indoors or outdoors. We suggest that EPA recommendations be used in choosing the fan location. The AMG Fans may be mounted directly onto the piping system or fastened to a supporting structure. When mounting directly onto a vertical piping system, it is the installer's responsibility to make provision to prevent the pipe system sliding into and onto the fan motor and impeller. When installing a system with short duct runs terminating close to the fan i.e. within 60" (1.5m) suitable guards should be incorporated. It is the responsibility of the installer to ensure that all aspects of the system are taken into consideration. Rigid ducting sections should be connected to fan spigots by flexible connectors and clips. The flexible connectors used should be suitable for routine servicing and vibration isolation.

Fan Configuration-All inline fans can be mounted (1) vertically with terminal box/cover facing up, or (2) horizontally with terminal box drain hole facing down toward the ground.

Electrical Connections



Ensure that the mains supply voltage, frequency, number of phases and power rating comply with the details on the unit rating label (situated internally on inside of box cover). All wiring must be in accordance with local and / or national electrical codes as applicable, or the appropriate standard in your country. The fan must be supplied through a double pole isolating switch having a contact separation of not less than 1/8" (3mm). Wiring to the terminal box should be made in liquid tight flexible conduit to facilitate easy maintenance.

Operational Checks

Ensure all duct connections are tight and leak free.
Check the system vacuum pressure with a manometer; ensure that the vacuum pressure is less than the maximum recommended operating pressure.
Check and verify Radon levels by testing to EPA protocol.

Cleaning and Maintenance

We would recommend that the fan be periodically checked against the listed operational checks to ensure trouble free long lasting operation.

FIVE (5) YEAR WARRANTY

Conditions of Warranty

Festa Manufacturing Enterprises ("FME") warrants that the AMG FANS shall be free from defects in material and workmanship for period of (5) years from the date of purchase by the customer. If within the applicable warranty period the Products prove to be defective by reason of faulty workmanship or materials, FME will undertake to have the defective Product (or any part thereof) replaced at no cost to the customer subject to the following conditions:

1. The Product has been purchased and used solely in accordance with all Environmental Protection Agency ("EPA") standard practices and state and local codes of practice.
2. The Product is returned promptly on being found defective, together with this warranty and proof of date of installation at the customers risk and expense to Festa Manufacturing Enterprises LLC. ("FME") from whom the Product was purchased. All enquiries must be through FME.
3. This warranty shall not apply to any Product failure or defect due to any cause beyond the reasonable control of FME including; damage caused through fire, flood, explosion, accident, misuse, wear and tear, neglect, incorrect adjustment or repair, damage caused through installation, adaptation, modification or use in an improper manner or inconsistent with the technical and/or safety standards required where the Product is used, or to damage occurring during transit to or from the customer.
4. If at any time during the Warranty Period any part or parts of the Product are replaced with a part or parts not supplied or approved by FME, or the Product has been dismantled or repaired by any person not authorized by FME, FME shall have the right to terminate this warranty in whole or in part immediately without further notice.
5. FME's decision on all matters relating to complaints and Products defects and failure (alleged or actual) shall be final. Any Product or defective part, which has been replaced, shall be FME's.
6. FME will offer to customers a Warranty of a full Five Years, from date of purchase, in accordance with the terms listed above.

Festa Manufacturing Enterprises, LLC. 47A Progress Ave. Cranberry Twp., PA 16066
Tel. Toll Free 1(800) 806-7866 Fax 1(724) 772-9062

Model	Min. Ambient Temperature	Max. Ambient Temperature
Maverick	-13°F	167°F
Hawk	-13°F	167°F
Prowler	-13°F	176°F
Legend	-13°F	176°F
Eagle	-13°F	140°F
Fury	-13°F	176°F
Fury II	-13°F	140°F
Spirit	-13°F	113°F

0508

Standard Operating Procedure Installation of the Vapor Pin® Sampling Device Insert

January 28, 2021

Scope:

This standard operating procedure describes the installation the Vapor Pin® sampling device Insert (Figure 1).

Purpose:

The purpose of this procedure is to assure good quality control in field operations and uniformity between field personnel in the use of the Vapor Pin® sampling device Insert. The Vapor Pin® sampling device Insert is used to facilitate the collection of soil gas samples and pressure measurements beneath engineered vapor intrusion barriers (e.g., Geo-Seal®), or vapor mitigation coatings (e.g., Retro-Coat™).

Equipment Needed:

- Vapor Pin® sampling device Insert;
- Vapor Pin® sampling device Insert Cap;
- Hacksaw (optional);
- Power drill and small diameter bits (optional);
- Threaded rod (1/2" x 13); and
- Dead blow hammer.

Installation Procedure New Construction:

1) Check for buried obstacles (pipes, electrical lines, etc.) prior to proceeding.

2) Locate the desired position (horizontally and vertically) of the top of the Vapor Pin® sampling device Insert.

3) Pierce the barrier with a threaded rod of sufficient length to extend slightly above the elevation of the finished floor and into the subgrade a sufficient depth to provide support for the Vapor Pin® sampling device Insert. Make sure the rod is perpendicular to the proposed floor surface. Avoid bending the rod, as it may inhibit its removal after the concrete has cured. Also avoid damaging the threads on the rod.

4) Dry fit the Vapor Pin® sampling device Insert and trim, or extend the length. Extend the length by sliding the Insert into a length of 1.5 inch diameter schedule 40 PVC pipe. The insert and pipe can be joined using PVC cement or similar material. Allow sufficient time for the adhesive to cure prior to sampling. Vent holes may be added at the bottom of the Insert or PVC extension to promote air flow.

5) Assemble the Vapor Pin® sampling device Insert and Cap by pressing the Cap into the top of the Insert. Position the assembly on the threaded rod so that the top of the Cap lies flush with the elevation of the finished floor. It is important that the position of the Insert be perpendicular to the slab so that the Vapor Pin® sampling device Secure Cover meets uniformly with the floor.

6) Marry the barrier to the Insert per the manufacture's specification prior to pouring the concrete slab.

7) After the concrete has set, remove the threaded rod and Cap and install the Vapor Pin® or FLX-VP Vapor Pin® sampling device product in the Insert.

Installation Procedure Existing Construction:

1) Check for buried obstacles (pipes, electrical lines, etc.) prior to proceeding.

2) Prior to installation in an existing slab, a large diameter hole must be cored through the slab to either expose the barrier, or provide access to the base beneath the slab prior to the application of a vapor mitigation coating. Contact the vendor of the barrier or coating about the desired diameter of the hole, the procedures used to expose the seal, and the methods and materials used to marry the seal or coating to the Insert prior to proceeding.

3) Locate the desired position (horizontally and vertically) of the top of the Vapor Pin® sampling device Insert.

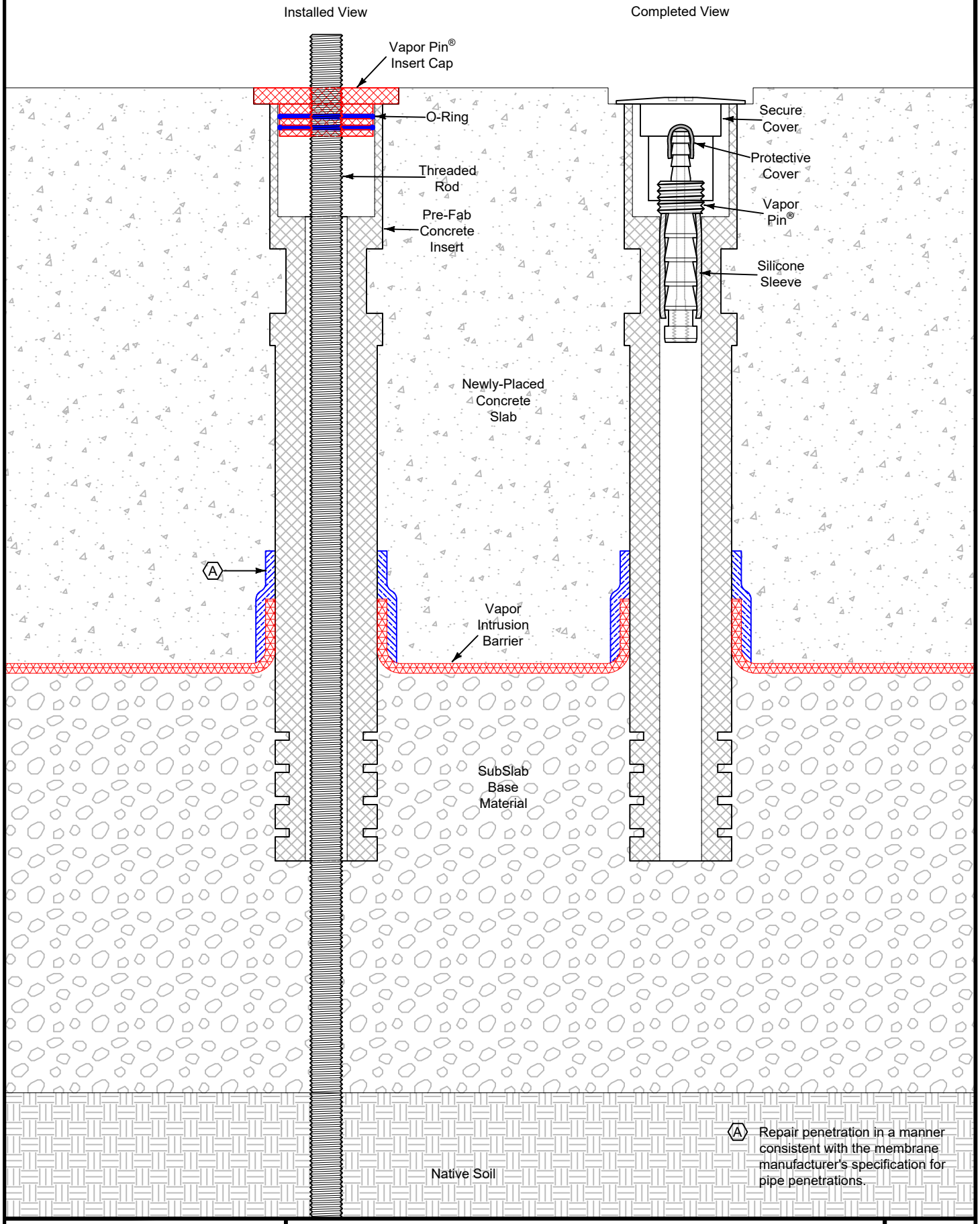
4) Pierce the barrier (if applicable) with a threaded rod of sufficient length to extend slightly above the elevation of the finished floor and into the subgrade a sufficient depth to provide support for the Vapor Pin® sampling device Insert. Make sure the rod is perpendicular to the proposed floor surface. Avoid bending the rod, as it may inhibit its removal after the concrete has cured. Also avoid damaging the threads on the rod.

5) Dry fit the Vapor Pin® sampling device Insert and trim, or extend the length. Extend the length by sliding the Insert into a length of 1.5 inch diameter schedule 40 PVC pipe. The Insert and pipe can be joined using PVC cement or similar material. Allow sufficient time for the adhesive to cure prior to sampling. Vent holes may be added at the bottom of the Insert or PVC extension to promote air flow.

6) Assemble the Vapor Pin® sampling device Insert and Cap by pressing the Cap into the top of the Insert. Position the assembly on the threaded rod so that the top of the Cap lies flush with the elevation of the finished floor. It is important that the position of the Insert be perpendicular to the slab so that the Vapor Pin® sampling device Secure Cover meets uniformly with the floor.

7) If the Insert is used in conjunction with a vapor intrusion barrier, marry the barrier to the Insert per the barrier manufacture's specification prior to pouring the concrete slab.

8) After the concrete has set, remove the threaded rod and Cap and install the Vapor Pin® sampling device or FLX-VP Vapor Pin® sampling device product in the Insert.



VaporPin®

Vapor Pin® Insert with Cap,
Vapor Pin Enterprises, Inc.

Figure
1

ASTI ENVIRONMENTAL

Vapor Intrusion Calculations

JOB	4-10105	7850 E. Jefferson	
SHEET NO.	1	OF	2
CALCULATED BY	BWB	DATE	8/20/2020
CHECKED BY		DATE	
SCALE	NTS		

1.0 Calculating Flux

Flux = $((D_e * C_{sg})/X)$

Flux = the rate of movement of a compound per unit area (ug/hr-m^2).

D_e = the effective diffusion coefficient

C_{sg} = the contaminant concentration in the soil vapor, in micrograms per cubic meters (ug/m^3).

X = depth below the surface, in meters.

Key to cell colors

	Final Calculated Value
	Input Value
	Intermediate Calculated Value

1.1 Specific Flux Calculations

Calculating Flux

X	1.52	m
C_{sg}	4.1	ug / m^3
D_e	1.46E-07	m^2 / hr
Flux	3.94E-07	ug / hr-m^2

Data Inputs

Contaminant	**pheneanthrene**	
Soil Gas Concentration (C_{sg})	4.1	ug / m^3
Sites Specific Gas Volatilization	3.50E+00	ug / m^3
Screening Level		
Depth Below Surface (X)	5	ft
Benzene Effective Diffusion Coeff (De)	4.07E-07	m^2 / sec
Slab Attenuation Factor	0.03	
Indoor Air Exchange Rate (E)	0.25	exchange/hour
Room Height	8	ft

Pheneanthrene diffusion coefficient not available

VaporBlock Plus 20

Conversions

1	m	3.28084	ft
1	hour	3600	second
1	m^2	10000	cm^2

2.0 Calculating Indoor Air Concentrations of A Contaminant

C_i = (Slab * Flux) / (Height * E)

C_i = the concentration in the room (ug / m^3).

Slab = the slab attenuation factor (unitless).

Flux = the contaminant flux into the room (ug / hr-m^2).

Height = the room height (m).

E = the indoor air exchange rate (exchanges per hour).

2.1 Calculating Specific Indoor Air Concentrations

Calculating Indoor Air Concentration

Slab	0.03	
Flux	3.94E-07	ug / hr-m^2
Height	2.44	m
E	0.25	exchanges/hour
C_i	1.94E-08	ug / m^3

2.2 Calculating Duration of Air Exchange

Using the MDEQ Recommended Interim Action Screen Level (RIASL) for the Indoor Air Concentration, Ci, the equation used to calculate Indoor Air Concentration, the equation is solved for the Indoor Air Exchange Rate (exchange/hour).

(Slab Attenuation Factor * Flux µg / hr m) / (Height m * C_1 µg / m^3) = hours / room air exchange

Caculating Indoor Air Exhange Rate

Calculating Indoor Air Concentration

Slab	0.03		
Flux	3.940E-07	ug / hr-m^2	
Height	2.44	m	
C_i	4.E+00	ug / m^3	
E	1.385E-09	exchange/hour	7.221E+08 hour/exchange

The hour / exchange calculates the time before concentrations in the room exceed the Indoor Recommended Interim Screening Level

VAPOR INTRUSION MITIGATION SYSTEM POST-INSTALLATION VERIFICATION CHECKLIST

The purpose of this checklist is to provide the user with a selection of tools to verify that the appropriate system components for the vapor intrusion mitigation system (VIMS) were installed and the system is operating as designed. This information applies to the four most common active mitigation systems (SSD, SSV, SMD, and CSV) and passive systems that are described in the associated Fact Sheets and Technology Information Sheets. The user of this checklist should review the VIMS design or as-built documentation prior to completing this checklist.

This document was prepared in consideration of multiple types of VIMS. Not all the information presented below is necessary to document system operation for all types of systems on all types of buildings. The user should be able to identify which criteria below best represent effective operation for their specific mitigation system and which criteria will validate the conceptual site model for the VIMS that was implemented. Timing on when to collect post-installation verification data may vary and more than one event may be reasonable. See the ***Post-Installation Verification Fact Sheet*** for additional information on timing a post-installation verification site visit.

Instructions for Use: Major system components are grouped below for this checklist, and one or more of these groups may not apply to a particular VIMS design. Those groups can be marked as Not Applicable by selecting the 'X' box to the right of the group.

Design elements within these groups that **will** apply should be selected by checking the appropriate box included for this checklist as:

Yes—the design element was considered and documented
No—this item was not considered and may be relevant to the overall system performance, applicable guidance, and/or best practices
NA—not applicable to the system design or operation

This checklist is intended to serve as a guide for design considerations and as documentation for VIMS installation. This list can be modified for a specific project or program if needed or can be used as shown. The list should be submitted along with the final project as-builts and/or installation oversight verification documentation and reporting.

1. SITE INFORMATION

Address inspected: _____

_____

Date of inspection: _____

Inspector(s): _____

_____

Inspector's company name:

_____

Building contact:

_____

Building contact phone number:

_____

Note: As-built drawings & performance criteria are needed when conducting inspections of vapor intrusion mitigation systems.

2. BUILDING TYPE

☐ Existing building

☐ New construction

3. TYPE OF SYSTEM

Active

☐ Sub-slab depressurization (SSD)
☐ Sub-slab venting (SSV)
☐ Sub-membrane depressurization (SMD)
☐ Crawlspace ventilation (CSV)

Passive (Check all that apply)

☐ Epoxy floor coating (EFCs)
☐ Passive barrier system
☐ Passive sub-slab venting (PSSV)
☐ Aerated floors

4. SYSTEM DESIGN COMPONENTS AND INSTALLATION DOCUMENTATION

4.1. Site Conditions/Conceptual Site Model

- Contaminant concentrations at the site have been reviewed and compared to generic or building-specific screening levels. The level of applied effort (flow and vacuums) should be proportional to the magnitude of the concentrations. In large buildings, the VIMS target treatment area may not include the entire footprint, but should allow for adequate capture of vapors to mitigate the potential for unacceptable risk to the occupants of the building. ☐ Yes ☐ No ☐ NA
- Slab conditions should be verified/inspected for cracks/voids/utility penetrations/potential preferential pathways (if known/observed) and identified on a diagram, sealed to the extent practical, and visually inspected during post-installation verification event. ☐ Yes ☐ No ☐ NA

4.2. Extraction Point(s) ☐ Not applicable

- Suction point location, diameter, and sealing are documented. ☐ Yes ☐ No ☐ NA
- Pipe and manifold location, materials, diameter, slope, and sealing are documented. ☐ Yes ☐ No ☐ NA
- Sample port, shutoff valve, and access have been identified.
- U-tube manometer (or similar vacuum gauge) is installed and target vacuum level is clearly marked ☐ Yes ☐ No ☐ NA

4.3. Collection Piping ☐ Not applicable

- As-built collection piping diagrams have been provided. ☐ Yes ☐ No ☐ NA
- Riser pipe is located in an interior wall where possible and does not penetrate firewalls or shear walls. ☐ Yes ☐ No ☐ NA
- Fire collars are installed on pipes where firewalls are penetrated. ☐ Yes ☐ No ☐ NA
- Vent piping system was designed by a qualified individual with VIMS design experience. ☐ Yes ☐ No ☐ NA
- All vent stack piping is identified as solid, rigid pipe. ☐ Yes ☐ No ☐ NA
- All pipe joints and connections are permanently sealed. ☐ Yes ☐ No ☐ NA
- Foundation penetration sleeves are installed as approved by the structural engineer. ☐ Yes ☐ No ☐ NA
- All exhaust pipes are supported and secured in a permanent manner consistent with building codes. ☐ Yes ☐ No ☐ NA

- Horizontal piping runs are sloped to ensure that condensation drains into the ground beneath the slab. ☐ Yes ☐ No ☐ NA
- Vertical piping runs drain naturally or can be verified to be free of water or moisture. ☐ Yes ☐ No ☐ NA

4.4. Piping Completion Specifications ☐ **Not applicable**

(Review the primary wind flow direction from nearby weather stations.)

- As-built collection piping diagrams have been provided. ☐ Yes ☐ No ☐ NA
- Pipes are completed with an exhaust stack and are an appropriate height above the roof. ☐ Yes ☐ No ☐ NA
- Point(s) of discharge are an appropriate distance away from any air intake location, opening (door, chimney flue, window, vent, etc.), or occupied spaces, including adjacent structures. ☐ Yes ☐ No ☐ NA
- To reduce the risk of vent stack blockage, confirm that the point of discharge from vent stack pipes is vertical and upward, outside the structure. Consider wire mesh to deter birds and small animals ☐ Yes ☐ No ☐ NA

4.5. Blower/Fan ☐ **Not applicable**

- Blower/fan number, location, size, model number, and performance specifications are documented. ☐ Yes ☐ No ☐ NA
- Blower/fan is securely mounted with discharge locations far from building intake locations. ☐ Yes ☐ No ☐ NA
- Electrical components and wiring were installed by a licensed electrician in accordance with applicable building codes. ☐ Yes ☐ No ☐ NA
- Intrinsically safe or explosion-proof components installed where specified in the project plans. ☐ Yes ☐ No ☐ NA
- Diagnostic testing and results are documented and summarized to meet design criteria. ☐ Yes ☐ No ☐ NA
- Audible and/or visual low vacuum alarm is installed, tested, and separately powered (e.g., battery). ☐ Yes ☐ No ☐ NA
- Controller system (where present): model number, location, OM&M manual are documented. ☐ Yes ☐ No ☐ NA
- Telemetry system (where present): model number, location, OM&M manual are documented. ☐ Yes ☐ No ☐ NA

4.6. Monitoring Probes ☐ **Not applicable**

- Sub-slab vapor probes, if needed, are installed in accordance with design (appropriate number and location(s)). ☐ Yes ☐ No ☐ NA
- Surface completion provides a seal to the subsurface and a leak check test was passed. ☐ Yes ☐ No ☐ NA
- Probes and surface completions are level to grade to minimize trip hazard. ☐ Yes ☐ No ☐ NA

4.7. Post-Installation Diagnostic Testing ☐ **Not applicable**

- System flow and vacuum are documented in vent pipe(s) and data meet design criteria. ☐ Yes ☐ No ☐ NA

- Pressure field extension (PFE) testing is documented to meet design criteria across targeted areas. ☐ Yes ☐ No ☐ NA
- Additional diagnostics were performed as appropriate where data do not meet expectations. ☐ Yes ☐ No ☐ NA
- Effluent concentrations were measured and calculated discharge meets design criteria/permit limits, if needed. ☐ Yes ☐ No ☐ NA
- Nonsealed combustion appliances were checked for back drafting/CO_2 levels. ☐ Yes ☐ No ☐ NA

4.8. System Monitors and Labeling ☐ **Not applicable**

- System labels are placed on the mitigation system, riser piping, electrical panel breaker and junction box, and other prominent locations, including the exterior venting locations. ☐ Yes ☐ No ☐ NA
- Description of signage and locations is provided. ☐ Yes ☐ No ☐ NA
    - signage contains language indicating that the mitigation vent may contain volatile organic compounds ☐ Yes ☐ No ☐ NA
    - figure provided, if needed, identifying locations of signs ☐ Yes ☐ No ☐ NA
    - name and contact information for operator clearly visible with instructions to notify operator in the event of alarm conditions, damage to any system component, power failure, etc. ☐ Yes ☐ No ☐ NA
- Documentation states that a notice has or will be provided to tenants that will be occupying the structure. ☐ Yes ☐ No ☐ NA

4.9. System Design and Specification ☐ **Not applicable**

- Mitigation system design has been reviewed by a vapor intrusion mitigation specialist, professional engineer, or professional with demonstrated mitigation design experience. ☐ Yes ☐ No ☐ NA
- As-built project plans and specifications have been prepared and reviewed by the designer. ☐ Yes ☐ No ☐ NA
- Electrical one-line diagrams have been prepared and reviewed by a licensed electrician. ☐ Yes ☐ No ☐ NA
- Dewatering has been considered and, if necessary, incorporated into the design. ☐ Yes ☐ No ☐ NA
- Engineer or design firm is identified. ☐ Yes ☐ No ☐ NA
- Building/fire codes: Document states that mitigation systems is designed and installed to conform to applicable building and fire codes and to maintain the function and operation of existing equipment and building features, including doors, windows, access panels, etc. ☐ Yes ☐ No ☐ NA
- Permits: Documentation is provided that the system passed required permit inspections. ☐ Yes ☐ No ☐ NA

4.10. Sumps ☐ **Not applicable**

- Floor drains are designed to allow water to flow into sumps while sealing out soil gases from entering the indoor air space from the sub-floor area (e.g., Drainjer-style drain). ☐ Yes ☐ No ☐ NA

5. NEW CONSTRUCTION ☐ **Not applicable**

5.1. Aggregate Layer ☐ **Not applicable**

- Delivered sub-slab aggregate grain size gradation matches project design specifications. ☐ Yes ☐ No ☐ NA
- Aggregate is uniformly compacted and rolled flat and is free of protrusions or debris that may be a puncture hazard. ☐ Yes ☐ No ☐ NA
- Aggregate thickness was measured and documented to meet project specifications. ☐ Yes ☐ No ☐ NA

5.2. Engineered Plenums (e.g., drainage mats) ☐ **Not applicable**

- Engineered plenums were supplied and documented to meet project specifications. ☐ Yes ☐ No ☐ NA
- Plenum was uniformly laid flat across target treatment area to meet project specifications. ☐ Yes ☐ No ☐ NA

5.3. Collection and Manifold Piping ☐ **Not applicable**

- Delivered vapor collection piping matches project design specifications. ☐ Yes ☐ No ☐ NA
- Vapor collection piping is laid and pipe joints and connections are permanently sealed. ☐ Yes ☐ No ☐ NA
- Solid piping is used in areas adjacent to utilities or trenches or where short circuiting may occur ☐ Yes ☐ No ☐ NA

5.4. Membrane Installation Documentation ☐ **Not applicable**

- Membrane manufacturer installation requirements are provided. ☐ Yes ☐ No ☐ NA
- System was installed by a certified installation vendor, if required by the manufacturer. ☐ Yes ☐ No ☐ NA
- Mitigation system as-built drawings are provided. ☐ Yes ☐ No ☐ NA
- Photographic log is provided for seals/repairs at the following locations: ☐ Yes ☐ No ☐ NA
    - along foundation edge ☐ Yes ☐ No ☐ NA
    - around foundation penetrations ☐ Yes ☐ No ☐ NA
    - along vertical exterior walls ☐ Yes ☐ No ☐ NA
    - around elevator shafts ☐ Yes ☐ No ☐ NA
    - coupon/smoke testing repairs ☐ Yes ☐ No ☐ NA
- **Trench Dams:** Utility trench dams were installed in all utility trenches leading to the building. ☐ Yes ☐ No ☐ NA
- **Conduit Seals**: Conduit seals were installed in all electrical conduits that extend below the membrane. ☐ Yes ☐ No ☐ NA

5.5. Membrane Design and Specification ☐ **Not applicable**

- Membrane selection and/or thickness was considered for potential contaminant concentrations in the subsurface (i.e., chemical compatibility). ☐ Yes ☐ No ☐ NA
- Sub-slab screening levels protective of diffusive transport across the slab have been calculated and monitoring is specified to document sub-slab concentrations after the membrane is placed. Contingencies are in place to modify the system (i.e., ☐ Yes ☐ No ☐ NA

potentially activate a passive system) if diffusive transport may become an issue.

- Documentation provides details for areas that require specialized completion, including all penetrations and terminations. ☐ Yes ☐ No ☐ NA
- Drains that perforate the barrier are designed to allow water to flow into sumps and floor drains while sealing out soil gases from entering the indoor air space from the sub-floor area (e.g., Drainjer-style drain). ☐ Yes ☐ No ☐ NA
- Membrane selection and/or thickness was considered for potential contaminant concentrations in the subsurface (i.e., chemical compatibility). ☐ Yes ☐ No ☐ NA

5.6. Quality Assurance/Quality Control Installation Plan Requirements Identified in the Design Document ☐ **Not applicable**

- Products and materials installed meet the project design specifications. ☐ Yes ☐ No ☐ NA
- Material Safety Data Sheets (MSDS) for potential background contaminants (e.g., adhesives, glues, etc.) were reviewed. ☐ Yes ☐ No ☐ NA
- Installation was conducted in accordance with manufacturer's specifications (e.g., weather, curing time). ☐ Yes ☐ No ☐ NA
- Estimated quantities of the product to be used are provided. ☐ Yes ☐ No ☐ NA
- Engineer of record or barrier manufacturer identifies steps to document the effectiveness of the mitigation system. ☐ Yes ☐ No ☐ NA
    - Coupon sampling ☐ Yes ☐ No ☐ NA
        - Sample frequency is appropriate to assess integrity of entire barrier.
    - Smoke testing ☐ Yes ☐ No ☐ NA
        - Locations are appropriate to assess integrity of entire barrier. ☐ Yes ☐ No ☐ NA
        - Assessment of barrier integrity is based on visual observation of where smoke has migrated and/or where membrane repairs were made. ☐ Yes ☐ No ☐ NA
- On-site installation oversight and documentation by the design firm is noted. ☐ Yes ☐ No ☐ NA
- Documentation is present verifying that the installation and repairs have been completed per project specifications and manufacturer's installation instructions. ☐ Yes ☐ No ☐ NA
- Verification sampling was performed in accordance with the system design plan. ☐ Yes ☐ No ☐ NA
    - Field sampling procedures specified were followed. ☐ Yes ☐ No ☐ NA
    - The correct number and locations of verification samples were collected. ☐ Yes ☐ No ☐ NA
    - Verification samples were collected at the appropriate frequency. ☐ Yes ☐ No ☐ NA
    - Verification samples were analyzed using the appropriate analytical method. ☐ Yes ☐ No ☐ NA

- Results of the verification samples indicate that the VIMS is effectively mitigating the vapor intrusion risk present at the site. ☐ Yes ☐ No ☐ NA
- Deviations in the verification sampling plan, if needed, are documented with rationale for the change. ☐ Yes ☐ No ☐ NA

Attachment L

Notification Letters to Utility Providers

ASTI ENVIRONMENTAL

Investigation • Remediation
Compliance • Restoration

10448 Citation Drive, Suite 100
Brighton, MI 48116

Mailing Address:
P.O. Box 2160
Brighton, MI 48116-2160

800 395-ASTI
Fax: 810.225.3800

www.asti-env.com

Date _____

Detroit Water and Sewerage Department
735 Randolph Street, Detroit, MI 48226
Detroit, MI 48226

RE: 7850 E. Jefferson Avenue, Detroit, Michigan

To Whom It May Concern:

ASTI Environmental (ASTI) was retained to conduct Limited Subsurface Investigations of the Subject Property located at 7850 E. Jefferson Avenue, Detroit, Michigan culminating in a Baseline Environmental Assessment (BEA) and a Response Activity Plan. This notice is being provided as a reporting requirement under Rule 1013(6) of Section 20107a of the Natural Resources and Environmental Protection Act of 1994 PA 451, as amended.

Environmental investigations were completed on the Property that have identified contaminant concentrations in soil consisting of metals and polynuclear aromatic hydrocarbons (PNAs).above the applicable Michigan Department of Environment, Great Lakes, and Energy (EGLE) Part 201 Generic Residential Cleanup Criteria (GRCC). These compounds were measured at concentrations above GRCC for Direct Contact (DC). These compounds have not been extensively tested across the Subject Property and may be present at concentrations above the Generic Nonresidential Cleanup Criteria for direct contact where not sampled.

The contaminated soils were collected at depths between 0.5-10 feet below ground surface (bgs)but may be present at depths not sampled. . Contractors performing activities with the soil at the Subject Property are advised to take proper safety measures when working at the property. Any soil removed from the Subject Property must be characterized for proper disposal. In the event that impacted soils are disturbed but are to remain on the Subject Property, the soils must be returned to the same strata from which they were removed.

If you have any questions regarding this matter, please contact me.

Sincerely yours,

Brian Kuberski
Project Manager

ASTI ENVIRONMENTAL

Investigation • Remediation
Compliance • Restoration

10448 Citation Drive, Suite 100
Brighton, MI 48116

Mailing Address:
P.O. Box 2160
Brighton, MI 48116-2160

800 395-ASTI
Fax: 810.225.3800

www.asti-env.com

Date _____

DTE Energy
2000 2nd Avenue
655GO
Detroit, MI 48226

RE: 7850 E. Jefferson Avenue, Detroit, Michigan

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Sincerely yours,

Brian Kuberski
Project Manager

ASTI ENVIRONMENTAL

ENVIRONMENTAL INVESTIGATION, REMEDIATION, COMPLIANCE AND RESTORATION PROJECTS THROUGHOUT THE GREAT LAKES SINCE 1985.

OUR SERVICES INCLUDE:

- **ASBESTOS, LEAD, MOLD, AND RADON ASSESSMENTS**
- **BROWNFIELD/GREYFIELD REDEVELOPMENT ASSISTANCE**
- **DEVELOPMENT INCENTIVES AND GRANT MANAGEMENT**
- **ECOLOGICAL ASSESSMENTS AND RESTORATION**
- **ENVIRONMENTAL ASSESSMENTS AND IMPACT STATEMENTS**
- **ENVIRONMENTAL OPPORTUNITIES ASSESSMENT**
- **GIS MAPPING**
- **HAZARD MITIGATION PLANNING**
- **MINING AND RECLAMATION ASSISTANCE**
- **REMEDIATION IMPLEMENTATION, OPERATION AND MAINTENANCE**
- **PHASE I ESA AND ENVIRONMENTAL DUE DILIGENCE ASSESSMENTS**
- **REGULATORY COMPLIANCE AND PERMITTING**
- **SOIL AND GROUNDWATER ASSESSMENTS**
- **SOIL AND GROUNDWATER REMEDIATION**
- **STORAGE TANK COMPLIANCE AND CLOSURE**
- **THREATENED AND ENDANGERED SPECIES SURVEYS**
- **WATERSHED AND STORMWATER MANAGEMENT PROGRAMS**
- **WETLAND DELINEATION, PERMITTING, MITIGATION AND BANKING**

ASTI ENVIRONMENTAL
Detroit/Grand Rapids/Brighton

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