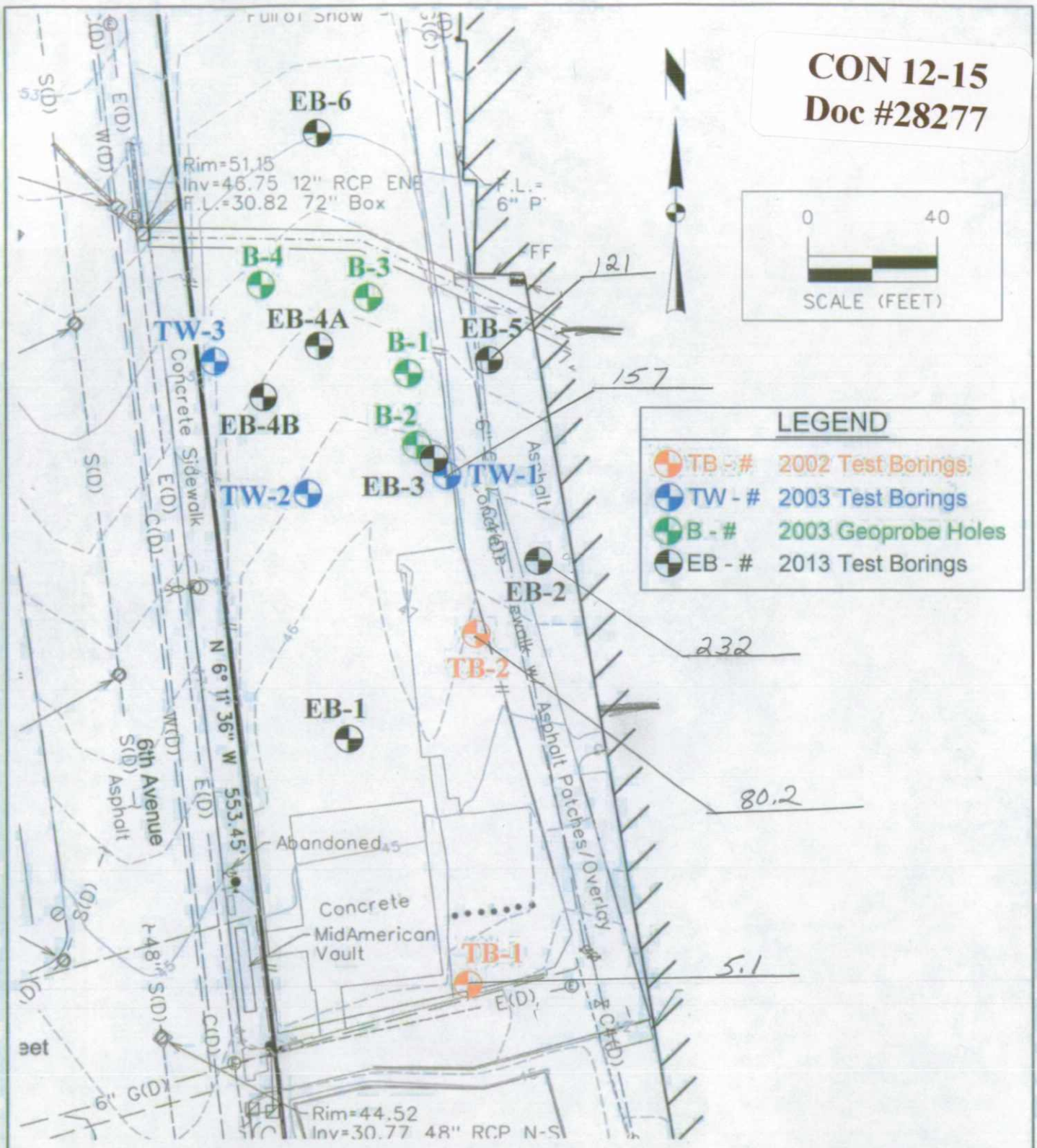
PCE ug/l



Base Plan by Snyder & Associates, Inc.

ALLENDER BUTZKE ENGINEERS INC. 3660 - 109th Street Urbandale, IA 50322	Wellmark YMCA Addition 6th and Grand Avenues Des Moines, Iowa	PN 123226B Site Plan

Sub-slab soil gas samples will be collected as follows.

Temporary sampling probes should be installed using the following procedures:

- Identify sampling location(s) on a floor plan that also identifies any slab breeches (e.g., utility penetrations, sumps, drains, and cracks) and locations of HVAC equipment.

- Insert a section of new food-grade (inert) Teflon® or other appropriate tubing through an approximate 3/8-inch hole drilled through the slab. If necessary, advance the drill bit 2 to 3 inches into the sub-slab material to create an open cavity. Use the bit to measure the slab thickness.

- Install the tubing inlet to the specified sampling depth at or near the bottom of the slab.

- Seal the annular space between the hole and tubing using 100% beeswax or another inert, non-shrinking sealing compound.

Sub-slab soil gas samples should be collected using the following procedures:

- Purge the tubing using a vacuum pump or gas-tight syringe (~60 cc). Calculate the volume of air (volume = $\pi r^2 h$) in the tubing and purge three tubing volumes prior to sample collection at a rate no greater than 0.2 liter per minute (lpm).

- Use an evacuated 1-Liter Summa® passivated (or equivalent) canister to collect the sub-slab vapor sample. The canister will be provided by the laboratory, along with a flow controller equipped with an in-line particulate filter and a vacuum gauge. The flow controller will be pre-calibrated by the laboratory for the desired flow rate for the duration of 5 minutes for sample collection. The sampling flow rate should always be less than 0.2 lpm.

- Remove the protective brass plug from canister. Connect the pre-calibrated flow controller to the canister.

- Record the identification numbers for the canister and flow controller. Record the initial canister pressure on the vacuum gauge (check equipment-specific instructions for taking this measurement). A canister with a significantly different pressure than originally recorded by the testing laboratory should not be used for sampling. Record these numbers and values on the chain-of-custody form for each sample.

- Connect the tubing from the sub-slab vapor sampling probe to the flow controller.

- Completely open the valve on the canister. Record the time that the valve is opened (beginning of sampling) and the canister pressure on the vacuum gauge.

- Photograph the canister and the area surrounding the canister.

- Stop sample collection after the scheduled duration of sample collected, but when the canister still has a minimum amount of vacuum remaining. Check with the laboratory supplying the canister and flow controller for the ideal final vacuum pressure.

- Record the final vacuum pressure and close the canister valve. Record the date and time that sample collection was stopped.

- Remove the flow controller from the canister and replace the protective brass plug.

- Attach labels/tags (sample name, time/date of sampling, etc.) to the canister as directed by the laboratory.

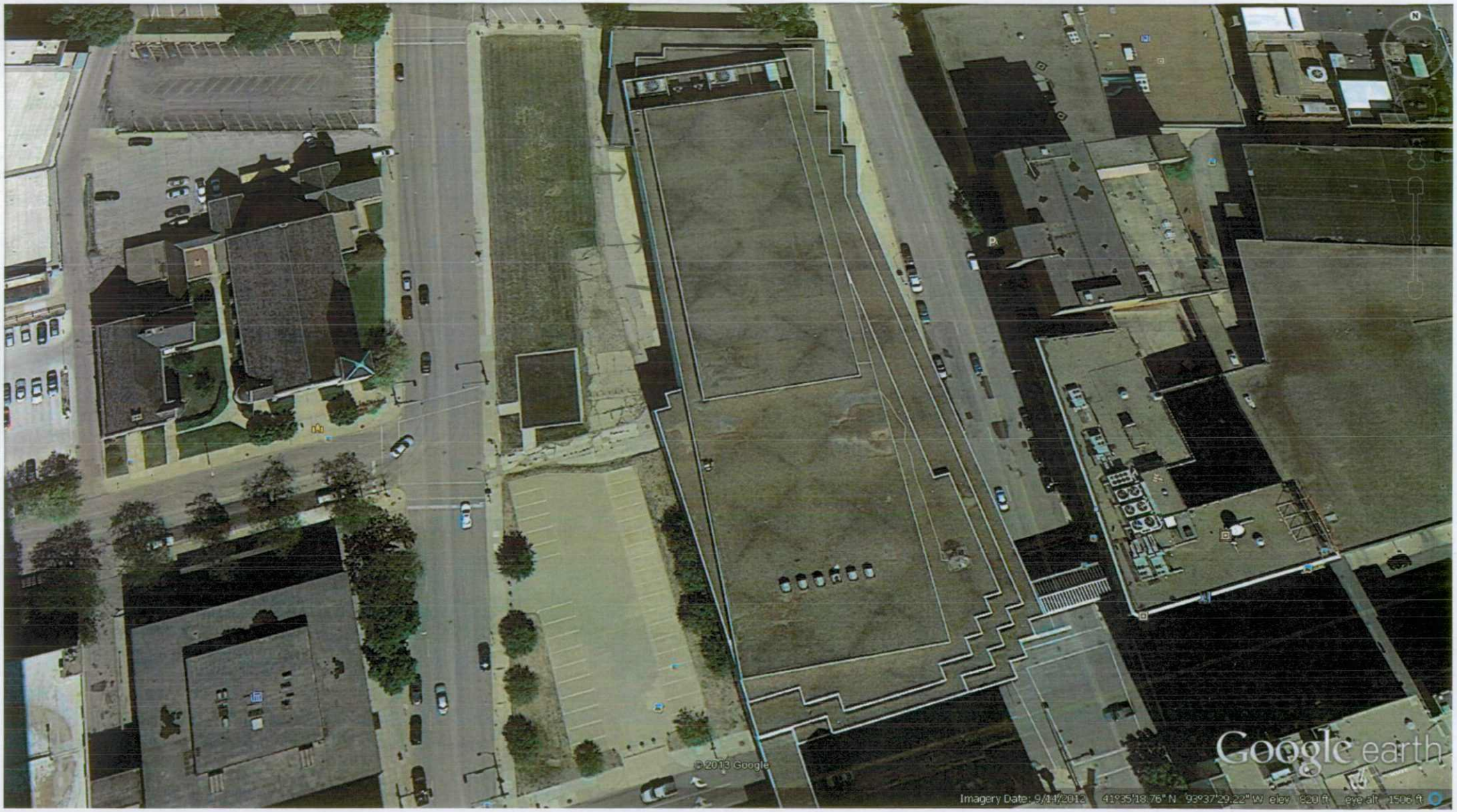
- Place the canister and other laboratory-supplied equipment in the packaging provided by the laboratory.

- Enter the information required for each sample on the chain-of-custody form, making sure to include the identification numbers for the canister and flow controller, and the initial and final canister pressures on the vacuum gauge.

- Include the required copies of the chain-of-custody form in the shipping packaging, as directed by the laboratory. The field crew should retain a copy of the chain-of-custody for the project file.

- Deliver or ship the samples to the laboratory within one business day of sample collection and via overnight delivery (when shipping).

- For temporary probes, remove the probe and seal the slab hole with cement. Repair flooring, if any.


© 2013 Google
Google earth
Imagery Date: 9/14/2013 41°35'18.76" N 93°37'29.22" W elev 820 ft eye alt 1506 ft

BORING LOG NO. EB-2

Project No.: 123226B

Project: Wellmark YMCA Addition
6th and Grand Avenues
Des Moines, Iowa

Client: YMCA of Greater Des Moines
101 Locust Street
Des Moines, IA 50309

Surface Elevation: 46.1'
Datum: South Door Exist. Bldg, FFE=39.0'

Date Drilled: 2/13/2013
Drilling Depth: 46

Drilling Method HSA
Page 1 of 1

Elevation ft.	Depth ft.	Sample No.	Type	PID (PPM)	Odor	Material Description*	Graphic Log	USCS	Water Level	Well Detail
48	0			0		PC Concrete (5.5"±)				
				0		Very dark brown-gray silty sand, trace gravel, brick and cinders, moist		SM		
				0		Brown after 5'				
				0						
		WMK-2	SS	0		Dark brown with coal, cinders, brick, and wood after 9'				
				0		FILL Heavy brick content near 10.5'				
32	16			0		Brown-gray lean clay, moist after 15'		CL		
				0						
				0		Gray silty fine sand, damp to dry		SM		
				0						
				0						
				0						
16				0		With coarse sand and gravel, possible cobbles 30' to 31.5'		SW		
	32			0		Red-brown and gray fine sand, after 31.5'		SP		
				0		GRANULAR ALLUVIUM				
				10						
				5						
		WMK-2	SS	25		Moisture seepage and red-brown coarse sand and gravel after 39'		SW	▽	
				5						
0				5		Maroon-gray shale, damp to moist BEDROCK				
	48					End of Boring				

*The stratification lines represent the approximate boundary lines between material types: in-situ, the transition may be gradual.

Water Level Observation

Time: at completion _____ hrs. _____ days

Depth to water: 39 ft. ▽ _____ ft. ▽ _____ ft. ▽

ALLENDER BUTZKE ENGINEERS, INC.

Geotechnical - Environmental - Construction Q.C.

BORING LOG NO. EB-5

Project No.: 123226B

Project: Wellmark YMCA Addition
6th and Grand Avenues
Des Moines, Iowa

Client: YMCA of Greater Des Moines
101 Locust Street
Des Moines, IA 50309

Surface Elevation: 47.7'
Datum: South Door Exist. Bldg, FFE=39.0'

Date Drilled: 2/13/2013
Drilling Depth: 39.3

Drilling Method 4" CFA
Page 1 of 1

Elevation ft	Depth ft	Sample No.	Type	PID (PPM)	Odor	Material Description*	Graphic Log	USCS	Water Level	Well Detail
48	0			0		PC Concrete (7"±)				
				0		Brown-gray sandy lean clay, trace gravel and brick, moist		CL		
				0		Dark brown with cinders and brick after 5'				
				0		Brown after 7'				
		WMK-5	SS	0		With gray and dark gray after 9' FILL				
				0		Very dark gray with cinders and brick after 13' Moisture seepage near 13.5'				
32	16			0						
				0		Dark brown silty fine sand, moist		SM		
				0		Dark brown sandy lean clay with gravel after 19.3'		CL		
				0		POSSIBLE FILL				
				5		Higher sand and gravel content after 24'				
				10		Gray-brown silty fine sand, moist		SM		
				20		GRANULAR ALLUVIUM Coarser sand and gravel after 30'		SW		
16	32	WMK-5	SS	35		Possible moisture seepage near 30'				
				5		Maroon-gray shale, damp			▽	
				0		BEDROCK				
						End of Boring				
0	48									

*The stratification lines represent the approximate boundary lines between material types: in-situ, the transition may be gradual.

Water Level Observation

Time: at completion _____ hrs. _____ days

Depth to water: 37 ft. ▽ _____ ft. ▽ _____ ft. ▽

ALLENDER BUTZKE ENGINEERS, INC.

Geotechnical - Environmental - Construction Q.C.