General Engineering Company
P.O. Box 340
916 Silver Lake Drive
Portage, WI 53901

608-742-2169 (Office)
608-742-2592 (Fax)
gec@generalengineering.net
www.generalengineering.net

Engineers • Consultants • Inspectors

December 1, 2014

Mr. Keld Lauridsen, Hydrogeologist
Wisconsin Department of Natural Resources
2984 Shawano Avenue
Green Bay, WI 54313-6727

RE: SITE INVESTIGATION WORK PLAN
Vinton – Manitowoc LLC
2717 N. Rapids Road
Manitowoc, Manitowoc County, WI
GEC Project Number: 2-1013-334
WDNR BRRTS #03-36-561207

Dear Mr. Lauridsen:

Introduction

General Engineering Company (GEC) is pleased to submit this work plan for the advancement of soil borings and monitoring wells at the above-referenced location. The site is currently occupied by a commercial structure that is an operating part of the Vinton Construction facility, and is located at 2717 N. Rapids Road, in the Town of Manitowoc, Manitowoc County, Wisconsin. Five undergrounds storage tanks, along with the associated piping and dispensers were removed from the property on October 9, 2013. Analytical results from soil samples collected during the Tank Site Assessment indicated petroleum contamination above Wisconsin Administrative Code NR 720 Residual Contaminant Levels (RCLs). A site location map is provided as Attachment A, Figure 1.

This Work Plan has been prepared in general accordance with Wisconsin Administrative Code (WAC) NR 716.09.

Responsible Party and Consultant

Site Name and Location:	Vinton – Manitowoc LLC 2717 N. Rapids Road Manitowoc, WI 54221 Northwest ¼ of the Southeast ¼ of Section 11, Township 19 North, Range 23 East Manitowoc County, Wisconsin
Site Operations:	The property is currently occupied by a commercial structure utilized in the daily operations of Vinton Construction Company.
Responsible Party:	Vinton- Manitowoc, LLC c/o George Adelman 2717 N. Rapids Road Manitowoc, WI 54221
Consultant:	General Engineering Company 916 Silver Lake Drive Portage, WI 53901 Phone: (608) 742-2169
Project Manager:	Lynn M. Bradley General Engineering Company 916 Silver Lake Drive Portage, WI 53901 Phone: (608) 742-2169

Authorization

Authorization to prepare this Site Investigation Work Plan was provided by Mr. George Adelman, Vinton – Manitowoc, LLC.

Site Features

The subject site is a smaller approximate 1.3 acre parcel (Parcel Number 01001101400300) of land owned by Vinton – Manitowoc, LLC. The parcel address is 2717 North Rapids Road, in the Township of Manitowoc, Wisconsin. This parcel is one of several adjoining parcels, totaling approximately 19 acres in size, which are associated with the Vinton Construction facility.

Two structures currently occupy the subject parcel. The larger structure, located on the central portion of the site, is a single story structure with a concrete floor, utilized as a machine/welding shop and for storage of equipment utilized for testing concrete for Vinton Construction. Five underground storage tanks were removed from the area just north of the main structure on October 9, 2013. A canopy with three dispensers was located west of the main structure. A smaller office-type building is located on the southern portion of the parcel. The structures are surrounded primarily by concrete to the west and south, grass, gravel and concrete to the north, and gravel to the east.

The subject parcel is currently surrounded to the north, east and south by property owned by Vinton Construction, and to the west by N. Rapids Road, followed by agricultural and commercial properties. A Site Plan is shown on Figure 2, located in Appendix A.

Background

On October 9, 2013, five underground storage tanks, located north of the structure, containing gasoline and diesel were properly removed and cleaned by Schaper Excavating and Petroleum of Portage, Wisconsin. An underground storage tank site assessment, performed during the removal of the USTs indicated petroleum affected soils beneath the underground storage tanks. In addition, petroleum product was observed on the groundwater at the time of the UST removal.

General Engineering Company performed site assessment soil samples as part of a UST Site Assessment requirement. Soil samples were collected from the excavation sidewalls, due to the presence of groundwater at the bottom of the excavation at approximately 9 feet below ground surface. In addition, samples were collected beneath the dispensers and also the piping as part of the UST Site Assessment.

Analytical results from several of the sidewall samples (SS-2 through SS-8) and beneath piping 1, 2, and 3, indicated petroleum concentrations above the Wisconsin Administrative Code NR 720 residual contaminant levels (RCL), and the NR 746 Table 1 and Table 2 Values. The WDNR was subsequently notified of a release on November 5, 2013. Soil analytical results from the UST excavation can be found on Table 1, located in Appendix B. In addition, UST soil sample locations are shown on Figure 3, located in Appendix A.

Between December 16, 2013 and December 18, 2013, General Engineering Company oversaw the excavation of approximately 2408 tons of petroleum affected soils. Excavation activities were performed by Vinton Construction Company of Manitowoc, Wisconsin. Affected soils were transported to Hickory Meadows Landfill bio-remediation facility in Hilbert, Wisconsin for proper disposal in the bioremediation pile. Soil samples were periodically field screened, utilizing a Photoionization Detector (PID). The limits of the remedial soil excavation are shown on Figure 4, Appendix A.

The excavation activities were performed in the area of the former underground storage tanks,

and in the area of the former dispensers, located southwest of the former tanks. The excavation was approximately 60 feet by 55 feet in size, and extended southwest, beneath the canopy, in the area of the former dispensers. The depth of the excavation ranged from 5 feet to 12 feet below the ground surface. Soil samples were collected from the sidewalls, from the bottom of the excavation and from beneath piping and submitted for laboratory analysis of Petroleum Volatile Organic Compounds (PVOC) and Naphthalene. In addition, during excavation activities, approximately 16,500 gallons of petroleum affected waters were pumped and transported for proper disposal by Chief Liquid Waste in Winneconne, Wisconsin.

Analytical results collected from SS#9 (SW Dispenser Wall), SS#10 (S. Bottom Dispenser) and SS#15 (N Bottom Dispenser), at depths ranging from 5 to 8 feet below the ground surface, indicated Benzene and/or Ethylbenzene at concentrations exceeding the Wisconsin Administrative Code NR 720 RCLs. Analytical Results are included in Table 2, located in Appendix B.

The remaining samples collected from the UST excavation and dispensers did not indicate petroleum compounds above the NR 720 RCLs.

Regional Geology

During excavation activities, on-site soils mainly consisted of frost in the top two (2) to four feet underlain by sandy silt followed by black silty clay. Groundwater was present at approximately nine (9) feet below ground surface.

A review of the United States Geological Survey (USGS) topographic map indicated that the site is relatively flat, with an elevation of approximately 686 feet above mean sea level. The Manitowoc River is located approximately ½ mile south/southwest of the subject site.

Regional Hydrogeology

A review of the Manitowoc County, Wisconsin, USGS 7.5 minute quadrangle map suggests that the local groundwater flow direction is toward the Manitowoc River or Lake Michigan, located south/southeast of the subject site. Groundwater was encountered at the site at a depth of approximately 9 feet below the ground surface.

Work Plan

The purpose of the proposed site investigation will be to further evaluate the vertical and horizontal extent of petroleum affected soils and groundwater. Dependent upon the findings of this study, it may be possible to develop a remedial alternative or request case closure. However, if this initial phase is not sufficient in determining the extent of the affected zones, it may be necessary to perform additional exploratory work in order to fully evaluate site conditions or formulate remedial alternatives.

The field exploration for this initial phase will include the advancement of approximately four (4)

to six (6) soil borings to a depth of approximately fifteen (15) feet below ground surface (bgs). Select soil borings will be converted to monitoring wells. The approximate locations of the planned soil borings/monitoring wells are shown on Attachment A, Figure 5.

The soil borings will be advanced with a truck mounted drill rig, and samples will be secured at 2 foot intervals throughout the depth of the borings. The soil samples obtained will be subjected to testing in the field with a Mini Rae Photo Ionization Detector (PID), to test for the presence of volatile vapors. Selected companion samples from the estimated soil boring locations will be submitted for analytical testing to determine the levels of PVOC and Naphthalene in the soil. In addition, proposed soil boring SB-1 will be sampled for the presence of Polycyclic Aromatic Hydrocarbons (PAH) near the groundwater interface. Typically the companion sample with the highest PID level or strongest odor, and an underlying companion sample, either from the bottom of the borehole or near the capillary fringe will be selected for testing. However, this will be adjusted as appropriate, to best aid in evaluating the vertical extent of the affected zone.

The monitoring well construction will consist of a 10-foot section of 2-inch diameter, machine slotted PVC screen placed at or near the bottom of the borehole. This will be surrounded by a properly graded granular filter medium in the annular space, with unslotted riser pipe extending from the screened section to about 6 inches below the ground surface. A bentonite seal of approximately 2 feet will be placed above the granular filter medium. The remaining annular space will be filled to the ground surface with a mixture of bentonite and Portland cement, or bentonite chips. Flush mounted protective covers will be used to protect the wells.

GEC will develop the monitoring wells by alternately surging and purging with a bailer. The wells will be bailed until the wells are dry, or until they produce relatively sediment-free water. The development water will be placed into drums until after receipt of the testing results of the wells. Well development tools will be cleaned with a detergent solution and potable water followed with multiple rinses of distilled water prior to development of each well. Water samples for laboratory analysis will be obtained from each well utilizing a single use disposable polyethylene bailer. The initial groundwater samples obtained from each of the monitoring wells will be submitted for analytical testing for the presence Petroleum Volatile Organic Compounds (PVOCs) and Naphthalene. In proposed monitoring well MW-1 the initial groundwater monitoring samples will be collected for the presence of PVOC and PAH. Subsequent monitoring events will be sampled for PVOC and Naphthalene, and possibly PAH depending on initial results. Groundwater elevations and the top of casing elevation at each monitoring well will be established using conventional surveying techniques. For this initial phase, the elevations will be referenced to a temporary benchmark, which will be established on site. Static groundwater levels within the wells will be measured to the nearest 0.01 feet, prior to obtaining the samples for analysis.

The installation of the monitoring wells, and the sample collection and analysis will be performed in general accordance with the guidelines and codes utilized by the WDNR. The samples for chemical analysis will be properly collected and preserved in containers provided by the laboratory. The samples will be placed on ice and standard chain-of-custody procedures will be utilized. The sampling tools will be properly cleaned during the course of the field-testing. Following the completion of the field activities and receipt of the analytical results, a report will be prepared in general accordance with standards set forth by the WDNR.

General

It is anticipated that the soil borings will be performed on December 3 and 4, 2014.

If you have any questions, please contact GEC at (608) 742-2169.

Sincerely,

GENERAL ENGINEERING COMPANY

Lynn M. Bradley

Lynn M. Bradley
Environmental Project Manager

Kory D. Anderson

Kory D. Anderson, P.E.
Vice President

Attachment A: Figures
Attachment B: Tables

cc: George Adelman, Vinton Construction Company, 2717 N. Rapids Road, Manitowoc, WI 54221

APPENDIX A

FIGURES

Regional Site Location Map

Legend

- Cities
- Villages
- Airport
- 2010 Air Photos (WROC)
- Subject Site

0.2 0 0.12 0.2 Miles

NAD_1983_HARN_Wisconsin_TM

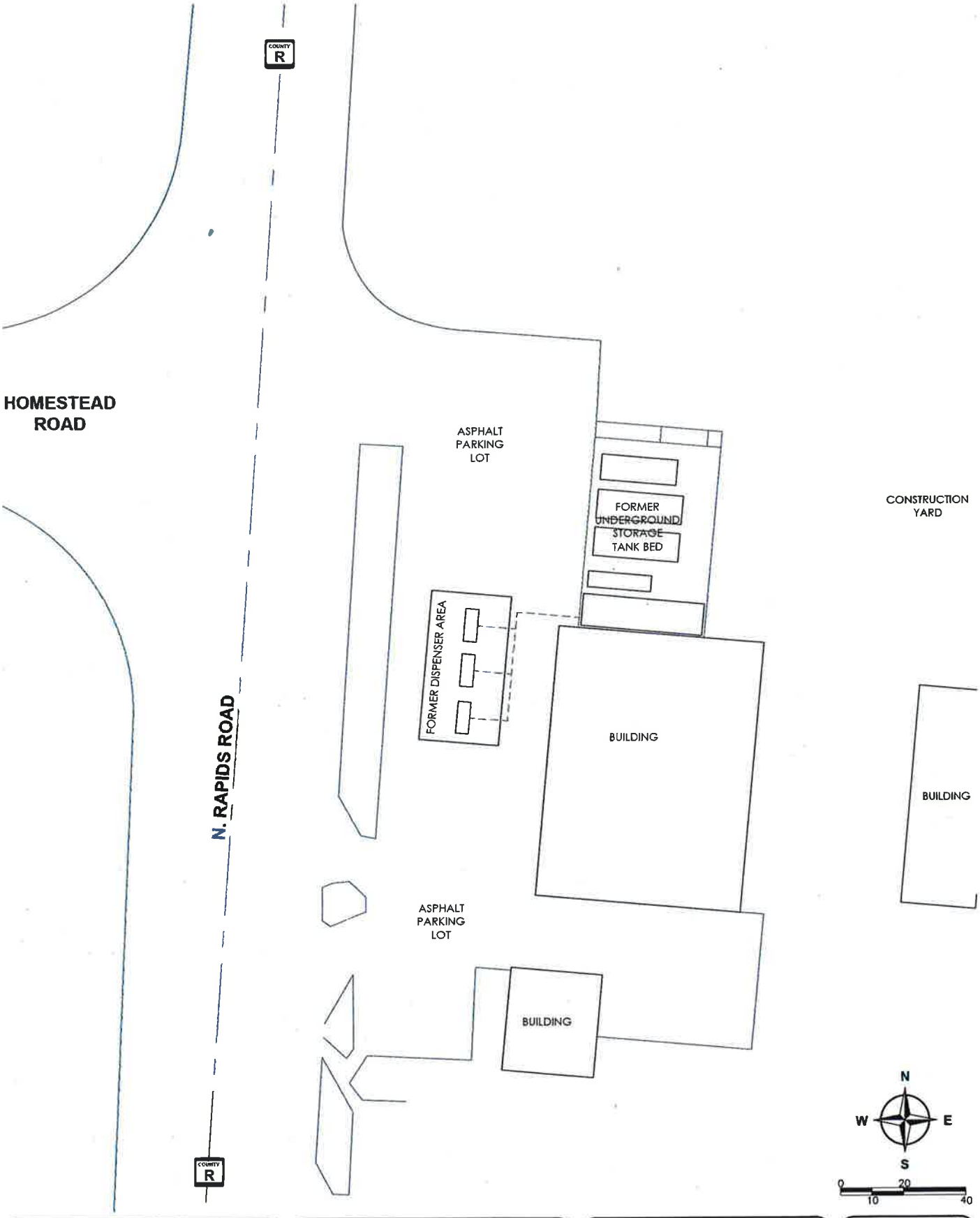
1:7,514

© Latitude Geographics Group Ltd.

DISCLAIMER: The information shown on these maps has been obtained from various sources, and are of varying age, reliability and resolution. These maps are not intended to be used for navigation, nor are these maps an authoritative source of information about legal land ownership or public access. No warranty, expressed or implied, is made aregarding accuracy, applicability for a particular use, completemenss, or legality of the information depicted on this map. For more information, see the DNR Legal Notices web page: http://dnr.wi.gov/org/legal/

Note: Not all sites are mapped.

Notes



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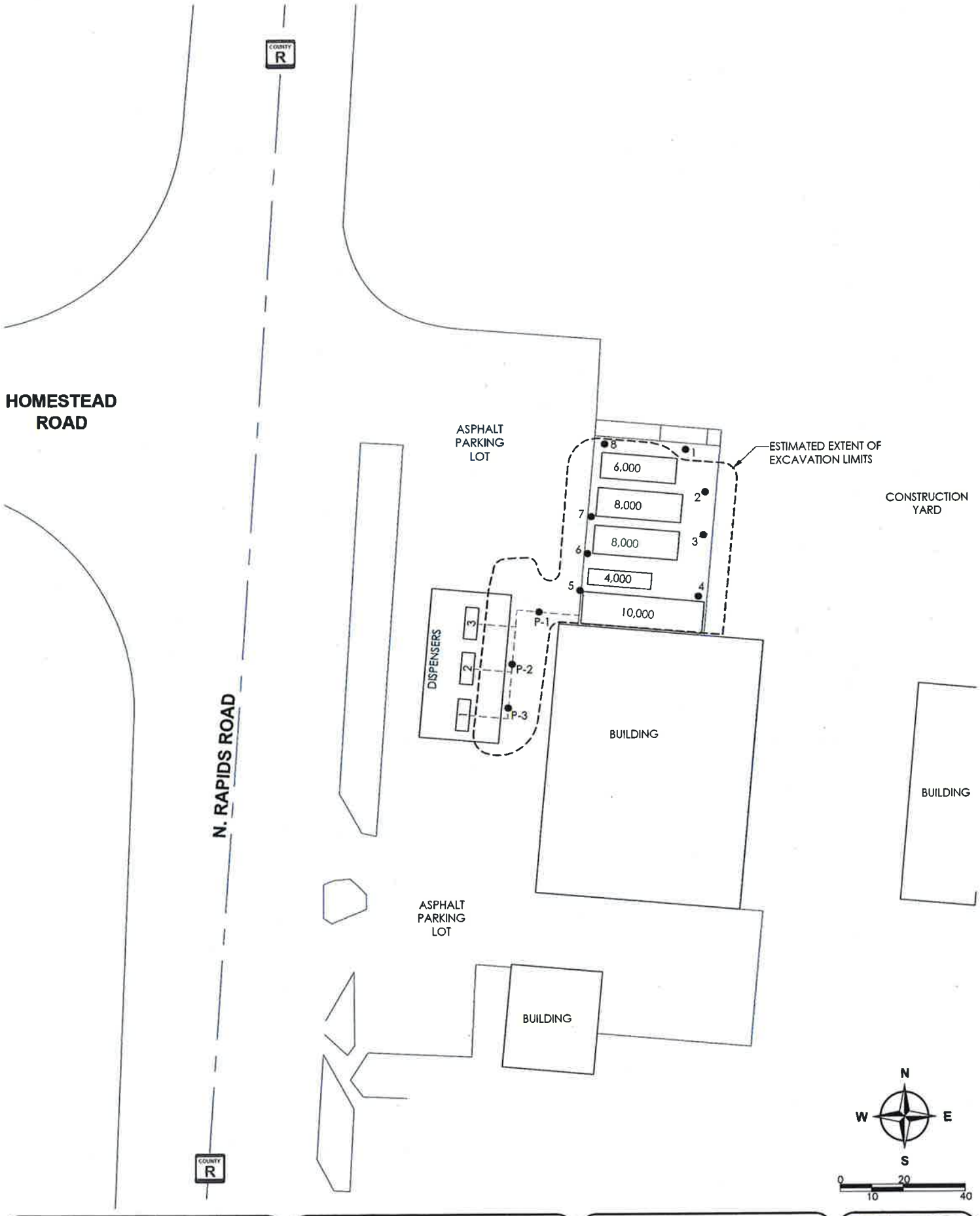
SITE PLAN

Vinton Construction

City of Manitowoc
Manitowoc County, WI

GEC

DRAWN BY	SRR
DATE	11/06/2013
GEC FILE NO.	2-1013-334
SHEET NO.	Figure 2



REVISIONS	NO.	BY	DATE

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UST CLOSURE ASSESSMENT
Sample Locations
Vinton Construction
City of Manitowoc
Manitowoc County, WI

GEC

DRAWN BY	SRR
DATE	11/06/2013
GEC FILE NO.	2-1013-334
SHEET NO.	

Figure 3

REVISIONS	NO.	BY	DATE

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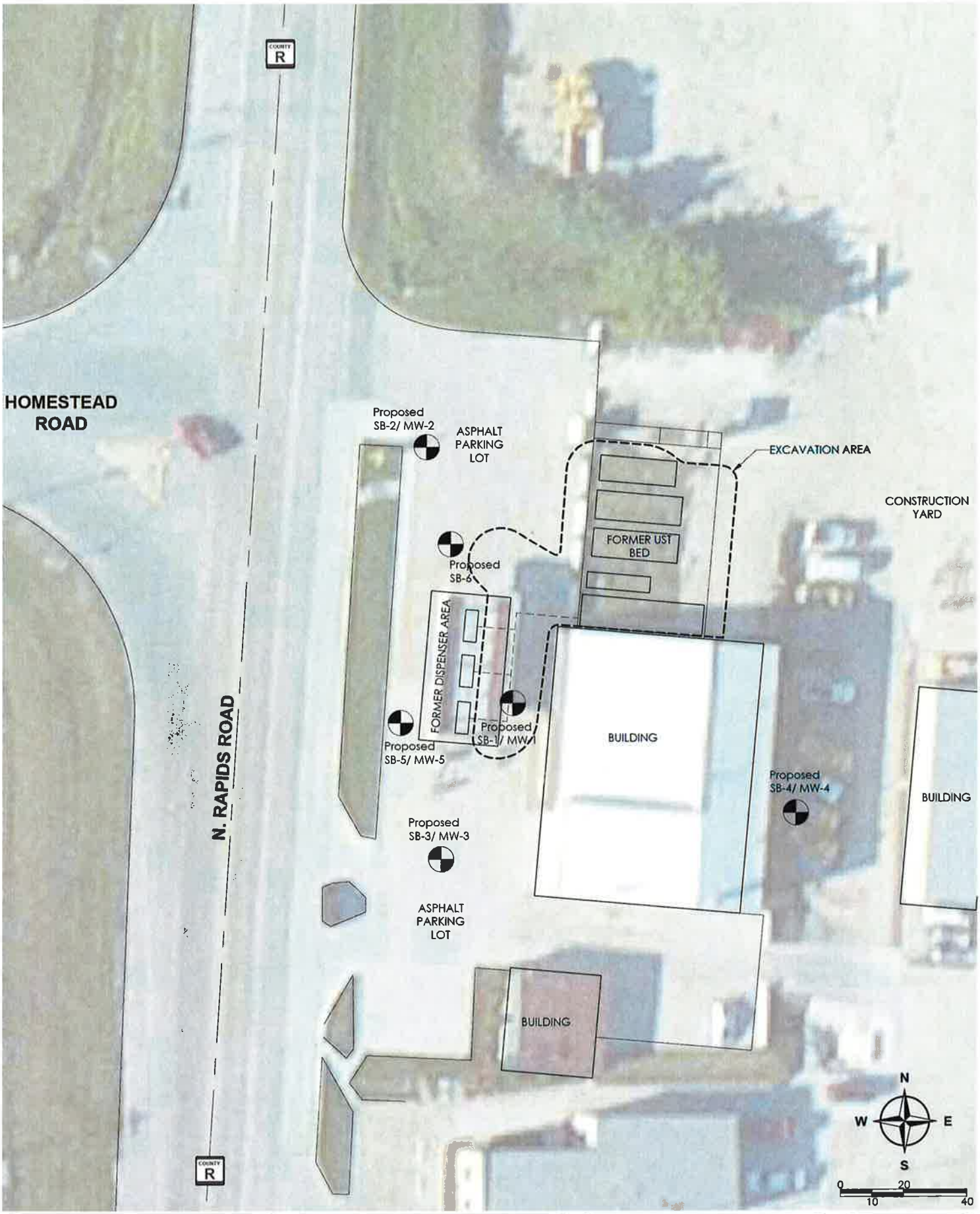
EXCAVATION SOIL SAMPLE LOCATIONS

Vinton Construction

City of Manitowoc
Manitowoc County, WI

GEC

DRAWN BY	SRR
DATE	11/20/2014
GEC FILE NO.	2-1013-334
SHEET NO.	**Figure 4**



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PROPOSED SOIL BORING LOCATIONS

Vinton Construction

City of Manitowoc
Manitowoc County, WI

GEC

DRAWN BY	SRR
DATE	11/20/2014
GEC FILE NO.	2-1013-334
SHEET NO.	

Figure 5

APPENDIX B

TABLES

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS
UST EXCAVATION RESULTS
VINTON CONSTRUCTION
2-1013-334

Sample No.	NC RCL (ug/kg)	C RCL (ug/kg)	Not-To-Exceed D-C RCL (ug/kg)	SS-1	SS-2 NE WALL	D-1	PIPING-1	D-2	D-3
Sampling Date				10/11/13	10/11/13	10/11/13	10/11/13	10/11/13	10/11/13
Sample Depth (feet)				6'	7	2	2	2	2
GASOLINE RANGE ORGANICS (GRO), DIESEL RANGE ORGANICS (DRO) (mg/kg)									
GRO	NE	NE	NE	<2.7	191	<2.9	1950	<2.8	<2.8
PETROLEUM VOLATILE ORGANIC COMPOUNDS (PVOC) (µg/kg)									
Benzene	111,000	1,490	1,490	<25.0	<125	50.4J	794J	<25.0	<25.0
Ethylbenzene	4,200,000	7,470	7,470	120	429	<25.0	**17600**	<25.0	<25.0
Methyl tert-butyl ether	23,800,000	59,400	59,400	<25.0	<125	<25.0	<625	<25.0	<25.0
Naphthalnene	188,000	5,150	5,150	<25.0	**5560**	<25.0	**35200**	<25.0	<25.0
Toluene	5,300,000	NE	818,000	<25.0	<125	<25.0	15600	<25.0	<25.0
1,2,4-Trimethylbenzene	89,800	NE	89,800	<25.0	38500	<25.0	**202000**	<25.0	<25.0
1,3,5-Trimethylbenzene	782,000	NE	182,000	<25.0	14400	<25.0	66800	<25.0	<25.0
Xylenes, -m, -p Xylenes, -o	890,000	NE	258,000	93.8	3055	<75.0	231200	<75.0	<75.0

Sample No.	NC RCL (ug/kg)	C RCL (ug/kg)	Not-To-Exceed D-C RCL (ug/kg)	SS-4 SE WALL	SS-3	SS-5	SS-6	SS-7	SS-8 NW CORNER	PIPING 2	PIPING 3
Sampling Date				10/11/13	10/11/13	10/11/13	10/11/13	10/11/13	10/11/13	10/11/13	10/11/13
Sample Depth (feet)				6	6	6	6	6	5	2	2
GASOLINE RANGE ORGANICS (GRO), DIESEL RANGE ORGANICS (DRO) (mg/kg)											
GRO	NE	NE	NE	231	60.4	3330	399	384	259	6290	3380
DRO	NE	NE	NE	NA	NA	451	NA	NA	NA	NA	NA
PETROLEUM VOLATILE ORGANIC COMPOUNDS (PVOC) (µg/kg)											
Benzene	111,000	1,490	1,490	<62.5	<25.0	**2390**	<125	<125	<100	**7010**	**7630**
Ethylbenzene	4,200,000	7,470	7,470	921	186	**47100**	<125	<125	<100	**64700**	49700
Methyl tert-butyl ether	23,800,000	59,400	59,400	<62.5	<25.0	<625	<125	<125	<100	2210J	<1000
Naphthalnene	188,000	5,150	5,150	**8010**	2700	**47100**	**7020**	**5340**	1910	**70200**	**46500**
Toluene	5,300,000	NE	818,000	<62.5	<25.0	83500	307J	<125	<100	97600	108000
1,2,4-Trimethylbenzene	89,800	NE	89,800	31800	10300	**262000**	35900	41500	2080	**409000**	**268000**
1,3,5-Trimethylbenzene	782,000	NE	182,000	12000	3510	86800	21000	21200	4280	140000	87300
Xylenes, -m, -p Xylenes, -o	890,000	NE	258,000	17360	4331	**408000**	13010	6960	394J	**561000**	**501000**

NE = NR 720 RCL not established

Q = Analyte detected above laboratory limit of detection but below limit of quantitation.

Bold indicates analytical results exceed NR 720 RCL

TABLE 2
SUMMARY OF SOIL ANALYTICAL RESULTS
EXCAVATION DECEMBER 2013
VINTON CONSTRUCTION
MANITOWOC, WISCONSIN

Sample No.	NC RCL (ug/kg)	C RCL (ug/kg)	Not-To-Exceed D-C RCL (ug/kg)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Sample Description				SE CORNER	NE CORNER SIDEWALL	NE BOTTOM	E WALL	N/NE SIDEWALL	NW CORNER	N/NE BOTTOM	W WALL	SW DISPENSER WALL	S BOTTOM DISPENSER	NE PIPING WALL	SW BOTTOM	SE DISPENSER WALL	NW DISPENSER WALL	N BOTTOM DISPENSER	SW WALL NW OF DISPENSER
Sampling Date				12/16/13	12/17/13	12/17/13	12/17/13	12/17/13	12/17/13	12/17/13	12/18/13	12/18/13	12/18/13	12/18/13	12/18/13	12/18/13	12/18/13	12/18/13	12/18/13
Sample Depth (feet)				8'	8'	12'	8'	6'	7'	9'	7'	5'	8'	5'	9'	5'	6'	8'	6'
PETROLEUM VOLATILE ORGANIC COMPOUNDS (PVOC) (µg/kg)																			
Benzene	111,000	1,490	1,490	<25	35.0J	<25	<25	<25	<25	<25	<25	344J	**4,020**	<25	<25	620	652	**3,490**	31.5J
Ethylbenzene	4,200,000	7,470	7,470	<25	393	<25	<25	46.3J	<25	152	<25	**12,400**	2,290	<25	<25	3,360	426	1,580	<25
Methyl tert-butyl ether	23,800,000	59,400	59,400	<25	<25	<25	<25	<25	<25	<25	<25	605	77.0	<25	<25	38.2J	<25	74.8	<25
Naphthalene	188,000	5,150	5,150	<25	<25	<25	<25	193	<25	44.4J	<25	4,890	1,030	<25	<25	1,200	<25	852	<25
Toluene	5,300,000	NE	818,000	<25	<25	<25	<25	30.4J	<25	194	<25	1,170	119	<25	<25	300	53.0J	45.4J	<25
1,2,4-Trimethylbenzene	89,800	NE	89,800	<25	86.6	<25	<25	300	<25	91.0	<25	45,300	3,330	155	164	6,640	324	2,590	172
1,3,5-Trimethylbenzene	782,000	NE	182,000	<25	<25	<25	<25	123	<25	<25	<25	15,600	994	47.5J	<25	1,880	117	782	63.3J
Xylenes, -m, -p Xylenes, -o	890,000	NE	258,000	<75	3400	<75	<75	245.3	<75	1,132	<75	57,140	<4,205	<747	<75	16,067	1268.5J	<4,735	217.7

mg/kg = milligrams per kilogram
µg/kg = micrograms per kilogram
RCL = Residual Contaminant Level
SSL = Soil Screening Level
DCL = Direct Contact Level
NA = Parameter not analyzed
NE = NR 720 RCL not established
J = Analyte detected above laboratory limit of detection but below limit of quantitation.
Bold indicates analytical results exceed NR 720 RCL