

**Bowers Harbor Property  
0 Devils Dive Road & 0 Bowers Harbor Road  
Parcel ID #'s – 28-11-128-025-00 & 28-11-128-006-00  
Peninsula Township, Grand Traverse County, Michigan**

**BASELINE ENVIRONMENTAL ASSESSMENT**

**Conducted Pursuant to Section 20126(1)(c) of Part 201,  
1994 Public Act 451, as amended,  
and the rules promulgated thereunder**

**March 22, 2013**

*Prepared for:*

**Peninsula Township**  
C/O: Mr. Rob Manigold, Township Supervisor  
13235 Center Road  
Traverse City, Michigan 49686

*Prepared by:*

**Otwell Mawby, P.C.**  
**Consulting Engineers**  
309 East Front Street  
Traverse City, Michigan 49684

Otwell Mawby Project Number: 13-004

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## **BASELINE ENVIRONMENTAL ASSESSMENT**

### **Conducted Pursuant to Section 20126(1)(c) of Part 201, 1994 Public Act 451 as amended, and the rules promulgated thereunder**

#### **1.0 INTRODUCTION AND DISCUSSION**

Otwell Mawby, P.C. (Otwell Mawby) has prepared this Baseline Environmental Assessment (BEA) for Mr. Rob Manigold, Township Supervisor and representative for Peninsula Township, (Purchaser) of the subject property. The Bowers Harbor Property (hereafter referred to as the subject property) is comprised of two parcels totaling approximately 58.98-acres located at 0 Devils Dive Road and 0 Bowers Harbor Road situated in Section 28, Township 29 North (T29N), Range 10 West (R10W), in Peninsula Township, Grand Traverse County, Michigan. Refer to Figure 1, Site Location Map, for the location of the subject property in Peninsula Township, Grand Traverse County, Michigan.

This BEA was completed in general accordance with the Michigan Department of Environmental Quality's (MDEQ's) "*Contents of BEA Report*," dated April 2011.

Peninsula Township is submitting this BEA to the MDEQ to qualify for an exemption from liability under Part 201 of the Natural Resources and Environmental Protection Act (NREPA) of 1994, PA 451, as amended, and the rules promulgated thereunder. The BEA reasonably defines known existing environmental conditions and circumstances at the subject property.

#### **1.1 OWNER / OPERATOR**

The current owner of the subject property is as follows:

Bowers Harbor Land Holding Company, LLC  
877 South Adams Road  
Birmingham, MI 48009-7026

On or before December 1, 2013, Peninsula Township plans to purchase the subject property from the current owner. Contact information for Peninsula Township is indicated below:

Peninsula Township  
C/O: Mr. Rob Manigold, Township Supervisor  
13235 Center Road  
Traverse City, Michigan 49686

## 1.2 INTENDED USE

Peninsula Township intends to purchase the subject property and utilize the site as recreational parklands. The use of the subject property may include development of a parking lot, recreational trails, and athletic fields. There are no buildings located on the subject property.

## 1.3 EXECUTIVE SUMMARY – PHASE I ESA

Otwell Mawby completed a Phase I Environmental Site Assessment (ESA) and Phase II ESA in March 2013. The completed Phase I ESA and the site photographs are included as BEA Appendix A. It should be noted that the Phase I ESA had been conducted for two parcels which comprise the entire property being acquired by Peninsula Township.

Determination of historic use was based on review of available information conducted during the completion of the Phase I ESA (March 2013). Based on review of available information, the use of the subject property between the early 1900's and the early 2000's was determined to be for agricultural purposes. Prior to the 1940's the subject property is believed to have been planted as apple orchard. During the 1940's the apple trees were replaced with tart cherry trees, which remained on the subject property until the early 2000's. In the early 2000's the trees were removed from the site and it has since remained vacant. In 2004 the subject property was purchased by the current owner with the intention to developing the site into a residential subdivision but the development was never started and the site remains vacant. Prior to the purchase of the subject property, environmental assessment of the site was completed, which deemed the property a "facility" as defined by Part 201 of Act 451 of 1994, as amended, and a Baseline Environmental Assessment was completed on the subject property on behalf of the current owner.

Based on information obtained during the completion of the Phase I ESA dated March 2013, three Recognized Environmental Conditions (RECs) were associated with the subject property and are discussed in detail in the following paragraphs. These RECs were investigated during the Phase II Environmental Site Assessment (Phase II ESA) activities conducted in February 2013, and are discussed in Section 1.6 of this BEA. The three RECs identified for the subject property are as follows:

**Potential for Residual Agrochemicals:** Historical environmental reports have identified the presence of arsenic in site soils at concentrations in excess of MDEQ Generic Residential Cleanup Criteria (GRCC). The presence of arsenic in site soils was determined to be the result of the historical use of agrochemicals as part of previous orchard operations. Between about 1900 and the early 2000's the subject property was utilized as orchard. Based on the identified presence of

arsenic in site soils and the resulting “facility” status, as defined by Part 201 of Act 451 of 1994, as amended, of the subject property, Otwell Mawby has identified a REC.

**Historical Presence of Nitrate Levels in Area Potable Water Well Supplies:** Levels of nitrates have historically been identified in the potable water supplies in the area of the subject property. The nitrate levels are thought to be due primarily to the use of fertilizers in the area’s cherry orchards and vineyards, although specific causes of the nitrate levels have not been conclusively established. No exceedences have been identified on the subject property as there are no water wells present. However, due to the presence of known elevated concentrations of nitrates in the water in the vicinity of the subject property, a REC has been identified.

**Historical Presence of the Peninsula Township Dump Site:** The presence of the former Peninsula Township dump was identified during completion of the Phase I ESA as an adjacent property. The former Peninsula Township dump is located to the east of the subject property. From approximately the 1950s until the mid 1970s the site was operated as a waste refuse dump. Several hydrogeologic investigations have identified the presence of limited groundwater contamination in the upper and lower level aquifers located in the general vicinity of the site. Groundwater flow direction is generally believed to be in a northwesterly direction. However, in 1992 a Hydrogeologic Investigation was completed to determine if groundwater quality at the site was viable to be utilized as part of a residential development with a potable water supply. Results of the investigation recommended restrictions be placed on the installation of potable wells. Installed wells were recommended to be horizontally away from the adjacent Peninsula Township Dump impact as well as be limited to their minimum depth due to their potential to be a receptor for impact from the adjacent dump site. This evaluation was based on data collected from nine monitor wells, four of which were installed in 1990. Results of groundwater samples indicated that constituents found in 1990 were not present and further indicated that constituents identified were within the MCLs for metals and PCBs. Based on the results of the metals and PCBs being below or at the MCLs in the 1992 investigation, the results of the 1990 sampling were discounted as the samples were not filtered, thus, the concentrations were attributed to soils diluted within the water samples. *As the results of the groundwater sampling were not repeatable and none of the constituents were found in excess of MCLs, no further assessment of this REC is warranted.*

For the complete history of the subject property and the surrounding properties, refer to the included Phase I ESA (Appendix A).

#### **1.4 EXCEPTION OR DELETIONS FROM PHASE I ESA**

Otwell Mawby did not identify any exceptions or deletions during the completion of the March 2013 Phase I ESA for the subject property. A copy of the Phase I ESA is included as Appendix A and should be reviewed in its entirety.

## **1.5 DATA GAPS FROM PHASE I ESA**

Otwell Mawby identified two data gaps during the completion of the March 2013 Phase I ESA for the subject property. The first data gap concerns the first developed use of the subject property. The subject property is thought to have been first developed around 1900 as an apple orchard. The use of the subject property prior to this development is thought to have been as vacant undeveloped land but its use could not be confirmed, thus, a data gap has been identified. This data gap represents a period of time in which it was not possible to identify RECs for the subject property.

The second data gap concerns the lack of owner supplied information to Otwell Mawby during the completion of this Phase I ESA and the lack of submittal of an ASTM Property Transaction Screening Questionnaire. The only information that was supplied by the owner of the subject property indicated that there has been no improvement to the subject property since their acquisition. No further details of site use were supplied by the owner. Therefore, this lack of information and inability to interview the owner of the subject property has resulted in a data gap.

A copy of the Phase I ESA is included as Appendix A and should be reviewed in its entirety.

## **1.6 PHASE II ESA INVESTIGATION**

The Phase II Environmental Site Assessment (Phase II ESA) conducted on the subject property in February 2013 is discussed in the following sections.

### **1.6.1 Initial Phase II Investigation – May 2004**

Otwell Mawby had previously conducted Phase II ESA activities on the subject property in May 2004, to address the identified REC related to the use of agrochemicals on the site. These activities were completed for the potential sale and redevelopment of the subject property. As part of the investigation twenty five soil samples (identified as HA-1 through HA-25) were obtained over a grid pattern to determine potential impacts from agrochemical use. The soil samples were collected from near surface soils located just below the vegetative root line. The soil samples were collected for laboratory analysis of arsenic and lead content. Five soil samples were also composited from the original 25 samples and were analyzed by the laboratory for organo-chlorine and organo-phosphorus content. Results of the laboratory analysis are summarized in the table on the following page:

Boring ID	Arsenic Concentration (ug/Kg)	Lead Concentration (ug/Kg)	Constituent & GRCC Exceeded (ug/Kg)
HA-1	2,600	5,600	None
HA-2	9,200 -	59,000	Arsenic - SDBL, DC
HA-3	6,800	76,000	Arsenic - SDBL
HA-4	9,500	60,000	Arsenic – SDBL, DC
HA-5	8,800	58,000	Arsenic – SDBL, DC
HA-6	14,000	80,000	Arsenic – SDBL, DC
HA-7	7,900	70,000	Arsenic – SDBL, DC
HA-8	9,200	70,000	Arsenic – SDBL, DC
HA-9	7,400	52,000	Arsenic – SDBL
HA-10	12,000	58,000	Arsenic – SDBL, DC
HA-11	11,000	53,000	Arsenic – SDBL, DC
HA-12	7,900	66,000	Arsenic – SDBL, DC
HA-13	1,200	8,500	None
HA-14	1,900	11,000	None
HA-15	7,200	42,000	Arsenic – SDBL
HA-16	6,300	30,000	Arsenic – SDBL
HA-17	2,000	10,000	None
HA-18	3,800	14,000	None
HA-19	5,900	25,000	Arsenic – SDBL
HA-20	1,900	7,800	None
HA-21	1,200	5,400	None
HA-22	1,600	7,200	None
HA-23	3,400	25,000	None
HA-24	7,500	9,800	Arsenic – SDBL
HA-25	6,100	32,000	Arsenic – SDBL

DWP – MDEQ Part 201 Drinking Water Protection  
 DC – MDEQ Part 201 Direct Contact Criteria  
 SDBL – MDEQ State Default Background Level  
 GRCC – Generic Residential Cleanup Criteria  
 ug/Kg – Micrograms per kilogram (i.e., parts per billion)

None of the soil samples contained concentrations of lead, organo-chlorine or organo-phosphorus at concentrations in excess of MDEQ GRCC. These soil borings locations are shown on Figure 2 (attached). Based on the presence of arsenic at concentrations in excess of MDEQ GRCC the

subject property was determined to meet the definition of a “facility” as define by Part 201 of Act 451 of 1994, as amended, and a BEA was submitted to the MDEQ on behalf of the current owners of the subject property. The BEA was affirmed by the MDEQ in a letter dated, November 1, 2004, signed by the Remediation and Redevelopment Division, District Supervisor, John Alford.

### **1.6.2 2013 Phase II Investigation**

Based upon the findings of the Phase I ESA (March 2013), on February 19, 2013, Otwell Mawby completed Phase II activities. The Phase II ESA consisted of soil and groundwater sampling, and analyses for chemical constituents based on the associated RECs. A map depicting subject property features and sample locations has been provided as Figure 2, Sample Locations Map.

Samples were placed into laboratory-supplied containers and kept cool until delivery to the laboratory for analyses for select parameters including volatile organics (VOCs), polychlorinated biphenyl’s (PCBs), and Michigan 10 metals. The analytical methods used will include; 8260 for VOCs, 8082 for PCBs, and the 6010/6020 series for the Michigan 10 metals. The laboratory analysis of soil and groundwater samples was completed by Grand Traverse Analytical (GTA) of Traverse City, Michigan.

### **1.6.3 Soil Investigation**

Otwell Mawby completed 20 soil borings (HA-26 through HA-45) on the subject property, utilizing a stainless-steel hand auger. The soil borings were completed to address the historical use of the subject property as orchard. The locations of these soil borings are depicted on Figure 2.

The soils generally consisted of fine to medium sands indicative of the native soils within the area of the subject property. These soil conditions extended to a maximum soil boring depth of one-half foot below grade. No unusual soil conditions were noted during the completion of the borings.

Twenty (20) soil samples (HA-26 through HA-45) were collected from the soil boring locations completed on the subject property. A summary of the soil sampling activities are contained in the table on the following page:

**Summary of Soil Sampling Activities**

<b>Boring I.D.</b>	<b>Total Depth (ft.)</b>	<b>REC Investigated</b>	<b>Soil Sampling Interval (ft. below ground surface)</b>	<b>Observations</b>	<b>PID Readings (ppm)</b>	<b>Laboratory Analyses</b>
HA-26 through HA-45	0.5'/ Boring	Historical Agrochemical Use	0.5'	None	0.0	Arsenic

A Phase II ESA Report was not issued for the sampling but copies of the laboratory analytical results are contained within Appendix B. The soil sampling locations are depicted on Figure 2.

**1.6.4 Groundwater Investigation**

Otwell Mawby collected a surface water seep sample at the SW-1 location on the subject property. The purpose of the water sample collection was to evaluate the potential for impacted surface water seepage from the adjacent historical Peninsula Township Dump site. The water sample was collected from a temporary monitoring well installed at the soil boring location. The temporary monitoring well screen was set at a depth of zero to one-half a foot below grade. A water sample (SW-1) was collected from the temporary monitoring well and submitted for laboratory analysis of VOCs, PCBs, and Michigan 10 Metals.

**1.7 KNOWN CONTAMINATION**

Twenty discrete soil samples (HA-26 through HA-45) and one water sample (SW-1) were collected from the subject property. The soil samples were analyzed for arsenic and the water sample was analyzed for VOCs, PCBs, and Michigan 10 Metals. The samples were compared to the MDEQ residential default cleanup criteria, as provided in Tables 1 and 2.

**1.7.1 Soil Investigation Analytical Results**

Each of the discrete soil samples (HA-26 through HA-45) collected at the subject property exhibited concentrations of arsenic above its laboratory detection limit. Eleven of the samples contained concentrations of arsenic above MDEQ GRCC, specifically, Drinking Water Protection and Direct Contact Criteria's. Concentrations detected above MDEQ GRCC are summarized below. All other parameters were not detected above GRCC concentrations. The table on the following page summarizes the soil investigation activities.

**Summary of Soil Concentrations Above GRCC**

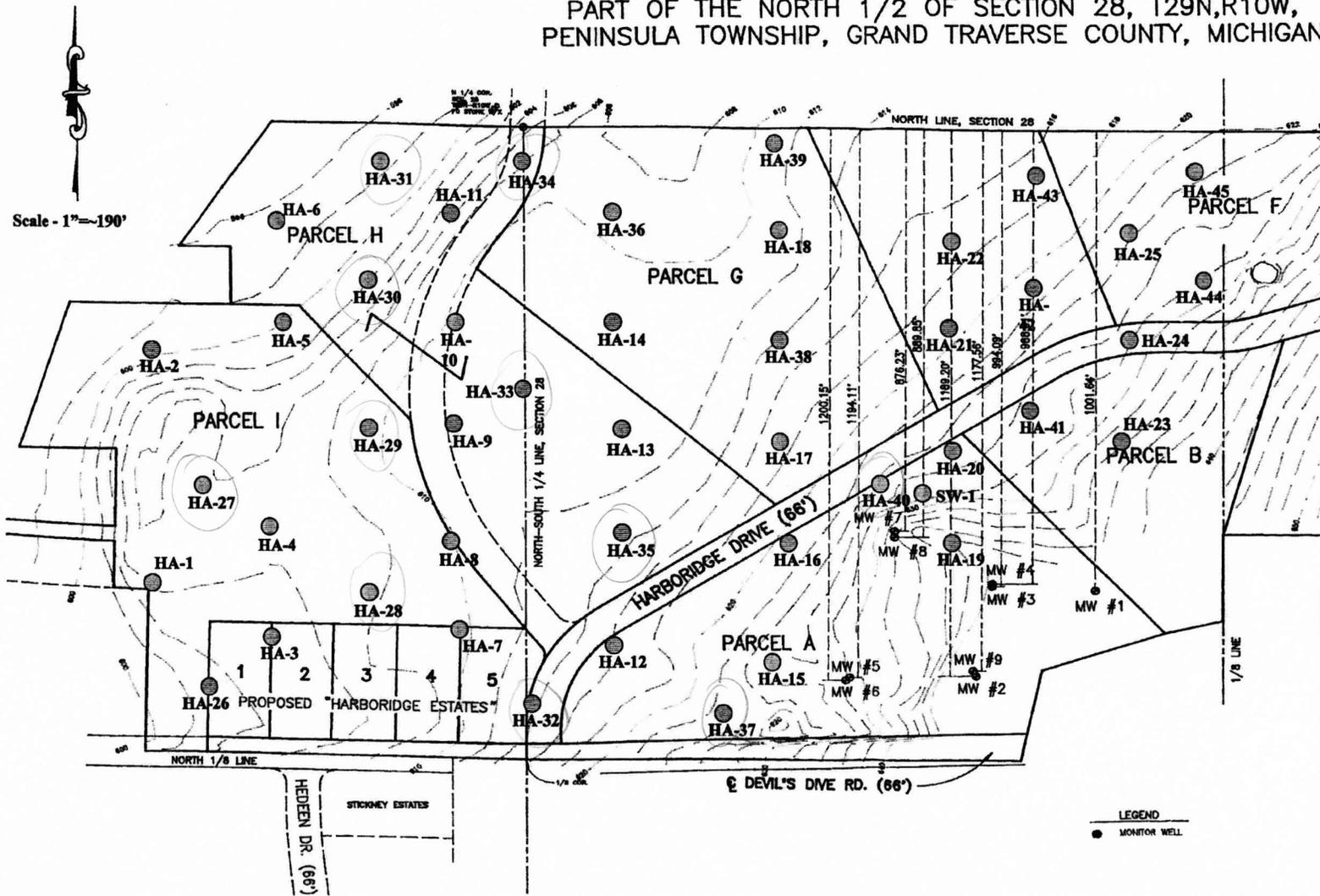
<b>Parameter Exceeding Criteria</b>	<b>Sample Type</b>	<b>Parameter Analytical Result (ug/Kg)</b>	<b>GRCC Exceeded (ug/Kg)</b>	<b>Boring ID</b>	<b>Sample Depth (ft.)</b>
Arsenic	Soil	10,000	SDBL, DWP, GSI, DC	HA-27	0.5'
Arsenic	Soil	11,000	SDBL, DWP, GSI, DC	HA-28	0.5'
Arsenic	Soil	15,000	SDBL, DWP, GSI, DC	HA-29	0.5'
Arsenic	Soil	22,000	SDBL, DWP, GSI, DC	HA-30	0.5'
Arsenic	Soil	6,100	SDBL, DWP, GSI	HA-31	0.5'
Arsenic	Soil	8,500	SDBL, DWP, GSI, DC	HA-32	0.5'
Arsenic	Soil	12,000	SDBL, DWP, GSI, DC	HA-33	0.5'
Arsenic	Soil	10,000	SDBL, DWP, GSI, DC	HA-34	0.5'
Arsenic	Soil	11,000	SDBL, DWP, GSI, DC	HA-35	0.5'
Arsenic	Soil	6,400	SDBL, DWP, GSI	HA-37	0.5'
Arsenic	Soil	11,000	SDBL, DWP, GSI, DC	HA-40	0.5'
DWP – MDEQ Part 201 Drinking Water Protection DC – MDEQ Part 201 Direct Contact Criteria GSI – MDEQ Part 201 Groundwater Surface Water Interface Criteria SDBL – MDEQ State Default Background Level GRCC – Generic Residential Cleanup Criteria ug/Kg – Micrograms per kilogram (i.e., parts per billion)					

Each of the remaining soil samples contained concentrations of arsenic at concentrations in excess of their respective laboratory detection limits but each was below MDEQ GRCC. The complete analytical data package is included in BEA Appendix B. The constituent concentrations detected above are summarized on Table 1, attached.

**1.7.2 Groundwater Investigation Analytical Results**

The water sample collected from the subject property (SW-1, did not exhibit concentrations of VOC's, PCB's, or Michigan 10 Metals at concentrations in excess of MDEQ GRCC. Barium and copper were found at concentrations in excess of their respective laboratory detection limits but each was below MDEQ GRCC. All other of the constituents analyzed were below laboratory method detection limits and the MDEQ GRCC. The complete analytical data package is included in BEA Appendix B.

PART OF THE NORTH 1/2 OF SECTION 28, T29N,R10W,  
PENINSULA TOWNSHIP, GRAND TRAVERSE COUNTY, MICHIGAN



**GTRLC/ Bowers Harbor**

**Figure 2: Sample Locations Map – Sept. 2003 & Feb. 2013**



**Otwell Mawby P.C.**  
Traverse City, Michigan

**Date:**  
3/12/13

**Project No: 13-004**

**Source: Mitchell &  
Assoc. P.C.**

## 1.8 BASIS FOR FACILITY DETERMINATION

The Phase II ESA activities identified the presence of arsenic in several soil samples, collected from the subject property at concentrations exceeding MDEQ Part 201 residential risk-based screening levels. The criteria exceedences for soil identified are summarized as follows:

**Soil Constituents Exceeding MDEQ Part 201 GRCC**

Parameter Exceeding Criteria	Sample Type	Parameter Analytical Result (ug/Kg)	GRCC Exceeded (ug/Kg)	Boring ID	Sample Depth (ft.)
Arsenic	Soil	10,000	SDBL, DWP, GSI, DC	HA-27	0.5'
Arsenic	Soil	11,000	SDBL, DWP, GSI, DC	HA-28	0.5'
Arsenic	Soil	15,000	SDBL, DWP, GSI, DC	HA-29	0.5'
Arsenic	Soil	22,000	SDBL, DWP, GSI, DC	HA-30	0.5'
Arsenic	Soil	6,100	SDBL, DWP, GSI	HA-31	0.5'
Arsenic	Soil	8,500	SDBL, DWP, GSI, DC	HA-32	0.5'
Arsenic	Soil	12,000	SDBL, DWP, GSI, DC	HA-33	0.5'
Arsenic	Soil	10,000	SDBL, DWP, GSI, DC	HA-34	0.5'
Arsenic	Soil	11,000	SDBL, DWP, GSI, DC	HA-35	0.5'
Arsenic	Soil	6,400	SDBL, DWP, GSI	HA-37	0.5'
Arsenic	Soil	11,000	SDBL, DWP, GSI, DC	HA-40	0.5'

DWP – MDEQ Part 201 Drinking Water Protection  
 DC – MDEQ Part 201 Direct Contact Criteria  
 GSI – MDEQ Part 201 Groundwater Surface Water Interface Criteria  
 SDBL – MDEQ State Default Background Level  
 GRCC – Generic Residential Cleanup Criteria  
 ug/Kg – Micrograms per kilogram (i.e., parts per billion)

The results of the Phase II ESA show impact to soil likely attributable to the historical use of agrochemicals as part of onsite historical orchard operations.

Based on the presence of arsenic identified above in the soil, in excess of the MDEQ GRCC Protection of Drinking Water Criteria, Groundwater Surface Water Interface Criteria, and Direct Contact Criteria, the subject property is a “facility” as defined by Part 201 of Michigan Act 451, as amended.

## 2.0 PROPERTY INFORMATION

The following sections present background information on the subject property.

### 2.1 LEGAL DESCRIPTION

The subject property tax assessment information and legal description were provided by the Peninsula Township and the Grand Traverse County Equalization Department and are attached as Appendix C. The subject property consists of two parcels totaling approximately 58.98-acres in size. The tax identification numbers for the subject property are 28-11-128-025-00 (0 Devils Dive Road) 28-11-128-006-00 (0 Bowers Harbor Road). The legal descriptions of the subject property are as follows:

- **(0 Devils Dive Road)** PRT OF GOV'T LOT 1 AND PART OF NW 1/4 OF NE 1/4 OF SD SEC 28 T29N R10W. COM AT N 1/4 COR OF SD SEC 28, TH S ALG N & S LN 400.6 FT TO POB. TH N 88 DEG 42'W TO A PT 149.28 FT FROM E R/W OF PEN DR, TH S 17 DEG 43'W 332.8 FT, TH S 89 DEG 06' E 188.44 FT, TH S
- **(0 Bowers Harbor Road)** COM N 1/4 COR & POB TH W 476.97 FT TH S 33 DEG 38' W 325.09 FT TH E 100 FT TH S 125.62 FT, TH E 1726.44 FT TH N 400.6 FT TH W 1166.44 FT TO POB. SEC 28 T29N R10W

### 2.2 SURVEY MAP

The location of the subject property is shown on Figure 1, Site Location Map. Refer to Figure 3, Parcel Boundary Map, which identifies the subject property boundary, and legal description number. Also refer to the tax assessment information provided as BEA Appendix C.

### 2.3 SCALED SITE MAP

Refer to Figure 2, Sample Location Map, which identifies the sample locations. Detected contaminant concentrations for the subject property are presented on Tables 1 and 2.

### 2.4 SCALED AREA MAP

Refer to Figure 1, Site Location Map, which identifies the location of the subject property and the surrounding areas. Figure 1 is taken from the Mapleton, 7.5 Minute USGS Topographic Quadrangle Map, (1983), Delorme 1999 (Scale: 1:24,000).

## 2.5 PROPERTY LOCATION

The subject property is located at 0 Devils Dive Road and 0 Bowers Harbor Road in Peninsula Township, Grand Traverse County, Michigan (49686). The subject property is located on the north side of Devils Dive Road, east of its intersection with Peninsula Drive. The subject property is comprised of two parcels of land containing approximately 58.98-acres of vacant land. The location of the subject property is shown on Figure 1, Site Location Map.

## 2.6 SPATIAL DATA

The subject property is comprised of two parcels totaling approximately 58.98-acres located at 0 Devils Dive Road and 0 Bowers Harbor Road situated in Section 28, T29N, R10W, in Peninsula Township, Grand Traverse County, Michigan. The legal descriptions of the subject property are as follows:

- **(0 Devils Dive Road)** PRT OF GOV'T LOT 1 AND PART OF NW 1/4 OF NE 1/4 OF SD SEC 28 T29N R10W. COM AT N 1/4 COR OF SD SEC 28, TH S ALG N & S LN 400.6 FT TO POB. TH N 88 DEG 42'W TO A PT 149.28 FT FROM E R/W OF PEN DR, TH S 17 DEG 43'W 332.8 FT, TH S 89 DEG 06' E 188.44 FT, TH S
- **(0 Bowers Harbor Road)** COM N 1/4 COR & POB TH W 476.97 FT TH S 33 DEG 38' W 325.09 FT TH E 100 FT TH S 125.62 FT, TH E 1726.44 FT TH N 400.6 FT TH W 1166.44 FT TO POB. SEC 28 T29N R10W

The latitude and longitude coordinates of the subject property were obtained using Google Maps are as follows:

- Latitude: 44.889688
- Longitude: -85.52453

### 3.0 FACILITY STATUS

The following presents a summary of environmental issues/conditions at the subject property.

#### 3.1 HAZARDOUS SUBSTANCE IDENTIFICATION

Laboratory results did identify the presence of arsenic in several soil samples at concentrations exceeding MDEQ Part 201 residential property risk-based screening levels. Arsenic was identified at concentrations in excess of MDEQ GRCC for Protection of Drinking Water, Groundwater / Surface Water Interface, and Direct Contact. The following table indicates the details of the soil sample with the highest concentration of MDEQ GRCC.

**Soil Constituents Exceeding MDEQ Part 201 GRCC**

Parameter Exceeding Criteria	Sample Type / CAS #	Highest Concentrations Identified (ug/Kg)	GRCC Exceeded (ug/Kg)	Boring ID	Sample Depth (ft.)
Arsenic	7440382	22,000	5,800 – SDBL 4,600 – DWP 4,600 – GSI 7,600 – DC	HA-30	0.5'
SDBL – MDEQ State Default Background Level DWP – MDEQ Part 201 Drinking Water Protection Criteria GSI – MDEQ Part 201 Groundwater Surface Water Interface Criteria DC – MDEQ Part 201 Direct Contact Criteria					

A map depicting subject property features and sample locations has been provided as Figure 2, Sample Locations Map.

#### 3.2 LABORATORY ANALYTICAL DATA

The Phase II ESA identified the presence of impacted soil conditions believed to be from the historical orchard operations that included the use of agrochemicals on the subject property. The complete analytical data package with chain-of-custody documentation is included in BEA Appendix B. Analytical results are summarized on Tables 1 and 2.

#### 4.0 IDENTIFICATION OF AUTHOR

This BEA has been prepared in general accordance with Section 20126(1)(c) of Part 201, 1994 Public Act 451 as amended and in general accordance with the MDEQ's "*Contents of BEA Report*," dated April 2011.

The signatures of the environmental professionals responsible for this BEA are provided below. The credentials of these individuals are included in Appendix D of this BEA.



---

Roger L. Mawby, P.E.  
Principal



---

James A. Jackson II  
Environmental Professional

The Otwell Mawby, P.C. company contact information for these environmental professionals is as follows:

- Otwell Mawby, P.C.  
Consulting Engineers  
309 East Front Street  
Traverse City, Michigan 49684  
Phone: 231.946.5200  
Fax: 231.946.5216  
Email: [admin@otwellmawby.com](mailto:admin@otwellmawby.com)

## **5.0 ALL APROPRIATE INQUIRY OR ASTM PHASE I ESA**

The Phase I ESA of the subject property was conducted in general conformance with methods outlined by the American Society for Testing and Materials (ASTM) Standard E 1527-05, Standard for Environmental Site Assessment.

The Phase I ESA (Appendix A) and the Phase II ESA (BEA Appendix B) both completed by Otwell Mawby, P.C., have established the historical use of the subject property and the adjoining properties. The historical use was determined from site inspections, interviews with previous owners and persons who have knowledge of the subject property and surrounding areas, and review of various other historical information sources.

The impact to the subject property from historical orchard operations has been identified by the Phase I ESA and Phase II ESA activities. The subject property has been reasonably assessed and no recognized environmental conditions beyond those presented in the Phase I ESA have been identified.

## 6.0 REFERENCES

References other than those already included in the March 2013 Phase I and Phase II ESA reports are as follows:

1. Michigan Department of Natural Resources and Environment Part 201 Generic Residential Clean-up Criteria (GRCC), dated September 28, 2012
2. Part 201 of the Natural Resources and Environmental Protection Act (NREPA) of 1994, PA 451, as amended, and the rules promulgated thereunder
3. Michigan Department of Environmental Quality's "*Contents of BEA Report*," dated April 2011