Traverse City Area Public Schools Property
412 Webster Street
Tax Parcel Identification Number: 28-51-798-059-00
City of Traverse City, Grand Traverse County, Michigan

SECTION 20107(a) COMPLIANCE ANALYSIS (DUE CARE PLAN)

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

July 2024

Prepared for:

Boardman Building, LLC
C/o: Mr. Eric Gerstner, Partner
819 South Elmwood Street, Studio 2S
Traverse City, MI 49684

Prepared by:

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

Otwell Mawby Project Number: 23-171

Environmental ▪ Brownfield ▪ Asbestos

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SECTION 20107(a) COMPLIANCE ANALYSIS
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1.0 SECTION 20107(a) DOCUMENTATION OF DUE CARE COMPLIANCE

Otwell Mawby, P.C. (Otwell Mawby) has prepared this Section 20107(a) Documentation of Due Care Compliance (Due Care Plan) for the subject property, as described below, on behalf of Boardman Building, LLC. The Traverse City Area Public Schools Property (hereafter referred to as the subject property) is comprised of one developed commercial property located at 412 Webster Street in the City of Traverse City, Grand Traverse County, Michigan. The subject property consists of one developed parcel comprising 1.0 acre of land. The subject property has been assigned Parcel Identification Number: 28-51-798-059-00. Refer to the attached Figures 1 and 2, for the general location and site features of the subject property. Sample locations are depicted on the attached Figure 3, Sample Locations Map.

This Due Care Plan was completed in accordance with Section 20107a of Part 201 of Act 451 (the Natural Resources and Environmental Protection Act (NREPA)), of 1994, as amended, including the Part 9 Rules. The regulation imposes "Due Care Obligations" on owners and operators of contaminated properties. These obligations include the following:

1. Undertake measures as are necessary to prevent exacerbation;
2. Exercise due care by undertaking response activity necessary to mitigate unacceptable exposure to hazardous substances, mitigate fire and explosion hazards due to hazardous substances, and allow for the intended use of the facility in a manner that protects the public health and safety;

3. Take reasonable precautions against the reasonably foreseeable acts or omissions of a third party and the consequences that foreseeably could result from those acts or omissions;
4. Provide reasonable cooperation, assistance, and access to the persons that are authorized to conduct response activities at the facility, including the cooperation and access necessary for the installation, integrity, operation, and maintenance of any complete or partial response activity at the facility. Nothing in this subdivision shall be interpreted to provide any right of access not expressly authorized by law, including access authorized pursuant to a warrant or a court order, or to preclude access allowed pursuant to a voluntary agreement;
5. Comply with any land use or resource use restrictions established or relied on in connection with the response activities at the facility; and
6. Not impede the effectiveness or integrity of any land use or resource use restriction employed at the facility in connection with response activities.

The subject property has been identified as a "Facility" as defined by Part 201 of Act 451 of 1994, as amended, due to the identification of contaminants in soil in excess of Michigan Department of Environment, Great Lakes and Energy (EGLE) Generic Cleanup Criteria (GCC) for Drinking Water Protection Criteria (DWP), Groundwater Surface Water Interface Protection Criteria (GSIP) and Direct Contact Criteria (DCC); and groundwater in excess of EGLE GCC for Groundwater Surface Water Interface Criteria (GSIC) or the February 26, 2024 EGLE Volatilization to Indoor Air Pathway (VIAP) Screening Levels for Residential and Nonresidential uses. Refer to the included Figure 3 for the locations of the soil borings completed on the subject property.

The persons primarily responsible for the data assembly, interpretation, and technical conclusions presented in this Documentation of Due Care Compliance are Mark R. Collison, C.E.S., Senior Environmental Professional, and Mr. James A. Jackson II., Senior Environmental Professional, both of Otwell Mawby. Otwell Mawby understands Boardman Building, LLC, purchased the subject property and plans to renovated the existing building structure for use as

residential apartments, office space, and residential condominiums with asphalt parking areas and driveways, and landscaped/ grassy areas adjacent to the structure.

The purpose of this document is to provide a Section 20107a Documentation of Due Care Compliance, or "Due Care Plan", which is a supplement to a BEA entitled "Traverse Area Public Schools Property, 412 Webster Street, City of Traverse City, Grand Traverse County, Michigan, Tax Parcel Identification Number: 28-51-798-059-00," that was completed in June 2024.

1.1 Detailed Characteristics of Property Use

The subject property is comprised of one developed commercial parcel containing approximately 1.0 acre of land, situated in Section 3, Township 27 North (T27N), Range 11 West (R11W), located at 412 Webster Street, in the City of Traverse City, Grand Traverse County Michigan. The subject property is located at the southeast corner of the intersection of Webster Street and Boardman Avenue. The subject property is accessed off of both of the roadways, and also the paved City of Traverse City alleyway located along the southern property boundary.

Otwell Mawby completed a Phase I Environmental Site Assessment (ESA) in February 2024 for the purchase of the property. At the time of the Otwell Mawby Phase I ESA site reconnaissance the subject property was developed with one commercial building, which remains onsite. The building was occupied, being utilized for the operation of the TCAPS administrative offices on the first and second floors, and printing activities in the lower level. The building is located on the central portion of the subject property. The remaining portions of the subject property to the north and west consist of mowed lawn space. To the east and south of the building is asphalt parking areas.

Redevelopment of the subject property includes renovation of the existing building with basement level residential apartments, main floor professional office spaces, and second floor condominiums. During the renovation of the existing structure, it may be necessary for access to the associated infrastructure to facilitate redevelopment. The renovations may require soil excavation to facilitate construction or access to utilities. All the soil removed from the subject property has the potential to be environmentally impacted and will either be placed in the

location it was removed or be transported to a licensed landfill for disposal, unless additional soil sampling is completed to determine it is not chemically impacted. Groundwater is also impacted at the subject property and if dewatering is necessary during the redevelopment, the groundwater will need to be evaluated prior to discharge. Arrangements for discharge of the groundwater would also need to be made prior to starting. This could include the approval of the discharge to the City of Traverse City Waste Water Treatment Plant (WWTP) through the municipal sewer system onsite, or through obtaining a National Pollutant Discharge Elimination System (NPDES) Permit through EGLE.

The building located on the subject property is currently connected to all of the available public utility services (electric, municipal water and sewer, and natural gas (for heat)). During and after the renovation of the building it will remain connected to the utility services.

1.1.1 Development Considerations

Boardman Building, LLC, purchased the subject property on June 28, 2024, and plans to renovate the existing building structure for use as a mixed-use structure with adjacent areas of asphalt parking areas/ driveways and grassy/ landscaped areas.

Based upon the findings of the Phase I ESA (February 2024), Otwell Mawby completed Phase II ESA activities to investigate the RECs identified on the subject property in December 2023, February and May 2024. The Phase II ESA consisted of the completion of a geophysical survey, advancement of 24 soil borings, a test pit excavation and subsequent collection of soil and groundwater samples with laboratory analyses for chemical constituents based on the associated Recognized Environmental Conditions (RECs). The soil boring/ sampling locations are shown on the attached Figure 3.

Analysis of the soil and groundwater samples collected from the subject property during the investigations, indicated soil exhibited concentrations of constituents above the EGLE GCC for residential uses, likely the result of historical use of coal on the site for heating the building, the presence of impacted fill and impacted groundwater that is believed to be emanating from an offsite source. The results of the investigations have identified arsenic in excess of the DWP and

GSIP, fluoranthene and phenanthrene in excess of the EGLE GCC for GSIP and benzo(a)pyrene in excess of the EGLE DCC. The soil results were also compared to the EGLE February 26, 2024, VIAP Screening Levels for Residential and Nonresidential uses. The soil results also identified naphthalene and phenanthrene, in three soil samples at concentrations in excess of the EGLE VIAP Screening Levels for Residential uses but each were below the Nonresidential Screening Levels.

Analysis of the groundwater samples collected from the subject property during the investigations, indicated groundwater exhibited concentrations of 2-methylnaphthalene, naphthalene, 1,2,4-trimethylnaphthalene and xylene above the EGLE GCC for GSIC. The groundwater results also identified ethylbenzene, naphthalene, 1,2,3-trimethylbenzene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene and xylene in groundwater samples at concentrations in excess of the EGLE VIAP Screening Levels for Residential uses. Naphthalene also exceeded the Nonresidential Screening Level.

The results of the Phase II ESA investigations are discussed further in Section 1.2, and presented in the attached Tables 1 and 2.

Redevelopment plans for the subject property include the renovation of the existing two-story commercial building that has a full basement. The redevelopment will include raising the floor of the existing basement approximately three feet and installation of a new concrete floor slab to facilitate installation of residential apartments within the space. The main level will be renovated and subdivided into professional office spaces. The second floor will be redeveloped with residential condominiums. Adjacent to the building will remain as asphalt parking lot/ driveway areas and landscaped/ grassy areas. During the renovation of the existing building, it may be necessary to access the associated infrastructure to allow for expansion and upgrades to the service connections. This would require soil excavation. The subject property is currently and will remain serviced by all of the available public utility services (municipal water, sewer, natural gas and electric, etc.).

All the soil removed from the subject property has the potential to be environmentally impacted and will either be utilized onsite in the area where it originated or will be transported to a licensed landfill for disposal, unless additional soil sampling is completed to determine it is not chemically impacted. If during construction activities groundwater dewatering is necessary, the groundwater will need to be further characterized for disposal purposes.

Response activities are detailed in Section 2.0 and summarized below:

- Personal Protective Equipment (Type I) including gloves, clothing to cover arms and legs, safety boots, and eye protection should be worn by workers coming into contact with soil;
- Access to exposed to soils should be limited to those individuals directly involved with the redevelopment and who have been informed of the nature and extent of the contamination and necessary protection measures;
- Any soils that are transported off-site should be disposed at a licensed Type II landfill, unless further characterization of the soil is completed prior to offsite transport;
- Dewatering of any area of the subject property, if necessary, shall be reviewed and approved by an Environmental Professional prior to implementation to evaluate the potential for groundwater contamination and to ensure appropriate treatment and discharge; and
- During the renovation of the existing structure, we recommend additional investigation for further evaluation of the vapor intrusion potential. At this time, soil gas sampling is being conducted in interior of the building within the lower level. Two locations are also being evaluated on the exterior of the building within the vicinity of the areas identified as having coal and fill material based on the results of prior soil borings and the geophysical survey findings. The results of the sampling are intended to determine if the onsite contamination could contribute to diminished indoor air quality of the building and if additional measures would need to be implemented to prevent a potential exposure.

To qualify for the exemption from environmental liabilities resulting from historic chemical releases on the subject property, it is imperative to be able to identify any new releases from historic contamination. Restricting chemical use in these areas, and to the degree feasible, eliminating the use of these chemicals from operations in these areas will promote a means to accomplish this objective. The sample locations on the subject property with identified impact based on the Phase II ESAs are shown on the attached Figure 3.

Restricting chemical use in the area of the identified impact will ensure the ability to be able to distinguish between any potential new releases and the existing contaminants. The location of the impact identified was on the eastern and southeastern portions of the subject property, which area currently covered with asphalt pavement. The areas of impact are proposed to remain covered with asphalt pavement for the parking areas associated with the existing building.

Any development or disturbance, utility installation within the identified areas of impact will require the soil to be removed for access and shall be replaced back into the excavation when complete. If this is not possible, as noted above, any remaining soil will need to be transported offsite and disposed of at a licensed Type II landfill.

We understand the proposed future use of the subject property will not store any materials containing constituents identified in the soil and groundwater at locations of the know impact, or in quantities greater than those of normal residential or office use applications. Refer to the included Figure 3, Sample Locations Map.

This Due Care Plan addresses potential unacceptable exposures to construction workers and future users of the site, and the potential for the spread or exacerbation of the impacted soil and groundwater; it also describes the provisions necessary to mitigate those issues.

1.2 Hazardous Substance Information

Laboratory results identified the presence of various constituents (presented above) the soil and groundwater samples, at concentrations exceeding EGLE Part 201 GCC. The constituents were identified at concentrations in excess of EGLE GCC for residential uses. The GCC exceeded include DWP, GSIP and DCC in soil; and GSIC in groundwater. The soil and groundwater results were also compared to the EGLE February 26, 2024, VIAP Screening Levels for residential and nonresidential uses. Concentrations detected above the EGLE GCC and the VIAP Screening Levels for the 2023 and 2024 investigations are summarized in the tables below and on the following page.

Summary of Soil Concentrations Above EGLE GCC / EGLE VIAP Screening Levels

Sample Number	Sample Depth (In./Ft.)	Parameter Exceeding Criteria / CAS #	Parameter Analytical Result (ug/Kg, ppb)	GCC / VIAP Exceeded (ug/Kg, ppb)
GP-1	0.5’	Arsenic/ 7440382	4,900	DWP – 4,600 GSIP – 4,600
GP-4	0.5’	Arsenic/ 7440382	5,000	DWP – 4,600 GSIP – 4,600
		Benzo(a)pyrene/ 50328	9,900	DCC – 2,000
		Fluoranthene/ 206440	26,000	GSIP – 5,500
		Naphthalene/ 91203	650	Res-VIAP – 67 (M)
		Phenanthrene/ 85018	21,000	GSIP – 2,100 Res-VIAP – 1,700
GP-11	4.5’	Benzo(a)pyrene/ 50328	2,400	DCC – 2,000
		Fluoranthene/ 206440	8,200	GSIP – 5,500
		Phenanthrene/ 85018	5,800	GSIP – 2,100 Res-VIAP – 1,700

GCC – Generic Cleanup Criteria
DWP - EGLE Part 201 Drinking Water Protection Criteria
GSIP - EGLE Part 201 Groundwater Surface Water Interface Protection Criteria
DCC - EGLE Part 201 Direct Contact Criteria
Res-VIAP – EGLE Proposed Residential volatilization to indoor air pathway (VIAP) screening levels. The VIAP screening levels are calculated based on unrestricted residential use (September 4, 2020).
M - The VIAP screening level 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 VIAP screening level, the TDL is used to evaluate the risk posed from the pathway.
ppb – Parts per billion
ug/Kg – Micrograms per kilogram or ppb

Laboratory results identified the presence of various constituents in the groundwater samples collected, at concentrations exceeding EGLE Part 201 GCC and the VIAP Screening levels, as summarized in the following table.

Summary of Groundwater Concentrations Above EGLE GCC / EGLE VIAP Screening Levels

Sample ID	Screen Depth (Ft.)	Parameter Exceeding Criteria / CAS #	Parameter Analytical Result (ug/L, ppb)	GCC / VIAP Exceeded (ug/L, ppb)
GP-7	15.0 to 20.0’	2-Methylnaphthalene/ 91576	41	GSIC - 19
		Naphthalene/ 91203	*26 to 56*	GSIC - 11 Res-VIAP – 4.2(M) Non-VIAP – 23
		Ethylbenzene/ 101414	5.7	Res-VIAP – 2.8
		1,2,3-Trimethylbenzene/ 526738	31	Res-VIAP – 43(JT)
		1,2,4-Trimethylbenzene/ 95636	56	GSIC - 17 Res-VIAP – 25 (JT)
		1,3,5-Trimethylbenzene/ 108678	14	Res-VIAP – 18(JT)
GP-9	15.0 to 20.0’	2-Methylnaphthalene/ 91576	30	GSIC - 19
		Naphthalene/ 91203	*47 to 120*	GSIC - 11 Res-VIAP – 4.2(M) Non-VIAP – 23
		Ethylbenzene/ 101414	16	Res-VIAP – 2.8
		1,2,3-Trimethylbenzene/ 526738	14	Res-VIAP – 43(JT)
		1,2,4-Trimethylbenzene/ 95636	23	GSIC - 17 Res-VIAP – 25 (JT)
		m,p-Xylene/ 1330207	50	GSIC - 49 Res-VIAP – 75(J)

GSIC - EGLE Part 201 Groundwater Surface Water Interface Criteria
Res-VIAP – EGLE Proposed Residential volatilization to indoor air pathway (VIAP) screening levels. The VIAP screening levels are calculated based on unrestricted residential use (September 4, 2020).
Non-VIAP - EGLE Proposed Nonresidential VIAP screening levels. The VIAP screening levels are calculated based on restricted nonresidential use (September 4, 2020)
J - Hazardous substance may be present in several isomer forms. Isomer-specific concentrations must be added together for comparison to criteria
M - The VIAP screening level 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 VIAP screening level, the TDL is used to evaluate the risk posed from the pathway.
JT - Hazardous substance may be present in several isomer forms. The VIAP screening level 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 VIAP screening level of the detected isomers.
Italic – Constituent can be analyzed as a VOC or PNA, results present as a range for both analyses.
ug/L – Micrograms per Liter (i.e., parts per billion / ppb)

Continued from previous page:

Sample ID	Screen Depth (Ft.)	Parameter Exceeding Criteria / CAS #	Parameter Analytical Result (ug/L, ppb)	GCC / VIAP Exceeded (ug/L, ppb)
GP-9	15.0 to 20.0' (Continued)	O-Xylene/ 1330207	57	GSIC - 49 Res-VIAP – 75(J)
		Xylene (Total)/ 1330207	26	GSIC - 49 Res-VIAP – 75(J)

GSIC - EGLE Part 201 Groundwater Surface Water Interface Criteria
Res-VIAP – EGLE Proposed Residential volatilization to indoor air pathway (VIAP) screening levels. The VIAP screening levels are calculated based on unrestricted residential use (September 4, 2020).
Non-VIAP - EGLE Proposed Nonresidential VIAP screening levels. The VIAP screening levels are calculated based on restricted nonresidential use (September 4, 2020)
J - Hazardous substance may be present in several isomer forms. Isomer-specific concentrations must be added together for comparison to criteria
M - The VIAP screening level 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 VIAP screening level, the TDL is used to evaluate the risk posed from the pathway.
JT - Hazardous substance may be present in several isomer forms. The VIAP screening level 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 VIAP screening level of the detected isomers.
Italic – Constituent can be analyzed as a VOC or PNA, results present as a range for both analyses.
ug/L – Micrograms per Liter (i.e., parts per billion / ppb)

Additional soil and groundwater analytical results for all of the other parameters were not detected above laboratory Method Detection Levels (MDLs) or were below the current Part 201 GCC/ VIAP Screening Levels, as shown on the attached Table 1, Soil Analytical Summary and Table 2, Groundwater Analytical Summary.

1.3 Potential Hazardous Substance Exposure Pathways

The exposure pathway analysis was completed considering the proposed use of the subject property by Boardman Building, LLC, which intends to renovate the existing building structure into a mixed-use structure. Based on the residential component of the redeveloped structure, residential GCC and VIAP Screening Levels have been used for evaluation of potential exposure pathways.

The proposed development of the subject property will include renovation of the existing building and may also include ground disturbance activities such as excavation, and/or access to soil during renovation and construction for upgrades associated with building with utilities that service the structure. This Due Care Plan has been prepared to address environmental impacts related to the proposed site development and use. The Due Care Plan includes provisions to address exacerbation of soil and groundwater contamination, the potential for VIAP, and to mitigate potential unacceptable exposures on the property.

Details regarding the identified hazardous substance concentration, fate, transport and exposure pathways are provided in the following sections. Potential human exposure pathways have been evaluated to determine whether any human exposure pathways are "complete" in light of current site conditions and the current use of the subject property as described above. If the exposure pathway was considered complete, additional evaluation of the human exposure pathways was conducted to determine whether there would be "unacceptable exposures" for the completed pathway. Potential exposure pathways that were screened included:

- Abandoned Containers;
- Ingestion of Groundwater (DWP and DWC);
- Indoor Air Hazards Due to Volatilization of Groundwater Contaminants;
- Groundwater Flammability / Explosivity;
- Acute Inhalation Risks Due to Volatilization of Groundwater Contaminants;
- Indoor Air Hazards Due to Volatilization of Soil Contaminants;
- Ambient Air Hazards Due to Volatilization of Soil Contaminants;
- Vapor Intrusion to Indoor Air;
- Direct Contact Criteria (DCC);
- Inhalation of Contaminated Soil Particles; and
- Groundwater/Surface Water Interface (GSIP and GSIC).

Based on the exceedances of EGLE GCC, the applicable potential hazardous exposure pathways for the subject property are: 1) Drinking Water Protection Criteria, 2) Groundwater Surface Water Interface Protection Criteria, 3) Direct Contact Criteria, 4) Groundwater Surface Water Interface Criteria, and 5) EGLE February 26, 2024, VIAP Screening Levels for soil and groundwater.

The following sections present the screening of each of these potential human exposure pathways and whether or not the pathway is considered complete. Planned response activities and due care actions necessary to prevent unacceptable human exposures are presented in Section 2.0, Planned Response Activities, for those pathways that are complete.

1.3.1 Abandoned Containers

At this time, there are no known abandoned containers present at the subject property. Care should be taken to note any unusual items or conditions during site preparation work and construction activities due to the historical use of the subject property and the findings of the Phase II ESA investigations.

1.3.2 Ingestion of Groundwater (DWP and DWC)

Analytical results identified constituents in the soil and groundwater samples at concentrations in exceedance of the EGLE Part 201 DWP and DWC Criteria as presented in the attached Tables 1 and 2. The subject property is currently and will remain serviced by the City of Traverse City municipal water system. No water wells are present onsite and none will be installed as part of the redevelopment. Therefore, this human exposure pathway is not complete.

If the onsite activities have the potential to impact or influence the groundwater in the vicinity of groundwater impact, they should be evaluated in advance by an Environmental Professional, and the groundwater would need to be further evaluated/ sampled prior to discharge and may need to be pre-treated. A permit for discharge would need to be obtained from the City of Traverse City or through an NPDES Permit from EGLE.

1.3.3 Indoor Air Hazards Due to Volatilization of Groundwater Contaminants

No contaminants were identified in groundwater in excess of the EGLE Part 201 Groundwater Volatilization to Indoor Air Inhalation Criteria (GVIIC). As a result, this human exposure pathway is not complete when considering this criteria. Groundwater contaminant concentrations were also compared to the EGLE VIAP Screening Levels, which is discussed further in Section 1.3.8 below.

1.3.4 Groundwater Flammability / Explosivity

No contaminants were identified in groundwater in excess of the EGLE Part 201 Groundwater Flammability / Explosivity Criteria; therefore, this exposure pathway is not complete.

1.3.5 Acute Inhalation Risks Due to Volatilization of Groundwater Contaminants

No contaminants were identified in groundwater in excess of the EGLE Part 201 Acute Inhalation Criteria; therefore, this human exposure pathway is not complete.

1.3.6 Indoor Air Hazards Due to Volatilization of Soil Contaminants

No contaminants were identified in the soil analytical results in excess of the EGLE Part 201 Soil Volatilization to Indoor Air Inhalation Criteria (SVIIC). Contaminant concentrations were also compared to the EGLE VIAP Screening Levels. Refer to Section 1.3.8 for additional discussion related to this potential exposure pathway.

1.3.7 Ambient Air Hazards Due to Volatilization of Soil Contaminants

No contaminants were identified in soil in excess of the EGLE Part 201 Soil Volatilization to Ambient Air Inhalation Criteria; therefore, this human exposure pathway is not complete. The maximum concentrations of the contaminants identified in the soil at the subject property are significantly less than the established Criteria and use of the property would not result in unacceptable human exposures. Contaminant concentrations were also compared to the EGLE VIAP Screening Levels. Refer to Section 1.3.8 for additional discussion.

1.3.8 Vapor Intrusion to Indoor Air

Prior Phase II ESA investigations identified naphthalene and phenanthrene in two soil samples at concentrations in excess of the EGLE VIAP Screening Levels for residential uses. ethylbenzene, naphthalene, phenanthrene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2,3-trimethylbenzene and xylene were also identified in two groundwater samples at concentrations in excess of the EGLE VIAP Screening Levels for residential uses.

Based on the analytical results, there is the potential for volatilization to the indoor air of the existing structure from the contaminant concentrations identified within the soil and groundwater samples. The vertical and horizontal limits of the areas of identified impact are not known at this time and have not been delineated.

As part of due care obligations, sub-slab soil gas sampling has been initiated within the building and within fill soil adjacent to the structure to further evaluate the potential for volatilization to indoor air. If the results of the sampling indicate no contaminants of concern are present, no additional assessment or mitigation would be recommended. However, if the results of the sampling determine the contaminations could contribute to diminished indoor air quality of the building, then a vapor mitigation system would be recommended to be installed within the interior of the building.

1.3.9 Direct Contact with Contaminated Soil Residential

Analytical results identified the presence of benzo(a)pyrene in two soil samples (GP-4 and GP-11) at concentrations in excess of the EGLE Part 201 DCC (2,000 parts per billion) for residential uses, as identified in Section 1.2 above, and in the attached Table 1.

The benzo(a)pyrene impact was identified at depths of 0.5 to 4.5 feet below grade at the subject property and are located below the asphalt paved parking area. As the direct contact exceedances are currently located immediately below the ground surface and covered with asphalt pavement, there is no exposure potential. If renovation plans for the subject property within these areas of impact are proposed the response activities noted in Section 2.0 will be implemented to address these areas and prevent potential exposure hazards during these activities. This area of the subject property will also remain covered with asphalt paved parking lot during and after the renovation of the existing building. Therefore, this human exposure pathway is not complete.

1.3.10 Inhalation of Contaminated Soil Particles

No contaminants were identified in soil in excess of the EGLE Part 201 Particulate Soil Inhalation Criteria; therefore, this human exposure pathway is not complete. The maximum concentrations of the contaminants identified in the soil at the subject property are significantly less than the established Criteria and use of the property would not result in unacceptable human exposures.

1.3.11 Groundwater/Surface Water Interface Protection (GSIP and GSIC)

Various constituents were identified in the soil and groundwater samples collected from the subject property at concentrations in excess of the EGLE Part 201 GSIP and GSI Criteria as presented in Section 1.2. For GSIP and GSI to be considered relevant or complete pathways, surface water would have to exist on the property or be in relative proximity to the subject property. There no surface water bodies located on the subject property or the surrounding properties. The closest offsite surface water body is located at a distance of over 300 feet to the west, and groundwater flow for the subject property is to the northeast. Based on the distance between GSIP and GSI impacts to the nearest surface water body and the determined groundwater flow direction, the GSIP/ GSI is not considered a current relevant or a complete exposure pathway.

As depicted on the attached Figures 2 and 3, the subject property is developed with one two-story structure and parking areas, which cover the majority of the property. The site will remain covered with the existing building and locations of the identified exceedances will remain covered with the asphalt parking area during the redevelopment and as part of the future use of the subject property. Discharge of storm water is planned for the roof, driveways and areas surrounding the building utilizing the City of Traverse City storm basins and natural runoff. The existing development will remain and will not increase the amount of stormwater/rain water infiltrating through onsite soils and will not increase the potential for exacerbation.

2.0 PLANNED RESPONSE ACTIVITIES

The exposure pathway analysis described in Section 1.3 of this Due Care Plan did find one of the onsite exposure pathways to be complete. This pathway was identified as the GSIP/ GSI for soil and groundwater impact at the site. Also, additional soil gas sampling is recommended to further assess the vapor intrusion potential. The general response activities presented below will be conducted to mitigate potential exposure to and exacerbation of the contamination at the subject property.

2.1 Response Activities

The following general response activities are planned for the subject property based upon the identified future missed use (residential and nonresidential occupancy) of the site:

1) No hazardous substances in quantities greater than typical for residential or commercial office use will be stored or used onsite in the future.

2) Contractors, easement holders, and any site workers (such as construction and utility personnel) will be advised as to the nature and location of contaminated soil and groundwater at the subject property and of the measures necessary to protect themselves from unacceptable exposure to the contamination. Prior to implementation of any activities (i.e., invasive activities such as earth grading, or high intensity uses of the unprotected ground surface) that may present the potential for exposure to the contamination present at the site, the personal protection requirements outlined in this Due Care Plan will be reviewed with these persons by Boardman Building, LLC, or its designated representative to ensure proper precautions are taken.

3) If the proposed renovation activities include plans for landscaping, grading, excavation, drilling, or drainage modification activities in the areas of known impact, or which could affect the areas of known impact, including stormwater management, will be reviewed by a qualified Environmental Professional prior to implementation to assure that no

exacerbation or unacceptable exposures may result from these activities. This Plan addresses the potential for exacerbation or unacceptable exposures.

4) During the redevelopment of the subject property precautions will be taken to limit any exposure and exacerbation of the soil and groundwater impact.

5) To limit the possible release of contaminants to the air as dust, dust control measures shall be implemented at the sites during any activities that can be reasonably expected to generate dust such as, excavation, grading, scraping, raking, or other disturbance of soil. Dust control measures may include lightly spraying the area with water.

6) Soils located on the subject property will not be relocated to any other property. If during the completion of redevelopment, suspected impacted soils or refuse (i.e., unsuitable fill materials) are encountered, these materials may require landfill disposal. Any soils taken off the property will need to be characterized and, if determined to contain contaminants above EGLE Criteria, taken to a licensed solid waste disposal facility.

7) If groundwater dewatering is necessary for any future foundation, utilities, or other activities, the groundwater would need to be further evaluated/ sampled prior to discharge. Any discharge will require obtaining a permit through the City or EGLE.

8) Areas of the subject property which are not developed with hard surfacing materials or buildings will remain covered and will be maintained with the existing lawn/ landscaping. Any disturbed areas will be covered with pavement, or clean topsoil, seed and mulch to mitigate any potential exposure to onsite soil after development. If present, modifications to the areas would be required to meet due care obligations.

9) Due to the potential vapor intrusion for VOCs and PNAs, additional evaluation of this pathway is being conducted to determine if installation of a mitigation system is warranted. Once an evaluation of soil gas is complete response activities associated with this pathway will be reevaluated.

10) The existing surface water flow patterns across the subject property should be maintained. Should future activities at the subject property require stormwater management features, design of the system(s) shall take into consideration the nature and location of soil contamination at the subject property and shall not significantly increase the infiltration of stormwater through the impacted area or be installed in such a manner that would otherwise exacerbate the known contamination. The surface water flow patterns across the property will be controlled with storm water directed to the City of Traverse City stormwater system.

11) At the time of the redevelopment activities including the soil intrusive construction work at the subject property, safety awareness training or other appropriate training sufficient to educate workers to the potential exposures and mitigation measures is recommended for site work contractors, subcontractors and employees working in the areas with impacted soil and groundwater.

12) To limit the possible release of contaminants to the air as dust, dust control measures shall be implemented at the sites during any activities that can be reasonably expected to generate dust such as demolition, grading, scraping, raking, or other disturbance of soil. Dust control measures may include lightly spraying the area with water.

13) All construction equipment, transport trucks and tools brought onto the site during any excavation and/or construction activities, shall not have adhered soil, if present, on them prior to leaving the site.

3.0 EVALUATION AND DEMONSTRATION OF COMPLIANCE WITH SECTION 7A OBLIGATIONS

Section 20107a of Part 201 of NREPA and its rules requires evaluation of due care, exacerbation, and responsible precautions for third parties, as described in the following sections.

3.1 Due Care

Potential third-party exposure to contaminated soil at the subject property will be mitigated by implementation of the Planned Response Activities outlined in Section 2.0 of this Due Care Plan. As impacted soil may be encountered by third parties during maintenance, these activities will be reviewed by a qualified Environmental Professional and adjusted as necessary to ensure such activities do not cause unacceptable exposures or exacerbate the contamination. If the event groundwater is contacted, additional evaluation of the planned activities are to be reviewed by an Environmental Professional.

If the proposed development activities at the subject property require subsurface disturbance and/or exposure to contaminated soil/ groundwater, the response activities outlined in Section 2.0 are to be implemented.

As discussed above in Sections 1.3.8, vapor intrusion is a potential concern as contaminants were detected in soil and groundwater samples collected from the subject property. The presence of contaminants in soil and groundwater could potentially contribute to diminished indoor air quality of the existing building. The results of the ongoing sampling will determine if this exposure pathway is complete and if mitigation of soil gas is warranted.

3.2 Exacerbation

Boardman Building, LLC, will ensure activities at the subject property do not exacerbate the existing soil and groundwater contamination. Exacerbation is defined as any activity that could cause the contamination to spread or be made worse, as well as any activity that would increase the costs of addressing said contamination. The proposed renovation of the building structure on the subject property may involve disturbances to or use of the contaminated soil and potential groundwater. Implementation of the activities in the Planned Response Activities section will address areas of exacerbation potential.

While exacerbation of the contamination is possible, the Planned Response Activities outlined in Section 2.0 of this Due Care Plan effectively address potential exacerbation issues. To ensure the contamination at the project site is not spread or made worse, construction activities at the site shall take the following precautions:

- Excavated soils removed from the site shall be landfilled or the soils can be reused on the site with the approval of the Environmental Professional and/or regulator. If soils are to be relocated to any other properties additional characterization will be required prior to offsite transport.
- Dewatering of any area of the subject property, if necessary, during future development, shall be reviewed and approved by an Environmental Professional prior to implementation to evaluate for groundwater contamination and to ensure treatment and discharge complies with regulatory requirements.

3.3 Reasonable Precautions for a Third Party

For potential third parties, people who would access the property, property tenants, or those accessing the property for utility work or construction, the likelihood of exposure to contaminated soil and groundwater is remote. No ground-disturbing activities or activities that could access impacted soil and groundwater, including excavation, will be allowed without prior review and oversight by a qualified Environmental Professional. Property management personnel will be notified of the restricted access to the zones of contamination and easement holders will be notified prior to any on-site ground-disturbing activity. The owner will notify all contractors of the restrictions and requirements concerning the known zone of contamination prior to their access to the site so that proper precautions can be taken.

The existing site conditions will be maintained which will prevent access or disturbance to the soil and groundwater impact located below the eastern and southern portions of the existing building and parking area. The existing building will remain onsite and will be renovated into a mixed-use structure.

3.4 Other

If site workers identify any suspect contamination during any future ground-disturbing activities, a qualified Environmental Professional shall be contacted to determine impact and appropriate precautionary actions.

4.0 CONCLUSIONS

This Section 7(a) Compliance Analysis (Due Care Plan) was prepared in conjunction with and relies upon information developed in the February 2024 Phase I ESA, July 2024 Phase II ESA and BEA conducted by Otwell Mawby, P.C. The details and supplemental information regarding this site are provided in this Due Care Plan or in the supporting documents referenced above. This information should be reviewed in its entirety to provide background information supportive of this Due Care Plan.

The signatures of the environmental professionals responsible for this Section 7(a) Compliance Analysis are provided below. The credentials of these individuals are included in Appendix A.

Mark R. Collison, C.E.S.
Senior Environmental Professional

James A. Jackson, II
Senior Environmental Professional

July 2024
Date of Section 7(a) Compliance Analysis

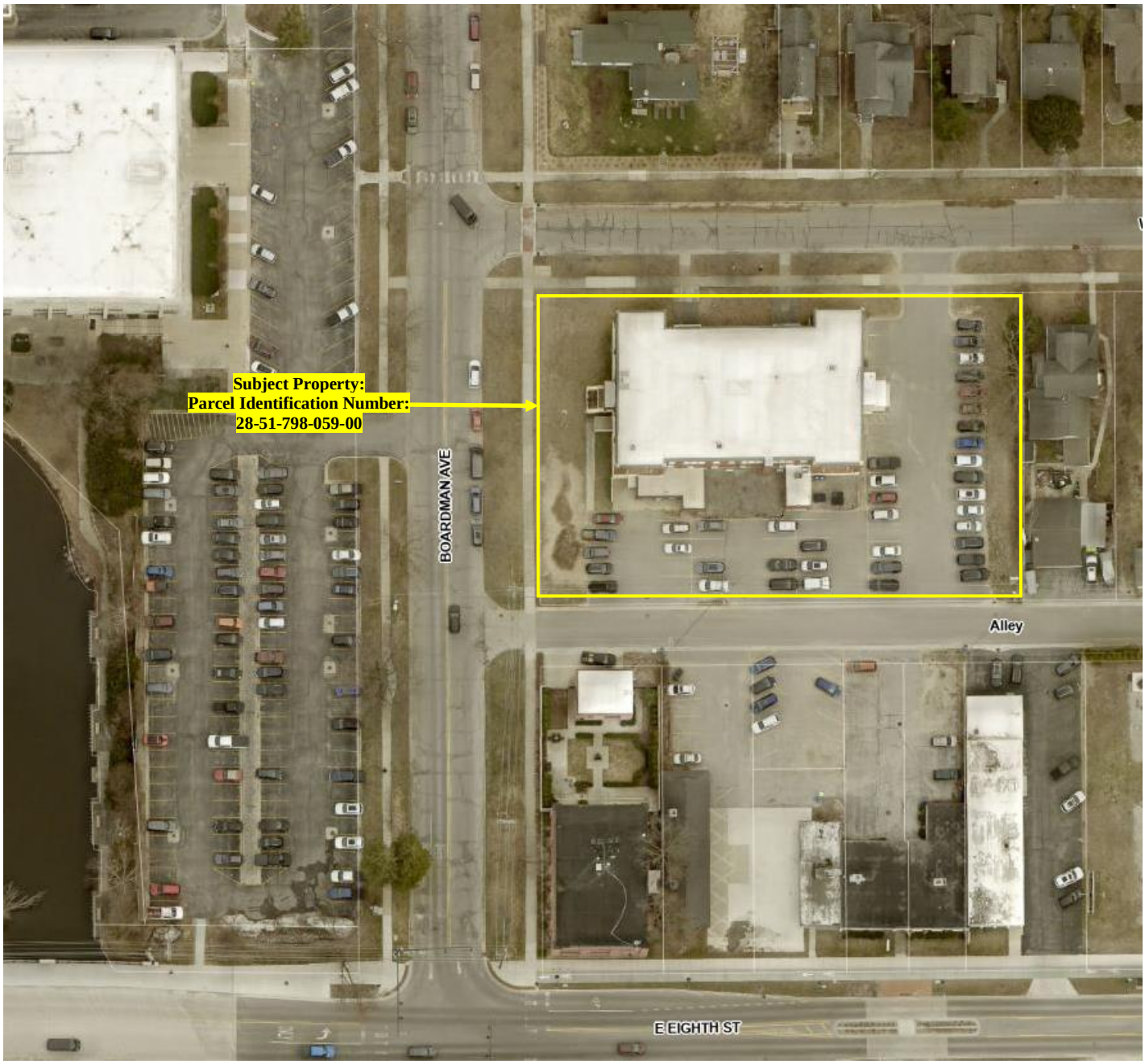
FIGURES

Figure 1 – Site Location Map

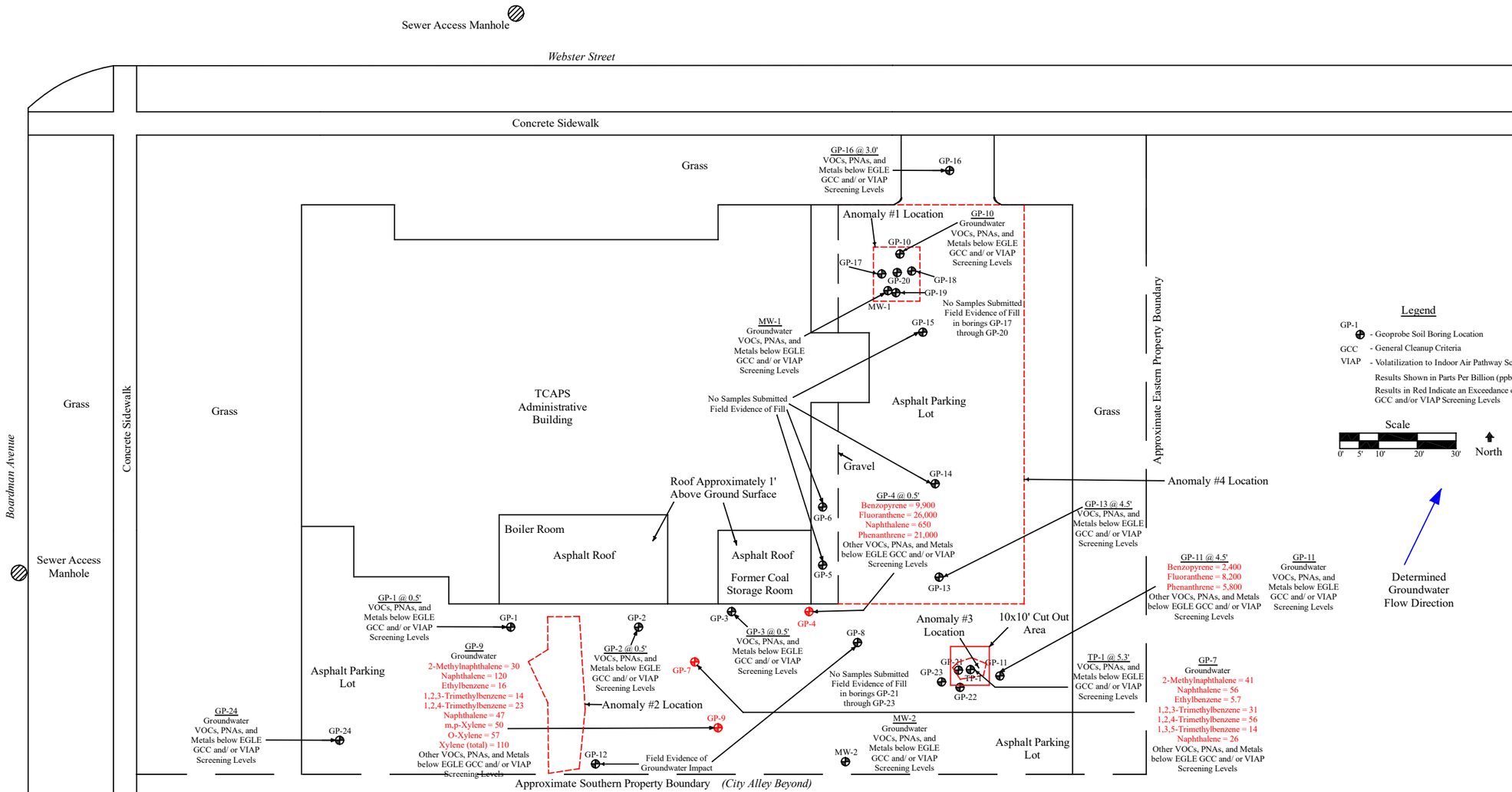
Figure 2 – Parcel Boundary Map

Figure 3 –Sample Locations Map

Traverse City Area Public Schools Property **412 Webster Street** **Traverse City, Grand Traverse County, MI** **Due Care Plan**	**Figure 1:** **Site Location Map** **NORTH**		
Otwell Mawby, PC **Traverse City, Michigan**	**Project No:** **23-171**	**Date:** **07/12/24**	**Source:** **USGS**



Traverse City Area Public Schools Property **412 Webster Street** **Traverse City, Grand Traverse County, MI** **Due Care Plan**	**Figure 2:** **Parcel Boundary Map** *-Approximate Boundary Depicted-* **NORTH**		
Otwell Mawby, PC **Traverse City, Michigan**	**Project No:** **23-171**	**Date:** **07/12/24**	**Source:** **Traverse City GIS**



Traverse City Area Public Schools Property 412 Webster Street Traverse City, Grand Traverse County, Michigan	Figure 3: Sample Locations Map		
Otwell Mawby, P.C. **Traverse City, Michigan**	**Date:** 6/27/2024	**Proj. No.:** 23-171	**Scale:** 1" = 30'

TABLE 1

Soil Analytical Summary
(2 Pages)

Table 1
Soil Analytical Data Summary
Traverse City Area Public Schools Property
412 Webster Street, City of Traverse City, Grand Traverse County, Michigan
Otwell Mawby, P.C. Project Number: 23-171

Analyte - MI Metals	CAS #	EGLE Part 201 Statewide Default Background Levels	EGLE Part 201 Drinking Water Protection Criteria	EGLE Part 201 Groundwater Surface Water Interface Protection Criteria	EGLE Part 201 Direct Contact Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Soil Saturation Concentration Screening Levels	EGLE Volatilization to Indoor Air Pathway Screening Levels - Residential	EGLE Volatilization to Indoor Air Pahtway Screening Levels - Nonesidential	GP-1 0.5' BGL 12/21/2023	GP-2 0.5' BGL 12/21/2023	GP-3 0.5' BGL 12/21/2023	GP-4 0.5' BGL 12/21/2023
Arsenic	7440382	5,800	**4,600**	**4,600**	7,600	NLV	NA	NA	NA	**4,900**	4,100	ND	**5,000**
Barium (B)	7440393	75,000	1,300,000	G =1.4E+5	37,000,000	NLV	NA	NA	NA	65,000	56,000	34,000	45,000
Cadmium (B)	7440439	1,200	6,000	G=1.6+3, X	550,000	NLV	NA	NA	NA	ND	ND	ND	ND
Chromium III (B,H)	16065831	18,000	1.0E+9 D	2.1E+9 E	2,500,000	NLV	NA	NA	NA	7,500	7,700	2,900	5,500
Copper	7440508	32,000	5,800,000	G=2.9E+4	20,000,000	NLV	NA	NA	NA	13,000	18,000	4,500	11,000
Lead (B)	7439921	**21,000**	700,000	G=2.5E+6, X	400,000	NLV	NA	NA	NA	**31,000**	ND	ND	**34,000**
Mercury (B,Z)	Varies	130	1,700	50 (M); 1.2	160,000	8.4E+6 ug/m3 (GG)	NA	22 (M) nc	390 nc	ND	ND	ND	ND
Selenium (B)	7782492	410	4,000	400	2,600,000	NLV	NA	NA	NA	ND	390	ND	ND
Silver (B)	7440224	1,000	4,500	100 (M); 27	2.50E+06	NLV	NA	NA	NA	ND	ND	ND	ND
Zinc (B)	7440666	47,000	2.40E+06	G=120,000	1.70E+08	NLV	NA	NA	NA	39,000	4,000	15,000	32,000
Other Metals	Varies	Varies	Varies	Varies	Varies	Varies	NA	Varies	Varies	NA	NA	NA	NA
Analyte -PNAs													
Acenaphthene	83329	NA	3.00E+05	8,700	41,000,000	190,000,000	NA	2.0E+5 nc	3.6E+06 nc	ND	ND	ND	1,400
Acenaphthylene	208968	NA	5.90E+03	ID	1,600,000	1,600,000	NA	DATA	DATA	ND	ND	ND	ND
Anthracene	120127	NA	4.10E+04	ID	230,000,000	1.0E+9 (D)	NA	1.3E+07 nc	2.2E+08 nc	ND	ND	7.7	3,600
Benzo(a)anthracene (Q)	56553	NA	NLL	NLL	20,000	NLV	NA	1.6E+05 (MM) mut	1.1E+07 ca	ND	ND	120	9,700
Benzo(a)pyrene (Q)	50328	NA	NLL	NLL	**2.00E+03**	NLV	NA	NA	NA	ND	ND	140	**9,900**
Benzo(b)fluoranthene (Q)	205992	NA	NLL	NLL	2.00E+04	ID	NA	NA	NA	93	ND	180	12,000
Benzo(g,h,i)perylene	191242	NA	NLL	NLL	2.50E+06	NLV	NA	NA	NA	93	ND	110	6,500
Benzo(k)fluoranthene (Q)	207089	NA	NLL	NLL	2.00E+05	NLV	NA	NA	NA	ND	ND	53	4,100
Chrysene (Q)	218019	NA	NLL	NLL	2.00E+06	ID	NA	NA	NA	ND	ND	120	10,000
Dibenzo(a,h)anthracene (Q)	53703	NA	NLL	NLL	2.00E+03	NLV	NA	NA	NA	ND	ND	25	1,500
Fluoranthene	206440	NA	7.30E+05	**5,500**	4.60E+07	1.0E+9 (D)	NA	NA	NA	85	ND	150	**26,000**
Fluorene	86737	NA	3.90E+05	5,300	2.70E+07	580,000,000	NA	4.7+05 nc	8.3E+06 nc	ND	ND	ND	1,100
Indeno(1,2,3-cd)pyrene (Q)	193395	NA	NLL	NLL	20,000	NLV	NA	NA	NA	110	ND	110	6,700
2-Methylnaphthalene	91576	NA	5.70E+04	4,200	8,100,000	2,700,000	NA	1,700 nc	30,000 nc	ND	ND	95	630
Naphthalene	91203	NA	3.50E+04	730	16,000,000	250,000	NA	**67 (M) ca**	1,900 ca	ND	ND	58	**650**
Phenanthrene	85018	NA	5.60E+04	**2,100**	1.60E+06	2,800,000	NA	**1,700 nc**	29,000 nc	ND	ND	81	**21,000**
Pyrene	129000	NA	4.80E+05	ID	2.90E+07	1.0E+9 (D)	NA	2.5E+07 nc	4.4E+08 nc	100	ND	130	20,000
Other PNAs	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	ND	ND	ND	ND
Analyte - VOCs													
1,2,4-Trimethylbenzene (I)	95636	NA	2,100	570	3.2E+7 C	4.3E+6 (C)	110,000	150 (JT) nc	2,600 (JT) nc	NA	NA	NA	NA
1,3,5-Trimethylbenzene (I)	108678	NA	1,800	1,100	3.2E+7 C	2.6E+6 (C)	94,000	100 (JT) nc	1,800 (JT) nc	NA	NA	NA	NA
1,2,3-Trimehtylbenzene	526738	NA	NC	NC	NC	NC	NC	270 (JT) nc	4,800 (JT) nc	NA	NA	NA	NA
2-Methylnaphthalene	91576	NA	5.70E+04	4,200	8,100,000	2,700,000	NA	1,700 nc	30,000 nc	NA	NA	NA	NA
Benzene (I)	71432	NA	100	4,000 (X)	1.8E+05	1,600	400,000	1.7 (M) ca	47 (M) ca	NA	NA	NA	NA
cis-1,2-Dichloroethene	156592	NA	1,400	12,000	2.5E+6 (C)	22,000	640,000	2.1 (M) nc	37 (M) nc	NA	NA	NA	NA
Ethylbenzene (I)	100414	NA	1,500	360	2.2E+7 (C)	87,000	140,000	12 (M) ca	340 ca	NA	NA	NA	NA
Isopropylbenzene	98828	NA	91,000	3,200	2.5E+7 (C)	4.0E+5 (C)	390,000	3.8(M)	110(M)	NA	NA	NA	NA
Methly tert butyl ether (MTBE)	1634044	NA	800	140,000 (X)	1.5E+06	9.9E+6 (C)	5.9E+06	74 (M) ca	2,100 ca	NA	NA	NA	NA
Naphthalene	91203	NA	3.50E+04	730	16,000,000	250,000	NA	67 (M) ca	1,900 ca	NA	NA	NA	NA
n-Propylbenzene (I)	103651	NA	1.60E+03	ID	2,500,000	ID	10,000,000	1,800 (DD) dev	21,000 (DD) dev	NA	NA	NA	NA
Tetrachloroethene	127184	NA	100	1,200 (X)	2.0E+5 C	11,000	88,000	6.2 (M) (EE) st	74 (EE) st	NA	NA	NA	NA
Trichloroethene	79016	NA	100	4,000 (X)	1.1E+5 (DD)	1,000	500,000	0.33 (M) (DD) dev	4.0 (M) (DD) dev	NA	NA	NA	NA
Toluene (I)	108883	NA	16,000	5,400	5.0E+7 C	3.3E+5 (C)	250,000	3,700 nc	64,000 (EE) st	NA	NA	NA	NA
Xylene (Total, I)	1330207	NA	5,600	980	4.1E+8 C	6.3E+6 (C)	150,000	280 (J) nc	5,000 (J) nc	NA	NA	NA	NA
m,p-Xylene (I)	1330207	NA	5,600	980	4.1E+8 C	6.3E+6 (C)	150,000	280 (J) nc	5,000 (J) nc	NA	NA	NA	NA
o-Xylene (I)	1330207	NA	5,600	980	4.1E+8 C	6.3E+6 (C)	150,000	280 (J) nc	5,000 (J) nc	NA	NA	NA	NA
Other VOCs	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	NA	NA	NA	NA

Notes:

Results compared to EGLE Criteria Lookup Tables, October 12, 2023 and Volatilization to Indoor Air Pathway (VIAP) Screeing Levels, dated February 26, 2024

NC = No Criteria

= GCC and/ or VIAP Exceedence

ND = Not Detected

BOLD Font without shading indicates an exceedence of Background Criteria not GCC.

NA = Not Applicable or Not Analyzed

ID = Insufficient Data

B = Background, as defined in R 299.1(b), may be substituted if higher than the calculated cleanup criterion. Background levels may be less than criteria for some inorganic compounds.

C = The criterion developed under R 299.20 to R 299.26 exceeds the chemical-specific soil saturation screening level (Csat). The person proposing or implementing response activity is required to control free-phase liquids or NAPL to protect against risks associated with free-phase liquids by using methods appropriate for the free-phase liquids present. Development of a site-specific Csat or methods presented in R 299.22, R 299.24(5), and R 299.26(8) may be conducted for the relevant exposure pathways.

C = The VIAP screening level exceeds the chemical-specific soil saturation screening level (Csat). Because this table does not list Csat values both were provided, with the calculated (health-based) value listed first and Csat provided in parenthesis. 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.

ca = Carcinogenetic

D = Calculated criterion exceeds 100 percent; hence it is reduced to 100 percent or 1.0E+9 parts per billion (ppb).

DD = Hazardous substance causes developmental effects. Residential direct contact criteria are protective of both prenatal and postnatal exposure. Nonresidential direct contact criteria are protective for a pregnant adult receptor.

DD = Hazardous substance causes developmental effects. Residential VIAP screening levels are protective of both prenatal exposure using a pregnant female receptor and postnatal exposure using a child receptor. Nonresidential VIAP screening levels are protective of prenatal exposure using a pregnant female receptor. Prenatal developmental effects may occur after an acute (i.e. shortterm) or full-term exposure.

DATA = Insufficient physical chemical parameters to calculate a health based SSVIAC for specified media. If detections are present in specified media, healthbased soil vapor SSVIAC should be used to evaluate risk.

dev = Developmental

EE = The acceptable air concentration (AAC) for the volatile hazardous substances is not derived using standard equations. 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 an acute initial threshold screening level (ITSL) by the EGLE's Air Quality Division.

G = Groundwater surface water interface (GSI) criterion dependes on the pH or water hardness, or both, of the receiving surface water. A hardness value of 50 mg/L was used for the calculation (default for the Upper Peninsula).

GG = Risk-based criteria are not available for methane due to insufficient toxicity data. An acceptable soil gas concentration (presented for both residential and nonresidential land uses) was derived utilizing 25 percent of the lower explosive level for methane. This equates to 1.25 percent or 8.4E+6 ug/m3 .

H = Valence-specific chromium data (Cr III and Cr VI) shall be compared to the corresponding valence-specific cleanup criteria. If both Cr III and Cr VI are present in groundwater, the total concentration of both cannot exceed the drinking water criterion of 100 ug/L. If analytical data are provided for total chromium only, they shall be compared to the cleanup criteria for Cr VI. Cr III soil cleanup criterion for protection of drinking water can only be used at sites where groundwater is prevented from being used as a public water supply, currently and in the future, through an approved land or resource use restriction.

I = Hazardous substance may exhibit the characteristic of ignitability as defined in 40 C.F.R. §261.21 (revised as of July 1, 2001), which is adopted by reference in these rules and is available for inspection at the DEQ, 525 West Allegan Street, Lansing, Michigan. Copies of the regulation may be purchased, at a cost as of the time of adoption of these rules of $45, from the Superintendent of Documents, Government Printing Office, Washington, DC 20401 (stock number 869-044- 00155-1), or from the DEQ, Remediation and Redevelopment Division (RRD), 525 West Allegan Street, Lansing, Michigan 48933, at cost.

J = Hazardous substance may be present in several isomer forms. Isomer-specific concentrations must be added together for comparison to criteria.

JT = Hazardous substance may be present in several isomer forms. The VIAP screening level 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 VIAP screening level of the detected isomers.

M = Calculated criterion is below the analytical target detection limit, therefore, the criterion defaults to the target detection limit.

M = The VIAP screening level 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 VIAP screening level, the TDL is used to evaluate the risk posed from the pathway.

MM = Hazardous substance is a carcinogen with a mutagenic mode of action. The cancer potency values used in calculating VIAP screening levels are modified using age-dependent adjustment factors for those carcinogenic chemicals identified as mutagenic.

mut = Mutagenic cancer

nc = Non-Carcinogenetic

NLL = means hazardous substance is not likely to leach under most soil conditions.

NLV = means hazardous substance is not likely to volatilize under most conditions.

Q = Criteria for carcinogenic polycyclic aromatic hydrocarbons were developed using relative potential potencies to benzo(a)pyrene.

st = Short-term (i.e., less than chronic exposure).

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.

Z = Mercury is typically measured as total mercury. The generic cleanup criteria, however, are based on data for different species of mercury. Specifically, data for elemental mercury, chemical abstract service (CAS) number 7439976, serve as the basis for the soil volatilization to indoor air criteria, groundwater volatilization to indoor air, and soil inhalation criteria. Data for methyl mercury, CAS number 22967926, serve as the basis for the GSI criterion; and data for mercuric chloride, CAS number 7487947, serve as the basis for the drinking water, groundwater contact, soil direct contact, and the groundwater protection criteria. Comparison to criteria shall be based on species-specific analytical data only if sufficient facility characterization has been conducted to rule out the presence of other species of mercury.

Table 1
Soil Analytical Data Summary
Traverse City Area Public Schools Property
412 Webster Street, City of Traverse City, Grand Traverse County, Michigan
Otwell Mawby, P.C. Project Number: 23-171

Analyte - MI Metals	CAS #	EGLE Part 201 Statewide Default Background Levels	EGLE Part 201 Drinking Water Protection Criteria	EGLE Part 201 Groundwater Surface Water Interface Protection Criteria	EGLE Part 201 Direct Contact Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Soil Saturation Concentration Screening Levels	EGLE Volatilization to Indoor Air Pathway Screening Levels - Residential	EGLE Volatilization to Indoor Air Pahtway Screening Levels - Nonesidential	GP-11 4.5' BGL 2/19/2024	GP-13 4.5' BGL 2/19/2024	GP-16 3.0' BGL 2/19/2024	TP-1 5.3' BGL 5/30/2024
Arsenic	7440382	5,800	4,600	4,600	7,600	NLV	NA	NA	NA	ND	ND	ND	ND
Barium (B)	7440393	75,000	1,300,000	G =1.4E+5	37,000,000	NLV	NA	NA	NA	29,000	11,000	24,000	ND
Cadmium (B)	7440439	1,200	6,000	G=1.6+3, X	550,000	NLV	NA	NA	NA	ND	ND	ND	ND
Chromium (B,H)	16065831	18,000	1.0E+9 E	3,300	2,500,000	NLV	NA	NA	NA	ND	ND	ND	ND
Copper	7440508	32,000	5,800,000	G=2.9E+4	20,000,000	NLV	NA	NA	NA	4,300	ND	ND	ND
Lead (B)	7439921	**21,000**	700,000	G=2.5E+6, X	400,000	NLV	NA	NA	NA	**33,000**	ND	18,000	ND
Mercury (B,Z)	Varies	130	1,700	50 (M); 1.2	160,000	8.4E+6 ug/m3 (GG)	NA	22 (M) nc	390 nc	ND	ND	ND	ND
Selenium (B)	7782492	410	4,000	400	2,600,000	NLV	NA	NA	NA	ND	ND	ND	ND
Silver (B)	7440224	1,000	4,500	100 (M); 27	2.50E+06	NLV	NA	NA	NA	ND	ND	ND	ND
Zinc (B)	7440666	47,000	2.40E+06	G=120,000	1.70E+08	NLV	NA	NA	NA	17,000	3,600	19,000	ND
Other Metals	Varies	Varies	Varies	Varies	Varies	Varies	NA	Varies	Varies	NA	NA	NA	NA
Analyte -PNAs													
Acenaphthene	83329	NA	3.00E+05	8,700	41,000,000	190,000,000	NA	2.0E+5 nc	3.6E+06 nc	420	ND	ND	ND
Acenaphthylene	208968	NA	5.90E+03	ID	1,600,000	1,600,000	NA	DATA	DATA	ND	ND	ND	ND
Anthracene	120127	NA	4.10E+04	ID	230,000,000	1.0E+9 (D)	NA	1.3E+07 nc	2.2E+08 nc	1,900	ND	ND	ND
Benzo(a)anthracene (Q)	56553	NA	NLL	NLL	20,000	NLV	NA	1.6E+05 (MM) mut	1.1E+07 ca	3,600	ND	ND	ND
Benzo(a)pyrene (Q)	50328	NA	NLL	NLL	**2.00E+03**	NLV	NA	NA	NA	**2,400**	ND	ND	ND
Benzo(b)fluoranthene (Q)	205992	NA	NLL	NLL	2.00E+04	ID	NA	NA	NA	2,300	ND	ND	ND
Benzo(g,h,i)perylene	191242	NA	NLL	NLL	2.50E+06	NLV	NA	NA	NA	1,000	ND	ND	ND
Benzo(k)fluoranthene (Q)	207089	NA	NLL	NLL	2.00E+05	NLV	NA	NA	NA	1,300	ND	ND	ND
Chrysene (Q)	218019	NA	NLL	NLL	2.00E+06	ID	NA	NA	NA	3,600	ND	ND	ND
Dibenzo(a,h)anthracene (Q)	53703	NA	NLL	NLL	2.00E+03	NLV	NA	NA	NA	ND	ND	ND	ND
Fluoranthene	206440	NA	7.30E+05	**5,500**	4.60E+07	1.0E+9 (D)	NA	NA	NA	**8,200**	ND	ND	ND
Fluorene	86737	NA	3.90E+05	5,300	2.70E+07	580,000,000	NA	4.7+05 nc	8.3E+06 nc	560	ND	ND	ND
Indeno(1,2,3-cd)pyrene (Q)	193395	NA	NLL	NLL	20,000	NLV	NA	NA	NA	1,600	ND	ND	ND
2-Methylnaphthalene	91576	NA	5.70E+04	4,200	8,100,000	2,700,000	NA	1,700 nc	30,000 nc	ND	ND	ND	ND
Naphthalene	91203	NA	3.50E+04	730	16,000,000	250,000	NA	67 (M) ca	1,900 ca	ND	ND	ND	ND
Phenanthrene	85018	NA	5.60E+04	**2,100**	1.60E+06	2,800,000	NA	**1,700 nc**	29,000 nc	**5,800**	ND	ND	ND
Pyrene	129000	NA	4.80E+05	ID	2.90E+07	1.0E+9 (D)	NA	2.5E+07 nc	4.4E+08 nc	6,500	ND	ND	ND
Other PNAs	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	NA	NA	NA	NA
Analyte - VOCs													
1,2,4-Trimethylbenzene (I)	95636	NA	2,100	570	3.2E+7 C	4.3E+6 (C)	110,000	150 (JT) nc	2,600 (JT) nc	ND	ND	ND	ND
1,3,5-Trimethylbenzene (I)	108678	NA	1,800	1,100	3.2E+7 C	2.6E+6 (C)	94,000	100 (JT) nc	1,800 (JT) nc	ND	ND	ND	ND
1,2,3-Trimehtylbenzene	526738	NA	NC	NC	NC	NC	NC	270 (JT) nc	4,800 (JT) nc	ND	ND	ND	ND
2-Methylnaphthalene	91576	NA	5.70E+04	4,200	8,100,000	2,700,000	NA	1,700 nc	30,000 nc	ND	ND	ND	ND
Benzene (I)	71432	NA	100	4,000 (X)	1.8E+05	1,600	400,000	1.7 (M) ca	47 (M) ca	ND	ND	ND	ND
cis-1,2-Dichloroethene	156592	NA	1,400	12,000	2.5E+6 (C)	22,000	640,000	2.1 (M) nc	37 (M) nc	ND	ND	ND	ND
Ethylbenzene (I)	100414	NA	1,500	360	2.2E+7 (C)	87,000	140,000	12 (M) ca	340 ca	ND	ND	ND	ND
Isopropylbenzene	98828	NA	91,000	3,200	2.5E+7 (C)	4.0E+5 (C)	390,000	3.8(M)	110(M)	ND	ND	ND	ND
Methly tert butyl ether (MTBE)	1634044	NA	800	140,000 (X)	1.5E+06	9.9E+6 (C)	5.9E+06	74 (M) ca	2,100 ca	ND	ND	ND	ND
Naphthalene	91203	NA	3.50E+04	730	16,000,000	250,000	NA	67 (M) ca	1,900 ca	ND	ND	ND	ND
n-Propylbenzene (I)	103651	NA	1.60E+03	ID	2,500,000	ID	10,000,000	1,800 (DD) dev	21,000 (DD) dev	ND	ND	ND	ND
Tetrachloroethene	127184	NA	100	1,200 (X)	2.0E+5 C	11,000	88,000	6.2 (M) (EE) st	74 (EE) st	ND	ND	ND	ND
Trichloroethene	79016	NA	100	4,000 (X)	1.1E+5 (DD)	1,000	500,000	0.33 (M) (DD) dev	4.0 (M) (DD) dev	ND	ND	ND	ND
Toluene (I)	108883	NA	16,000	5,400	5.0E+7 C	3.3E+5 (C)	250,000	3,700 nc	64,000 (EE) st	ND	ND	ND	ND
Xylene (Total, I)	1330207	NA	5,600	980	4.1E+8 C	6.3E+6 (C)	150,000	280 (J) nc	5,000 (J) nc	ND	ND	ND	ND
m,p-Xylene (I)	1330207	NA	5,600	980	4.1E+8 C	6.3E+6 (C)	150,000	280 (J) nc	5,000 (J) nc	ND	ND	ND	ND
o-Xylene (I)	1330207	NA	5,600	980	4.1E+8 C	6.3E+6 (C)	150,000	280 (J) nc	5,000 (J) nc	ND	ND	ND	ND
Other VOCs	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	ND	ND	ND	ND

Notes:

Results compared to EGLE Criteria Lookup Tables, October 12, 2023 and Volatilization to Indoor Air Pathway (VIAP) Screeing Levels, dated February 26, 2024

NC = No Criteria

= GCC and/ or VIAP Exceedence

ND = Not Detected

BOLD Font without shading indicates an exceedence of Background Criteria not GCC.

NA = Not Applicable or Not Analyzed

ID = Insufficient Data

B = Background, as defined in R 299.1(b), may be substituted if higher than the calculated cleanup criterion. Background levels may be less than criteria for some inorganic compounds.

C = The criterion developed under R 299.20 to R 299.26 exceeds the chemical-specific soil saturation screening level (Csat). The person proposing or implementing response activity shall document whether additional response activity is required to control free-phase liquids or NAPL to protect against risks associated with free-phase liquids by using methods appropriate for the free-phase liquids present. Development of a site-specific Csat or methods presented in R 299.22, R 299.24(5), and R 299.26(8) may be conducted for the relevant exposure pathways.

C = The VIAP screening level exceeds the chemical-specific soil saturation screening level (Csat). Because this table does not list Csat values both were provided, with the calculated (health-based) value listed first and Csat provided in parenthesis. 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.

ca = Carcinogenetic

D = Calculated criterion exceeds 100 percent; hence it is reduced to 100 percent or 1.0E+9 parts per billion (ppb).

DD = Hazardous substance causes developmental effects. Residential direct contact criteria are protective of both prenatal and postnatal exposure. Nonresidential direct contact criteria are protective for a pregnant adult receptor.

DD = Hazardous substance causes developmental effects. Residential VIAP screening levels are protective of both prenatal exposure using a pregnant female receptor and postnatal exposure using a child receptor. Nonresidential VIAP screening levels are protective of prenatal exposure using a pregnant female receptor. Prenatal developmental effects may occur after an acute (i.e. shortterm) or full-term exposure.

DATA = Insufficient physical chemical parameters to calculate a health based SSVIAC for specified media. If detections are present in specified media, healthbased soil vapor SSVIAC should be used to evaluate risk.

dev = Developmental

EE = The acceptable air concentration (AAC) for the volatile hazardous substances is not derived using standard equations. 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 an acute initial threshold screening level (ITSL) by the EGLE's Air Quality Division.

G = Groundwater surface water interface (GSI) criterion dependes on the pH or water hardness, or both, of the receiving surface water. A hardness value of 50 mg/L was used for the calculation (default for the Upper Peninsula).

GG = Risk-based criteria are not available for methane due to insufficient toxicity data. An acceptable soil gas concentration (presented for both residential and nonresidential land uses) was derived utilizing 25 percent of the lower explosive level for methane. This equates to 1.25 percent or 8.4E+6 ug/m3 .

H = Valence-specific chromium data (Cr III and Cr VI) shall be compared to the corresponding valence-specific cleanup criteria. If both Cr III and Cr VI are present in groundwater, the total concentration of both cannot exceed the drinking water criterion of 100 ug/L. If analytical data are provided for total chromium only, they shall be compared to the cleanup criteria for Cr VI. Cr III soil cleanup criterion for protection of drinking water can only be used at sites where groundwater is prevented from being used as a public water supply, currently and in the future, through an approved land or resource use restriction.

I = Hazardous substance may exhibit the characteristic of ignitability as defined in 40 C.F.R. §261.21 (revised as of July 1, 2001), which is adopted by reference in these rules and is available for inspection at the DEQ, 525 West Allegan Street, Lansing, Michigan. Copies of the regulation may be purchased, at a cost as of the time of adoption of these rules of $45, from the Superintendent of Documents, Government Printing Office, Washington, DC 20401 (stock number 869-044- 00155-1), or from the DEQ, Remediation and Redevelopment Division (RRD), 525 West Allegan Street, Lansing, Michigan 48933, at cost.

J = Hazardous substance may be present in several isomer forms. Isomer-specific concentrations must be added together for comparison to criteria.

JT = Hazardous substance may be present in several isomer forms. The VIAP screening level 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 VIAP screening level of the detected isomers.

M = Calculated criterion is below the analytical target detection limit, therefore, the criterion defaults to the target detection limit.

M = The VIAP screening level 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 VIAP screening level, the TDL is used to evaluate the risk posed from the pathway.

MM = Hazardous substance is a carcinogen with a mutagenic mode of action. The cancer potency values used in calculating VIAP screening levels are modified using age-dependent adjustment factors for those carcinogenic chemicals identified as mutagenic.

mut = Mutagenic cancer

nc = Non-Carcinogenetic

NLL = means hazardous substance is not likely to leach under most soil conditions.

NLV = means hazardous substance is not likely to volatilize under most conditions.

Q = Criteria for carcinogenic polycyclic aromatic hydrocarbons were developed using relative potential potencies to benzo(a)pyrene.

st = Short-term (i.e., less than chronic exposure).

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.

Z = Mercury is typically measured as total mercury. The generic cleanup criteria, however, are based on data for different species of mercury. Specifically, data for elemental mercury, chemical abstract service (CAS) number 7439976, serve as the basis for the soil volatilization to indoor air criteria, groundwater volatilization to indoor air, and soil inhalation criteria. Data for methyl mercury, CAS number 22967926, serve as the basis for the GSI criterion; and data for mercuric chloride, CAS number 7487947, serve as the basis for the drinking water, groundwater contact, soil direct contact, and the groundwater protection criteria. Comparison to criteria shall be based on species-specific analytical data only if sufficient facility characterization has been conducted to rule out the presence of other species of mercury.

Z = Mercury is typically measured as total mercury. The generic cleanup criteria, however, are based on data for different species of mercury. Specifically, data for elemental mercury, chemical abstract service (CAS) number 7439976, serve as the basis for the soil volatilization to indoor air criteria, groundwater volatilization to indoor air, and soil inhalation criteria. Data for methyl mercury, CAS number 22967926, serve as the basis for the GSI criterion; and data for mercuric chloride, CAS number 7487947, serve as the basis for the drinking water, groundwater contact, soil direct contact, and the groundwater protection criteria. Comparison to criteria shall be based on species-specific analytical data only if sufficient facility characterization has been conducted to rule out the presence of other species of mercury.

TABLE 2

Groundwater Analytical Summary
(1 Page)

Table 2
Groundwater Analytical Data Summary
Traverse City Area Pubilc Schools Property
412 Webster Street, City of Traverse City, Grand Traverse County, Michigan
Otwell Mawby, P.C. Project Number: 23-171

Analyte - PNAs	CAS #	EGLE Part 201 Drinking Water Criteria	EGLE Part 201 Groundwater Surface Water Interface Criteria	Groundwater Volatilization to Indoor Air Inhalation Criteria	EGLE Volatilization to Indoor Air Pathway Screening Levels - Residential	EGLE Volatilization to Indoor Air Pathway Screening Levels Non-Residential	GP-7 12/21/2023	GP-9 12/21/2023	GP-10 2/19/2024	GP-11 2/19/2024	GP-24 2/19/2024	MW-1 2/19/2024	MW-2 2/19/2024
Acenaphthene	1,300	38	4,200 (S)	3,900 (S) sol	3,900 (S) sol	3,900(S)	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	208968	52	ID	3,900 (S)	65 nc	710 nc	ND	ND	ND	ND	ND	ND	ND
Anthracene	120127	43 (S)	ID	43 (S)	43 (S) sol	43 (S) sol	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene (Q)	56553	2.1	ID	NLV	9.4 (S) (MM) sol	9.4 (S) sol	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene (Q)	50328	5.0 (A)	ID	NLV	NA	NA	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene (Q)	205992	1.5 (S, AA)	ID	ID	NA	NA	ND	ND	ND	ND	ND	ND	ND
Benzo(g,h,i)perylene	191242	1.0 (M); 0.26 (S)	ID	NLV	NA	NA	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene (Q)	207089	1.0 (M); 0.8 (S)	ID	NLV	NA	NA	ND	ND	ND	ND	ND	ND	ND
Chrysene (Q)	218019	1.6 (S)	ID	ID	NA	NA	ND	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene (Q)	53703	2.0 (M); 0.21	ID	NLV	NA	NA	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	206440	210 (S)	1.6	210 (S)	NA	NA	ND	ND	ND	ND	ND	ND	ND
Fluorene	86737	880	12	2,000 (S)	1,700 (S) sol	1,700 (S) sol	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene (Q)	193395	2.0 (M); 0.022 (S)	ID	NLV	NA	NA	ND	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	91576	260	**19**	25,000 (S)	66 nc	110 nc	**41.0**	**30.0**	ND	ND	ND	ND	ND
Naphthalene	91203	520	**11**	31,000 (S)	**4.2 (M) ca**	**12 ca**	**56.0**	**120.0**	ND	ND	ND	ND	ND
Phenanthrene	85018	52	2.0 (M); 1.7	1,000 (S)	9.5 nc	15 nc	ND	ND	ND	ND	ND	ND	ND
Pyrene	129000	140 (S)	ID	140 (S)	140 (S) sol	140 (S) sol	ND	ND	ND	ND	ND	ND	ND
Other PNAs	Varies	Varies	Varies	Varies	Varies	Varies	NA	NA	NA	NA	NA	NA	NA
Analyte - VOCs													
Acetone (I)	67641	730	1,700	1.0E+9 (D,S)	50,000 (FF) st	200,000 (FF) st	ND	ND	ND	ND	ND	ND	ND
Benzene (I)	71432	5.0 (A)	200 (X)	5,600	1.0	8.4	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	104518	80	ID	ID	44 nc	360 nc	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	135988	80	ID	ID	270 nc	400 nc	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene (I)	101414	74 (E)	18	110,000	**2.8 ca**	28 ca	**5.7**	**16.0**	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	120821	70 (A)	99 (X)	3.0E+5 (S)	3.8 (M) nc	8.5 nc	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trimethylbenzene	526738	NA	NA	NC	**43 (JT) nc**	150 (JT) nc	**31.0**	**14.0**	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene (I)	95636	63 (E)	**17**	56,000 (S)	**25 (JT) nc**	120 (JT) nc	**56.0**	**23.0**	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene (I)	108678	72 (E)	45	61,000 (S)	**18 (JT) nc**	110 (JT) nc	**14.0**	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	91576	260	19	25,000 (S)	66 nc	110 nc	19.0	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	156592	70 (A)	620	93,000	3.4 nc	14 nc	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	98828	800	28	56,000 (S)	0.6 (M) ca	6.7 ca	ND	ND	ND	ND	ND	ND	ND
Isopropyltoluene	99876	NC	NC	NC	NC	NC	ND	ND	ND	ND	ND	ND	ND
Naphthalene	91203	520	**11**	31,000 (S)	**4.2 (M) ca**	**12 ca**	**26.0**	**47.0**	ND	ND	ND	ND	ND
n-Propylbenzene (I)	103651	80	ID	ID	43 (DD) dev	970 (DD) dev	2.3	ND	ND	ND	ND	ND	ND
Styrene	100425	100 (A)	80 (X)	170,000	33 ca	170 ca	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	127184	5.0 (A)	60 (X)	25,000	1.5 (FF) st	35 (FF) st	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	79016	5.0 (A)	200 (X)	2,200	0.073 (M) (DD) dev	1.6 (DD) dev	ND	ND	ND	ND	ND	ND	ND
Toluene (I)	108883	790 (E)	270	530,000 (S)	300 (FF) st	6,600 (FF) st	ND	ND	ND	ND	ND	ND	ND
m,p-Xylene (I)	1330207	280 (E)	**49**	190,000 (S)	**75 (J)**	410 (J)	17.0	**50.0**	ND	ND	ND	ND	ND
o-Xylene (I)	1330207	280 (E)	**49**	190,000 (S)	**75 (J)**	410 (J)	8.9	**57.0**	ND	ND	ND	ND	ND
Xylene (total, I)	1330207	280 (E)	**49**	190,000 (S)	**75 (J)**	410 (J)	26.0	**110.0**	ND	ND	ND	ND	ND
Other VOCs	Varies	Varies	Varies	Varies	Varies	Varies	ND	ND	ND	ND	ND	ND	ND
Analyte - Metals													
Arsenic	7440382	10 (A)	10	NLV	NA	NA	NA	NA	NA	ND	ND	NA	NA
Barium (B)	7440393	2,000 (A)	G=440	NLV	NA	NA	NA	NA	NA	50	64	NA	NA
Cadmium (B)	7440439	5.0 (A)	G=2.2, X	NLV	NA	NA	NA	NA	NA	ND	ND	NA	NA
Chromium (B,H)	16065831	100 (A)	G=7.4, X	NLV	NA	NA	NA	NA	NA	ND	ND	NA	NA
Copper (B)	7440508	1,000 (E)	G=14	NLV	NA	NA	NA	NA	NA	ND	ND	NA	NA
Lead (B)	7439921	4.0 (L)	G=14, X	NLV	NA	NA	ND	ND	ND	ND	ND	ND	NA
Mercury (Total, B,Z)	Varies	2 (A)	0.0013	56 (S)	0.088 nc	0.3 nc	NA	NA	ND	ND	ND	ND	ND
Selenium (B)	7782492	50 (A)	5	NLV	NA	NA	NA	NA	NA	ND	ND	NA	NA
Zinc (B)	7440666	2,400	G=120	NLV	NA	NA	NA	NA	NA	ND	ND	NA	NA
Other Metals	Varies	Varies	Varies	Varies	NA	NA	NA	NA	NA	ND	ND	NA	NA

Notes:

ND = Not Detected

ID = Insufficient data

NA = Not Applicable or Not Analyzed

NC = No Criteria

= GCC and/ or VIAP Exceedences

Results compared to EGLE Criteria Lookup Tables, October 12, 2023 and Volatilization to Indoor Air Pathway (VIAP) Screening Levels, February 26, 2024

All results shown in parts per billion (ug/L)

NLV = Hazardous substance is not likely to volatilize under most conditions.

The shallow groundwater VIAP screening levels must be used when the depth to first encountered groundwater is 10 feet below ground surface or less.

A = Criterion is the State of Michigan drinking water standard.

AA = Use 10,000 ug/l where groundwater enters a structure through the use of a water well, sump or other device. Use 28,000 ug/l for all other uses

B = Background, as defined in R 299.1(b), may be substituted if higher than the calculated cleanup criterion. Background levels may be less than criteria for some inorganic compounds.

ca = Carcinogenetic

D = Calculated criterion exceeds 100 percent; hence it is reduced to 100 percent or 1.0E+9 parts per billion (ppb).

DD = Hazardous substance causes developmental effects. Residential VIAP screening levels are protective of both prenatal exposure using a pregnant female receptor and postnatal exposure using a child receptor. Nonresidential VIAP screening levels are protective of prenatal exposure using a pregnant female receptor. Prenatal developmental effects may occur after an acute (i.e. shortterm) or full-term exposure.

dev = Developmental

E = Criterion is aesthetic drinking water value.

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 VIAP screening levels are based on modification of the standard equations by the department to develop applicable shallow groundwater VIAP screening levels.

G = Groundwater surface water interface (GSI) criterion depends on the pH or water hardness, or both, of the receiving surface water. The final chronic value (FCV) for the protection of aquatic life shall be calculated based on the pH or hardness of the receiving surface water. A hardness value of 50 mg/L was used for thr Upper Peninsula surface waters, as identified in Operational Momorandum No. 5.

H = Valence-specific chromium data (Cr III and Cr VI) shall be compared to the corresponding valence-specific cleanup criteria. If both Cr III and Cr VI are present in groundwater, the total concentration of both cannot exceed the drinking water criterion of 100 ug/L. If analytical data are provided for total chromium only, they shall be compared to the cleanup criteria for Cr VI. Cr III soil cleanup criterion for protection of drinking water can only be used at sites where groundwater is prevented from being used as a public water supply, currently and in the future, through an approved land or resource use restriction.

I = Hazardous substance may exhibit the characteristic of ignitability.

J = Hazardous substance may be present in several isomer forms. Isomer-specific concentrations must be added together for comparison to criteria.

JT = Hazardous substance may be present in several isomer forms. The VIAP screening level 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 VIAP screening level of the detected isomers.

L = Criteria for lead are derived using a biologically based model, as allowed for under Section 20120a(9) of the NREPA, and are not calculated using the algorithms and assumptions specified in pathway-specific rules. The generic residential drinking water criterion of 4 ug/L is linked to the generic residential soil direct contact criterion of 400 mg/kg. A higher concentration in the drinking water, up to the state action level of 15 ug/L, may be allowed as a site-specific remedy and still allow for drinking water use, under Section 20120a(2) and 20120b of the NREPA if soil concentrations are appropriately lower than 400 mg/kg. If a site-specific criterion is approved based on this subdivision, a notice shall be filed on the deed for all property where the groundwater concentrations will exceed 4 ug/L to provide notice of the potential for unacceptable risk if soil or groundwater concentrations increase.

M = The VIAP screening level 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 VIAP screening level, the TDL is used to evaluate the risk posed from the pathway.

MM = Hazardous substance is a carcinogen with a mutagenic mode of action. The cancer potency values used in calculating VIAP screening levels are modified using age-dependent adjustment factors for those carcinogenic chemicals identified as mutagenic.

nc = Non-Carcinogenetic

Q = Criteria for carcinogenic polycyclic aromatic hydrocarbons were developed using relative potential potencies to benzo(a)pyrene.

S = Criterion defaults to the hazardous substance-specific water solubility limit.

sol = Calculated VIAP screening level exceeds the hazardous substance-specific water solubility limit; therefore, the water solubility limit is used to evaluate the risk posed from the pathway. When this occurs the basis for the screening level is noted as "sol".

st = Short-term (i.e., less than chronic exposure).

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. 100 was useed for a hardness value.

Z = Mercury is typically measured as total mercury. The generic cleanup criteria, however, are based on data for different species of mercury. Specifically, data for elemental mercury, chemical abstract service (CAS) number 7439976, serve as the basis for the soil volatilization to indoor air criteria, groundwater volatilization to indoor air, and soil inhalation criteria. Data for methyl mercury, CAS number 22967926, serve as the basis for the GSI criterion; and data for mercuric chloride, CAS number 7487947, serve as the basis for the drinking water, groundwater contact, soil direct contact, and the groundwater protection criteria. Comparison to criteria shall be based on species-specific analytical data only if sufficient facility characterization has been conducted to rule out the presence of other species of mercury.

APPENDIX A

Environmental Professional Credentials

QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONALS

Mr. James A. Jackson II (Environmental Professional)

Mr. Jackson has more than 20 years of environmental consulting experience, which has included preparation of Phase I and II Environmental Assessment, Baseline Environmental Assessments, Due Care Plans, Brownfield Redevelopment Plans, and Remedial Investigations in Michigan. His experience also includes underground storage tank assessments, removals, and closures, asbestos inspections, air monitoring and asbestos abatement oversight, geotechnical investigation, construction materials testing, air emissions reporting, and various health and safety trainings. Mr. Jackson has also been involved in other facets of environmental consulting including indoor air quality investigations, hazardous materials surveys, implementation of storm water pollution prevention plans, pollution incident prevention plans, and spill prevention control and countermeasure plans.

Mr. Jackson has an extensive background in field investigations including implementation of sampling activities, including asbestos, lead-based paints, soil, soil gas, surface waters, groundwater, oils, sludges, and other building materials. His significant field experience includes contractor oversight, environmental and geotechnical soil sampling and classification, monitoring well installation and development, equipment decontamination, sample screening, and sample documentation procedures.

Mr. Jackson is also responsible for preparation of cost proposals, project management, generation of reports and project specifications, as well as, marketing and professional interaction with clients, environmental regulatory agencies, and local units of government. His project experience includes privately funded projects, financial institution acquisitions, grant funded sites, schools, and state and federal funded projects.

CERTIFICATIONS

State of Michigan Asbestos Building Inspector
State of Michigan Asbestos Contractor/Supervisor
State of Michigan Asbestos Project Designer/ Management Planner
NIOSH 582, Equivalency
40-Hour OSHA Hazardous Materials Training and Refresher

EDUCATION

Bachelor of Science Degree, Environmental & Earth Sciences, Central Michigan University

QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONALS

Mr. Mark Collison, C.E.S. (Environmental Professional)

Mr. Collison has over 25 years of environmental experience focusing on the preparation of Phase I and Phase II Environmental Site Assessments in the State of Michigan and the State of Ohio; Baseline Environmental Assessments and Brownfield Redevelopment Plans in Michigan; and Remedial Investigations.

He also has experience in proposal and report preparation, project presentations, project management, marketing, project research and historical reviews, overseeing of field personnel for project related sampling activities, environmental field sampling and screening of Asbestos, lead based paints, soil, surface waters, groundwater, oils and sludges, containment facilities and impoundments.

He has additional experience including working as an assistant on a drill rig to assist with soil sampling and classifications, boring log preparation, monitoring well installation and development, equipment decontamination and sample screening with a Photoionization Detector.

Mr. Collison also has experience with professional interaction with environmental regulatory agencies and local units of government.

Certifications
Environmental Assessment Association - Certified Environmental Specialist (CES) - February 1995
40 Hour OSHA Hazardous Materials Training and Refresher – February 2022
American Red Cross First Aid and CPR Certifications – April 2003

Education
Northern Michigan University, Marquette, Michigan
Bachelor of Science Degree in Environmental Conservation in May 1991

Affiliations
Environmental Assessment Association