

# EXHIBIT W



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October 20, 2017

Timothy S. Wilhelm  
Johnson, Rosati, Schultz & Joppich, P.C.  
27555 Executive Drive, Suite 250  
Farmington Hills, MI 48331

Re: Environmental Assessment Findings  
The 81 on East Bay  
Peninsula Township, Michigan  
SME Project No.: 076032.00

Via Email to: [twilhelm@irsilaw.com](mailto:twilhelm@irsilaw.com)

Dear Mr. Wilhelm,

The developer of 81 on East Bay, a single-family, detached housing development proposed for an approximately 81-acre property at 15634 Smokey Hollow Road and 15636 Bluff Road in Peninsula Township, Michigan (the Property), recently retained Otwell Mawby, P.C. to conduct a limited environmental assessment of the Property. The purpose of the assessment was to screen for the presence of residual agricultural chemicals in near-surface soil. The results of my review of the following documents pertaining to that assessment are presented in the following paragraphs:

- *THE 81*; letter addressed to Mr. Philip Settles, by Roger L. Mawby, P.E., Otwell Mawby, P.C., January 16, 2017.
- *The 81*; letter report addressed to Mr. Brian Etzel, by Roger L. Mawby, P.E., Otwell Mawby, P.C., August 29, 2017.
- *The 81 on East Bay, Soil Assessment Report, Review and Professional Opinion*; letter addressed to Mr. Brian Etzel, by Andrew Smits, P.E., Inland Seas Engineering, September 5, 2017.

## SITE ASSESSMENT AND RESULTS

Mr. Mawby reported that soil samples were collected from the upper 12 inches of the soil column at 15 sampling locations on the Property on August 5, 2017. The sampling locations were distributed across the Property in areas "... that were historically used as agricultural and that would be disturbed during earthwork operations ...". Samples were reportedly collected at two depths, 3 to 6 inches below the ground surface (bgs) and 6 to 12 inches bgs, at each location. Each sample was analyzed for arsenic and lead, and three composite samples from each depth were analyzed for organochlorine and organophosphorous pesticides. Neither lead nor the target pesticide analytes were reported present in any of the soil samples at concentrations greater than the current (December 2013) or proposed (August 2017) Part 201 generic residential human direct contact or particulate inhalation criteria. Arsenic was reported present at concentrations greater than the current (7,600 µg/kg) and proposed (9,000 µg/kg) generic residential human direct contact criterion in 17 samples collected at 10 of the 15 sampling locations. Arsenic exceedances of criteria were reported in samples from all areas of the Property where samples were collected and in over one-half (8) of the deepest (6 to 12 inches) samples collected. Arsenic was not present in any sample at a concentration greater than either of the aforementioned current or proposed generic residential particulate inhalation criteria.

## FINDINGS AND OPINIONS

### SITE ASSESSMENT

The number and distribution of sampling locations in Otwell Mawby's assessment indicates the assessment objective was to screen the Property for residual environmental impact from historical agricultural chemical use. The number of sampling locations in their site screening assessment was lower than was recommended in my Sampling and Analysis Plan Recommendation of August 8, 2017, but their sampling locations were distributed in the same general areas recommended for assessment. One primary goal of an environmental screening assessment is to collect sufficient data to determine if contamination is present, while achieving a low probability of an incorrect (false-negative) finding that no contamination/risk is present. The more samples that are collected, the less the probability of a false-negative finding; that was the design basis for my assessment recommendations. Since the results of the Otwell Mawby assessment demonstrated that the site is contaminated by arsenic at levels of concern, in my opinion their assessment was adequate for screening the Property. The reported concentrations of lead and the target pesticide analytes were sufficiently below the respective generic residential risk criteria and were sufficiently consistent among the samples that the probability of a false negative finding of contamination for these contaminants is low. In my opinion, the reported sampling methodology was consistent with the standard of care for this type of assessment, and the chemical analysis methods were appropriate.

### SITE ASSESSMENT RESULTS

When evaluating the assessment results within the regulatory risk management framework that applies to most contaminated sites in Michigan, it is clear that soil on the Property would pose a risk to human via the direct contact exposure pathway. The frequency (66.6%) and distribution of sampling locations where direct contact criterion exceedances occurred indicate that a large area of the Property is contaminated. Over half of the criterion exceedances were reported in the deepest samples collected, indicating that the impact extends into deeper soils. It appears that a large mass of soil on the Property is contaminated at levels of concern.

Results from the Otwell Mawby assessment demonstrate that a significant mass of soil over a large area of the Property is contaminated with arsenic at levels above the published statewide default background level (5,800 µg/kg; *Cleanup Criteria Requirements for Response Activity*, December 30, 2013), the Michigan Glacial Lobe background level (5,700ug/kg); *Michigan Background Soil Survey, Updated 2015*), and the Part 201 risk-based cleanup criteria for human direct contact in residential settings. In my opinion, the results from the referenced environmental assessment demonstrate that the levels of arsenic in soil on the Property are sufficient to adversely affect the adjacent or neighboring properties if contaminated soil escapes in the form of fugitive emissions (i.e., soil erosion) during construction via the following transport mechanisms:

- migration of soil and other potentially contaminated materials in storm water runoff;
- generation and scape of airborne dust and other particulates; and
- track-out of soil, mud, etc. on vehicles and equipment.

Soil erosion during construction will adversely affect the adjacent or neighboring properties either by adding contaminated soil to land that is not contaminated at levels of concern or increasing the contaminant load on properties that may have been previously impacted by residual agricultural chemicals. Section 8.1.3(3)(k) of the Peninsula Township Zoning Ordinance (the Ordinance) is designed to prevent both of these scenarios.

## ALTERNATE EXPOSURE STANDARDS

Mr. Smits appears to offer two rationales for why soil on the Property would not pose a threat to adjacent and neighboring properties via migration during development and alternative exposure standards should be employed: 1) fruit orchards and other agricultural activities occurred on the neighboring properties and those properties would be similarly impacted by pesticide residuals and 2) other "reasonable standards" for arsenic cleanup criteria should be used to justify higher levels of acceptable arsenic exposure. The first rationale, also put forth by Mr. Mawby, is an assumption without basis. Multiple proximate properties are currently developed with residences, and reviews of historical aerial photographs indicate that significant portions of the proximate properties were not developed with orchards; there is no evidence that these areas are currently contaminated with pesticide residuals. Furthermore, to support Mr. Smits' first rationale, he provides summaries of the results from assessments of five other developed properties where the land previously was used for agriculture. However, those results and the results from the Otwell Mawby assessment of the Property actually refute the assumption of similar contamination because the levels of arsenic on those sites were highly variable and some areas of all the sites, except Copper Ridge, were not contaminated at concentrations above risk-based cleanup levels. In fact, the highest reported arsenic concentration on the Village at Bay Ridge site, historically an agricultural property, was only slightly elevated over the current Part 201 generic direct contact cleanup criterion and actually below the proposed direct contact cleanup criterion. These results demonstrate that the assumption, based solely on historical use, that neighboring properties are similarly contaminated is unsupported; only valid site-specific assessment data can be used to determine soil characteristics with certainty. Even if adjoining or neighboring properties have been impacted by pesticide residuals, migration of contaminated soil from the Property will unacceptably add to the existing contaminant load.

Mr. Smits attempts to support his second rationale by citing several reports of studies from other states, which characterized levels of residual pesticides in soil on agricultural land, reported background levels of metals in Oklahoma, and described other, questionably related studies. The related "Soil Arsenic Standard" cited for these studies ranged from 20,000 µg/kg to 100,000 µg/kg; however, none of the sources/citations were to regulatory risk-based cleanup criteria determined to be protective of human health in other states. The results of a study of cleanup criteria for arsenic in 34 states, conducted by Christopher M. Teaf, et al, was published in the *Proceedings of the Annual International Conference on Soils, Sediments, Water and Energy*, Article 10, Volume 15, June 2010. That study revealed that 15 states had arsenic cleanup criteria of 39 µg/kg - 410 µg/kg, 5 states had cleanup criteria of 1,400 to 6,700 µg/kg, 1 state had a criterion of 24,000 µg/kg, and the criterion in 13 states was defined as the background concentration. The conclusion from this study is that a majority of the technical experts charged with determining allowable exposure levels (cleanup criteria) for arsenic in soil in the surveyed states do not agree with Mr. Smits' assertion that the higher concentrations included in his table should be considered safe.

## EMERGENCY ACCESS ROAD

I also reviewed the following documents and current and historical aerial photographs of the development area to evaluate the potential adverse affects of grading activities in the emergency access road easement on adjacent and neighboring properties in light of the assessment findings and Mr. Smits' professional opinions on the :

- Mansfield's (applicant's planning consultant) response to proposed findings of fact 11-17-16 relating to emergency access, and
- The Emergency Access Easement Agreement between the adjacent property owner and The 81 Development.

My review of historical aerial photographs revealed that all of the land that the emergency access road easement traverses, from the eastern boundary of the 81 on the Bay property to Smokey Hollow Road, appeared to have been used historically as orchards for fruit agriculture. The aerial photographs indicate

the previous presence at least three to four visually distinct orchard areas along the easement path. The fruit trees were removed sometime prior to 2005, and the land then appeared to lie fallow until sometime prior to 2015, when different crops were placed into production. The orchard removal and subsequent planting of different crops indicate that the upper few feet of soil have been disturbed since the orchards were in production and pesticides were likely used.

Results from environmental assessment of the Property revealed that soil on significant areas of the Property was contaminated with elevated levels of pesticide residues. Mr. Smits' asserted in his professional opinions, with evidence, that properties used for orchards are similarly contaminated. Considering these findings, soil in the emergency access road easement, unless demonstrated otherwise by appropriate environmental assessment, should be considered contaminated at levels that potentially pose an adverse affect on adjacent and neighboring properties during grading and other road construction activities.

Since construction of the emergency access road will disturb the soil along the easement, I recommend that the soil either be assumed contaminated at levels similar to those on the Property or be tested for pesticide residuals to evaluate the potential for construction activities to adversely affect the adjacent or neighboring properties. It is my opinion that if the emergency road easement is assessed, soil samples should be collected at approximately 120-foot intervals, consistent with the recommended sample location spacing for assessment of the Property, along the easement from the property boundary to Smokey Hollow Road. Samples should be collected from multiple depths to 3 to 4 feet below the existing ground surface to account for potential turnover of soil during orchard removal and subsequent site activities. Samples from each location should be chemically analyzed for lead and arsenic. A minimum of 50% of the samples, collected from locations evenly distributed across the sampled area, should also be analyzed for the EPA chlorinated pesticides. Duplicate samples for quality control of sampling and analysis precision should be collected and analyzed for each parameter at a rate of one sample per each group of 20 or less assessment samples. Analyses should be performed by a NELAC-certified laboratory using appropriate methods described in EPA Publication SW-846.

### PROJECT EROSION CONTROL PLAN (SITE + ACCESS ROAD)

Erosion of soil is likely to occur during development of the Property and the emergency access road. This was confirmed in Mr. Mawby's January 16, 2017, letter: "potential adverse impact could occur from grading due to transmission of fine soil particles via wind born dust and through the mechanism of water borne transport or stormwater runoff." Both the Peninsula Township Storm Water Control Ordinance (Ordinance 23) and the Grand Traverse County Soil Erosion, Sedimentation and Stormwater Runoff control Ordinance (Amended June 20, 2012) contain as a specific objective of each ordinance (Section II.5.): "To ensure that all soil erosion and sedimentation control facilities are properly designed, constructed and maintained so as to provide water quality protection and prevent the conveyance of sediment via wind and stormwater runoff" (emphasis added). This objective is especially important when soil on a development site is contaminated at levels that could cause adverse affects on adjacent and neighboring properties. Prevention of contaminated soil migration via a third pathway, vehicle trackout, is equally important.

I have reviewed the following erosion control documents for The 81 on East Bay development:

- Sheet C3.0, *The Soil Erosion and Sedimentation Control Plan* (the Site Erosion Control Plan), prepared by Mansfield Land Use Consultants
- Maintenance Plan and Budget, Storm Water Management System of The 81 on East Bay, prepared by The 81 Development Co. LLC

These plans were submitted and reviewed prior to the reviewing bodies being provided the evidence that the Property is contaminated with arsenic.

I agree with Mr. Mawby's statement in his January 16, 2017, letter that, "If the soils can be managed and contained onsite during grading and post grading operations, it can reasonably be concluded that the grading operations will not adversely affect the neighboring properties." However, in my opinion, the submitted plans do not demonstrate that they meet Mr. Mawby's performance criteria or the Section II.5 objective of preventing the conveyance of sediment via wind and stormwater runoff. This deficiency should be a concern with respect to Section 8.1.3(3)(k) of the Ordinance because of the demonstrated arsenic contamination in soil on the Property and the presumed contamination in the emergency access road easement.

The proposed Site Erosion Control Plan specifies a single row of silt fencing 3 feet outside of grading limits to protect adjoining and neighboring properties and a double row of silt fencing along the waterfront to protect the bay shore as temporary erosion control measures for stormwater runoff. There is insufficient design, installation, or maintenance information to evaluate the effectiveness of the stormwater sediment/soil erosion control (silt fencing) portion of the plan. The U.S. Environmental Protection Agency, in its *Stormwater Best Management Practices, Silt Fences* (EPA 833-F-11-008, April 2012) states, "Most construction sites today do have silt fences. But many do not work effectively because they are not well designed, installed, or maintained." Therefore, an effective silt fencing design following best management practices is critical for preventing sediment/soil from migrating off the Property in stormwater runoff and adversely affecting the adjacent or neighboring properties.

The effectiveness of the reasonably-detailed stabilized construction access (track-out control) specifications included in the proposed Site Erosion Control Plan are acknowledged in the plan to be "limited" and that "sediment may be tracked onto roads, requiring additional action." The additional action is described as follows: "Sediment deposited in public rights-of-way shall be removed immediately (emphasis added) and returned to the construction site. Remove sediment in the sumps and maintain swept roads." Based on my experience observing environmental conditions at construction sites, it is my opinion that if these procedures are diligently implemented and monitored, track-out of contaminated soil likely will be prevented. Compliance with the plan, specifically the immediate removal of any tracked out soil, probably will require street sweeping equipment to be on-site and ready to respond to observed track-out conditions at all times during construction.

The Site Erosion Control Plan does not appear to address wind-borne emissions of contaminated soil, which is a stated objective of the township and county erosion control ordinances. Again based on my experience observing environmental conditions at construction sites, wind-borne dust and sediment/soil can be a significant source of fugitive emissions, which when generated on contaminated sites can adversely affect the adjacent or neighboring properties. Emissions of wind-borne dust and sediment/soil can be difficult to prevent, as required by the ordinances, during grading and construction activities and may require procedures that are more effective than simply wetting the soil with water.

The Maintenance Plan and Budget contains no details about the design of erosion or track-out control measures to be employed for the grading and construction activities.

In conclusion, now that we know the site is contaminated, the level of detail presented for the design of the soil erosion elements for stormwater and wind-borne contaminated soil in the submitted plans is inadequate to demonstrate that the erosion control elements will prevent adverse affects on adjacent and neighboring properties per Section 8.1.3(3)(k) of the Ordinance during site grading and development.

## RECOMMENDATIONS

The results of the Otwell Mawby environmental assessment of the Property demonstrate that concentrations of arsenic in contaminated soil on the Property are sufficient to adversely affect the adjacent or neighboring properties and their residents if the soil escapes the site via wind, storm water runoff, or vehicle track-out during site grading and construction activities. I recommend that a competent professional engineer review the construction plans and develop a detailed, site-specific, erosion control plan (the Plan) incorporating best management practices to prevent the conveyance of sediment/soil via

wind, stormwater runoff, or vehicle track-out transport mechanisms, or else the developer otherwise mitigate the contamination on the Property prior to grading and construction activities. Considering the levels of arsenic contamination in soil on the Property, it is imperative that the erosion control systems and procedures in the Plan, or other contamination mitigation procedures, prevent, not reduce or minimize, fugitive emissions from the Property during grading and other construction activities. Only when the Plan is reviewed and approved by a professional engineer for Peninsula Township, or the arsenic concentrations are reduced to below generally accepted safe residential use levels, can prevention of adverse affects on adjacent or neighboring properties and compliance with Section 8.1.3(3)(k) of the Ordinance be assured. A performance monitoring and inspection program should be implemented to verify that the plan is being followed and that sediment/soil is prevented from leaving the Property.

With best regards,

  
James M. Harless, PhD, CHMM  
Principal Consultant / Vice President  
