

July 29, 2024

Sent via electronic mail

Diane O'Connell Township Supervisor Ann Arbor Charter Township 3792 Pontiac Trail Ann Arbor, MI 48105

RE: Massey Lake Wetland Evaluation Ann Arbor Charter Township, Michigan

Dear Ms. O'Connell,

Tetra Tech was contracted in December 2023, to evaluate the wetlands surrounding Massey Lake following a breach in the soil erosion and sedimentation control (SESC) measures that were in place at the Mid Michigan Materials Vella Pit facility. A sediment breach along the northern berm was released into wetlands to the north. Tetra Tech was asked to assess options for remediating Massey Lake and the wetlands that had been impacted, discuss the history and actions requested by Michigan Department of Environment, Great Lakes, and Energy (EGLE) and review site inspection information from Stantec on behalf of Ann Arbor Charter Township (AACT). After Tetra Tech provided some initial feedback to the AACT Trustees, AACT requested that Tetra Tech conduct a more formal review and report. The following summarizes Tetra Tech's review of the information and recommendations.

SITE VISIT AND REVIEW OF DOCUMENTS

Tetra Tech reviewed aerial imagery and identified a sediment flow into the tributary to Massey Lake from the Vella Pit. On January 12, 2024, Tetra Tech personnel made a site visit to review impacts to Massey Lake, the tributary to Massey Lake and the surrounding wetlands that were accessible. Access was made through the home at 4715 Ridge Creek Lane. Prior to and after the site visit, Tetra Tech had a conversation with personnel at EGLE.

According to discussions with EGLE and Stantec personnel, a berm located on the north side of Vella Pit appears to have destabilized and moved, causing significant outwash into the adjacent wetland to the north. The tributary to Massey Lake does appear to have sediment buildup. Additionally, the discoloration of water in the tributary and portions of Massey Lake are visible in aerial imagery and are assumed to be a result of the outwash from the berm.

In a conversation with EGLE personnel on March 18, 2024, they indicated that stabilization of the berm was requested of the mining company by seeding and reinstalling silt fence. While the silt fence was in place, according to EGLE, at that time the seeding had not taken place and the berm was not stabilized.

Subsequently, a meeting was held to discuss stabilization and site conditions on March 27, 2024. According to Ann Arbor Charter Township Representative Rick Judkins and Stantec Representative Eric Humesky, the fence between the berm and the wetland had been reinstalled, the silt fence was in place, and seed stabilization on the berm was planned for the upcoming growing season. Based on the

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site conditions, it would be difficult to remove the sediment outwash from the wetland for the following reasons¹:

- Access to the sediment-filled portion of the regulated wetland is difficult without creating
 additional impacts. The northern slope is steep and the ability to place equipment along it to
 remove sediment across the fence is challenging to do safely. If it were possible to get the
 equipment on the slope, it is likely to damage the slope requiring restoration and vegetation
 stabilization. While awaiting stabilization, the potential for additional sediment releases would
 increase.
- Access across the wetland from the north to the south outside of the Vella Pit property, is equally challenging. The wetland is comprised of both emergent (largely herbaceous plants) and scrub shrub wetlands (woody plants generally less than 20-feet tall). Much of the current impact appears to be in an emergent wetland with scrub shrub on both sides. Bringing equipment into the emergent wetland area would require bog mats, timber mats or rail ties; and balloon tire equipment to reduce compaction on the soil. If attempted, restoration of the emergent wetland along the access pathway may require seeding and additional corrective action to ensure its success after equipment is removed. This is expected to be a larger area than the initially impacted outwash area.
- Access through the scrub shrub wetland would require cutting trees, altering the wetland type
 from a more desirable wetland to an emergent wetland. The tree stumps would have to remain
 because stump removal is a permitted activity through the State of Michigan. It is also unlikely
 that a permit would be approved because stump removal creates a large disturbance in the
 surrounding soil and removes hydric soil from the wetland system. Bog mats, timber mats or
 rail ties; and balloon tire equipment would again be required to reduce the impact but there
 would be stumps to navigate the pathway as well. Restoration and potentially corrective action
 would likely be required. This is also expected to be a larger area than the initially impacted
 outwash area.
- Excavation of the sediment that filled the wetland would have to be placed in an upland area upon removal. Because wetland is located west, east and north, the only location for the sediment placement is on the Vella Pit property across the fence, in the area from which the sediment originally came. The likelihood of the sediment returning to the wetland is high given the site conditions and history. The sediment could also be placed elsewhere on the mining site; however, access to the steep northern slope remains an issue. Driving equipment to the northern slope, excavating and driving to another area to place the sediment will continue to destabilize the vegetation and slope, potentially causing additional sediment to be released.

The most recent Stantec SESC inspection reports were reviewed by Tetra Tech. The report and the photos contained within, which document site conditions from spring through mid-June 2024, demonstrate adherence to the requirements for SESC measures, maintenance and stabilization of the northern slope with increased vegetative growth. The July 12, 2024 report, however, documents a breach in the second row of silt, due to heavy rains and additional sediment flow to the wetland. The

¹ Massey Lake sediment removal would have similar issues for access and impact to the habitat and water resources that are identified for the sediment removal in the regulated wetland. Principally, these relate to crossing regulated wetland and removing trees to access the area.

report also indicated that one of the corrective actions required is that the drainage ditch will continue to be excavated where required for water flow.

SUMMARY AND RECOMMENDATIONS

Based on review of the information provided, removal of the outwash within the adjacent regulated wetland is problematic, and any removal action is likely to have a further adverse impact on the wetland. First, access is limited by the size and extent of the wetland. Methods could be used to distribute pressure of equipment entering the wetland area to reduce compaction; however, a much larger area would have to be restored to reach this portion of the wetland. As described above, access to the wetland is limited from the north because of the extensive wetland system and from the south because of the steep northern slope. In addition, removal action is also problematic because the ability to place the excavated sediment somewhere other than in wetland is unlikely. The outwash area is surrounded by wetland on all sides except to the south where access would have to be from the Vella Pit property. Given the steep slope and history of failures, placing sediment on the northern slope is not recommended. Finally, the biota in the area may adapt to this increase in sediment. It is possible that the area will continue to be a wetland but that the vegetation may change over time from plants that previously required standing water to those that will prosper if they can access saturated soil in the upper 16 inches of the ground surface. However, continued monitoring would be required, and Vella Pit will need to ensure that no additional sediment is released. Tetra Tech recommends the following:

- Under the Ann Arbor Charter Township Code of Ordinances, Chapter 26 Environment, Article VII Soil Erosion and Sedimentation Control, the SESC measures should continue to be evaluated to ensure the effectiveness of the measures monthly and after significant rainstorm events; and complete corrective action when necessary.
- 2. The corrective stabilization of the berm on the northern slope was completed, including grading and vegetative growth to stabilize the slope from further sediment release. Continued inspections are necessary to ensure compliance with the permit issued.
- 3. The drainage ditch excavation to control water flow should also be evaluated in the inspections to ensure sediment laden water is not entering the wetlands for continued impact.
- 4. Additional SESC measures may be needed in areas where breaches are most common along the northern fence. This may include the addition of straw bales or wattles.
- 5. Broadcast seeding of native wetland species in the outwash area may help restore the wetland. Planting of wetland shrubs or whips in the wetland may also assist with stabilization of the soil and allow the wetland to prosper.

Sincerely,

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Patti McCall, CPG, PWS Principal Hydrogeologist