

Trustees Scott Ruggles Liz Fessler Smith Andrea C Voorheis Michael Powell

PLANNING COMMISSION MEETING

LOCATION: TOWNSHIP ANNEX, 7527 HIGHLAND ROAD, WHITE LAKE, MICHIGAN, 48383 (FORMER WHITE LAKE LIBRARY)
THURSDAY, OCTOBER 20, 2022 – 7:00 PM

White Lake Township | 7525 Highland Rd | White Lake, MI 48383 | Phone: (248) 698-3300 | www.whitelaketwp.com

AGENDA

- 1. CALL TO ORDER
- 2. ROLL CALL
- 3. PLEDGE OF ALLEGIANCE
- 4. APPROVAL OF AGENDA
- 5. APPROVAL OF MINUTES
 - A. Minutes of October 6, 2022
- 6. CALL TO THE PUBLIC (FOR ITEMS NOT ON THE AGENDA)
- 7. PUBLIC HEARING
- 8. CONTINUING BUSINESS
- 9. **NEW BUSINESS**
 - A. Master Plan Firm Interviews (to begin at the approximate times below):
 - 1. 7:15 p.m. Houseal Lavigne (participating via Zoom)
 - 2. 8:05 p.m. Beckett & Raeder (participating via Zoom)
- 10. OTHER BUSINESS
 - A. Section 61 Review
- 11. LIAISON'S REPORT
- 12. PLANNING CONSULTANT'S REPORT
- 13. DIRECTOR'S REPORT
- 14. COMMUNICATIONS
- 15. NEXT MEETING DATE: November 3, 2022 & November 17, 2022
- 16. ADJOURNMENT

Procedures for accommodations for persons with disabilities: The Township will follow its normal procedures for individuals with disabilities needing accommodations for effective participation in this meeting. Please contact the Township Clerk's office at (248) 698-3300 X-164 at least two days in advance of the meeting. An attempt will be made to make reasonable accommodations.

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WHITE LAKE TOWNSHIP PLANNING COMMISSION

Township Annex, 7527 Highland Road White Lake, MI 48383 October 6, 2022 @ 7:00 PM

CALL TO ORDER

Minutes of October 6, 2022

Commissioner Anderson called the meeting to order at 7:00 PM and led the Pledge of Allegiance. Roll was called.

ROLL CALL

Steve Anderson Pete Meagher Debby Dehart Matt Slicker

T. Joseph Seward Scott Ruggles Robert Seeley Merrie Carlock Mark Fine

Absent: None

Also Present: Sean O'Neil, Community Development Director

Justin Quagliata, Staff Planner

Mike Leuffgen, DLZ

Lisa Kane, Recording Secretary

Visitors: Approximately 20 members of the public were present

APPROVAL OF AGENDA

Commissioner Seeley moved to approve the agenda of the October 6, 2022 Planning Commission Meeting.

Commissioner Dehart supported and the MOTION CARRIED with a voice vote: 9 yes votes.

APPROVAL OF MINUTES

a. Regular meeting minutes of September 1, 2022

Commissioner Meagher moved to approve the Minutes of September 1, 2022. Commissioner Fine supported and the MOTION CARRIED with a voice vote: 9 yes votes.

CALL TO THE PUBLIC (FOR ITEMS NOT ON THE AGENDA)

PUBLIC HEARING

A. Cosmo's Car Wash

Location: Property described as parcel number 12-20-276-034, located at the northwest corner of Highland Road (M-59) and Bogie Lake Road, consisting of approximately 1.88 acres, currently zoned (PB) Planned Business.

Request: To receive public comment on the proposed preliminary site plan for the above Planned Business zoned property, consisting of a 4,535 square foot automobile wash establishment.

Applicant: EWM- Miller Wash, LLC 201 East Ogden Ave, Ste #18-1 Hinsdale, IL 60521

Applicant present: John Pellegrene of Development Management Associates and Cameron Ray, Head of Operations, EWM-Miller Wash, LLC

Director O'Neil clarified that the applicant is requesting preliminary site plan approval.

Mr. Quagliata presented the project as a car wash establishment that would have road access from the Meijer private drive. This parcel size was determined prior to the 10-acre ordinance requirement so it will not require a waiver for size. No wetland or floodplain is impacted at the site and it is a relatively flat lot. The applicant proposes 20 vacuum stations to the west of the building which will be covered by a canopy. The applicant has agreed to all engineering comments. There is a sidewalk along the Meijer private drive on the site plan that needs clarification. Public utilities are available to this site. There will be waivers requested; including the setback from Bogie Lake Road, the number of stacking spaces, window coverage for the front façade, loading space and dumpster enclosure location. The landscaping comments have been addressed. A community benefit of \$15,000 has been proposed to either the parks fund or sidewalk fund. As the applicant has agreed to address all comments, staff recommends approval.

Mr. Leuffgen presented the engineering review. The drive lane requirement adjacent to the handicap parking space has been satisfied. The number of stacking spaces are deficient. Details are needed for the dumpster enclosure. Clarification needed for the proposed sidewalk. Details are needed for the fire truck turning radius near the vacuum stalls. There is an area near the existing sign that will need grading for drainage. A storm water maintenance agreement is needed, whether they will fall under Meijer's or have their own agreement. A sanitary sewer oil/grit separator clarification is needed. Many of these items can clarified on final site plan.

Commissioner Carlock inquired about the revised plans that were requested.

Mr. Quagliata stated that the revised plans have not been received yet but the applicant has committed to address all of the comments by staff.

Mr. Pellegrene stated that they agree to meet all of the recommendations from staff and engineering and that they are very interested in partnering with the Township.

Commissioner Fine inquired about water reclamation process for the car wash and how oil is contained.

Mr. Ray stated that there are a series of tanks in the ground that separate all the oil and grit. The first 3 tanks are pumped out every 6 months and there are oil sensors inside the tanks.

Commissioner Slicker inquired how this operation is different from other car wash operations in the area.

Mr. Ray stated that there are a greater number of attendants on site to assist customers. Attendants are highly trained and well paid, which motivates them to give high value of service to the community.

Commissioner Dehart inquired about the other out lot on the Meijer property and would like to see a shared driveway agreement.

Mr. Pellegrene stated that they have been in communications with the group considering developing that lot and they have shared the grading plan so that they can consider a plan for a shared driveway.

Commissioner Meagher is concerned with the community benefit.

Mr. Quagliata stated that the community benefit should be commensurate with the waivers requested.

Director O'Neil clarified that they typically consider not just the number of waivers requested, but the significance of the requested waiver.

Commissioner Anderson stated that a recommendation can be made at this step of the process and consideration can be modified before final site plan review.

Mr. Ray stated the community benefits that they intend to provide in addition to the \$15,000 would include Back to School drives, Teacher Appreciation Week, School District staff lunches, Annual Thanksgiving food drives and Annual Toys for Tots drive.

Commissioner Anderson inquired about the cost of the services.

Commissioner Anderson opened public comment at 7:32 p.m.

Ed Liker of 847 W. Oxhill Dr. is concerned about water runoff being tracked onto the road being dangerous when it ices over.

Mr. Ray stated that they have blowers which push the water into the water separators to reduce water run-off and the 20 feet before and at the exit concrete slabs are heated.

Commissioner Anderson closed public comment at 7:35 p.m.

Commissioner Dehart inquired when the waivers are granted.

The board deliberated the waivers that have been requested.

Commissioner Meagher moves to forward a favorable recommendation, subject to the applicant addressing all of the staff and consultant comments and recommendations to the Township Board, the preliminary site plan for the property described as parcel number 12-20-276-034, located at the northwest corner of Highland Road (M-59) and Bogie Lake Road, consisting of approximately 1.88 acres, currently zoned (PB) Planned Business.

Commissioner Seeley supported, and the MOTION CARRIED with a roll call vote (9 yes votes): (Anderson/yes, Dehart/yes, Carlock/yes, Fine/yes, Meagher/yes, Seeley/yes, Seward/yes, Slicker/yes, Ruggles/yes)

B. Black Rock

Location: Property described as parcel number 12-23-129-018, located south of Highland Road and east of White Banks Blvd, consisting of approximately 1 acre. Currently zoned as (GB) General Business.

Request: Preliminary Site Plan Approval

Special Land Use Approval- The applicant is requesting to construct a restaurant with outdoor dining.

Applicant: Black Rock White Lake, LLC 30553 S Wixom Road #300 Wixom, MI 48393

Applicant present: Wayne Perry with Design Engineering and Lonny Morganroth, owner of Black Rock

Director O'Neil clarified that the lot size is 2.7 acres, not 1 acre as indicated on the agenda. The driveway location on M59 may require a variance due to proximity to White Banks Blvd. A right lane deceleration taper on eastbound M59 has been indicated by the applicant's traffic engineer. The building materials will be presented at the final site plan review. The window percentage on the west façade is deficient by a small amount. The landscaping will be addressed at final site plan review. The number of parking spaces has been reduced to 128 spaces, due to the reduced size of the building. A sign variance would be requested for the location of the digital area of the proposed sign. The proposed sign on the east wall would require a variance. The door handles will not require a variance as they fall under incidental signage. Outdoor seating requires a special land use approval by the Commission. The hours of operation will need to meet the ordinance, the applicant has not indicated what hours they would be requesting. The lighting plan was revised to reduce the impact on the neighbors. No additional parking is needed for the outdoor seating. Staff recommendation for approval is subject to meeting all comments in the staff review letter and obtaining any necessary variances.

Commissioner Seeley inquired if they could reduce the number of parking spaces and still be within tolerances for the ordinance.

Director O'Neil stated that they could, however the applicant indicated that they believe they will need all of the spaces on the plan during weekends, holidays and special events. The applicant moved secondary access further north to accommodate the neighbors' request. Employees would be parking in the lot furthest from the door which reduces the noise in that area.

Mr. Leuffgen presented the engineering review. This site plan demonstrates engineering feasibility for this level of plan submittal. The storm sewer will require a permit from M-DOT to outlet into the road right of way. The site utilizes underground detention storage for storm water. There are possible contamination tanks near the Speedway. Environmental reports have been presented indicating no contamination impacting this site. Engineering is committed to reviewing the site to make sure there are no adverse impact on adjacent properties.

Commissioner Carlock inquired how many parking spots over what is required by the ordinance.

Director O'Neil stated there were 31 parking spots over the requirement of the ordinance.

Mr. Perry responded on behalf of the owner of Black Rock White Lake. MDOT has responded that the entrance on M59 has to move about 50 feet to the west, which will align with the convenience store across the street. They anticipate approval for the storm water drainage to drain to M59. Due to the utility easement on the southern property line, they are not able to plant any landscaping in that area. At the

request of staff, they have lowered the lights and have them facing the restaurant so that they will not impact the residences.

Commissioner Seeley inquired if the lighting continues around the parking lot.

Mr. Perry stated that it does.

Commissioner Carlock inquired if some parking spaces could be removed to increase landscaping.

Mr. Perry stated that the Black Rock restaurant has a high volume of customers at the end of the week and the weekend and they will need to utilize all of the parking spaces indicated on the plan.

Director O'Neil inquired about the revision to the parking lot with the entrance moving west on M59.

Mr. Perry presented an updated site plan which indicates the change to the entrance and parking spaces. The handicap spaces move to the curb and closer to the front door, which is a better location for them.

Commissioner Ruggles inquired about the entrance shift on White Banks Blvd. to the north and noted that it appears they have made effort to accommodate the residents.

Commissioner Slicker inquired about a line on the west side of the rear parking indicated on the site plan.

Mr. Perry stated that it is an existing retaining wall that belongs to the neighbors, which is encroaching on their property.

Commissioner Anderson opened public comment at 8:19 p.m.

Dan Torossian of 844 E. Oxhill is concerned about the entrances on M59 and on White Banks Blvd.

Brenda of 232 Cranberry Beach is concerned about traffic to get into her home and would like a traffic light.

Heather Emerson of 846 W. Oxhill is concerned about traffic and believes a traffic light would alleviate much of the problem. Ms. Emerson would like to see less parking spaces and would like to see a "no outlet" sign on White Banks Blvd. She is also concerned about the possibility of outdoor speakers, what the hours would be and if they would play music or just be for announcements.

Bill of 232 Cranberry Beach is concerned about storm water run-off during winter with snow removal.

Christopher Emerson of 846 W. Oxhill is also concerned about traffic coming into his neighborhood and the peninsula of parking near the residences.

Ed Liker of 847 W. Oxhill Dr is concerned about traffic on M59 and the weeds being maintained between the retaining wall and privacy fence.

Lois Demers of 860 W. Oxhill Dr would like to see the parking spaces removed so they are not next to the residential lot.

Theresa Bismack of 548 E. Oxhill Dr. is concerned about traffic as well and would like to see a traffic light at this location.

John Hunt of 871 Oxhill Dr would like to speak with Mr. Perry. He is very concerned about the grading next to his house where the parking lot will be and does not want to have the parking lot next to his property.

David Youngquist of 669 Robar Circle doesn't believe this restaurant will be successful at this location.

Debbie Torossian of 844 E. Oxhill inquired if there is a screen wall at the end of the parking area, where the location of the dumpster will be and about the lighting plan. She also inquired if there has to be two entrances.

Director O'Neil addressed the lighting and stated that no outdoor speakers are allowed. The Township has no authority over traffic lights on M59, only MDOT can authorize a new traffic light and encouraged the residents to appeal to MDOT to consider a traffic light at that location.

Commissioner Anderson closed public comment at 8:48 p.m.

Mr. Perry addressed the storm water and snow melt retention on the site, acknowledged the drainage challenges and stated that they propose to raise the site and have it slope inwards towards the drain for the underground detention. Under the parking lot will be a large, underground detention infiltration system. The dumpster location is near the building, not in the south parking lot, and parking islands are a requirement of the ordinance.

Mr. Morganroth founder of Black Rock is a Lakeland High School graduate and is happy to bring this restaurant home. Mr. Morganroth purchased the property is 2002 and removed the dilapidated building years ago. He believes that the restaurant will be successful at this site and stated that he gives back to the community where they have restaurants. They will have 150 employees.

Commissioner Anderson thanked Mr. Morganroth for speaking.

Commissioner Carlock inquired about the second entrance on White Banks and if it was eliminated would it change the location of the parking spaces.

Director O'Neil stated that a traffic engineer would need to address the issue.

Commissioner Seeley stated that the second entrance could keep traffic from entering the neighborhood looking for the entrance to the restaurant.

The board deliberated the two proposed entrances to the restaurant.

Director O'Neil stated that the "no outlet" sign on White Banks Blvd. was an excellent idea and encourages the residents to request that of the Road Commission, and the Township will request it as well.

Commissioner Carlock inquired about "no parking" signs on White Banks Blvd.

Director O'Neil stated that the Road Commission would need to address that request and that it is a long process that involves the Michigan State Police.

Commissioner Seward moved to approve the Special Land Use subject to all staff and consultant review comments being addressed and obtaining approval of final site plan approval for the property described as parcel number 12-23-129-018, located south of Highland Road and east of White Banks Blvd, consisting of approximately 1 acre. Currently zoned as (GB) General Business.

Commissioner Fine supported, and the MOTION CARRIED with a roll call vote (9 yes votes): (Anderson/yes, Dehart/yes, Carlock/yes, Fine/yes, Meagher/yes, Seeley/yes, Seward/yes, Slicker/yes, Ruggles/yes)

Commissioner Meagher moves to forward a favorable recommendation, subject to the applicant addressing all of the staff and consultant comments and recommendations, upon Zoning Board of Appeals approvals and posting that the parking area known as "the leg" will be posted as Employees Only, to the Township Board, the preliminary site plan for the property described as parcel number 12-23-129-018, located south of Highland Road and east of White Banks Blvd, consisting of approximately 1 acre. Currently zoned as (GB) General Business.

Commissioner Fine supported, and the MOTION CARRIED with a roll call vote (7 yes votes): (Anderson/yes, Dehart/no, Carlock/no, Fine/yes, Meagher/yes, Seeley/yes, Seward/yes, Slicker/yes, Ruggles/yes)

CONTINUING BUSINESS

None

NEW BUSINESS

None

OTHER BUSINESS

A. New Hope Landscape Reduction Request

Applicant present: Rumi Shahzad of New Hope White Lake, LLC

Director O'Neil stated Site Plan for this approval was granted in July of 2020. This request for modification will need to be forwarded to the Township Board for approval as it will necessitate an amendment to the Planned Development Agreement.

Mr. Shahzad addressed the request to scale back the overall landscaping of the project, noting that there are large forested areas on the site which remain natural area. They accommodated a request of one neighbor who could see the building from their home and installed a fence. Mr. Shahzad proposes that the current, existing trees and the new landscaping be adequate as built.

Director O'Neil stated there are three options: approve this request as it is, deny the request and have him add the trees or suggest something else.

Commissioner Anderson inquired what landscaping is lacking.

Director O'Neil stated the deficiency is in the courtyard area and all screening landscaping has been provided.

The board deliberated the landscaping deficiencies and if variances were granted.

Rick Brown of 8159 High Point Trail shared that he is a nearby resident and his sister will be a resident of New Hope White Lake. Mr. Brown would like to see the facility open soon.

Charter Township of White Lake Page 8 of 8 Planning Commission Regular Meeting

Minutes of October 6, 2022

Commissioner Carlock moves to forward a favorable recommendation to the Township Board to allow a general 40% reduction in landscaping that the landscaper and land owner find most useful and subject to administrative review.

Commissioner Seeley supported, and the MOTION CARRIED with a roll call vote (9 yes votes): (Anderson/yes, Dehart/yes, Carlock/yes, Fine/yes, Meagher/yes, Seeley/yes, Seward/yes, Slicker/yes, Ruggles/yes)

B. Master Plan Update

Director O'Neil presented a brief update on the RFP for the Master Plan. Seven firms were sent Request for Proposals and 2 firms have responded. They will present to the Planning Commission at the next meeting.

LIAISON'S REPORT

Commissioner Ruggles stated that the Township Board approved the Capital Improvement Plan. The Road Commission of Oakland County has approved the potential road design entrance to the new Town Hall on Elizabeth Lake Road. The Board also approved DLZ to do the engineering for the project.

Commissioner Dehart reported that the Zoning Board of Appeals states that the sign ordinance needs to be discussed.

Commissioner Carlock reported that they are working on the 5-year Parks & Rec plan. They will be meeting with the National Park Service regarding threatened and endangered species. Trunk or Treat next Saturday.

DIRECTOR'S REPORT

None

COMMUNICATIONS

NEXT MEETING DATES: October 20, 2022

November 3, 2022

ADJOURNMENT

Commissioner Fine moved to adjourn the meeting at 9:53 PM
Commissioner Carlock supported and the MOTION CARRIED with a voice vote: 9 yes votes

WHITE LAKE TOWNSHIP PLANNING COMMISSION

REPORT OF THE COMMUNITY DEVELOPMENT DEPARTMENT

TO: Planning Commission

FROM: Sean O'Neil, AICP, Community Development Director

Justin Quagliata, Staff Planner

DATE: October 14, 2022

RE: Section 61 Reviews

The Township Board plans to authorize construction and financing of a Public Safety Building to house both the Police and Fire departments, as well as a Civic Center (Township Hall) for municipal offices on Parcel Number 12-22-351-006 ("Township Property"). Additionally, Stanley Park development is slated to commence Spring/Summer of 2023 at 10785 Elizabeth Lake Road (Parcel Number 12-27-100-014). The ability of the Township to maintain acceptable levels of service and quality of life for existing and new residents is the focus of these development efforts. While the Township Board is committed to pursuing the aforementioned projects on its Elizabeth Lake Road properties, a Section 61 review must be completed by the Planning Commission. At its October 18, 2022 meeting the Township Board will consider referring these projects to the Planning Commission to review the location, character, and extent of the properties.

Section 61 of the Michigan Planning Enabling Act (the "MPEA," Public Act 33 of 2008) requires Planning Commission review and approval of the location, character, and extent for the construction/purchase of new public streets, parks, open space, buildings, and other public facilities. This process is called a Section 61 Review. The MPEA does not require a public hearing for Section 61 reviews. If the Planning Commission denies a request and the Township Board disagrees with the decision, it can overrule the Planning Commission by a 2/3 majority vote. If the Planning Commission fails to act within 35 days after submission of the proposal to the Planning Commission, the project(s) are considered to be approved by the Planning Commission.

Planning Commission (October 20, 2022) Section 61 Reviews Page 2

Master Plan

The Future Land Use Map from the Master Plan designates both properties in the Planned Community category, which is characterized by a mix of uses including higher residential densities and a variety of housing product types as well as a core area with retail, dining, entertainment, governmental, recreational, institutional, office, and personal service establishments. Residential elements of a Planned Community may take the form of a freestanding neighborhood, or may be permitted on the upper floors of nonresidential development in the community core area. Multi-use/story buildings are expected to have two or three stories, however open space must be provided. Connections to and segments of the Township community-wide pathway system are required as an integral part of all developments.

The Master Plan includes the following guidelines for physical form in the Lakes Town Center Focus Area:

- Higher density residential, often in the form of upper floors in mixed use retail or office development.
- Unifying visual development features, such as: special pedestrian pavements, light fixtures, landscaping, way-finding sign systems, highest quality architecture, timeless design that avoids "theme" concepts, and the like.
- Unique and attractive roadway features that also promote pedestrian safety, such as: landscaped boulevards, special crossing features, refuge areas in the center of wide crossings, mast-arm signals incorporating lighting and signage systems, and on-street parking.
- Terminated Vistas that provide attractive locations for civic anchors, such as major retailers or institutional, civic, museum, or religious uses.
- Terminated Vistas also can be used to: screen less attractive elements, such as parking lots; and draw residents and visitors toward a destination, thereby encouraging pedestrians to walk and enjoy all that Lakes Town Center has to offer.
- Parking should be provided both on-street, to enhance the appearance of convenience and improve safety for pedestrians, and in convenient but thoughtfully-screened parking lots or parking structures that include landscaping for beauty and to provide shade, thereby reducing the "heat island" effect.
- Compact development allows buildings to be concentrated into a form that is more walkable.
- Sidewalk, alleys, and mid-block connections all contribute to a walkable area that is easy to navigate.

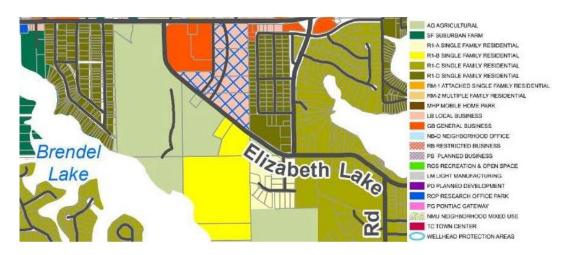
FUTURE LAND USE MAP



Zoning

The Stanley Park property is zoned R1-B (Single-Family Residential) and the Township Property has split zoning; a majority of the site is zoned AG (Agricultural) and approximately an acre at the southeast side of the site is zoned R1-B. Outdoor recreation uses, other public and private parks and similar outdoor recreation uses are permitted principal uses in the R1-B zoning district. Government (Township only) offices, buildings and uses without service or storage yards is a special land use in the AG and R1-B zoning districts. The Township Board intends to rezone both properties in the future. Stanley Park will be rezoned to ROS (Recreation and Open Space). The Township Property will likely be rezoned to TC (Town Center) and/or PD (Planned Development) or PB (Planned Business), or a combination of the districts. Note at its meeting on February 15, 2022 the Township Board approved the final adoption for the rezoning of the parcels west of the park property and Township Property from AG to RM-2 (Multiple-Family).

ZONING MAP



Planning Commission (October 20, 2022) Section 61 Reviews Page 4

Physical Features

Both properties are currently undeveloped. Stanley Park is the site of the former Brendel Lake Campground. According to previous natural features inventory of the park, significant hardwood trees are located on the property. There are also a number of wetlands on the park property. The Township Property is also encumbered by a wetland complex on the west side of the site.

Staff Analysis

It is anticipated the Township Board will refer to the Planning Commission the construction of a Public Safety Building and Civic Center (Township Hall) on Parcel Number 12-22-351-006, as well as the development of Stanley Park at 10785 Elizabeth Lake Road (Parcel Number 12-27-100-014). Section 61 of the MPEA requires Planning Commission review and approval of the location, character, and extent for the construction/purchase of new public streets, parks, open space, buildings, and other public facilities. **Location** refers to a site's placement in the Township and its surroundings. **Character** includes a site's distinguishing features. **Extent** includes the dimensions of a site; Stanley Park is approximately 59 acres in size (32.42 acres of wetland) and the Township Property is approximately 26 acres in size (15.25 acres of developable area).

When reviewing a proposed project, the Planning Commission should at a minimum consider the following issues:

- Is the project consistent with adopted plans?
- Is the project consistent with the adopted Capital Improvement Plan (CIP)?
- Is the project consistent with other Township governmental management plans?

The Planning Commission should conduct a formal review of the proposed projects and act by adoption of a motion that include findings of fact, recitation of reasons, and the action.

Construction of a new Public Safety Building and Civic Center is consistent with the Public Services goal of the Master Plan, which states, "Provide efficient public services that adequately and safely support the existing and future population of White Lake Township." Strategy #2 listed in the Master Plan to achieve the aforementioned goal is, "Analyze the number and size of Township fire, police, and EMS facilities and allocate new facilities to provide appropriate geographic coverage and response times." Strategy #3 listed in the Master Plan to achieve the aforementioned goal is, "Expand or relocate the Township Hall to provide the space and facilities necessary to administer Township business and properly serve residents and businesses." It is not feasible to expand and renovate existing facilities to support operations of the Township. The CIP has included new facilities in some form since 2010.

Planning Commission (October 20, 2022) Section 61 Reviews Page 5

The Parks and Recreation Master Plan identified the acquisition of the Brendel Lake Campground property as a high priority since 2009. Goal 2 of the current 5-Year Recreation Plan is, "Pursue the acquisition or expansion of local land for park and recreation facilities." The Brendel Lake Campground acquisition was in the CIP since 2010 and in 2018 the Township received a grant from the Michigan Natural Resources Trust Fund (MNRTF) to acquire the property (the property ownership transferred to the Township in 2019). Stanley Park construction has been in the CIP since 2021, and in 2021 the Township received a \$500,000 Land and Water Conservation Fund (LWCF) grant for development of Phase 1.

Planning Commission Options

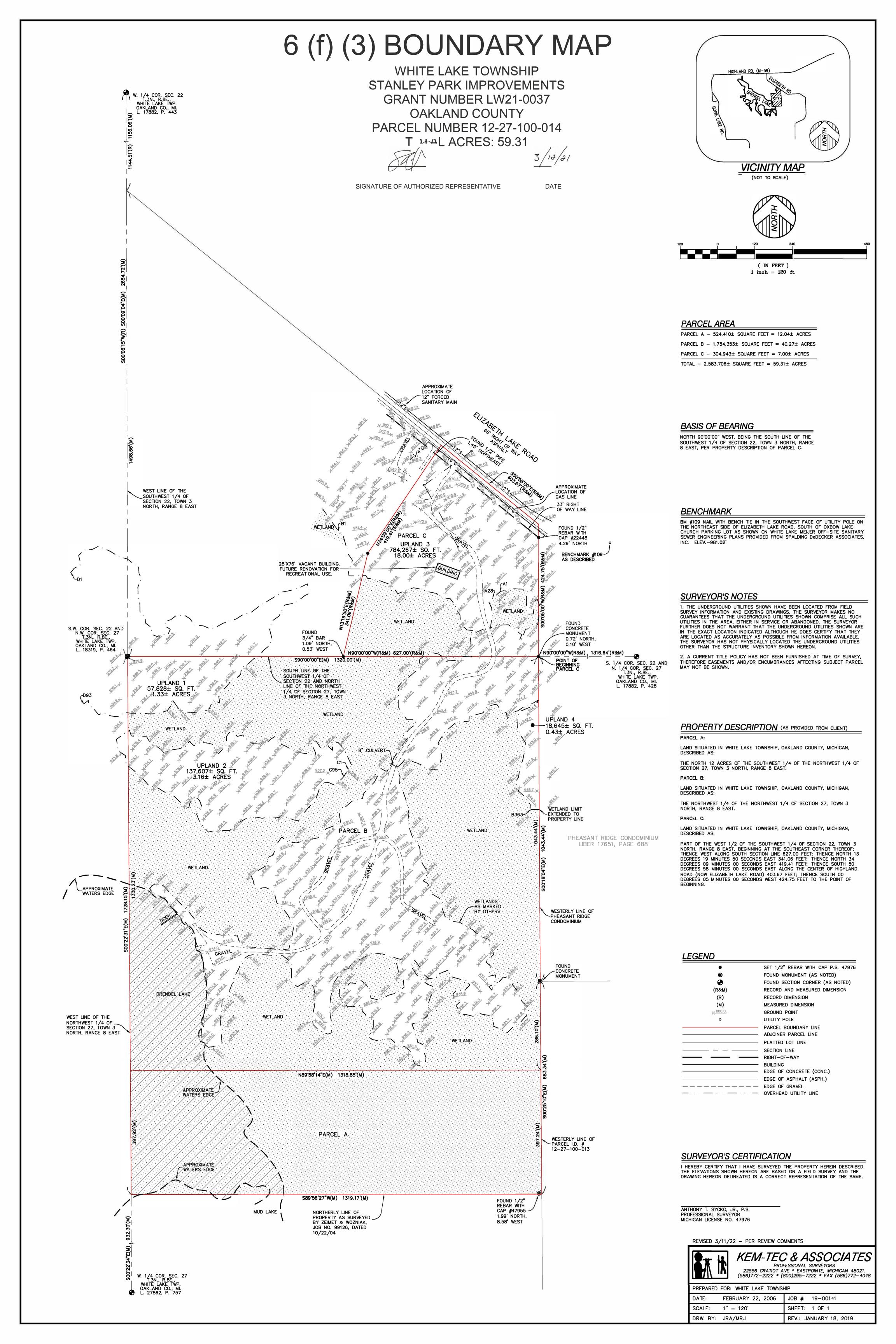
The Planning Commission may approve or deny the Section 61 Reviews. <u>Staff</u> recommends approval of the Section 61 Reviews for both projects.

Attachments

- 1. Stanley Park Conceptual Master Plan.
- 2. Stanley Park Conceptual Site Plan Phase 1.
- 3. Stanley Park Survey.
- 4. Stanley Park Wetland Delineation Report.
- 5. Township Property Concept Plan.







Wetland Delineation & Water Resource Identification

Brendel Lake Campground 10785 Elizabeth Lake Road White Lake Township Oakland County, Michigan

Project Number 221016

Prepared for:

Kem-Tec, Inc. 22556 Gratiot Avenue Eastpointe, Michigan 48021

Prepared by:



111 W. Berry Street, Suite 211 Fort Wayne, Indiana, 46802

April 25, 2022

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LIST OF APPENDICES

Appendix A – Maps

Figure 1. **Project Site Location Map**

Figure 2. Land Use and Land Cover Map

Figure 3. **USGS 7.5-Minute Topographic Maps**

Highland (1968) and Clarkston (1968) Quadrangles

Figure 4. National Wetlands Inventory Map

Figure 5. NRCS Soils Map

Figure 6. FEMA FIRM Map

Figure 7. Delineated Wetlands and Water Resources Map

Appendix B – Photographic Log

Appendix C – Wetland Determination Data Forms

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Wetland Delineation and Water Resource Identification Report Brendel Lake Campground 10785 Elizabeth Lake Road White Lake Township, Oakland County, Michigan April 25, 2022

EXECUTIVE SUMMARY

Brendel Lake Campground is commonly known to be located at 10785 Elizabeth Lake Road in White Lake Township, Oakland County, Michigan (Project Site); and, the coordinates of the approximate center are 42.640848, -83.498577.

Kem-Tec, Inc. (Client) hired nulnventa, LLC (nul) to identify and delineate wetlands, streams, and other kinds of water resources that may exist with the limits of the Project Site. nul's activities pertaining to this project focused on identifying potentially regulated wetlands, watercourses, and floodplains within the boundaries of the Project Site.

The wetland delineation and water resources identification involved a desktop review of publicly-available background information and data, which included U.S. Geological Survey USGS 7.5-Minute Topographic Quadrangle maps, U.S. Fish and Wildlife Service National Wetlands Inventory data, and Natural Resources Conservation Service soils data. Such information is routinely assessed to gain a perspective of where wetlands, streams, and other waters may be expected to occur on a site, which helps in planning fieldwork. A review of Federal Emergency Management Agency Flood Insurance Rate Maps was also conducted to determine the locations of floodplains.

Following completion of the desktop review, nul conducted fieldwork at the Project Site April 6 and 7, 2022 to determine the presence and delineate the boundaries of wetlands using methodologies of the Corps of Engineers Wetland Delineation Manual (1987 Manual) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual, Midwest, Version 2.0. For an area to support wetlands, three criteria must be present, which include a.) a dominance or prevalence of hydrophytic vegetation, b.) hydric soils, and c.) wetland hydrology. During the site visit, nul also evaluated the Project Site for watercourses.

In general, wetlands in Michigan may fall under the jurisdiction of the Michigan Department of Environment, Great Lakes, and Energy (EGLE) by Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451 (NREPA), as amended, and/or the U.S. Army Corps of Engineers (USACE). USACE authority is often associated with the Great Lakes and their connecting waterways and is authorized by Section 404 of the Federal Water Pollution Control Act of 1972 (Clean Water Act). A wetland is considered regulated by the EGLE if it is five acres in size or larger, and/or if it is connected to or located within 500 feet of a lake, pond, river, or stream. A Part 303 permit is required by the EGLE for any proposed work (e.g., filling, dredging, construction, draining, and/or other development) that takes place within the boundaries of a regulated wetland, watercourse, or floodplain. Most construction activities that take place outside of these boundaries do not require a permit from the EGLE.



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Watercourses (e.g., streams, rivers, drains, ditches) that meet the requirements of Part 301, Inland Lakes and Streams, of the NREPA, and floodplains that meet the requirements of Part 31, Water Resources Protection, of the NREPA, fall under the jurisdiction of the EGLE.

Four wetlands and one intermittent stream that is hydrologically connected to the wetlands were identified within the limits of the Project Site. The wetlands, which were all likely historically a single wetland prior to the time site was developed as a campground, extend offsite to the east, south, and west. The wetland complex is, for all practical purposes, connected to Brendel Lake, which is located in the southwest corner of the Project Site.

It is nul's opinion that all identified wetlands meet the requirements of Part 303, Wetlands Protection, of the NREPA, as amended, because:

- The wetlands are connected to an inland lake, Brendel Lake; and,
- with and/or without offsite acreages considered, the individual sizes of Wetlands B,
 C, and D exceed five acres; and,
- Wetlands B, C, and D are located within 500 feet of an inland lake, Brendel Lake.

Part 31, Water Resources Protection, of NREPA regulates activities within the 100-year floodplain and floodway of a river, stream, or drain, and within the floodplain of any watercourse with an upstream drainage area of two square miles or larger. Federal Emergency Management, Flood Insurance Rate Map data indicate Brendel Lake is located in Zone AE, a "zone with a one percent chance of annual flooding".

Please be advised that EGLE has the final authority on the extent, shape, size, location, and regulatory statuses of regulated wetlands, lakes, streams, and designated natural areas in the State of Michigan. White Lake Township and Oakland County should be contacted to determine if ordinances exist that affect activities conducted in wetlands and watercourses and their buffers.

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1.0 INTRODUCTION

Brendel Lake Campground is commonly known to be located at 10785 Elizabeth Lake Road in White Lake Township, Oakland County, Michigan (Project Site); the location of the Project Site is shown in **Figure 1**, **Project Site Location Map** in Appendix A.

Under the Public Land Survey System, the Project Site is said to be located in the following parts of Township 3 North; Range 8 East:

- South ½; Southwest ¼; Section 22
- North ½; Northwest ¼; Section 27

The coordinates of the approximate center of the Project Site are 42.640848, -83.498577.

Kem-Tec, Inc. (Client) hired nuInventa, LLC (nuI) to identify and delineate wetlands and other water resources that may exist with the limits of the Project Site. nul's activities pertaining to this project focused on identifying potentially regulated wetlands, watercourses, and floodplains within the boundaries of the Project Site.

In general, wetlands in Michigan may fall under the jurisdiction of the Michigan Department of Environment, Great Lakes, and Energy (EGLE) by Part 303, Wetlands Protection, of the *Natural Resources and Environmental Protection Act, 1994 PA 451* (NREPA), as amended, and/or the U.S. Army Corps of Engineers (USACE). USACE authority is often associated with the Great Lakes and their connecting waterways and is authorized by Section 404 of the *Federal Water Pollution Control Act of 1972 (Clean Water Act*). The federal definition of wetlands are "...those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas."

Watercourses (e.g., streams, rivers, drains, ditches) that meet the requirements of Part 301, Inland Lakes and Streams, of the NREPA, and floodplains that meet the requirements of Part 31, Water Resources Protection, of the NREPA, fall under the jurisdiction of the EGLE.

Activities that may impact regulated or protected wetlands, watercourses, and floodplains must be permitted or cleared by authorizing agencies prior to project activities taking place. This report summarizes the natural features found on the Project Site and permits or clearances that may be required prior to the commencement of project activities.

2.0 SITE DESCRIPTION

The north and south boundaries of the Project Site are defined by Elizabeth Lake Road and Brendel Lake, respectively. As is evident in **Figure 2**, **Land Use and Land Cover Map** in Appendix A, a driveway extends from Elizabeth Lake Road, meanders southward through the Project Site, and terminates at the shoreline of Brendel Lake. Based on nul's review of available information, the Project Site has been used as a campground for several decades; and, this land use is consistent with features that are evident on aerial imagery. Beyond area near the driveway that has been developed as a campground, land cover is a mix of old field and forest. Saturated and inundated ground is evident in significant parts of this undeveloped area, which indicates wetlands are likely present.

3.0 METHODOLOGY

The wetland determination and delineation involved a desktop review of publicly-available background information and data, which included U.S. Geological Survey (USGS) 7.5-Minute Topographic Quadrangle maps, U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) data, and Natural Resources Conservation Service (NRCS) soils data. Such information is routinely assessed to gain a perspective of where wetlands, streams, and other waters may be expected to occur on a site, which helps in planning fieldwork. A review of Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) was also conducted to determine the location of floodplains.

Following completion of the desktop review, nul conducted fieldwork necessary to determine the presence and delineate the boundaries of wetlands on the Project Site using methodologies of the *Corps of Engineers Wetland Delineation Manual* (1987 Manual) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual, Midwest Region, Version 2.0*. For an area to support wetlands, three criteria must be present, which include a.) a dominance or prevalence of hydrophytic vegetation, b.) hydric soils, and c.) wetland hydrology. During the site visit, nul also evaluated the Project Site for watercourses.

4.0 RESULTS

Below is a summary of findings with regard to the desktop review.

4.1 Desktop Review

4.1.1 USGS Topographic Quadrangle Map

USGS topographic maps with coverage for the Project Site were reviewed; see **Figure 3**, **USGS 7.5-Minute Topographic Maps, Highland (1968) and Clarkston (1968) Quadrangles** in Appendix A. An unimproved road is depicted and its location is generally



consistent with the location of the driveway that is evident on the aerial imagery. A majority of the Project Site is shown to be forested; and, symbology indicates that wetlands are present in large portions of the forested area. Brendel Lake is located in the southwest corner of the Project Site. The southeast end of the lake drains to the Huron River.

The elevation is highest at 970 feet along Elizabeth Lake Road and drops to 940 feet approximately 500 feet from the road – a slope of six percent. From this point, the ground is flat at 940 feet; and, this elevation is where wetlands are shown to occur.

4.1.2 USFWS NWI Data

With respect to site-specific wetland determinations, USFWS NWI data are useful primarily for project planning purposes. NWI maps were compiled more than two decades ago and are known to sometimes contain erroneous information. The data are useful, however, when combined with other secondary source information to gain an understanding of where wetlands are likely to occur, and provide insight as to where wetlands may have *historically* occurred. The USACE and the EGLE do not accept the use of NWI data as a substitute for an onsite wetland determination and delineation.

The NWI map indicates the presence of four wetland types occurring within the limits of the Project Site, which have the Cowardin classifications listed in Table 1, below; see **Figure 4**, **National Wetlands Inventory Map** in Appendix A.

Table 1. List of NWI Wetlands				
Symbol	Cowardin Classification			
L1UBH	L1UBH Lacustrine, Limnetic, Unconsolidated Bottom, Permanently Flooded PEM1C Palustrine, Emergent, Persistent, Seasonally Flooded PFO1C Palustrine, Forested, Broad-Leaved Deciduous, Seasonally Flooded			
PEM1C				
PFO1C				
PSS1C	Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Seasonally Flooded			

Nearly the entire Project Site is shown to be wetlands albeit for a small area along Elizabeth Lake Road, where the elevation is above 940 feet.

4.1.3 NRCS Soils Data

Hydric soils form under conditions of saturation, flooding, or ponding that occur long enough during the growing season to develop anaerobic conditions in the upper part of the soil profile. Presence of hydric soils is one of three criteria required for an area to be considered a wetland.



The Web Soil Survey published by the United States Department of Agriculture, Natural Resources Conservation Service was accessed to determine what soil series for Oakland County, Michigan occur on the Project Site. Eight soil series are shown to occur on the Project Site; refer to **Figure 5**, **NRCS Soils Map** in Appendix A. The soil series are listed in Table 2, below.

Table 2. List of Mapped Soil Series					
Map Unit Symbol	Map Unit Name	Status			
11B	Capac sandy loam, 0 to 4 percent slopes	Non-Hydric*			
12	Brookston and Colwood loams	Hydric*			
17A	Wasepi sandy loam, 0 to 3 percent slopes	Non-Hydric*			
18B	Fox sandy loam, till plain, 2 to 6 percent slopes	Non-Hydric*			
27	Houghton and Adrian mucks	Hydric*			
44B	Riddles sandy loam, 1 to 6 percent slopes	Non-Hydric*			
44C	Riddles sandy loam, 6 to 12 percent slopes	Non-Hydric*			
54A	Matherton sandy loam, 0 to 3 percent slopes	Non-Hydric*			

^{*} Soil unit includes one or more minor hydric soil components.

4.1.4 Floodplains

A review of FEMA FIRMs was conducted to determine the existence, location, and zone of floodplains on and within the vicinity of the Project Site. The FIRMs show floodplain areas along lakes, rivers, and tributaries. These maps record the following data: 100-year (1% chance of annual flooding) and 500-year (0.2% annual chance of flooding) floodplains, the height of the base flood elevation, and the risk of premium zones developed from topographical information across the floodplain. The FEMA Map Service Center was accessed; and, data coverage for the Project Site was accessed by address query. See Figure 6, FEMA FIRM Map in Appendix A. Brendel Lake is located in Zone AE, a "zone with a one percent chance of annual flooding".

4.2 Field Observations

Fieldwork required to complete the wetland delineation was conducted April 6 and 7, 2022. The temperature ranged between 40 and 50 degrees Fahrenheit; rain showers were intermittent.

Identified wetlands are depicted in **Figure 7**, **Delineated Wetlands and Water Resource Map** in Appendix A. Photographs of the general physical landscape and wetlands, and/or other relevant features are provided in the **Photographic Log** in Appendix B.

4.2.1 Wetlands

Data forms for data collected at points representing wetlands and non-wetlands (uplands) are provided in Appendix C. Summary data of wetlands identified and delineated are provided in Table 3, below

Table 3. Summary of Delineated Wetlands							
Wetland ID	Туре	Size (acres)	Wetland Data Points				
Wetland A	Palustrine, forested	0.328	1				
Wetland B	Palustrine, mixed	7.26	3, 6, 16				
Wetland C	Palustrine, mixed	20.39	5, 8, 10				
Wetland D	Palustrine, forested/scrub-shrub	4.44	12, 15				

Wetland A

Data Point (DP) 1 is situated in the northwest corner of Wetland A, a forested wetland located near the northeast corner of the Project Site. Silver maple (*Acer saccharinum*, FACW) was observed throughout the tree, sapling/shrub, and herbaceous strata. Swamp white oak (*Quercus bicolor*, FACW) was identified as a dominant hydrophytic species in the tree and shrub/sapling shrub strata, as well.

The soils exhibited a depleted matrix (F3 hydric soil indicator) and depletion was observed below a dark surface (A11). These hydric soil characteristics are not consistent with the mapped soil unit, Wasepi sandy loam, a non-hydric soil, and appear to be more closely aligned with that of Houghton muck, which is shown to be the predominant soil unit occurring in other wetlands throughout the Project Site.



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Surface water was observed at a depth of three inches at the data point. Primary indicators of wetland hydrology observed include surface water, a high water table and saturated soils within 12 inches of the surface, water marks on trees, and water-stained leaves. Inundation is visible on aerial imagery reviewed throughout most of the wetland area albeit not in the vicinity of the data point. The soil does appear saturated on aerial imagery in the vicinity of the data point, which is a secondary wetland hydrology indicator; other such indicators that are applicable for Wetland A include the geomorphic position of the wetland in a depression and the FAC-Neutral Test.

Wetland B

DPs 3, 6, and 16 are located near the northeast and south edges of Wetland B. The wetland extends offsite to the south and west; and, the size of the onsite portion is 7.26 acres. The wetland is separated from Wetland C by a man-made berm that appears to have been constructed to create a stable base on which to install the campground driveway through the Project Site prior to 1968. Prior to the time the berm was constructed, Wetlands B and C very likely were a single contiguous wetland.

Vegetation cover throughout the wetland consists of interspersed herbaceous, scrub-shrub, and forest communities. Typical hydrophytic species observed include eastern cottonwood (Populus deltoides, FAC); yellow birch (Betula alleghaniensis, FAC); American hornbeam (Carpinus caroliniana, FAC); swamp white oak; and, silver maple in the tree stratum. Red osier dogwood (Cornus sericea, FACW); common hackberry (Celtis occidentalis, FAC); Carpinus caroliniana, FAC; and, swamp white oak were dominant throughout the sapling/shrub stratum. In the herbaceous stratum, narrow-leaf cattail (Typha angustifolia, OBL); shoreline sedge (Carex hyalinolepis, OBL); and, skunk cabbage (Symplocarpus foetidus, OBL) were observed as dominant species.

One or more hydric soil criteria were observed at the data points, including a hydrogen sulfide odor (A4) at DPs 3 and 16 and sandy mucky mineral (S1) at DPs 3, 6, and 16. Soil characteristics observed at the data points are consistent with the mapped soil unit shown to be present at all data points, which is Houghton and Adrian mucks, a hydric soil.

The soil was saturated at the surface at DP 3 and surface water was observed at depths of one and three inches at DPs 6 and 16, respectively. Other primary wetland hydrology indicators observed at one or more of these data points include water marks on trees, inundation visible on aerial imagery, water-stained leaves, and a hydrogen sulfide odor. Secondary wetland hydrology indicators applicable for all data points include the geomorphic position of the wetland in a depression or swale and the FAC-Neutral Test.

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Wetland C

DPs 5, 8, and 10 are located near the north and west edges of Wetland C. The wetland extends offsite to the east and south. The west edge of the wetland abuts the shoreline of Brendel Lake. The size of the onsite portion is 20.39 acres. The wetland is separated from Wetland D by a man-made berm that appears to have been constructed to create a stable base on which to install the campground driveway through the Project Site prior to 1968. Prior to the time the berm was constructed, Wetlands C and D very likely were a single contiguous wetland.

The north half of the wetland is predominantly interspersed herbaceous and scrub-shrub communities (see DPs 5 and 8) while a more significant forest community is present in the south half of the wetland (see DP 10). Typical hydrophytic species observed include peachleaf willow (Salix amyadaloides, FACW); swamp white oak, yellow birch, and common hackberry in the tree stratum. Red osier dogwood, American hornbeam, swamp white oak, and common hackberry were present throughout the sapling/shrub stratum. In the herbaceous stratum, celery-leaved buttercup (Ranunculus sceleratus, OBL), shoreline sedge, skunk cabbage, and narrow-leaf cattail were dominant species observed.

Hydric soil criteria were met at all wetland data points; applicable hydric soil indicators include sandy mucky mineral (S1) and a hydrogen sulfide odor (A4). Soil characteristics observed at DPs 8 and 10 are consistent with the mapped soil unit, which is Houghton and Adrian mucks, a hydric soil. Regarding DP 5, these hydric soil characteristics are not consistent with the mapped soil unit, Wasepi sandy loam, a non-hydric soil.

Approximately one inch of surface water was present at all data points. Additional primary wetland hydrology indicators observed at one or more of these data points include water marks on trees, inundation visible on aerial imagery, water-stained leaves, and a hydrogen sulfide odor. Secondary wetland hydrology indicators applicable for all data points include the geomorphic position of the wetland in a depression or swale and the FAC-Neutral Test. As described in Section 4.2.2, intermittent Stream A flows into the northeast side of Wetland C. Surface water and groundwater is generally expected to flow south and southwest to Brendel Lake.

Wetland D

DPs 12 and 15 are located at the east and west ends of Wetland D, respectively. This wetland extends offsite to the west, is boarded at the south by Brendel Lake, and is separated from Wetland C by an elevated gravel driveway that was constructed atop a man-made berm. A small two-track path located approximately 150 feet west southwest of DP 6 separates the wetland from Wetland B.

The wetland is primarily forested with an appreciable scrub-shrub community. Typical hydrophytic species observed include swamp white oak, silver maple, and eastern cottonwood in the tree stratum. Red osier dogwood, American hornbeam, and swamp white oak were observed throughout the sapling/shrub stratum. In the herbaceous stratum, Indian hemp (Apocynum cannabidum, FAC), shoreline sedge, and skunk cabbage were dominant.

Hydric soil indicators observed include a hydrogen sulfide odor (A4) at DP 15 and a sandy mucky mineral (S1) soil at DPs 10 and 15. Soil characteristics observed at the data points are consistent with the mapped soil unit shown to be present at all data points, which is Houghton and Adrian mucks, a hydric soil.

Approximately one inch of surface water was present at all data points. Additional primary wetland hydrology indicators observed at one or more of these data points include water marks on trees, inundation visible on aerial imagery, water-stained leaves, and a hydrogen sulfide odor. Secondary wetland hydrology indicators applicable for all data points include the geomorphic position of the wetland in a depression or swale and the FAC-Neutral Test. Surface and groundwater is expected to flow south to Brendel Lake.

4.2.2 Watercourses

Intermittent Stream A flows onto the Project Site from the east; and, the approximate length of the onsite portion is 100 feet. The stream conveys surface water to the northeast edge of Wetland C.

4.2.3 Other Water Resource Features

Brendel Lake is located in the southwest corner of the Project Site. A majority of the lake shoreline is contiguous to Wetlands C and D albeit for developed campground area between the two wetlands. Here, the lake shoreline is abrupt and defined by beach and mowed turf grass.

4.2.4 Uplands

Data collected at DPs 2, 4, 7, 9, 11, 13, 14, and 17 represent upland areas surrounding the wetlands observed. Although hydric soils, hydrology indicators, and hydrophytic vegetation were observed at several upland data points, a combination of all three wetland criteria could not be established. These data points generally represent areas of the Project Site where the ground elevations are slightly higher than that around the wetlands. Typical upland plant species observed include shagbark hickory (Carya ovata, FACU); white oak (Quercus alba, FACU); northern red oak (Quercus rubra, FACU); American beech (Fagus grandifolia, FACU); black cherry (Prunus serotina, FACU); and, Canada goldenrod (Solidago canadensis, FACU).



5.0 CONCLUSIONS

Four wetlands and one intermittent stream were identified within the limits of the Project Site. The wetlands, which were all likely historically a single wetland prior to the time site was developed as a campground, extend offsite to the east, south, and west. The wetland complex is, for all practical purposes, connected to Brendel Lake, which is located in the southwest corner of the Project Site.

EGLE has the final authority on the extent, shape, size, location, and regulatory statuses of regulated wetlands, lakes, streams, and designated natural areas in the State of Michigan. A request may be submitted to EGLE to conduct a "Level 3 Review" of the findings presented in this report, which nul can facilitate the review upon request.

Part 303, Wetlands Protection, of the NREPA, as amended, provides several criteria for a wetland to be considered regulated by the EGLE. Most commonly, a wetland is regulated by EGLE if it is five acres in size or larger, and/or if it is connected to or located within 500 feet of an inland lake, pond, river, or stream. It is nul's opinion that all identified wetlands are regulated by EGLE because:

- The wetlands are connected to an inland lake, Brendel Lake; and,
- with and/or without offsite acreages considered, the individual sizes of Wetlands B, C, and D exceed five acres; and,
- Wetlands B, C, and D are located within 500 feet of an inland lake, Brendel Lake.

Watercourses (e.g., streams, rivers, drains, ditches) that meet the requirements of Part 301, Inland Lakes and Streams, of the NREPA fall under the jurisdiction of the EGLE. Intermittent Stream A flows onto the Project Site from the east and conveys surface water directly to the north edge of Wetland C. The length of Stream A within the limits of the Project Site is approximately 100 feet.

Part 31, Water Resources Protection, of NREPA regulates activities within the 100-year floodplain and floodway of a river, stream, or drain, and within the floodplain of any watercourse with an upstream drainage area of two square miles or larger. Activities requiring a permit within regulated floodplains include the installation of permanent structures, permanent bridges, and/or culverts. Temporary crossings of regulated floodplains are generally exempt from permitting if the floodplain will be restored to existing elevations; however, temporary watercourse crossings would require a permit from the EGLE. FEMA data indicate that Brendel Lake is located in Zone AE, a "zone with a one percent chance of annual flooding".

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Permits are required for any work (e.g., filling, dredging, construction, draining and/or other development) that is proposed to be conducted in water resources that are regulated under Part 303, Part 301, or Part 31, Water Resources Protection, of NREPA. Additionally, the White Lake Township and Oakland County should be contacted to determine if ordinances exist that affect activities conducted in wetlands and watercourses and their buffers.



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GLOSSARY OF TERMS AND DEFINITIONS

<u>Atypical wetland</u>: This term refers to areas in which one or more parameters (vegetation, soil and/or hydrology) have been sufficiently altered by human activities or natural events to preclude the presence of wetland indicators of the parameter.

<u>Emergent Wetland</u>: Vegetative classification of a wetland system based on the dominant vegetation consisting of rooted herbaceous plant species that have parts extending above a water surface.

<u>100-year Flood</u>: A flood with a magnitude that has a 1% chance of occurring or being exceeded in any given year.

Floodplain: The area of land adjoining a river or stream that will be inundated by a 100-year flood.

Floodway: The channel of a river or stream and the portions of the floodplain adjoining the channel, which are reasonably required to carry and discharge a 100-year flood.

<u>Hydric Soil</u>: Soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part (1991 National Technical Committee on Hydric Soils definition).

<u>Hydrophytic Vegetation</u>: Plant species that grow in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content; plants typically found in wet habitats.

<u>Ordinary High Water Mark</u>: The point on a stream bank to which the presence and action of surface water is so continuous as to leave a district marked by erosion; destruction or prevention of woody terrestrial vegetation; predominance of aquatic vegetation; or other easily recognized characteristic.

<u>Scrub-Shrub Wetland</u>: Vegetative classification of a wetland system based on the dominant vegetation consisting of woody plants less than three inches in diameter but greater than three feet in height.

<u>Typical Situation</u>: That, which normally, usually, or commonly occurs.

<u>Wooded (Forested) Wetland</u>: Vegetative classification of a wetland system based on the dominant vegetation consisting of woody plants three inches in diameter or greater regardless of height.



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Wetland: "...land characterized by the presence of water at a frequency and duration sufficient to support and that under normal circumstances does support, wetland vegetation or aquatic life and is commonly referred to as a bog, swamp, or marsh..."

Wetland Hydrology: Hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface at some time during the growing season.

Wetland Indicator Status:

OBL: Obligate wetland plant that occurs almost always, 99% of the time, in wetlands under natural conditions, but which rarely occur in non-wetlands.

FACW: Facultative wetland plant that occurs usually, 67% to 99% of the time, in wetlands, but also occurs 1% to 33% of the time in non-wetlands.

FAC: Facultative plant that occurs in both wetlands and non-wetlands 33% to 67% of the time.

FACU: Plant that occurs sometimes, 1% to 33% of the time, in wetlands but occurs more often, 67% to 99% of the time, in non-wetlands.

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APPENDIX A
Maps

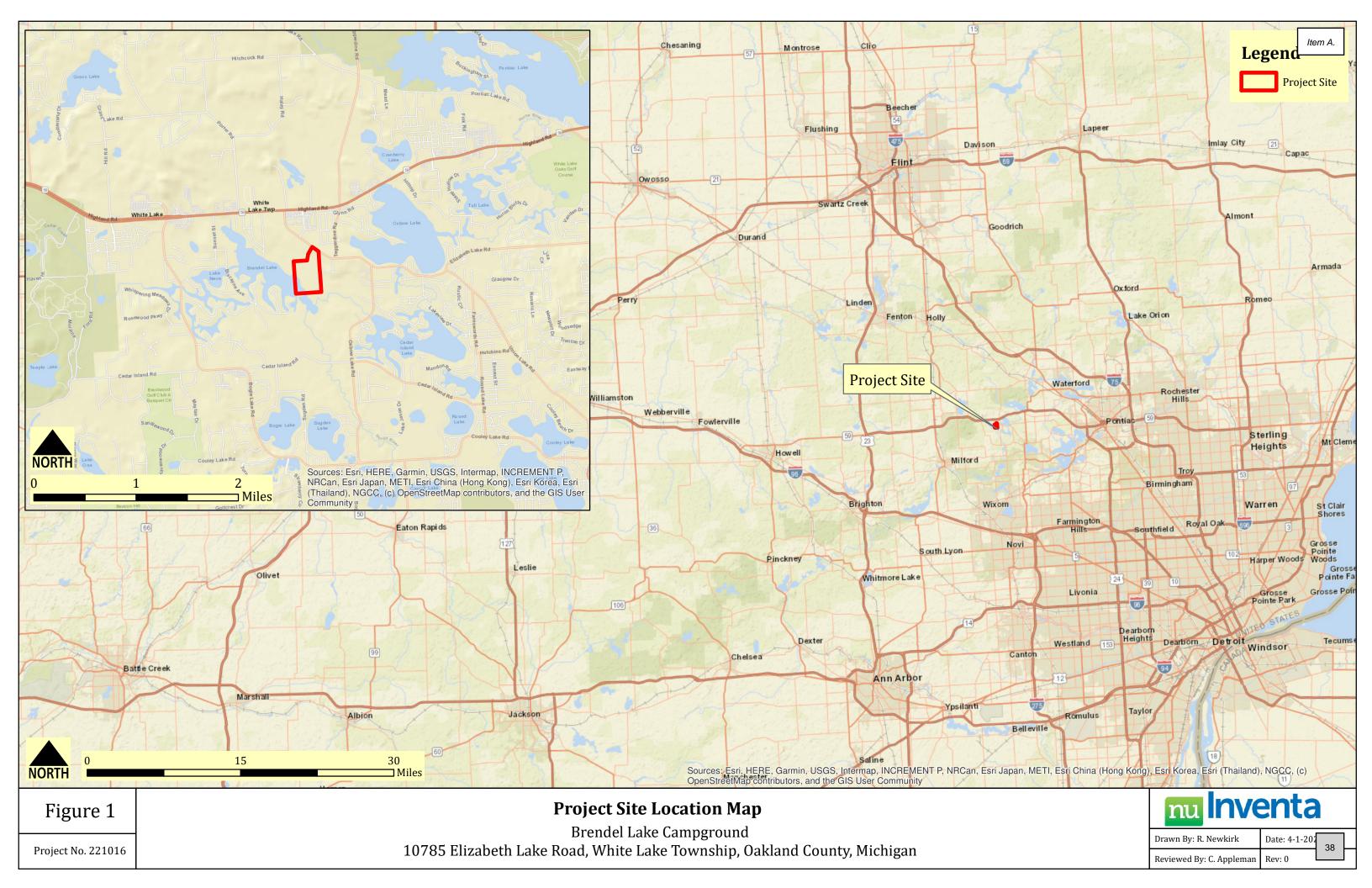




Figure 2

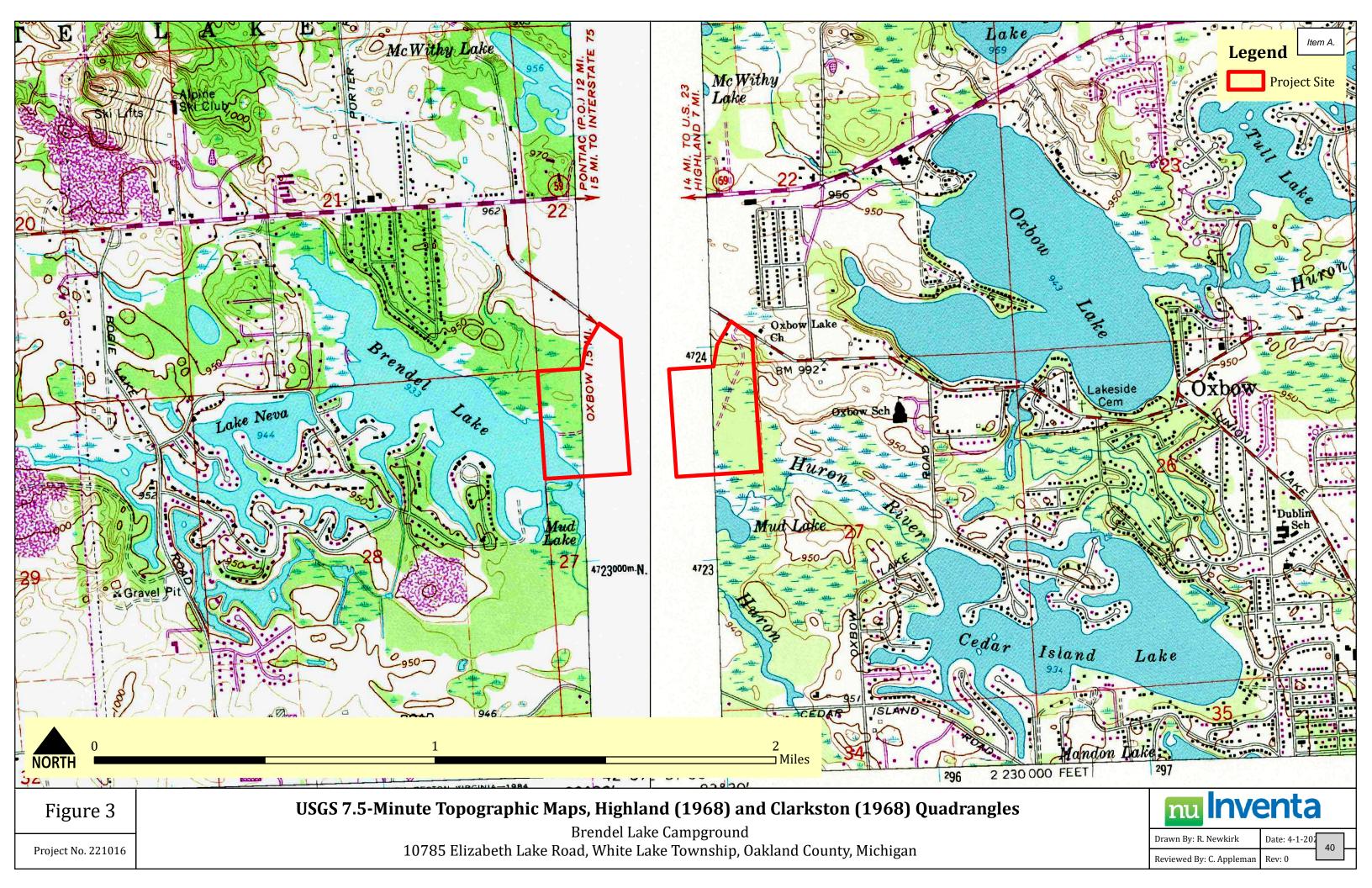
Land Use and Land Cover Map

Brendel Lake Campground 10785 Elizabeth Lake Road, White Lake, Oakland County, Michigan



Drawn By: R. Newkirk

Date: 4-1-202 Reviewed By: C. Appleman



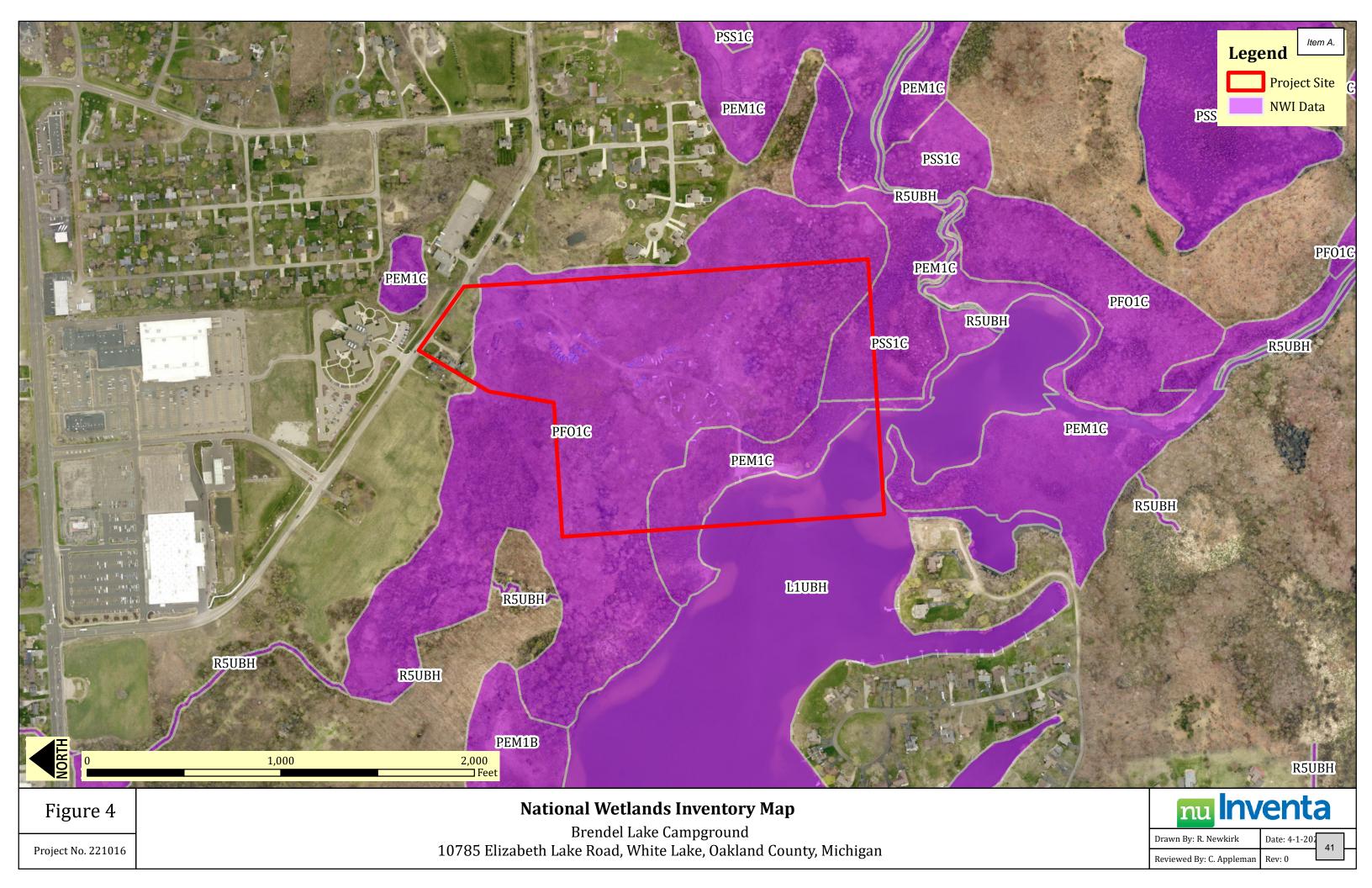




Figure 5

Brendel Lake Campground 10785 Elizabeth Lake Road, White Lake, Oakland County, Michigan



Drawn By: R. Newkirk Date: 4-1-202 Reviewed By: C. Appleman

Project No. 221016

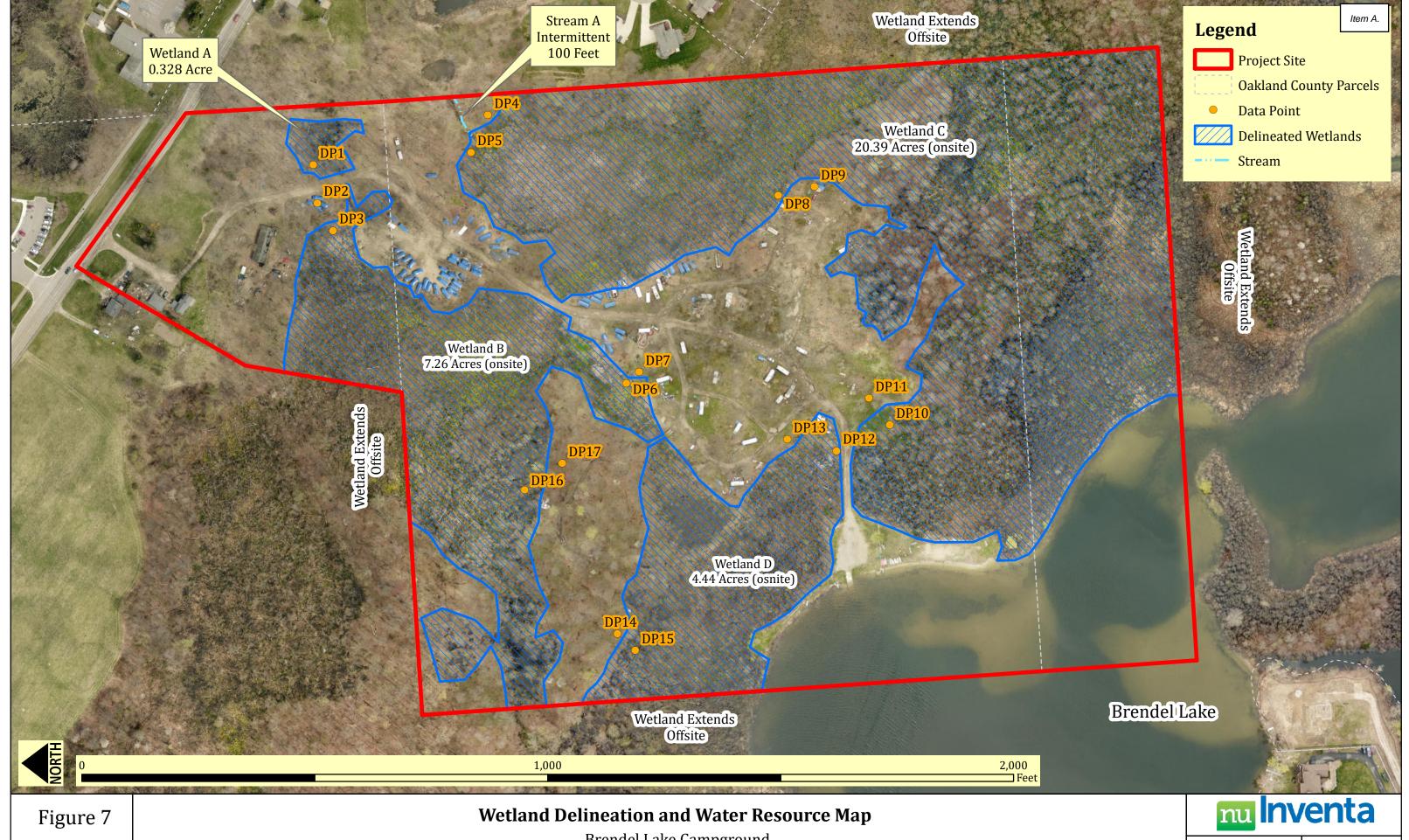


Brendel Lake Campground 10785 Elizabeth Lake Road, White Lake, Oakland County, Michigan

Drawn By: R. Newkirk

Reviewed By: C. Appleman

Date: 4-1-20



Brendel Lake Campground 10785 Elizabeth Lake Road, White Lake Township, Oakland County, Michigan

Drawn By: R. Newkirk Date: 4-21-2 Reviewed By: C. Appleman Rev: 0

APPENDIX B

Photographic Log





PHOTOGRAPHIC LOG

Photo: 1

Date: 4-7-2022 Direction: East

Description: Data Point (DP) 1 is situated in the northwest corner of Wetland A, a palustrine, forested wetland located in the northeast corner of the Project Site.



Photo: 2

Date: 4-7-2022 **Direction:** South

Description: View of upland DP 2, which is located beside a gravel campground drive that separates Wetlands A and B.







PHOTOGRAPHIC LOG

Photo: 3

Date: 4-7-2022 **Direction:** South

Description: DP 3 is located in the northeastern most extent of Wetland B. The vegetation community around the data point is primarily herbaceous, which transitions to a forested community in the background.



Photo: 4

Date: 4-7-2022 **Direction:** South

Description: DP 4 is located on a hillside, in an upland forest near the northeast edge of Wetland C and along the east boundary of the Project Site.







PHOTOGRAPHIC LOG

Photo: 5

Date: 4-7-2022
Direction: South

Description: Wetland DP 5 is located near the north edge of

Wetland C.



Photo: 6

Date: 4-7-2022 **Direction:** West

Description: DP 6 is situated in the southern extent of Wetland B where the vegetation consists of a nearly monotypic stand of narrowleaf cattail (*Typha angustifolia*, OBL). A contiguous forested wetland community is evident in the background.







PHOTOGRAPHIC LOG

Photo: 7

Date: 4-7-2022 Direction: East

Description: DP 7 is located near and south of Wetland B in an upland forested area with

mowed turf grass.



Photo: 8

Date: 4-7-2022 Direction: East

Description: View of wetland DP 8, which is located along the west boundary of Wetland C.







PHOTOGRAPHIC LOG

Photo: 9

Date: 4-7-2022
Direction: North

Description: DP 9 is located in upland, south of DP 8 and west of Wetland C, which is evident in

the background.



Photo: 10

Date: 4-7-2022 **Direction:** West

Description: DP 10 is located in the far west side of Wetland C.







PHOTOGRAPHIC LOG

Photo: 11

Date: 4-7-2022 Direction: West

Description: View of Wetland C (scrub-shrub, forested area in the background) from upland

DP 11.



Photo: 12

Date: 4-7-2022 **Direction:** West

Description: Wetland DP 12 is located in the southeast corner of Wetland D. Here, the vegetation community is predominantly forested. A driveway that separates the wetland from Wetland C is evident to the left in the photograph.







PHOTOGRAPHIC LOG

Photo: 13

Date: 4-7-2022 **Direction:** South

Description: DP 13 is located in upland approximately 25 feet

north of Wetland D.



Photo: 14

Date: 4-7-2022 **Direction:** South

Description: DP 14 is located in upland on the north side of Wetland D, which is evident in the background where standing

water is present.







PHOTOGRAPHIC LOG

Photo: 15

Date: 4-7-2022 **Direction:** East

Description: View of Wetland D at DP 15, which is located near the west edge of the Project Site. Wetland D extends offsite further off in the background.



Photo: 16

Date: 4-7-2022 **Direction:** North

Description: DP 16 is located in

a forested portion of Wetland B.







PHOTOGRAPHIC LOG

Photo: 17

Date: 4-7-2022

Direction: North

Description: DP 17 is located in forested upland approximately 75 feet south of Wetland B.



Photo: 18

Date: 4-7-2022

Direction: Northeast

Description: Upstream view of intermittent Stream A. The stream flows onto the Project Site from land to the east.







PHOTOGRAPHIC LOG

Photo: 19

Date: 4-7-2022

Direction: Southwest

Description: Downstream view of intermittent Stream A. The stream flows to the northeast

edge of Wetland C.



Photo: 20

Date: 4-7-2022

Direction: Ground View

Description: View of the bottom

of intermittent Stream A.







PHOTOGRAPHIC LOG

Photo: 21

Date: 4-7-2022

Direction: North

Description: View of a sand beach at the shoreline of

Brendel Lake.



Photo: 22

Date: 4-7-2022

Direction: South

Description: View of lake edge along Brendel Lake. The scrubby area in the background and beyond the beach is Wetland C.



APPENDIX C

Wetland Determination Data Forms

Project/Site: Brendel Lake Campground / Elizabeth Lake	Road (221016) City/Cou	nty: White L	ake Twp/Oakland	Sampling Dat	e: 4-6-2	2022
Applicant/Owner: Kem-Tec, Inc. (client)				State: MI	Sampling Poi	nt: I	DP1
Investigator(s): R. Newkirk		Section, T	ownship, Ra	nge: SW 1/4; SW 1/	 4; Section 22; T3N	; R8E	
Landform (hillside, terrace, etc.): depression			_ocal relief (c	concave, convex, none	e): concave		
Slope (%): 0 Lat: 42.642731		Long: -	33.498049		Datum: WGS84	ļ	
Soil Map Unit Name: 17A - Wasepi sandy loam, 0 to 3	percent slope	s -		NWI clas	ssification: PFO1C	:	
Are climatic / hydrologic conditions on the site typical f	or this time of	year?	Yes X	No (If no,	explain in Remarks	s.)	
Are Vegetation No , Soil No , or Hydrology No	significantly di	sturbed? A	re "Normal C	Circumstances" preser		No	
Are Vegetation No , Soil No , or Hydrology No	naturally probl	ematic? (f needed, ex	plain any answers in l	Remarks.)		
SUMMARY OF FINDINGS – Attach site m			g point lo	cations, transect	s, important f	eatures	, etc.
Hydrophytic Vegetation Present? Yes X N	0	Is the	Sampled A	rea			
Hydric Soil Present? Yes X N			a Wetland?		. No		
Wetland Hydrology Present? Yes X N	0						
Remarks: Data point is located in the northwest corner of Wetla VEGETATION – Use scientific names of pla		ed wetland.					
	Absolute	Dominant	Indicator				
Tree Stratum (Plot size: 30) 1. Acer saccharinum	% Cover 35	Species?	Status	Dominance Test v			
Acer sacchamum Quercus bicolor	30	Yes Yes	FACW FACW	Number of Domina Are OBL, FACW, o	•	5	(A)
3.		100	17.077	Total Number of Do	_		_ (' ')
4.				Across All Strata:	ommant opecies	5	(B)
5.				Percent of Domina	nt Species That		_` ′
	65 =	Total Cover		Are OBL, FACW, o		100.0%	(A/B)
Sapling/Shrub Stratum (Plot size: 15)						
1. Acer saccharinum	18	Yes	FACW	Prevalence Index			
2. Quercus bicolor	10	Yes	FACW	Total % Cove		iply by:	_
3.				OBL species	0 x 1 =	0	_
4 5.				FACW species FAC species	98 x 2 =	196 0	_
J	28 =	Total Cover		FACU species	0 x 4 =	0	_
Herb Stratum (Plot size: 5)				UPL species	0 x 5 =	0	_
1. Acer saccharinum	5	Yes	FACW	Column Totals:	98 (A)	196	(B)
2.				Prevalence Inde	ex = B/A =	2.00	_
3							
4				Hydrophytic Vege			
5					for Hydrophytic Ve	getation	
6.				X 2 - Dominance			
7.				X 3 - Prevalence	index is ≤3.0 cal Adaptations¹ (P	rovide su	nnortine
8 9.					arks or on a separ		
9. 10.					⁄drophytic Vegetat	,	
	5 =	Total Cover		¹ Indicators of hydri			•
Woody Vine Stratum (Plot size: 15)			be present, unless			
1. None				Hydrophytic			
2				Vegetation			
	=	Total Cover		Present? Yo	es <u>X</u> No_		
Remarks: (Include photo numbers here or on a sepa	rate sheet.)						

SOIL Sampling Point:

Profile Desc Depth	cription: (Describ	e to the dept		ument tl		ator or o	confirm the absence of	of indicators.)			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks			
0-9	10YR 3/2	100	Color (moist)		Туре	LUC	Loamy/Clayey	Itelliaiks			
			10)/D 5/4								
9-17	10YR 5/2	85	10YR 5/4	15	<u>C</u>	M	Loamy/Clayey	Distinct redox concer	ntrations		
¹ Type: C=C	oncentration, D=De	nletion RM-	·Peduced Matrix	MS-Mas	ked San	d Grains	² Location	: PL=Pore Lining, M=Matri	v		
Hydric Soil		spietion, rawi-	rteduced Matrix,	IVIO-IVIAS	Keu Sain	u Orania		s for Problematic Hydric			
Histosol			Sandy Gle	eved Mat	rix (S4)			t Prairie Redox (A16)	00110 .		
	ipedon (A2)		Sandy Re	-				Manganese Masses (F12)			
Black His			Stripped N					Parent Material (F21)			
	n Sulfide (A4)		Dark Surf	•	-,			Shallow Dark Surface (F22	2)		
	Layers (A5)		Loamy Mu		eral (F1)			(Explain in Remarks)	-,		
2 cm Mu	• , ,		Loamy Gl	-	. ,			(
	l Below Dark Surfa	ce (A11)	X Depleted	-	. ,						
	rk Surface (A12)	,	Redox Da	-	-		³ Indicator	s of hydrophytic vegetation	and		
	lucky Mineral (S1)		Depleted		. ,)		nd hydrology must be pres			
5 cm Mucky Peat or Peat (S3)								s disturbed or problematic.			
Restrictive	Layer (if observed	l):				Ī					
Type:	-										
Depth (inches):							Hydric Soil Present	? Yes X	No		
Remarks:						l					
	m is revised from N	/lidwest Regi	onal Supplement	Version 2	2.0 to inc	lude the	NRCS Field Indicators	of Hydric Soils, Version 7	.0, 2015		
	/www.nrcs.usda.go							•			
Soil characte	erisitos are more co	nsistent with	that of the Hough	ton serie	9						
		TIOIOTOTIC WILL	that of the floagh	1011 00110							
HYDROLO	GY										
_	drology Indicator										
	cators (minimum of	one is requir						y Indicators (minimum of t	wo required)		
X Surface	` '		X Water-Sta					ce Soil Cracks (B6)			
	ter Table (A2)		Aquatic F	`	·		Drainage Patterns (B10)				
X Saturation	` '		True Aqua		` '	`		Season Water Table (C2)			
X Water M			Hydrogen		•			ish Burrows (C8)	(00)		
	t Deposits (B2)		Oxidized	•		•	` ' 	ation Visible on Aerial Ima ed or Stressed Plants (D1)			
	osits (B3) t or Crust (B4)		Presence Recent Iro			, ,		norphic Position (D2)			
	osits (B5)		Thin Muck			iieu Soii	` ′	Neutral Test (D5)			
	on Visible on Aeria	Imagery (B7			• •		<u>X</u> AC-	Neutral Test (D3)			
	Vegetated Conca	0 , (<i>_</i>		, ,						
Field Obser		,		•	,						
Surface Wat		∕es X	No	Depth (i	nches):	3					
Water Table		es X	No	Depth (i	′ -	0					
Saturation P		es X	No	Depth (i	_	0	Wetland Hydrolog	y Present? Yes X	No		
(includes car				. (´ -						
		m gauge, mo	nitoring well, aeria	al photos	, previou	s inspec	ctions), if available:				
Remarks:											
i verilai (S.											

Project/Site: Brendel Lake Campground / Elizabeth Lake	Road (22101	6) City/Cou	ınty: White L	ake Twp/Oakland	Sampling D	ate: <u>4-6-</u>	2022
Applicant/Owner: Kem-Tec, Inc. (client)				State: MI	Sampling P	oint:	DP2
Investigator(s): R. Newkirk		Section, 7	Гownship, Ra	nge: SW 1/4; SW	1/4; Section 22; T	3N; R8E	
Landform (hillside, terrace, etc.): hillside			Local relief (d	concave, convex, no	ne): convex		
Slope (%): 7 Lat: 42.642713		Long: -	-83.498356		Datum: WGS	84	
Soil Map Unit Name: 17A - Wasepi sandy loam, 0 to 3	percent slop	es –		NWI cl	assification: PFO1	IC	
Are climatic / hydrologic conditions on the site typical f			Yes X	No (If no	, explain in Remar	·ks.)	
Are Vegetation No , Soil No , or Hydrology No		•		` Circumstances" pres		•	
Are Vegetation No , Soil No , or Hydrology No				plain any answers ir			_
SUMMARY OF FINDINGS – Attach site m					•	features	s, etc.
Hydrophytic Vegetation Present? Yes X N	0	Is the	Sampled A	rea			
	o X		n a Wetlandî		No X	_	
Wetland Hydrology Present? Yes N	o X			_			
Remarks:							
Data point is located beside a gravel campground roa	ad that separa	ates Wetlands	s A and B.				
VEGETATION – Use scientific names of pla		Daminant	la di a atau	1			
Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test	worksheet:		
1. Quercus bicolor	25	Yes	FACW	Number of Domir	ant Species That		
2. Carya ovata	20	Yes	FACU	Are OBL, FACW,	•	5	(A)
3. Acer saccharinum	15	Yes	FACW	Total Number of	Dominant Species		_
4. Populus deltoides	5	No	FAC	Across All Strata:		8	(B)
5					ant Species That		
(5)	<u>65</u>	=Total Cover		Are OBL, FACW,	or FAC:	62.5%	_(A/B)
Sapling/Shrub Stratum (Plot size: 15)	V	E40	Blanas landa			
Populus deltoides Quercus bicolor	<u>8</u> 5	Yes Yes	FACW	Prevalence Inde Total % Cov		ultiply by:	
3.		163	TACV	OBL species	0 x1=	0	_
4.				FACW species	52 x 2 =	104	_
5.				FAC species	13 x 3 =	39	_
	13	=Total Cover		FACU species	34 x 4 =	136	_
Herb Stratum (Plot size: 5)				UPL species	0 x 5 =	0	_
Solidago canadensis	10	Yes	FACU	Column Totals:	99 (A)	279	(B)
2. Taraxacum officinale	4	Yes	FACU	Prevalence Inc	dex = B/A =	2.82	_
3.							
4					getation Indicator		
5 6.				X 2 - Dominand	st for Hydrophytic \	vegetation	
7				X 3 - Prevalence			
7. 8.					gical Adaptations ¹	(Provide su	ınnortino
9.					marks or on a sep		
10.				Problematic I	Hydrophytic Veget	ation ¹ (Expl	lain)
	14	Total Cover		¹ Indicators of hyd	ric soil and wetlan	d hydrology	/ must
Woody Vine Stratum (Plot size: 15)			be present, unles	s disturbed or prol	olematic.	
1. Vitis riparia	7	Yes	FACW	Hydrophytic			
2		T-4-1-0		Vegetation	w v		
		=Total Cover		Present?	Yes <u>X</u> No		
Remarks: (Include photo numbers here or on a sepa	rate sheet.)						

Sampling Point:

		to the dept				ator or o	confirm the absence	of indicators.)	
Depth	Matrix			x Featur		. 2	_	_	
(inches)	Color (moist)		Color (moist)	%	Type ¹	Loc ²	Texture	Rema	arks
0-10	10YR 4/2	100					Loamy/Clayey	y mix	
10-16	10YR 5/3	95	10YR 5/4	5	С	М	Loamy/Clayey	Faint redox co	ncentrations
			_						_
	oncentration, D=De	pletion, RM=I	Reduced Matrix, N	//S=Mas	ked San	d Grains		n: PL=Pore Lining, M=	
Hydric Soil			0 1 01		. (0.4)			ors for Problematic H	
— Histosol	` '		Sandy Gle	•	, ,			st Prairie Redox (A16)	
	oipedon (A2)		Sandy Red					-Manganese Masses (F12)
	stic (A3)		Stripped M	•	0)			Parent Material (F21)	· (F22)
	en Sulfide (A4)		Dark Surfa		! (- 1)			/ Shallow Dark Surface	
	d Layers (A5)		Loamy Mu	-			Othe	er (Explain in Remarks)
	ıck (A10) d Below Dark Surfa	oo (A11)	Loamy Gle						
· ·	ark Surface (A12)	Se (ATT)	Depleted N Redox Dar				³ Indicate	ors of hydrophytic vege	tation and
	Mucky Mineral (S1)		Depleted [` '				
5 cm Mu	Redox Dep		, ,			wetland hydrology must be present, unless disturbed or problematic.			
	, ,		rtedex Be	310001011	3 (1 0)		unic	oo diotarbed or problem	nauo.
	Layer (if observed):							
Type:	\						Undria Cail Breas	-42 V	No. V
Depth (ii	ncnes):						Hydric Soil Preser	nt? Yes_	No_X_
Remarks:							ND00 51 111 11 1		
	rm is revised from N //www.nrcs.usda.go							rs of Hydric Soils, Vers	sion 7.0, 2015
Lirata (iittp:/	/www.rii.cs.usua.go	v/iiiteiiiet/i Oi	L_DOCOMENTO	11103 142	.pz_0512	.33.UUCA	.).		
HYDROLO	OGY								
	drology Indicators								
	cators (minimum of		ed: check all that :	annly)			Seconda	ary Indicators (minimur	n of two required)
	Water (A1)	one is require	Water-Stai		ives (B9)			ace Soil Cracks (B6)	ii oi two iequileaj
	ater Table (A2)		Aquatic Fa		, ,			nage Patterns (B10)	
Saturation	` '		True Aqua	`	,			Season Water Table (C2)
	larks (B1)		Hydrogen)		yfish Burrows (C8)	<i></i> /
	nt Deposits (B2)		Oxidized F					uration Visible on Aeria	I Imagery (C9)
	posits (B3)		Presence			-		nted or Stressed Plants	
	at or Crust (B4)		Recent Iro	n Reduc	tion in Ti	lled Soil		morphic Position (D2)	,
Iron Dep	osits (B5)		Thin Muck	Surface	(C7)		X FAC	C-Neutral Test (D5)	
Inundation	on Visible on Aerial	Imagery (B7)	Gauge or \	Well Dat	a (D9)				
Sparsely	/ Vegetated Concav	e Surface (B	8) Other (Exp	olain in F	Remarks)				
Field Obser	vations:								
Surface Wat	ter Present? Y	'es	No X	Depth (i	nches):				
Water Table	Present? Y	es	No X	Depth (i	nches):				
Saturation P	resent? Y	es			nches):		Wetland Hydrolo	ogy Present? Yes_	No X
(includes ca	pillary fringe)		·			-			
Describe Re	corded Data (strear	n gauge, mor	nitoring well, aeria	l photos	, previou	s inspec	ctions), if available:		
Remarks:									
. tomanto.									

Project/Site: Brendel Lake Campground / Elizabeth Lake	Road (22101	6) City/Cou	nty: White L	ake Twp/Oakland	Sampling Da	ite: 4-6-2	2022
Applicant/Owner: Kem-Tec, Inc. (client)				State: MI	Sampling Po	int:[DP3
Investigator(s): R. Newkirk		Section, T	ownship, Ra	nge: SW 1/4; SW 1/4;	Section 22; T3f	N; R8E	
Landform (hillside, terrace, etc.): depression			Local relief (d	concave, convex, none):	concave		
Slope (%): 0 Lat: 42.642627		Long: -	83.498579		Datum: WGS8	4	
Soil Map Unit Name: 17A - Wasepi sandy loam, 0 to 3	percent slop	es		NWI class	ification: PFO10	;	
Are climatic / hydrologic conditions on the site typical fo	or this time of	year?	Yes X	No (If no, ex	plain in Remark	s.)	
Are Vegetation No , Soil No , or Hydrology No s				Circumstances" present			
Are Vegetation No , Soil No , or Hydrology No r	aturally prob			plain any answers in Re			
SUMMARY OF FINDINGS – Attach site ma				-	•	eatures	, etc.
Hydrophytic Vegetation Present? Yes X No)	Is the	Sampled A	rea			
			n a Wetland?		No		
Wetland Hydrology Present? Yes X No							
Remarks:		-					
Data point is located in the northeastern most extent o	f Wetland B.						
VEGETATION – Use scientific names of pla	nte						
TEGETATION OSC SOICHMING HAMES OF PIAN	Absolute	Dominant	Indicator				
Tree Stratum (Plot size: 30)	% Cover	Species?	Status	Dominance Test wo	orksheet:		
Quercus bicolor	25	Yes	FACW	Number of Dominant	•		
2. Populus deltoides	15	Yes	FAC	Are OBL, FACW, or	FAC:	7	_(A)
3. Acer saccharinum	10	No No	FACW	Total Number of Don	ninant Species	7	(D)
4. Prunus serotina	7	No	FACU	Across All Strata:		7	_(B)
5	57	Total Cover		Percent of Dominant Are OBL, FACW, or	•	100.0%	(A/B)
<u>Sapling/Shrub Stratum</u> (Plot size: 15)		- Total Covel		Ale OBL, FACW, O	- AC.	100.076	_(A/D)
1. Cornus sericea	8	Yes	FACW	Prevalence Index w	orksheet:		
2. Quercus bicolor	5	Yes	FACW	Total % Cover of		Itiply by:	
3.				OBL species	14 x 1 =	44	_
4.				FACW species	58 x 2 =	116	_
5				FAC species	15 x 3 =	45	_
	13	=Total Cover			7 x 4 = _	28	_
Herb Stratum (Plot size: 5)				' <u> </u>	0 x 5 = _	0	_
Typha angustifolia	25	Yes	OBL	Column Totals: 1		233	_(B)
2. Carex hyalinolepis	15	Yes	OBL	Prevalence Index	= B/A =	1.88	_
Onoclea sensibilis Symplocarpus foetidus	<u>5</u>	No No	FACW	Lludrophytic Vocate	tion Indicators		
	4	No	OBL	Hydrophytic Vegeta			
5. 6.				1 - Rapid Test fo X 2 - Dominance T		getation	
7				X 3 - Prevalence Ir			
8.				4 - Morphologica		Provide su	pporting
9.					ks or on a sepa		
10.				Problematic Hyd	rophytic Vegeta	tion ¹ (Expl	ain)
	49	Total Cover		¹ Indicators of hydric	soil and wetland	hydrology	must
Woody Vine Stratum (Plot size: 15)				be present, unless di	sturbed or probl	ematic.	
1. Vitis riparia	5	Yes	FACW	Hydrophytic			
2				Vegetation			
	5	Total Cover		Present? Yes	X No		
Remarks: (Include photo numbers here or on a separ	ate sheet.)						

Sampling Point:

Item A.

		to the dept				itor or c	onfirm the absence	of indicators.)		
Depth	Matrix	0/		x Featur	-	. 2	- .			
(inches)	Color (moist)	%	Color (moist)	<u>%</u>	Type ¹	Loc ²	Texture	Remarks		
0-6	10YR 3/1	100					Mucky Sand			
6-11	10YR 3/2	100					Sandy			
11-17	10YR 5/3	90	10YR 6/4	10	<u>C</u>	M	Loamy/Clayey	Faint redox concentrations		
				_	_	_				
¹Type: C=C	oncentration, D=Dep	letion PM-	Paducad Matrix M	1S=Mas	ked Sand	1 Grains	² l ocation	: PL=Pore Lining, M=Matrix.		
Hydric Soil		iction, rtivi	rteduced Matrix, I	no-mas	ica Gari	- Oranis		s for Problematic Hydric Soils ³ :		
Histosol			Sandy Gle	ved Mat	rix (S4)			t Prairie Redox (A16)		
l 	pipedon (A2)		Sandy Red	•	(0.)			Manganese Masses (F12)		
Black Hi			Stripped M		3)			Parent Material (F21)		
	n Sulfide (A4)		? Dark Surfa	•	• /			Shallow Dark Surface (F22)		
	l Layers (A5)		Loamy Mu		eral (F1)			r (Explain in Remarks)		
	ick (A10)		Loamy Gle	-	. ,			,		
l 	d Below Dark Surface	e (A11)	Depleted N	•	, ,					
	ark Surface (A12)	,	Redox Dar		-		³ Indicator	s of hydrophytic vegetation and		
	lucky Mineral (S1)		Depleted [Dark Sur	face (F7)			nd hydrology must be present,		
l —				oression	s (F8)			s disturbed or problematic.		
Restrictive	Layer (if observed):	•	<u> </u>							
Type:	_uyo: (oboo: vou)									
Depth (ii	nches):						Hydric Soil Present	? Yes X No		
Remarks:			<u> </u>							
	m is revised from Mi //www.nrcs.usda.gov							s of Hydric Soils, Version 7.0, 2015		
HYDROLO)GY									
	drology Indicators:						0 1			
_	cators (minimum of c	ne is requir			(DO)			ry Indicators (minimum of two required)		
	Water (A1)		X Water-Stai		, ,			ce Soil Cracks (B6)		
1 <u> </u>	iter Table (A2)		Aquatic Fa True Aqua	`	,		Drainage Patterns (B10)			
X Saturation			X Hydrogen		. ,	١		Season Water Table (C2) rish Burrows (C8)		
	nt Deposits (B2)		Oxidized F					ration Visible on Aerial Imagery (C9)		
	posits (B3)		Presence	•		-	` ' —	ed or Stressed Plants (D1)		
	at or Crust (B4)		Recent Iro					norphic Position (D2)		
	osits (B5)		Thin Muck			ilou ooii	` '	Neutral Test (D5)		
	on Visible on Aerial I	magery (B7					<u> </u>	rtedudi Test (Bo)		
	Vegetated Concave				, ,					
Field Obser							1			
Surface Wat		es	No X	Depth (i	nches).					
Water Table					nches):	0				
Saturation P		es X		Depth (i	· · · ·	0	Wetland Hydrolog	gy Present? Yes X No		
	pillary fringe)			. (-	′ –					
	corded Data (stream	gauge, mo	nitoring well, aeria	l photos	, previous	s inspec	tions), if available:			
	,	- ·	<i>5</i> ,	•	•	•	,-			
Remarks:										

Project/Site: Brendel Lake Campground / Elizabeth Lake	Road (221016	6) City/Cou	nty: White L	ake Twp/Oakland	Sampling D	ate: 4-6-	2022
Applicant/Owner: Kem-Tec, Inc. (client)			-	State: MI	Sampling Po	oint:	DP4
Investigator(s): R. Newkirk		Section, T	ownship, Ra	nge: NW 1/4; NW	1/4; Section 27; T3	BN; R8E	
Landform (hillside, terrace, etc.): hillside			Local relief (c	concave, convex, no	ne): convex		
Slope (%): 8 Lat: 42.641693		Long: -	83.497696		Datum: WGS	34	
Soil Map Unit Name: 17A - Wasepi sandy loam, 0 to 3	percent slope	es		NWI c	assification: PFO1	С	
Are climatic / hydrologic conditions on the site typical f	or this time of	year?	Yes X	No (If no	o, explain in Remar	ks.)	
Are Vegetation No , Soil No , or Hydrology No	significantly d	isturbed? A	Are "Normal C	Circumstances" pres			
Are Vegetation No , Soil No , or Hydrology No			If needed, ex	plain any answers i	n Remarks.)		_
SUMMARY OF FINDINGS – Attach site m				-	·	features	s, etc.
Hydrophytic Vegetation Present? Yes N	o X	Is the	Sampled A	rea			
	o X	within	n a Wetland?	Yes_	No X		
Wetland Hydrology Present? Yes N	o X			_			
Data point is located on a hillside, in an upland forest VEGETATION – Use scientific names of pla		h edge of We	tland C and a	along the east bound	dary of the Project	Site.	
Trace Objections (Dietoines 00)	Absolute	Dominant	Indicator	D T			
Tree Stratum (Plot size: 30) 1. Quercus alba	% Cover 50	Species? Yes	Status FACU	Dominance Tes			
Quercus alba Quercus rubra	20	Yes	FACU	Are OBL, FACW	nant Species That or FAC:	1	(A)
3. Carya ovata	5	No	FACU		Dominant Species	<u> </u>	_('')
4.				Across All Strata		5	(B)
5.				Percent of Domir	nant Species That		_
	75 =	Total Cover		Are OBL, FACW	or FAC:	20.0%	(A/B)
Sapling/Shrub Stratum (Plot size: 15)						
1. Quercus alba	20	Yes	FACU	Prevalence Inde		10. 1. 1	
Fagus grandifolia Quercus bicolor	<u>15</u> 15	Yes Yes	FACU FACW	Total % Cov	0 x1=	ultiply by: 0	_
4.	10	1 65	FACW	OBL species FACW species	15 x 2 =	30	_
5.				FAC species	0 x3=	0	_
·	50 =	Total Cover		FACU species	110 x 4 =	440	_
Herb Stratum (Plot size: 5)				UPL species	0 x 5 =	0	_
1. Carex sp.				Column Totals:	125 (A)	470	(B)
2				Prevalence In	dex = B/A =	3.76	_
3.							
4					getation Indicator		
5 6.					st for Hydrophytic \ ce Test is >50%	egetation/	
7					ce Index is ≤3.0 ¹		
8.					gical Adaptations ¹ (Provide su	upporting
9.					marks or on a sepa		
10.				Problematic	Hydrophytic Vegeta	ation ¹ (Exp	lain)
Weekly Vine Obstance (District	<u> </u>	Total Cover			Iric soil and wetland		y must
Woody Vine Stratum (Plot size: 15 1. None)			•	s disturbed or prob	iematic.	
2. None				Hydrophytic			
		Total Cover		Vegetation Present?	Yes No	Χ	
Remarks: (Include photo numbers here or on a sona							
Remarks: (Include photo numbers here or on a sepa	rate sneet.)						

SOIL Sampling Point:

Profile Desc	cription: (Describe t	o the depth	needed to docu	ıment th	ne indica	tor or	confirm the absence of	of indicators.)			
Depth	Matrix		Redo	x Featur							
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks			
0-11	10YR 3/2	100					Loamy/Clayey				
11-17	10YR 5/3	95	10YR 5/4	5	С	M	Loamy/Clayey	Faint redox concentrations			
¹ Type: C=C	oncentration, D=Depl	etion RM=F	Reduced Matrix N	AS=Mas	ked Sand	Grains	² l ocation:	PL=Pore Lining, M=Matrix.			
Hydric Soil		etion, Mivi-i	reduced Matrix, I	/IO-IVIAS	Keu Gand	Oranis		s for Problematic Hydric Soils ³ :			
Histosol			Sandy Gle	yed Mat	rix (S4)			Prairie Redox (A16)			
	ipedon (A2)		Sandy Red	•	, ,			Manganese Masses (F12)			
Black His			Stripped M				Red F	Parent Material (F21)			
Hydroge	n Sulfide (A4)		Dark Surfa	ce (S7)	•		Very S	Shallow Dark Surface (F22)			
Stratified	Layers (A5)		Loamy Mu	cky Mine	eral (F1)		Other	(Explain in Remarks)			
2 cm Mu	ck (A10)		Loamy Gle	yed Mat	rix (F2)		<u></u>				
Depleted	l Below Dark Surface	(A11)	Depleted N	/latrix (F	3)						
Thick Da	rk Surface (A12)		Redox Dar	k Surfac	e (F6)		³ Indicators	s of hydrophytic vegetation and			
Sandy Mucky Mineral (S1) Depleted Dark Surface (F2)					face (F7)		wetlar	nd hydrology must be present,			
5 cm Mu	cky Peat or Peat (S3)	Redox Dep	pression	s (F8)		unles	s disturbed or problematic.			
Restrictive I	Layer (if observed):										
Type:			_								
Depth (in	nches):		<u> </u>				Hydric Soil Present	? Yes No X			
Remarks:											
								of Hydric Soils, Version 7.0, 2015			
Errata (http://	/www.nrcs.usda.gov/	Internet/FSE	E_DOCUMENTS/	nrcs142	p2_0512	93.doc	().				
HYDROLO	ocv.										
_	drology Indicators: cators (minimum of or	ao ie roquire	nd: chock all that a	annly)			Socondar	y Indicators (minimum of two required)			
	Water (A1)	ie is require	water-Stai Water		ves (RQ)						
	ter Table (A2)		Aquatic Fa		` ,		Surface Soil Cracks (B6) Drainage Patterns (B10)				
Saturation	` '		True Aqua	,	,		Dry-Season Water Table (C2)				
	arks (B1)		Hydrogen		. ,			ish Burrows (C8)			
	it Deposits (B2)		Oxidized R					ation Visible on Aerial Imagery (C9)			
	osits (B3)		Presence of	•		-		ed or Stressed Plants (D1)			
	t or Crust (B4)		Recent Iro					norphic Position (D2)			
Iron Dep	osits (B5)		Thin Muck	Surface	(C7)		FAC-I	Neutral Test (D5)			
Inundatio	on Visible on Aerial In	nagery (B7)	Gauge or \	Well Dat	a (D9)						
? Sparsely	Vegetated Concave	Surface (B8	3) Other (Exp	lain in R	Remarks)						
Field Obser	vations:										
Surface Water	er Present? Yes	s	No X	Depth (i	nches):						
Water Table	Present? Yes	s	No X	Depth (i	nches):						
Saturation P	resent? Yes	s	No X	Depth (i	nches): _		Wetland Hydrolog	y Present? Yes No X			
(includes cap	<u> </u>										
Describe Re	corded Data (stream	gauge, mon	itoring well, aeria	l photos	, previous	inspe	ctions), if available:				
Pomorko:											
Remarks:											

Project/Site: Brendel Lake Campground / Elizabeth Lake	Road (22101	6) City/Cou	nty: White L	ake Twp/Oakland	Sampling Da	ate: <u>4-6-</u> 2	2022
Applicant/Owner: Kem-Tec, Inc. (client)			-	State: MI	Sampling Po	int:	DP5
Investigator(s): R. Newkirk		Section, 1	ownship, Ra	nge: NW 1/4; NW 1/	 /4; Section 27; T3	N; R8E	
Landform (hillside, terrace, etc.): depression			Local relief (d	concave, convex, none	e): concave		
Slope (%): 1 Lat: 42.641799		Long: -	83.49799		Datum: WGS8	4	
Soil Map Unit Name: 17A - Wasepi sandy loam, 0 to 3	percent slop			NWI clas	ssification: PFO10		
Are climatic / hydrologic conditions on the site typical for			Yes X		explain in Remark		
Are Vegetation No , Soil No , or Hydrology No s				Circumstances" preser			
Are Vegetation No , Soil No , or Hydrology No r				plain any answers in F			_
SUMMARY OF FINDINGS – Attach site ma					•	features	, etc.
Hydrophytic Vegetation Present? Yes X No)	Is the	Sampled A	rea			
			n a Wetlandî		No		
Wetland Hydrology Present? Yes X No							
Remarks: Data point is located in Wetland C near its north edge		-					
Data point is located in Wetland C near its north edge	-						
VEGETATION – Use scientific names of pla	nts.						
	Absolute	Dominant	Indicator	l			
Tree Stratum (Plot size: 30)	% Cover	Species?	Status	Dominance Test v			
Quercus bicolor Betula lenta	20	Yes Yes	FACU FACU	Number of Domina Are OBL, FACW, o	•	4	(A)
3. Populus deltoides	10	No	FAC		_		- (A)
Celtis occidentalis	10	No	FAC	Total Number of Do Across All Strata:	ominant Species	5	(B)
5.				Percent of Dominar	nt Species That		_(-)
	75	Total Cover		Are OBL, FACW, o	•	80.0%	(A/B)
Sapling/Shrub Stratum (Plot size: 15)					_		_ ` `
Quercus bicolor	20	Yes	FACW	Prevalence Index	worksheet:		
2. Celtis occidentalis	15	Yes	FAC	Total % Cover	of: Mu	Itiply by:	
3. Populus deltoides	8	No	FAC	OBL species	25 x 1 =	25	_
4				FACW species	58 x 2 =	116	_
5				FAC species	43 x 3 =	129	_
Horb Stratum (Diet size: F.)	43	=Total Cover		FACU species	20 x 4 = _	80	_
Herb Stratum (Plot size: 5) 1. Carex hyalinolepis	20	Yes	OBL	UPL species Column Totals:	$0 \times 5 = $	0 350	— (B)
2. Symplocarpus foetidus	5	No	OBL	Prevalence Inde		2.40	– ^(D)
3. Cornus sericea	3	No	FACW	l Tovalonioo inao	X 2,7 .	2.10	_
4.				Hydrophytic Vege	tation Indicators		
5.					for Hydrophytic Ve		
6.				X 2 - Dominance			
7.				X 3 - Prevalence	Index is ≤3.0 ¹		
8					cal Adaptations ¹ (F		
9					arks or on a sepa	•	•
10					drophytic Vegeta		
	28	=Total Cover		¹ Indicators of hydric			/ must
Woody Vine Stratum (Plot size: 15)				be present, unless	disturbed or probl	ematic.	
1. <u>None</u> 2.				Hydrophytic			
	:	Total Cover		Vegetation Present? Ye	es X No		
Domarka: /Include photo numbers here or a = = = = = =				1.10001111	<u> </u>		
Remarks: (Include photo numbers here or on a separ	ate sneet.)						

Sampling Point:

		to the dept				tor or o	confirm the absence	of indicators.)			
Depth	Matrix			x Featur							
(inches)	Color (moist)	%	Color (moist)	<u>%</u>	Type ¹	Loc ²	Texture	Remarks			
0-7	10YR 3/1	100					Mucky Sand				
7-16	10YR 5/3	90	10YR 5/1	10	D	M	Sandy				
		· <u></u>									
		· <u> </u>									
		·									
								-			
		· —— –									
	oncentration, D=Dep	letion, RM=	Reduced Matrix, N	/IS=Mas	ked Sand	d Grains		: PL=Pore Lining, M=Matrix.			
Hydric Soil								rs for Problematic Hydric Soils ³ :			
— Histosol			Sandy Gle					st Prairie Redox (A16)			
	ipedon (A2)		Sandy Red					Manganese Masses (F12)			
Black His	` '		Stripped M	•	5)			Parent Material (F21)			
	n Sulfide (A4)		? Dark Surfa	` '				Shallow Dark Surface (F22)			
	Layers (A5)		Loamy Mu	-			Otne	r (Explain in Remarks)			
2 cm Mu	, ,	o (A11)	Loamy Gle	•	, ,						
	Below Dark Surface	e (ATT)	Depleted N Redox Dar	•	•		3Indicates	ro of budroubutio vogotation and			
	rk Surface (A12) ucky Mineral (S1)		Depleted D		` '		³ Indicators of hydrophytic vegetation and				
	cky Peat or Peat (St	3)	Redox Dep		, ,			and hydrology must be present, ss disturbed or problematic.			
		•	Redox Dep	716331011	3 (1 0)	I	unies	ss disturbed of problematic.			
	_ayer (if observed)	•									
Type:			_								
Depth (ir	icnes):		_				Hydric Soil Presen	t? Yes_X No			
Remarks:											
	m is revised from Mi /www.nrcs.usda.gov							s of Hydric Soils, Version 7.0, 2015			
Errata (IIIIp.//	www.nics.usua.gov	/IIII.eIII.eI/I 3	E_DOCOMENTS/	11105142	pz_0512	93.uucx	·)·				
HYDROLO	GY										
Wetland Hyd	drology Indicators:										
_	cators (minimum of o		ed; check all that a	apply)			Seconda	ry Indicators (minimum of two required)			
X Surface	Water (A1)	•	X Water-Stai	ned Lea	ves (B9)		Surfa	ace Soil Cracks (B6)			
X High Wa	ter Table (A2)		Aquatic Fa	una (B1	3)		Drair	nage Patterns (B10)			
X Saturation	n (A3)		True Aqua	tic Plant	s (B14)		Dry-S	Season Water Table (C2)			
X Water M	arks (B1)		X Hydrogen	Sulfide (Odor (C1))	Cray	fish Burrows (C8)			
Sedimen	t Deposits (B2)		Oxidized R	Rhizosph	eres on L	iving R	oots (C3) X Satu	ration Visible on Aerial Imagery (C9)			
Drift Dep	osits (B3)		Presence of	of Reduc	ced Iron (C4)	Stun	ted or Stressed Plants (D1)			
	t or Crust (B4)		Recent Iron	n Reduc	tion in Ti	led Soil	s (C6) X Geor	morphic Position (D2)			
	osits (B5)		Thin Muck				X FAC-	-Neutral Test (D5)			
	on Visible on Aerial I	0 , ,			` '						
Sparsely	Vegetated Concave	e Surface (B	8)Other (Exp	lain in R	Remarks)						
Field Obser											
Surface Water				Depth (i	· –	1					
Water Table				Depth (i	′ –	0					
Saturation P		es X	No	Depth (i	nches): _	0	Wetland Hydrolo	gy Present? Yes X No			
(includes cap											
Describe Re	corded Data (stream	ı gauge, moı	nıtorıng well, aeria	ı photos	, previous	sinspec	ctions), if available:				
Remarks:											

Project/Site: Brendel Lake Campground / Elizabeth Lake F	Road (22101)	6) City/Cou	nty: White La	ake Twp/Oakland	Samplin	g Date:	4-6-2	022
Applicant/Owner: Kem-Tec, Inc. (client)				State: M	I Samplin	g Point:)P6
Investigator(s): R. Newkirk		Section, T	ownship, Rar	nge: NW 1/4; NW	/ 1/4; Section 27	; T3N; R	3E	
Landform (hillside, terrace, etc.): depression			_ocal relief (co	oncave, convex, n	one): concave			
Slope (%): 2 Lat: 42.640925		Long: -	83.499864		Datum: W	GS84		
Soil Map Unit Name: 27 - Houghton and Adrian mucks				NWI	classification: Pf	-01C		
Are climatic / hydrologic conditions on the site typical for	r this time of	f year?	Yes X		o, explain in Rer			
Are Vegetation No , Soil No , or Hydrology No si				ircumstances" pre			1	
Are Vegetation No , Soil No , or Hydrology No n				olain any answers				_
SUMMARY OF FINDINGS – Attach site ma			·	•	•	nt feat	ures,	etc.
Hydrophytic Vegetation Present? Yes X No		Is the	Sampled Ar	ea				
		withir	n a Wetland?	Yes_	X No			
Wetland Hydrology Present? Yes X No								
Remarks:	1.0							
Data point is situated in the southern extent of Wetland	1 (.							
VEGETATION – Use scientific names of plar	nts.							
	Absolute	Dominant	Indicator					
Tree Stratum (Plot size: 30)	% Cover	Species?	Status	Dominance Tes				
Quercus bicolor Quercus rubra		Yes Yes	FACU FACU	Number of Dom Are OBL, FACW	•		4	(A)
3.		163	1700					_(^)
4.				Total Number of Across All Strata	•		5	(B)
5.				Percent of Domi				_ (- /
	35 =	Total Cover		Are OBL, FACW	•		.0%	(A/B)
Sapling/Shrub Stratum (Plot size: 15)								
Quercus bicolor	8	Yes	FACW	Prevalence Ind	ex worksheet:			
2. Cornus sericea	5	Yes	FACW	Total % Co	ver of:	Multiply	by:	_
3				OBL species			30	_
4				FACW species_			72	_
5				FAC species			0	_
Harb Stratum (Diet eizer E.)	13=	=Total Cover		FACU species			30	-
Herb Stratum (Plot size: 5) 1. Typha angustifolia	25	Yes	OBL	UPL species _ Column Totals:			0 62	(B)
Symplocarpus foetidus	5	No	OBL	Prevalence Ir		2.00		_(B)
3. Cornus sericea	3	No	FACW	1 TOVAICHOO II		2.00		_
4.				Hydrophytic Ve	getation Indica	itors:		
5.					est for Hydrophy		ation	
6.					ice Test is >50%	_		
7.				X 3 - Prevalen	ce Index is ≤3.0	1		
8.					ogical Adaptation	•		porting
9				data in Re	emarks or on a s	separate s	sheet)	
10				Problematic	Hydrophytic Ve	getation ¹	(Expla	ıin)
	33	=Total Cover		¹ Indicators of hy				must
Woody Vine Stratum (Plot size: 15)				be present, unle	ss disturbed or p	oroblema	tic.	
1. None				Hydrophytic				
2		Total Cover		Vegetation Present?	Voc V	No		
		- i otal Cover		rieseill?	Yes X	No	-	
Remarks: (Include photo numbers here or on a separa Vegetation consists of a nearly monotypic stand of nar	,	ail (Typha and	ustifolia OPI	1				
vogotation consists of a hearry monotypic stand of har	owicai call	an (1 ypila ally	aouiona, ODL	.).				

Sampling Point:

Item A.	
---------	--

		to the depth				tor or c	confirm the absenc	ee of indicators.)
Depth	Matrix			x Featur		. 2	_	
(inches)	Color (moist)	<u> %</u>	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-15	10YR 2/1	100					Mucky Sand	
			_					
								_
								_
								_
¹ Type: C=Co	oncentration, D=De	pletion, RM=F	Reduced Matrix, N	/IS=Mas	ked Sand	l Grains		on: PL=Pore Lining, M=Matrix.
Hydric Soil								tors for Problematic Hydric Soils ³ :
Histosol			Sandy Gle					past Prairie Redox (A16)
	ipedon (A2)		Sandy Red					n-Manganese Masses (F12)
Black His	` '		Stripped M	•	6)			ed Parent Material (F21)
	n Sulfide (A4)		? Dark Surfa	, ,				ry Shallow Dark Surface (F22)
	Layers (A5)		Loamy Mu	-			Oth	her (Explain in Remarks)
2 cm Mu	, ,	(8.4.4)	Loamy Gle	-				
	Below Dark Surface	e (A11)	Depleted N	•	•		3	
	rk Surface (A12)		Redox Dar		` '			tors of hydrophytic vegetation and
	ucky Mineral (S1)	0)	Depleted D		, ,			etland hydrology must be present,
5 cm Mu	cky Peat or Peat (S	3)	Redox Dep	ression	s (F8)		uni	less disturbed or problematic.
Restrictive I	_ayer (if observed)):						
Type:			_					
Depth (in	ches):		_				Hydric Soil Prese	ent? Yes <u>X</u> No
Remarks:								
								ors of Hydric Soils, Version 7.0, 2015
Errata (http://	www.nrcs.usda.gov	//Internet/FSE	_DOCUMENTS/	nrcs142	p2_0512	93.docx).	
HYDROLO	GV							
_	drology Indicators		-lll 4 4 -	1			0	dama kadi akana (natataana a fikara na nata di
	ators (minimum of	one is require			(DO)			dary Indicators (minimum of two required)
X Surface \	` '		X Water-Stai		` '			rface Soil Cracks (B6)
	ter Table (A2)		Aquatic Fa	,	,			ainage Patterns (B10)
X Saturation			True Aqua Hydrogen					y-Season Water Table (C2) ayfish Burrows (C8)
	t Deposits (B2)		Oxidized R		, ,			turation Visible on Aerial Imagery (C9)
	osits (B3)		Presence of			_	` ′	unted or Stressed Plants (D1)
	t or Crust (B4)		Recent Iro					eomorphic Position (D2)
	osits (B5)		Thin Muck			104 0011		C-Neutral Test (D5)
	on Visible on Aerial	Imagery (B7)	Gauge or \				<u></u>	
	Vegetated Concav	0, ,			` '			
Field Observ		•	<u> </u>		,			
Surface Water		es X	No	Depth (i	nches).	1		
Water Table		es X		Depth (i	· -	0		
Saturation Pr		es X		Depth (i	′ –	0	Wetland Hydro	logy Present? Yes X No
(includes cap				(-	_			
`	corded Data (strean	n gauge, mon	itoring well, aeria	l photos	, previous	inspec	tions), if available:	
	,	3 0 ,	,			' -	,,	
Remarks:								

Project/Site: Brendel Lake Campground / Elizabeth Lake	e Road (221016	City/Cou	nty: White L	ake Twp/Oakland	Sampling Da	ate: 4-6-2	2022
Applicant/Owner: Kem-Tec, Inc. (client)				State: MI	Sampling Po	int:	DP7
Investigator(s): R. Newkirk		Section, 1	ownship, Ra	nge: NW 1/4; NW	1/4; Section 27; T3	N; R8E	
Landform (hillside, terrace, etc.): upland			Local relief (c	oncave, convex, no	ne): none		
Slope (%):0 Lat: 42.640848		Long:	83.499779		Datum: WGS8	4	
Soil Map Unit Name: 27 - Houghton and Adrian muck	S			NWI cl	assification: PFO10	5	
Are climatic / hydrologic conditions on the site typical	for this time of	year?	Yes X	No (If no	, explain in Remark	s.)	
Are Vegetation No , Soil No , or Hydrology No	significantly di	sturbed? A	Are "Normal C	ircumstances" pres	ent? Yes X	No	
Are Vegetation No , Soil No , or Hydrology No	naturally probl	ematic? (If needed, ex	plain any answers ir	n Remarks.)		_
SUMMARY OF FINDINGS – Attach site m	ap showing	g samplin	g point lo	cations, transe	cts, important	features	, etc.
Hydrophytic Vegetation Present? Yes N	lo X	Is the	Sampled A	'ea			
	lo X		n a Wetland?		No X		
	lo X			_	<u> </u>		
Remarks: Data point is located near and south of Wetland B in	an unland fore	sted area wi	th mowed tur	arass			
Data point is located flear and south of Wetland B in	an upland lore	sieu area wi	in mowed tur	yiass.			
VEGETATION – Use scientific names of pla	ants.						
Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator	Dominance Test	workshoot:		
<u>Tree Stratum</u> (Plot size: <u>30</u>) 1. Quercus rubra	35	Species? Yes	Status FACU		nant Species That		
Populus deltoides	15	Yes	FAC	Are OBL, FACW,		2	(A)
3.					- Dominant Species		- ` ′
4.				Across All Strata:	•	5	(B)
5				Percent of Domin	ant Species That		
	50 =	Total Cover		Are OBL, FACW,	or FAC:	40.0%	_(A/B)
Sapling/Shrub Stratum (Plot size: 15	.)						
1. Cornus sericea	<u>5</u> 5	Yes Yes	FACW	Prevalence Inde		ltiply by	
2. Quercus bicoor 3.	<u> </u>	res		Total % Cov OBL species	0 x1=	Itiply by: 0	_
4.				FACW species	5 x 2 =	10	_
5.				FAC species	15 x 3 =	45	_
	10 =	Total Cover		FACU species	43 x 4 =	172	_
Herb Stratum (Plot size: 5)				UPL species	0 x 5 =	0	_
Solidago canadensis	8	Yes	FACU	Column Totals:	63 (A)	227	(B)
2. Carex sp.				Prevalence Inc	dex = B/A =	3.60	_
3							
4					getation Indicators		
5					st for Hydrophytic V	egetation	
6.					ce Test is >50%		
7. 8.					e Index is ≤3.0 ¹ gical Adaptations ¹ (l	Provido su	nnortino
					marks or on a sepa		
9. 10.					Hydrophytic Vegeta	,	•
	8 =	Total Cover			ric soil and wetland		
Woody Vine Stratum (Plot size: 15)			,	s disturbed or prob	, ,,	
1. None	<u> </u>			Hydrophytic			
2.				Vegetation			
	=	Total Cover		Present?	Yes No_	X	
Remarks: (Include photo numbers here or on a sepa	rate sheet.)	<u> </u>					_

Sampling Point:

Depth	cription: (Describe	to the dept				tor or c	onfirm the absence	of indicators.)			
•	Matrix			x Featur	4						
(inches)	Color (moist)	%	Color (moist)	%	Type	Loc ²	Texture	Remarks			
0-10	10YR 3/1	100					Sandy				
10-17	10YR 4/2	100					Sandy				
1							2				
	oncentration, D=Dep	letion, RM=l	Reduced Matrix, N	MS=Mas	ked Sand	l Grains		n: PL=Pore Lining, M=Matrix.			
Hydric Soil			Sandy Cla	uad Mat	riv (CA)			rs for Problematic Hydric Soils ³ :			
Histosol			Sandy Gle		IX (54)			st Prairie Redox (A16)			
Black His	oipedon (A2)		Sandy Red Stripped M		:1			Manganese Masses (F12) Parent Material (F21)			
	n Sulfide (A4)		? Dark Surfa	•))			Shallow Dark Surface (F22)			
	l Layers (A5)		Loamy Mu	` '	oral (E1)			er (Explain in Remarks)			
2 cm Mu	• , ,		Loamy Gle	-				(Explain in Remarks)			
	d Below Dark Surface	(A11)	Depleted N	•	. ,						
	ark Surface (A12)	, (, , , , ,	Redox Dar		-		³ Indicato	rs of hydrophytic vegetation and			
	lucky Mineral (S1)		Depleted [` '			and hydrology must be present,			
	icky Peat or Peat (S3)	Redox De		, ,		unless disturbed or problematic.				
	Layer (if observed):	•	_ 	'	. ,			·			
Type:	Layer (ii observea).										
Depth (ir	nches):						Hydric Soil Presen	t? Yes No X			
Remarks:	,						•				
	m is revised from Mic	dwest Regio	nal Supplement \	ersion 2	.0 to incl	ude the	NRCS Field Indicator	s of Hydric Soils, Version 7.0, 2015			
	//www.nrcs.usda.gov/							· · · , - · · · · · · · · · · · · · · · · · ·			
			E_DOCOMENTS/	nrcs142	p2_0512	93.docx).				
			E_DOCUMEN 15/	nrcs142	p2_0512	93.docx).				
			E_DOCUMENTS/	nrcs142	p2_0512	93.docx).				
HYDROLO	OGY		E_DOCUMENTS/	nrcs142	p2_0512	93.docx).				
	OGY drology Indicators:		E_DOCUMENTS/	rincs 142	p2_0512	93.docx).				
Wetland Hy					p2_0512	93.docx		ry Indicators (minimum of two required)			
Wetland Hyd	drology Indicators:		ed; check all that a	apply) ined Lea	ves (B9)	93.docx	<u>Seconda</u>	ry Indicators (minimum of two required) ace Soil Cracks (B6)			
Wetland Hyde Primary India Surface High Wa	drology Indicators: cators (minimum of o Water (A1) tter Table (A2)		ed; check all that a Water-Stai Aquatic Fa	apply) ined Lea auna (B1	ves (B9) 3)	93.docx	Seconda Surfa Drair	ace Soil Cracks (B6) nage Patterns (B10)			
Primary India Surface High Wa Saturatio	drology Indicators: cators (minimum of o Water (A1) tter Table (A2) on (A3)		ed; check all that a Water-Stai Aquatic Fa True Aqua	apply) ined Lea auna (B1 tic Plant	ves (B9) 3) s (B14)		Seconda Surfa Drain Dry-	ace Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2)			
Wetland Hyderimary Indice Surface of High Water Market Mar	drology Indicators: cators (minimum of o Water (A1) hter Table (A2) on (A3) arks (B1)		ed; check all that a Water-Stai Aquatic Fa True Aqua Hydrogen	apply) ined Lea auna (B1 tic Plant Sulfide (ves (B9) 3) s (B14) Ddor (C1)		SecondaSurfaDrainDryCray	ace Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2) fish Burrows (C8)			
Wetland Hyd Primary India Surface V High Wa Saturatio Water M Sedimen	drology Indicators: cators (minimum of o Water (A1) ter Table (A2) on (A3) arks (B1) at Deposits (B2)		ed; check all that a Water-Stai Aquatic Fa True Aqua Hydrogen Oxidized F	apply) ined Lea auna (B1 tic Plant Sulfide (Rhizosph	ves (B9) 3) s (B14) Ddor (C1) eres on L	Living Ro	Seconda Surfa Drain Dry- Cray Cray	ace Soil Cracks (B6) hage Patterns (B10) Season Water Table (C2) fish Burrows (C8) ration Visible on Aerial Imagery (C9)			
Wetland Hyd Primary India Surface V High Wa Saturatio Water M Sedimen Drift Dep	drology Indicators: cators (minimum of o Water (A1) tter Table (A2) on (A3) arks (B1) at Deposits (B2) posits (B3)		ed; check all that a Water-Stai Aquatic Fa True Aqua Hydrogen Oxidized F	apply) ined Lea auna (B1 tic Plant Sulfide (Rhizosph of Reduc	ves (B9) 3) s (B14) Odor (C1) eres on L	.iving Ro	Seconda Surfa Drain Cray Cray pots (C3)Satu Stun	ace Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2) fish Burrows (C8) ration Visible on Aerial Imagery (C9) ted or Stressed Plants (D1)			
Wetland Hyd Primary India Surface V High Wa Saturatic Water M Sedimen Drift Dep Algal Ma	drology Indicators: cators (minimum of o Water (A1) ter Table (A2) on (A3) arks (B1) at Deposits (B2) oosits (B3) at or Crust (B4)		ed; check all that a Water-Stai Aquatic Fa True Aqua Hydrogen Oxidized F Presence o	apply) ined Lea tuna (B1 tic Plant Sulfide (Rhizosph of Reduc	ves (B9) 3) s (B14) Odor (C1) eres on Led Iron (tion in Til	.iving Ro	Seconda	ace Soil Cracks (B6) hage Patterns (B10) Season Water Table (C2) fish Burrows (C8) ration Visible on Aerial Imagery (C9) ted or Stressed Plants (D1) morphic Position (D2)			
Wetland Hyd Primary India Surface V High Wa Saturatic Water M Sedimen Drift Dep Algal Ma Iron Dep	drology Indicators: cators (minimum of o Water (A1) tter Table (A2) on (A3) arks (B1) at Deposits (B2) cosits (B3) at or Crust (B4) cosits (B5)	ne is require	ed; check all that a Water-Stai Aquatic Fa True Aqua Hydrogen Oxidized F Presence of Recent Iro Thin Muck	apply) ined Lea auna (B1 tic Plant Sulfide (Rhizosph of Reduc n Reduc Surface	ves (B9) 3) s (B14) Odor (C1) eres on Led Iron (tion in Til	.iving Ro	Seconda	ace Soil Cracks (B6) nage Patterns (B10) Season Water Table (C2) fish Burrows (C8) ration Visible on Aerial Imagery (C9) ted or Stressed Plants (D1)			
Wetland Hyd Primary India Surface V High Wa Saturatic Water M Sedimen Drift Dep Algal Ma Iron Dep	drology Indicators: cators (minimum of o Water (A1) tter Table (A2) on (A3) arks (B1) ot Deposits (B2) oosits (B3) at or Crust (B4) oosits (B5) on Visible on Aerial Ir	ne is require	ed; check all that a Water-Stai Aquatic Fa True Aqua Hydrogen Oxidized F Presence of Recent Iro Thin Muck	apply) ined Lea auna (B1 tic Plant Sulfide (Rhizosph of Reduc n Reduc Surface Well Dat	ves (B9) 3) s (B14) Ddor (C1) eres on L ed Iron (tion in Til (C7) a (D9)	.iving Ro	Seconda	ace Soil Cracks (B6) hage Patterns (B10) Season Water Table (C2) fish Burrows (C8) ration Visible on Aerial Imagery (C9) ted or Stressed Plants (D1) morphic Position (D2)			
Wetland Hyderimary India Surface of High Waster Mater	drology Indicators: cators (minimum of o Water (A1) ter Table (A2) on (A3) arks (B1) at Deposits (B2) cosits (B3) at or Crust (B4) cosits (B5) on Visible on Aerial In	ne is require	ed; check all that a Water-Stai Aquatic Fa True Aqua Hydrogen Oxidized F Presence of Recent Iro Thin Muck	apply) ined Lea auna (B1 tic Plant Sulfide (Rhizosph of Reduc n Reduc Surface Well Dat	ves (B9) 3) s (B14) Ddor (C1) eres on L ed Iron (tion in Til (C7) a (D9)	.iving Ro	Seconda	ace Soil Cracks (B6) hage Patterns (B10) Season Water Table (C2) fish Burrows (C8) ration Visible on Aerial Imagery (C9) ted or Stressed Plants (D1) morphic Position (D2)			
Wetland Hyd Primary India Surface V High Wa Saturatio Water M Sedimen Drift Dep Algal Ma Iron Dep Inundatio Sparsely	drology Indicators: cators (minimum of o Water (A1) ther Table (A2) on (A3) arks (B1) at Deposits (B2) oosits (B3) at or Crust (B4) oosits (B5) on Visible on Aerial In vegetated Concave vations:	ne is require nagery (B7) Surface (Bi	ed; check all that a Water-Stai Aquatic Fa True Aqua Hydrogen Oxidized F Presence of Recent Iro Thin Muck Gauge or V 8) Other (Exp	apply) ined Lea auna (B1 tic Plant Sulfide (Rhizosph of Reduc n Reduc Surface Well Dat	ves (B9) 3) s (B14) Odor (C1) eres on L ced Iron (tion in Til (C7) a (D9) emarks)	.iving Ro	Seconda	ace Soil Cracks (B6) hage Patterns (B10) Season Water Table (C2) fish Burrows (C8) ration Visible on Aerial Imagery (C9) ted or Stressed Plants (D1) morphic Position (D2)			
Wetland Hyderimary India Surface of High Was Saturation Water Management Sediment Drift Dep Algal Management Inundation Sparsely Field Obsert Surface Water	drology Indicators: cators (minimum of o Water (A1) tter Table (A2) on (A3) arks (B1) on Deposits (B2) oosits (B3) at or Crust (B4) oosits (B5) on Visible on Aerial In vegetated Concave vations: er Present?	ne is require magery (B7) Surface (Bi	ed; check all that a Water-Stai Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro Thin Muck Gauge or V Other (Exp	apply) ined Lea tuna (B1 tic Plant Sulfide (Rhizosph of Reduc n Reduc Surface Well Dat blain in R	ves (B9) 3) s (B14) Odor (C1) eres on L ed Iron (tion in Til (C7) a (D9) emarks)	Living Ro C4) led Soils	Seconda	ace Soil Cracks (B6) hage Patterns (B10) Season Water Table (C2) fish Burrows (C8) ration Visible on Aerial Imagery (C9) ted or Stressed Plants (D1) morphic Position (D2)			
Wetland Hyderimary India Surface of High Waster Manager of Manager	drology Indicators: cators (minimum of o Water (A1) tter Table (A2) on (A3) arks (B1) ot Deposits (B2) oosits (B3) at or Crust (B4) oosits (B5) on Visible on Aerial In vegetated Concave vations: er Present? Ye Present? Ye	ne is require magery (B7) Surface (Bi	ed; check all that a Water-Stai Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro Thin Muck Gauge or V B) Other (Exp	apply) ined Lea tuna (B1 tic Plant Sulfide (Rhizosph of Reduc n Reduc Surface Well Dat blain in R Depth (ii	ves (B9) 3) s (B14) Odor (C1) eres on L ted Iron (tion in Til (C7) a (D9) emarks) nches): _ nches): _	Living Ro C4) led Soils	Seconda	ace Soil Cracks (B6) hage Patterns (B10) Season Water Table (C2) fish Burrows (C8) ration Visible on Aerial Imagery (C9) ted or Stressed Plants (D1) morphic Position (D2) -Neutral Test (D5)			
Wetland Hyderimary India Surface of High Was Saturation Water Management Sediment Drift Dep Algal Management Inundation Sparsely Field Obsert Surface Water	drology Indicators: cators (minimum of o Water (A1) tter Table (A2) on (A3) arks (B1) ot Deposits (B2) oosits (B3) at or Crust (B4) oosits (B5) on Visible on Aerial Ir v Vegetated Concave vations: er Present? Ye resent? Ye	ne is require magery (B7) Surface (Bi	ed; check all that a Water-Stai Aquatic Fa True Aqua Hydrogen Oxidized F Presence Recent Iro Thin Muck Gauge or V B) Other (Exp	apply) ined Lea tuna (B1 tic Plant Sulfide (Rhizosph of Reduc n Reduc Surface Well Dat blain in R	ves (B9) 3) s (B14) Odor (C1) eres on L ted Iron (tion in Til (C7) a (D9) emarks) nches): _ nches): _	Living Ro C4) led Soils	Seconda	ace Soil Cracks (B6) hage Patterns (B10) Season Water Table (C2) fish Burrows (C8) ration Visible on Aerial Imagery (C9) ted or Stressed Plants (D1) morphic Position (D2) -Neutral Test (D5)			
Wetland Hyderimary India Surface of High Water Manager	drology Indicators: cators (minimum of o Water (A1) tter Table (A2) on (A3) arks (B1) ot Deposits (B2) oosits (B3) at or Crust (B4) oosits (B5) on Visible on Aerial Ir v Vegetated Concave vations: er Present? Ye resent? Ye	ne is require magery (B7) Surface (B6) s s	ed; check all that a Water-Stai Aquatic Fa True Aqua Hydrogen Oxidized F Presence of Recent Iro Thin Muck Gauge or V 8) Other (Exp	apply) ined Lea auna (B1 tic Plant: Sulfide (Rhizosph of Reduc on Reduc Surface Well Dat: blain in R Depth (ii Depth (ii	ves (B9) 3) s (B14) Ddor (C1) eres on L led Iron (tion in Til (C7) a (D9) emarks) nches): _nches): _nches): _	Living Ro C4) led Soils	Seconda Surfa Drain Dry- Cray Doots (C3) Satu Stun S (C6) FAC	ace Soil Cracks (B6) hage Patterns (B10) Season Water Table (C2) fish Burrows (C8) ration Visible on Aerial Imagery (C9) ted or Stressed Plants (D1) morphic Position (D2) -Neutral Test (D5)			
Wetland Hyderimary India Surface of High Water Manager	drology Indicators: cators (minimum of o Water (A1) Iter Table (A2) In (A3) In	ne is require magery (B7) Surface (B6) s s	ed; check all that a Water-Stai Aquatic Fa True Aqua Hydrogen Oxidized F Presence of Recent Iro Thin Muck Gauge or V 8) Other (Exp	apply) ined Lea auna (B1 tic Plant: Sulfide (Rhizosph of Reduc on Reduc Surface Well Dat: blain in R Depth (ii Depth (ii	ves (B9) 3) s (B14) Ddor (C1) eres on L led Iron (tion in Til (C7) a (D9) emarks) nches): _nches): _nches): _	Living Ro C4) led Soils	Seconda Surfa Drain Dry- Cray Doots (C3) Satu Stun S (C6) FAC	ace Soil Cracks (B6) hage Patterns (B10) Season Water Table (C2) fish Burrows (C8) ration Visible on Aerial Imagery (C9) ted or Stressed Plants (D1) morphic Position (D2) -Neutral Test (D5)			
Wetland Hyderimary India Surface of High Water Manager	drology Indicators: cators (minimum of o Water (A1) Iter Table (A2) In (A3) In	ne is require magery (B7) Surface (B6) s s	ed; check all that a Water-Stai Aquatic Fa True Aqua Hydrogen Oxidized F Presence of Recent Iro Thin Muck Gauge or V 8) Other (Exp	apply) ined Lea auna (B1 tic Plant: Sulfide (Rhizosph of Reduc on Reduc Surface Well Dat: blain in R Depth (ii Depth (ii	ves (B9) 3) s (B14) Ddor (C1) eres on L led Iron (tion in Til (C7) a (D9) emarks) nches): _nches): _nches): _	Living Ro C4) led Soils	Seconda Surfa Drain Dry- Cray Doots (C3) Satu Stun S (C6) FAC	ace Soil Cracks (B6) hage Patterns (B10) Season Water Table (C2) fish Burrows (C8) ration Visible on Aerial Imagery (C9) ted or Stressed Plants (D1) morphic Position (D2) -Neutral Test (D5)			
Wetland Hyderimary India Surface Verimary India Surface Verimary India Water Mercond Veriman India Iron Dep Inundatic Sparsely Field Obsert Surface Water Table Saturation Production Produ	drology Indicators: cators (minimum of o Water (A1) Iter Table (A2) In (A3) In	ne is require magery (B7) Surface (B6) s s	ed; check all that a Water-Stai Aquatic Fa True Aqua Hydrogen Oxidized F Presence of Recent Iro Thin Muck Gauge or V 8) Other (Exp	apply) ined Lea auna (B1 tic Plant: Sulfide (Rhizosph of Reduc on Reduc Surface Well Dat: blain in R Depth (ii Depth (ii	ves (B9) 3) s (B14) Ddor (C1) eres on L led Iron (tion in Til (C7) a (D9) emarks) nches): _nches): _nches): _	Living Ro C4) led Soils	Seconda Surfa Drain Dry- Cray Doots (C3) Satu Stun S (C6) FAC	ace Soil Cracks (B6) hage Patterns (B10) Season Water Table (C2) fish Burrows (C8) ration Visible on Aerial Imagery (C9) ted or Stressed Plants (D1) morphic Position (D2) -Neutral Test (D5)			

Project/Site: Brendel Lake Campground / Elizabeth Lake	Road (22101	6) City/Cou	nty: White L	ake Twp/Oakland	Sampling Dat	e: <u>4-6-</u> 2	2022
Applicant/Owner: Kem-Tec, Inc. (client)				State: MI	Sampling Poi	nt:!	DP8
Investigator(s): R. Newkirk		Section, T	ownship, Ra	nge: <u>NW 1/4; NW 1/4</u>	; Section 27; T3N	i; R8E	
Landform (hillside, terrace, etc.): depression			Local relief (d	concave, convex, none)	concave		
Slope (%): 1 Lat: 42.639996		Long:	83.498403		Datum: WGS84	ļ	
Soil Map Unit Name: 27 - Houghton and Adrian mucks				NWI class	ification: PFO1C		
Are climatic / hydrologic conditions on the site typical fo	or this time of	f year?	Yes X	No (If no, e)	φlain in Remarks	;.)	
Are Vegetation No , Soil No , or Hydrology No s		-		Circumstances" present		No	
Are Vegetation No , Soil No , or Hydrology No n	aturally prob			plain any answers in Re			
SUMMARY OF FINDINGS – Attach site ma				-	·	atures	, etc.
Hydrophytic Vegetation Present? Yes X No)	Is the	Sampled A	rea			
			n a Wetland?		No		
Wetland Hydrology Present? Yes X No					_		
Remarks:		· -					
Data point is located within and along the west bounda	ary of Wetlar	nd C.					
MEGETATION III and a Communication of the	. 1 .						
VEGETATION – Use scientific names of plan	Absolute	Dominant	Indicator				
<u>Tree Stratum</u> (Plot size: 30)	% Cover	Species?	Status	Dominance Test wo	orksheet:		
1. Salix amygdaloides	30	Yes	FACW	Number of Dominan	t Species That		
2. Betula lenta	15	Yes	FACU	Are OBL, FACW, or	FAC:	5	(A)
3. Quercus bicolor	10	No	FACW	Total Number of Dor	ninant Species		
4				Across All Strata:	_	6	_(B)
5				Percent of Dominant	•	00.00/	(A (D)
Conline/Charle Stratum (Diet size) 45	55	=Total Cover		Are OBL, FACW, or	FAC:	83.3%	_(A/B)
Sapling/Shrub Stratum (Plot size: 15)	20	Vaa	FAC	Dravalance Index v	raulrahaati		
Carpinus caroliniana Quercus bicolor	10	Yes Yes	FACW	Prevalence Index w Total % Cover of		iply by:	
3.			17.077		24 x 1 =	24	_
4.					54 x 2 =	108	_
5.				· · · · · · · · · · · · · · · · · · ·	20 x 3 =	60	_
	30	Total Cover		FACU species	15 x 4 =	60	
Herb Stratum (Plot size: 5)				' <u> </u>	0 x 5 =	0	_
Typha angustifolia	18	Yes	OBL	Column Totals: 1	13 (A)	252	_(B)
2. Symplocarpus foetidus	6	Yes	OBL	Prevalence Index	= B/A =2	2.23	_
3. Onoclea sensibilis	4	No	FACW				
4				Hydrophytic Vegeta			
5 6.				X 2 - Dominance T	or Hydrophytic Ve	getation	
7				X 3 - Prevalence I			
8.					al Adaptations ¹ (P	rovide su	pporting
9.					ks or on a separa		
10.				Problematic Hyd	rophytic Vegetati	on ¹ (Expl	ain)
	28	Total Cover		¹ Indicators of hydric			
Woody Vine Stratum (Plot size: 15)	 -			be present, unless d			
1. None				Hydrophytic		_	
2				Vegetation			
		=Total Cover		Present? Yes	<u> </u>		
Remarks: (Include photo numbers here or on a separa	ate sheet.)						

Profile Desc	ription: (Describ	e to the dept	h needed to docu	ıment t	he indica	tor or c	onfirm the absence	of indicators.)			
Depth	Matrix		Redo	x Featur							
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks			
0-17	10YR 2/1	100					Mucky Sand				
1- 0.0		- -			. —		2, ,,				
		epletion, RM=	Reduced Matrix, N	/IS=Mas	ked Sand	Grains		n: PL=Pore Lining, M=Matrix. rs for Problematic Hydric Soils ³ :			
Hydric Soil I Histosol (Sandy Gle	vod Mat	riv (S4)			st Prairie Redox (A16)			
	ipedon (A2)		Sandy Red	•				Manganese Masses (F12)			
Black His			Stripped M					Parent Material (F21)			
	n Sulfide (A4)		? Dark Surfa	•	<i>5</i>)			Shallow Dark Surface (F22)			
	Layers (A5)		Loamy Mu	, ,	eral (F1)			er (Explain in Remarks)			
2 cm Mud			Loamy Gle	-				,			
 Depleted	Below Dark Surfa	ace (A11)	Depleted N								
Thick Da	rk Surface (A12)		Redox Dar	k Surfac	ce (F6)		³ Indicato	rs of hydrophytic vegetation and			
X Sandy M	ucky Mineral (S1)		Depleted D	ark Sur	face (F7)		wetla	and hydrology must be present,			
5 cm Mud	cky Peat or Peat (S3)	Redox Dep	ression	s (F8)		unless disturbed or problematic.				
Restrictive L	ayer (if observe	d):									
Type:											
Depth (in	ches):						Hydric Soil Presen	t? Yes X No			
Remarks:											
								s of Hydric Soils, Version 7.0, 2015			
Errata (http://	www.nrcs.usda.g	ov/Internet/FS	E_DOCUMENTS/	nrcs142	2p2_0512	93.docx).				
HYDROLO	CV										
_	Irology Indicator						Casanda	In dia atawa (minimum af tura manuima d)			
X Surface V	•	t one is require	ed; check all that a					ary Indicators (minimum of two required)			
	er Table (A2)		X Water-Stai Aquatic Fa					ace Soil Cracks (B6) nage Patterns (B10)			
X Saturation	` '		True Aqua	,	,			Season Water Table (C2)			
X Water Ma	, ,		X Hydrogen)		rfish Burrows (C8)			
	t Deposits (B2)		Oxidized R					ration Visible on Aerial Imagery (C9)			
Drift Depo			Presence of			_		ited or Stressed Plants (D1)			
Algal Mat	or Crust (B4)		Recent Iro	n Reduc	ction in Til	led Soils	s (C6) X Geo	morphic Position (D2)			
Iron Depo	osits (B5)		Thin Muck	Surface	e (C7)		X FAC	-Neutral Test (D5)			
X Inundatio	n Visible on Aeria	I Imagery (B7)	Gauge or \	Vell Dat	ta (D9)						
Sparsely	Vegetated Conca	ve Surface (B	8) Other (Exp	lain in F	Remarks)						
Field Observ	/ations:										
Surface Water	er Present?	Yes X	No	Depth (i	nches):	1					
Water Table		Yes X			nches):	0					
Saturation Pr		Yes X	No	Depth (i	nches):	0	Wetland Hydrolo	gy Present? Yes X No			
(includes cap			-141	1 1			(i) '.f '! 1				
Describe Red	corded Data (strea	ım gauge, moı	nitoring well, aeria	ı pnotos	, previous	sinspec	tions), if available:				
Remarks:											

Project/Site: Brendel Lake Campground / Elizabeth Lake	Road (22101	6) City/Cou	nty: White L	ake Twp/Oakland	Sampling	Date: 4-6-	-2022
Applicant/Owner: Kem-Tec, Inc. (client)		-	State: M	II Sampling	Point:	DP9	
Investigator(s): R. Newkirk		Section, T	ownship, Ra	nge: NW 1/4; NV	V 1/4; Section 27;	T3N; R8E	
Landform (hillside, terrace, etc.): upland			Local relief (d	concave, convex, n	one): none		
Slope (%): 0 Lat: 42.639783		Long: -	83.498345		Datum: WG	S84	
Soil Map Unit Name: 12 - Brookston and Colwood loa	ms			NWI	classification: PF0)1C	
Are climatic / hydrologic conditions on the site typical f	or this time of	f year?	Yes X	No (If n	o, explain in Rem	arks.)	
Are Vegetation No , Soil No , or Hydrology No	significantly of	listurbed? A	Are "Normal (Circumstances" pre	sent? Yes X	No	
Are Vegetation No , Soil No , or Hydrology No	naturally prob	olematic? (If needed, ex	plain any answers	in Remarks.)		_
SUMMARY OF FINDINGS – Attach site m					•	nt features	s, etc.
Hydrophytic Vegetation Present? Yes N	o X	Is the	Sampled A	rea			
	o X		n a Wetlandî		No_X	<u>. </u>	
Wetland Hydrology Present? Yes X N				_		_	
Remarks:							
Data point is located in upland, south of DP 8 and we	est of Wetland	C.					
VEGETATION – Use scientific names of pla	ants						
VEGETATION OSC SCIONAINO NAMES OF PIC	Absolute	Dominant	Indicator	1			
Tree Stratum (Plot size: 30)	% Cover	Species?	Status	Dominance Tes	st worksheet:		
Quercus rubra	25	Yes	FACU		inant Species Tha		
2. Quercus bicolor	20	Yes	FACW	Are OBL, FACW	/, or FAC:	2	(A)
3. Populus deltoides	10	No	FAC		f Dominant Specie		(D)
4 5.				Across All Strata		. 6	(B)
J	55 =	Total Cover		Are OBL, FACW	inant Species Tha /_or FAC [.]	at 33.3%	(A/B)
Sapling/Shrub Stratum (Plot size: 15)	Total Gover		7110 052, 1710	, 61 1 7 6.	00.070	_(',(',')
1. Quercus rubra	12	Yes	FACU	Prevalence Ind	ex worksheet:		
2. Carpinus caroliniana	10	Yes	FAC	Total % Co	ver of:	Multiply by:	
3. Fagus grandifolia	5	No	FACU	OBL species	0 x 1	= 0	_
4				FACW species_	20 x 2		_
5				FAC species	20 x 3		_
Horb Stratum (Diet eine E	27	=Total Cover		FACU species	52 x 4		_
Herb Stratum (Plot size: 5) 1. Solidago canadensis	10	Yes	FACU	UPL species Column Totals:	0 x 5 92 (A)	= 0	— (B)
2. Carex sp.	4	Yes	1700	_	ndex = B/A =	3.35	_(b)
3.							_
4.				Hydrophytic Ve	egetation Indicate	ors:	
5.				1 - Rapid Te	est for Hydrophytic	: Vegetation	
6				2 - Dominar	nce Test is >50%		
7					nce Index is ≤3.0 ¹	4	
8.					ogical Adaptations emarks or on a se		
9.						•	,
10	14	Total Cover			Hydrophytic Vege		
Woody Vine Stratum (Plot size: 15	, ——	- Total Covel			dric soil and wetla ess disturbed or pr		y must
1. None	,			·	oo distarbed or pr	obiciliatio.	
2.				Hydrophytic Vegetation			
		Total Cover		Present?	YesN	lo X	
Remarks: (Include photo numbers here or on a sepa	rate sheet.)			1			
, , , , , , , , , , , , , , , , , , ,	,						

		to the depth				tor or c	onfirm the absence	of indicators.)			
·				∢ Featur							
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks			
0-15	10YR 3/1	100					Loamy/Clayey				
								<u> </u>			
		· · · · · · · · · · · · · · · · · · ·									
		· 									
								-			
		· 									
	-							· -			
	oncentration, D=Dep	oletion, RM=R	teduced Matrix, M	1S=Mas	ked Sand	d Grains		n: PL=Pore Lining, M=Matrix.			
Hydric Soil I								ors for Problematic Hydric Soils ³ :			
Histosol	` '		Sandy Gle					st Prairie Redox (A16)			
	ipedon (A2)		Sandy Red					-Manganese Masses (F12)			
Black His	` '		Stripped M	`	3)			Parent Material (F21)			
	n Sulfide (A4)		Dark Surfa	, ,				y Shallow Dark Surface (F22)			
	Layers (A5)		Loamy Mu	-			Oth	er (Explain in Remarks)			
2 cm Mu	, ,	- (044)	Loamy Gle								
	Below Dark Surface	e (A11)	Depleted M		-		31	flooding both on a data and			
	rk Surface (A12)		Redox Dar		` '			ors of hydrophytic vegetation and			
	ucky Mineral (S1)	2)	Depleted D		, ,			and hydrology must be present,			
	cky Peat or Peat (S	•	Redox Dep	ression	S (FO)	-	unie	ess disturbed or problematic.			
	_ayer (if observed)	:									
Type:			_								
Depth (in	ches):		_				Hydric Soil Preser	nt? Yes No X			
Remarks:											
								rs of Hydric Soils, Version 7.0, 2015			
Errata (nttp://	/www.nrcs.usda.gov	/internet/FSE	_DOCUMENTS/	nrcs 142	p2_0512	93.docx).				
HYDROLO	GY										
_	drology Indicators: ators (minimum of o		d: chock all that a	nnly)			Sacand	ary Indicators (minimum of two required)			
	Nater (A1)	nie is require	u, crieck all that a Water-Stai		vos (B0)			face Soil Cracks (B6)			
	ter Table (A2)				, ,			inage Patterns (B10)			
X Saturatio	` '			Aquatic Fauna (B13) True Aquatic Plants (B14)				-Season Water Table (C2)			
Water Ma			Hydrogen				Crayfish Burrows (C8)				
	t Deposits (B2)		Oxidized R		, ,			uration Visible on Aerial Imagery (C9)			
	osits (B3)		Presence of			•	` '	nted or Stressed Plants (D1)			
	t or Crust (B4)		Recent Iron					omorphic Position (D2)			
	osits (B5)		Thin Muck				• • —	C-Neutral Test (D5)			
	on Visible on Aerial I	magery (B7)	Gauge or V					` ,			
Sparsely	Vegetated Concave	e Surface (B8	Other (Exp	lain in F	Remarks)						
Field Observ	vations:										
Surface Wate	er Present? Ye	es	No X	Depth (i	nches):						
Water Table	Present? Ye	es X	No	Depth (i	nches):	9					
Saturation Pr	resent? Ye	es X	No	Depth (i	nches):	5	Wetland Hydrolo	ogy Present? Yes X No			
(includes cap	oillary fringe)	'	'								
Describe Red	corded Data (stream	n gauge, mon	itoring well, aeria	photos	, previous	inspec	tions), if available:				
Remarks:											

Project/Site: Brendel Lake Campground / Elizabeth Lake	Road (22101	6) City/Cou	nty: White L	ake Twp/Oakland	Sampling Da	ate: 4-6-2	2022		
Applicant/Owner: Kem-Tec, Inc. (client)		State: MI	Sampling Po	int: E	DP10				
Investigator(s): R. Newkirk Section, Township, Range: NW 1/4; NW 1/4; Section 27; T3N;									
Landform (hillside, terrace, etc.): depression			Local relief (d	concave, convex, none): concave				
Slope (%): 1 Lat: 42.639381		Long: -	83.500259		Datum: WGS8	.4			
Soil Map Unit Name: 27 - Houghton and Adrian mucks				NWI clas	sification: PFO10				
Are climatic / hydrologic conditions on the site typical for	or this time o	f year?	Yes X		explain in Remark				
Are Vegetation No , Soil No , or Hydrology No s		-		Circumstances" presen					
Are Vegetation No , Soil No , or Hydrology No r				xplain any answers in F			_		
SUMMARY OF FINDINGS – Attach site ma				-	·	features	, etc.		
Hydrophytic Vegetation Present? Yes X No)	Is the	Sampled A	rea			-		
			n a Wetland		No				
Wetland Hydrology Present? Yes X No									
Remarks:	_	·							
Data point is located in a forested portion of Wetland (C, near its no	orthwest edge							
MEGETATION III III III III III III III III III									
VEGETATION – Use scientific names of pla	Absolute	Dominant	Indicator	1					
Tree Stratum (Plot size: 30)	% Cover	Species?	Status	Dominance Test w	orksheet:				
Betula alleghaniensis	30	Yes	FAC	Number of Dominar	nt Species That				
2. Quercus bicolor	20	Yes	FACW	Are OBL, FACW, or	FAC:	9	(A)		
3. Celtis occidentalis	15	Yes	FAC	Total Number of Do	minant Species				
4. Quercus rubra	5	No	FACU	Across All Strata:	_	9	_(B)		
5	70	Tatal Cause		Percent of Dominar	•	400.00/	(A/D)		
<u>Sapling/Shrub Stratum</u> (Plot size: 15)	70	=Total Cover		Are OBL, FACW, or	FAC:	100.0%	_(A/B)		
1. Cornus sericea	20	Yes	FACW	Prevalence Index	workshoot:				
Cornus sencea Carpinus caroliniana	12	Yes	FAC	Total % Cover		Itiply by:			
3. Quercus bicolor	7	No	FACW	OBL species	16 x 1 =	16	_		
4. Celtis occidentalis	5	No	FAC	FACW species	54 x 2 =	108	_		
5.				FAC species	62 x 3 =	186	_		
	44	=Total Cover		FACU species	5 x 4 =	20	_		
Herb Stratum (Plot size: 5)				UPL species	0 x 5 =	0	_		
1. Ranunculus sceleratus	7	Yes	OBL	Column Totals:		330	_(B)		
2. Carex hyalinolepis	5	Yes	OBL	Prevalence Index	< = Β/A =	2.41	_		
Symplocarpus foetidus 4.	4	Yes	OBL	Hydrophytic Vege	tation Indicators				
5.					or Hydrophytic V				
6.				X 2 - Dominance		Syciation			
7.				X 3 - Prevalence					
8.				4 - Morphologic	al Adaptations¹ (F	Provide su	pporting		
9.				data in Rema	arks or on a sepa	rate sheet))		
10				Problematic Hy	drophytic Vegeta	tion ¹ (Expl	ain)		
	16	=Total Cover		¹ Indicators of hydric		, ,,	must		
Woody Vine Stratum (Plot size: 15)	-	V.	E40111	be present, unless	disturbed or probl	ematic.			
1. Vitis riparia	7	Yes	FACW	Hydrophytic					
2	7	Total Cover		Vegetation Present? Ye	s X No				
Demonstra, (Inches of the control of		- i Ulai CUVEI		riesent 16	s_X_ No_				
Remarks: (Include photo numbers here or on a separ	ate sneet.)								

Item A.	
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			or or co	onfirm the absence of	of indicators.)			
Depth Matrix	Redox Fe							
(inches) Color (moist) %	Color (moist)	% Type¹	Loc ²	Texture	Remarks			
0-17 10YR 2/1 100				Mucky Sand				
¹ Type: C=Concentration, D=Depletion, RM=	Reduced Matrix, MS=I	Masked Sand	Grains.	² Location:	PL=Pore Lining, M=Matrix.			
Hydric Soil Indicators:					s for Problematic Hydric Soils ³ :			
Histosol (A1)	Sandy Gleyed	Matrix (S4)		Coas	t Prairie Redox (A16)			
Histic Epipedon (A2)	Sandy Redox ((S5)		Iron-N	Manganese Masses (F12)			
Black Histic (A3)	Stripped Matrix	k (S6)		Red F	Parent Material (F21)			
X Hydrogen Sulfide (A4)	? Dark Surface (S7)		Very	Shallow Dark Surface (F22)			
Stratified Layers (A5)	Loamy Mucky	Mineral (F1)		Other	(Explain in Remarks)			
2 cm Muck (A10)	Loamy Gleyed	Matrix (F2)						
Depleted Below Dark Surface (A11)	Depleted Matri	x (F3)						
Thick Dark Surface (A12)	Redox Dark Su	urface (F6)		³ Indicator	s of hydrophytic vegetation and			
X Sandy Mucky Mineral (S1)	Depleted Dark	Surface (F7)		wetla	nd hydrology must be present,			
5 cm Mucky Peat or Peat (S3)	Redox Depress	sions (F8)		unless disturbed or problematic.				
Restrictive Layer (if observed):								
Type:								
Depth (inches):				Hydric Soil Present	? Yes X No			
Remarks:								
This data form is revised from Midwest Region	onal Supplement Versi	ion 2.0 to inclu	de the N	JRCS Field Indicators	of Hydric Soils Version 7.0. 2015			
Errata (http://www.nrcs.usda.gov/Internet/FS								
` '	E_DOCUMENTS/nrcs	142p2_05129			vol i lyano cono, vololon i lo, 2010			
	E_DOCUMENTS/nrcs	s142p2_05129			(a. 1.), a. 10 (a. 1.), a. 1			
	E_DOCUMENTS/nrcs	s142p2_05129						
HYDROLOGY	E_DOCUMENTS/nrcs	s142p2_05129						
	E_DOCUMENTS/nrcs	s142p2_05129						
HYDROLOGY					y Indicators (minimum of two required)			
HYDROLOGY Wetland Hydrology Indicators:		у)		<u>Secondar</u>				
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is require	ed; check all that apply	y) Leaves (B9)		Secondar Surfa	y Indicators (minimum of two required)			
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is require X Surface Water (A1)	ed; check all that apply	y) Leaves (B9) (B13)		Secondar Surfa Drain	y Indicators (minimum of two required) ce Soil Cracks (B6)			
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is require X Surface Water (A1) X High Water Table (A2)	ed; check all that apply X Water-Stained Aquatic Fauna	y) Leaves (B9) (B13) Plants (B14)		Secondar Surfa Drain Dry-S	y Indicators (minimum of two required) ce Soil Cracks (B6) age Patterns (B10)			
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required X Surface Water (A1) X High Water Table (A2) X Saturation (A3)	ed; check all that apply X Water-Stained Aquatic Fauna True Aquatic P	y) Leaves (B9) (B13) Plants (B14) ide Odor (C1)	3.docx).	Secondar Surfa Drain Dry-S Crayf	y Indicators (minimum of two required) ce Soil Cracks (B6) age Patterns (B10) teason Water Table (C2)			
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required in the second in the seco	ed; check all that apply X Water-Stained Aquatic Fauna True Aquatic P X Hydrogen Sulfi	y) Leaves (B9) (B13) Plants (B14) ide Odor (C1) ospheres on Liv	3.docx).	SecondarSurfaDrainDry-SCrayf ots (C3)Satur	y Indicators (minimum of two required) ce Soil Cracks (B6) age Patterns (B10) deason Water Table (C2) dish Burrows (C8)			
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required to the control of the	ed; check all that apply X Water-Stained Aquatic Fauna True Aquatic P X Hydrogen Sulfi Oxidized Rhize	Leaves (B9) (B13) Plants (B14) ide Odor (C1) ospheres on Lireduced Iron (C	ving Roo	Secondar Surfa Drain Dry-S Crayf ots (C3) Satur Stunt	y Indicators (minimum of two required) ce Soil Cracks (B6) age Patterns (B10) season Water Table (C2) ish Burrows (C8) ation Visible on Aerial Imagery (C9)			
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required X Surface Water (A1) X High Water Table (A2) X Saturation (A3) X Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3)	ed; check all that apply X Water-Stained Aquatic Fauna True Aquatic P X Hydrogen Sulfi Oxidized Rhizo	y) Leaves (B9) (B13) Plants (B14) ide Odor (C1) ospheres on Liveduced Iron (Ceduction in Tille	ving Roo	Secondar Surfa Drain Dry-S Crayf ots (C3) Satur Stunt (C6) X Geom	y Indicators (minimum of two required) ce Soil Cracks (B6) age Patterns (B10) leason Water Table (C2) ish Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1)			
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required X Surface Water (A1) X High Water Table (A2) X Saturation (A3) X Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) X Inundation Visible on Aerial Imagery (B7)	ed; check all that apply X Water-Stained Aquatic Fauna True Aquatic P X Hydrogen Sulfi Oxidized Rhizo Presence of Re Recent Iron Re Thin Muck Sur	y) Leaves (B9) (B13) Plants (B14) ide Odor (C1) ospheres on Liveduced Iron (Ceduction in Tille	ving Roo	Secondar Surfa Drain Dry-S Crayf ots (C3) Satur Stunt (C6) X Geom	y Indicators (minimum of two required) ce Soil Cracks (B6) age Patterns (B10) teason Water Table (C2) tish Burrows (C8) ation Visible on Aerial Imagery (C9) ted or Stressed Plants (D1) norphic Position (D2)			
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required X Surface Water (A1) X High Water Table (A2) X Saturation (A3) X Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5)	ed; check all that apply X Water-Stained Aquatic Fauna True Aquatic P X Hydrogen Sulfi Oxidized Rhizo Presence of Re Recent Iron Re Thin Muck Sur	y) Leaves (B9) (B13) Plants (B14) ide Odor (C1) ospheres on Liveduced Iron (Ceduction in Tille face (C7) Data (D9)	ving Roo	Secondar Surfa Drain Dry-S Crayf ots (C3) Satur Stunt (C6) X Geom	y Indicators (minimum of two required) ce Soil Cracks (B6) age Patterns (B10) teason Water Table (C2) tish Burrows (C8) ation Visible on Aerial Imagery (C9) ted or Stressed Plants (D1) norphic Position (D2)			
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required X Surface Water (A1) X High Water Table (A2) X Saturation (A3) X Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) X Inundation Visible on Aerial Imagery (B7)	ed; check all that apply X Water-Stained Aquatic Fauna True Aquatic P X Hydrogen Sulfi Oxidized Rhizo Presence of Re Recent Iron Re Thin Muck Sur	y) Leaves (B9) (B13) Plants (B14) ide Odor (C1) ospheres on Liveduced Iron (Ceduction in Tille face (C7) Data (D9)	ving Roo	Secondar Surfa Drain Dry-S Crayf ots (C3) Satur Stunt (C6) X Geom	y Indicators (minimum of two required) ce Soil Cracks (B6) age Patterns (B10) teason Water Table (C2) tish Burrows (C8) ation Visible on Aerial Imagery (C9) ted or Stressed Plants (D1) norphic Position (D2)			
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required X Surface Water (A1) X High Water Table (A2) X Saturation (A3) X Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) X Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B	ed; check all that apply X Water-Stained Aquatic Fauna True Aquatic P X Hydrogen Sulfi Oxidized Rhizo Presence of Re Recent Iron Re Thin Muck Sur Gauge or Well 8) Other (Explain	y) Leaves (B9) (B13) Plants (B14) ide Odor (C1) ospheres on Liveduced Iron (Ceduction in Tille face (C7) Data (D9)	ving Roo	Secondar Surfa Drain Dry-S Crayf ots (C3) Satur Stunt (C6) X Geom	y Indicators (minimum of two required) ce Soil Cracks (B6) age Patterns (B10) teason Water Table (C2) tish Burrows (C8) ation Visible on Aerial Imagery (C9) ted or Stressed Plants (D1) norphic Position (D2)			
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required X Surface Water (A1) X High Water Table (A2) X Saturation (A3) X Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) X Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B	ed; check all that apply X Water-Stained Aquatic Fauna True Aquatic P X Hydrogen Sulfi Oxidized Rhizo Presence of Re Recent Iron Re Thin Muck Sur Gauge or Well Other (Explain	Leaves (B9) (B13) Plants (B14) ide Odor (C1) ospheres on Liveduced Iron (Ceduction in Tille face (C7) Data (D9) in Remarks)	ving Rod 4)	Secondar Surfa Drain Dry-S Crayf ots (C3) Satur Stunt (C6) X Geom	y Indicators (minimum of two required) ce Soil Cracks (B6) age Patterns (B10) teason Water Table (C2) tish Burrows (C8) ation Visible on Aerial Imagery (C9) ted or Stressed Plants (D1) norphic Position (D2)			
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required X Surface Water (A1) X High Water Table (A2) X Saturation (A3) X Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) X Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B	ed; check all that apply X Water-Stained Aquatic Fauna True Aquatic P X Hydrogen Sulfi Oxidized Rhizo Presence of Re Recent Iron Re Thin Muck Sur) Gauge or Well 8) Other (Explain No Dep No Dep	Leaves (B9) (B13) Plants (B14) dide Odor (C1) pospheres on Liveduced Iron (Ceduction in Tille face (C7) Data (D9) in Remarks)	ving Roo4) ed Soils	Secondar Surfa Drain Dry-S Crayf ots (C3) Satur Stunt (C6) X Geom	y Indicators (minimum of two required) ce Soil Cracks (B6) age Patterns (B10) season Water Table (C2) sish Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) norphic Position (D2) Neutral Test (D5)			
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required X Surface Water (A1) X High Water Table (A2) X Saturation (A3) X Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) X Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B1) Field Observations: Surface Water Present? Yes X Water Table Present? Yes X	ed; check all that apply X Water-Stained Aquatic Fauna True Aquatic P X Hydrogen Sulfi Oxidized Rhizo Presence of Re Recent Iron Re Thin Muck Sur) Gauge or Well 8) Other (Explain No Dep No Dep	Leaves (B9) (B13) Plants (B14) ide Odor (C1) pospheres on Liveduced Iron (Ceduction in Tille face (C7) Data (D9) in Remarks) oth (inches):	ving Roo4) ad Soils	Secondar	y Indicators (minimum of two required) ce Soil Cracks (B6) age Patterns (B10) season Water Table (C2) sish Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) norphic Position (D2) Neutral Test (D5)			
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required X Surface Water (A1) X High Water Table (A2) X Saturation (A3) X Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) X Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B) Field Observations: Surface Water Present? Yes X Water Table Present? Yes X Saturation Present? Yes X	ed; check all that apply X Water-Stained Aquatic Fauna True Aquatic P X Hydrogen Sulfi Oxidized Rhizo Presence of Re Recent Iron Re Thin Muck Sur Other (Explain No Dep No Dep No Dep	y) Leaves (B9) (B13) Plants (B14) ide Odor (C1) ospheres on Lir educed Iron (C eduction in Tille face (C7) Data (D9) in Remarks) oth (inches):	ving Roo4). d Soils 1 0 0	Secondar	y Indicators (minimum of two required) ce Soil Cracks (B6) age Patterns (B10) season Water Table (C2) sish Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) norphic Position (D2) Neutral Test (D5)			
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required X Surface Water (A1) X High Water Table (A2) X Saturation (A3) X Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) X Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B) Field Observations: Surface Water Present? Yes X Water Table Present? Yes X Saturation Present? Yes X (includes capillary fringe) Describe Recorded Data (stream gauge, model)	ed; check all that apply X Water-Stained Aquatic Fauna True Aquatic P X Hydrogen Sulfi Oxidized Rhizo Presence of Re Recent Iron Re Thin Muck Sur Other (Explain No Dep No Dep No Dep	y) Leaves (B9) (B13) Plants (B14) ide Odor (C1) ospheres on Lir educed Iron (C eduction in Tille face (C7) Data (D9) in Remarks) oth (inches):	ving Roo4). d Soils 1 0 0	Secondar	y Indicators (minimum of two required) ce Soil Cracks (B6) age Patterns (B10) season Water Table (C2) sish Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) norphic Position (D2) Neutral Test (D5)			
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required X Surface Water (A1) X High Water Table (A2) X Saturation (A3) X Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) X Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B Field Observations: Surface Water Present? Yes X Water Table Present? Yes X Saturation Present? Yes X (includes capillary fringe)	ed; check all that apply X Water-Stained Aquatic Fauna True Aquatic P X Hydrogen Sulfi Oxidized Rhizo Presence of Re Recent Iron Re Thin Muck Sur Other (Explain No Dep No Dep No Dep	y) Leaves (B9) (B13) Plants (B14) ide Odor (C1) ospheres on Lir educed Iron (C eduction in Tille face (C7) Data (D9) in Remarks) oth (inches):	ving Roo4). d Soils 1 0 0	Secondar	y Indicators (minimum of two required) ce Soil Cracks (B6) age Patterns (B10) season Water Table (C2) sish Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) norphic Position (D2) Neutral Test (D5)			
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required X Surface Water (A1) X High Water Table (A2) X Saturation (A3) X Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) X Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B) Field Observations: Surface Water Present? Yes X Water Table Present? Yes X Saturation Present? Yes X (includes capillary fringe) Describe Recorded Data (stream gauge, model)	ed; check all that apply X Water-Stained Aquatic Fauna True Aquatic P X Hydrogen Sulfi Oxidized Rhizo Presence of Re Recent Iron Re Thin Muck Sur Other (Explain No Dep No Dep No Dep	y) Leaves (B9) (B13) Plants (B14) ide Odor (C1) ospheres on Lir educed Iron (C eduction in Tille face (C7) Data (D9) in Remarks) oth (inches):	ving Roo4). d Soils 1 0 0	Secondar	y Indicators (minimum of two required) ce Soil Cracks (B6) age Patterns (B10) season Water Table (C2) sish Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) norphic Position (D2) Neutral Test (D5)			

Project/Site: Brendel Lake Campground / Elizabeth Lake	Road (221016) City/Cou	nty: White L	ake Twp/Oakland	Sampling Da	ate: 4-6-2	2022
Applicant/Owner: Kem-Tec, Inc. (client)				State: MI	Sampling Po	oint: [OP11
Investigator(s): R. Newkirk		Section, 1	ownship, Ra	nge: NW 1/4; NW	1/4; Section 27; T3	N; R8E	
Landform (hillside, terrace, etc.): upland			Local relief (c	oncave, convex, no	ne): none		
Slope (%): 0 Lat: 42.639499		Long: -	83.500041		Datum: WGS8	34	
Soil Map Unit Name: 27 - Houghton and Adrian mucks	5			NWI cl	assification: PFO1	С	
Are climatic / hydrologic conditions on the site typical t		vear?	Yes X		, explain in Remark		
Are Vegetation No , Soil No , or Hydrology No		•		ircumstances" pres			
Are Vegetation No , Soil No , or Hydrology No				plain any answers ir			_
SUMMARY OF FINDINGS – Attach site m				-	•	features	, etc.
Hydrophytic Vegetation Present? Yes N	o X	Is the	Sampled A	'ea			
	o X		n a Wetland?		No X		
	o X			_			
Remarks: Data point is located in upland approximately 50 feet VEGETATION – Use scientific names of pla		ind C.					
<u> </u>	Absolute	Dominant	Indicator				
Tree Stratum (Plot size: 30)	% Cover	Species?	Status	Dominance Test	worksheet:		
1. Quercus alba	35	Yes	FACU		nant Species That		(
2. Quercus rubra	20	Yes	FACU	Are OBL, FACW,	-	1	_(A)
3. 4.				Total Number of Across All Strata:	Dominant Species	4	(B)
5.					-		– ^(D)
o	55 =	Total Cover		Are OBL, FACW,	ant Species That or FAC:	25.0%	(A/B)
Sapling/Shrub Stratum (Plot size: 15)			, , ,	-		_` '
1. None				Prevalence Inde	x worksheet:		
2.				Total % Cov	er of: Mu	ıltiply by:	_
3				OBL species	0 x 1 =	0	_
4				FACW species	0 x 2 =	0	_
5				FAC species	8 x 3 =	24	_
Herb Stratum (Plot size: 5)	=	Total Cover		FACU species UPL species	63 x 4 = 5 x 5 =	252 25	_
1. Carex sp.	15	Yes		Column Totals:	76 (A)	301	(B)
Symphyotrichum lanceolatum	8	Yes	FAC	Prevalence Inc		3.96	_('')
Solidago canadensis	5	No	FACU				_
4. Daucus carota	5	No	UPL	Hydrophytic Ve	getation Indicators	 3:	
5. Glechoma hederacea	3	No	FACU	1 - Rapid Tes	st for Hydrophytic V	egetation	
6.				2 - Dominano	ce Test is >50%		
7					e Index is ≤3.0 ¹		
8					gical Adaptations ¹ (
9.					marks or on a sepa		•
10		Total Cavar			Hydrophytic Vegeta		
Woody Vine Stratum (Plot size: 15	36 =	Total Cover			ric soil and wetland s disturbed or prob		must
1. None	,				s distarbed or prob	iomano.	
2.				Hydrophytic Vegetation			
	=	Total Cover		_	Yes No	X	
Remarks: (Include photo numbers here or on a sepa	rate sheet.)						
, ,	,						

Item A.

Profile Desc Depth	cription: (Describe	o the dept		iment t k Featui		itor or c	confirm the absence	of indicators.)		
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks		
0-8	10YR 3/2	100			- 7 -		Sandy			
-			10VP 5//					Distinct rodey concentrations		
8-17	10YR 4/2	95	10YR 5/4	5	<u>C</u>	<u>M</u>	Sandy	Distinct redox concentrations		
 								-		
¹ Type: C=C	oncentration, D=Dep	etion, RM=I	Reduced Matrix, M	 1S=Mas	ked Sand	d Grains	Location ² Location	n: PL=Pore Lining, M=Matrix.		
Hydric Soil	Indicators:							rs for Problematic Hydric Soils ³ :		
Histosol	(A1)		Sandy Gle	yed Mat	trix (S4)		Coas	st Prairie Redox (A16)		
Histic Ep	oipedon (A2)		Sandy Red	lox (S5))		Iron-	Manganese Masses (F12)		
Black Hi	stic (A3)		Stripped M	•	6)			Parent Material (F21)		
	n Sulfide (A4)		Dark Surfa	ce (S7)				Shallow Dark Surface (F22)		
	d Layers (A5)		Loamy Mu	-			Othe	er (Explain in Remarks)		
	ıck (A10)		Loamy Gle	-						
	d Below Dark Surface	(A11)	Depleted M	,	,		2			
	ark Surface (A12)		Redox Dar		` '			rs of hydrophytic vegetation and		
	lucky Mineral (S1)		Depleted D		, ,		wetland hydrology must be present,			
_	icky Peat or Peat (S3)	Redox Dep	ression	is (F8)		unies	ss disturbed or problematic.		
	Layer (if observed):									
Type:			_							
Depth (ir	nches):		<u> </u>				Hydric Soil Presen	t? Yes No X		
Errata (http:/	//www.nrcs.usda.gov/	Internet/FSI	E_DOCUMENTS/	nrcs142	2p2_0512	93.docx).			
HYDROLC	OGY									
Wetland Hv	drology Indicators:									
_	cators (minimum of o	ne is require	ed; check all that a	ipply)			Seconda	ry Indicators (minimum of two required		
Surface	Water (A1)		Water-Stai	ned Lea	aves (B9)		Surfa	ace Soil Cracks (B6)		
High Wa	iter Table (A2)		Aquatic Fa	una (B1	3)		Drainage Patterns (B10)			
Saturation	on (A3)		True Aquat	tic Plant	ts (B14)		Dry-Season Water Table (C2)			
Water M	arks (B1)		Hydrogen S	Sulfide (Odor (C1))	Crayfish Burrows (C8)			
	nt Deposits (B2)		Oxidized R	•		-	` '	ration Visible on Aerial Imagery (C9)		
	posits (B3)		Presence of					ted or Stressed Plants (D1)		
	at or Crust (B4)		Recent Iron			lled Soil	` ' —	morphic Position (D2)		
	oosits (B5)	(DZ)	Thin Muck				FAC	-Neutral Test (D5)		
	on Visible on Aerial Ir	0 , ,								
	Vegetated Concave	Surface (Do	B) Other (Exp	Iaiii iii r	(emarks)		1			
Field Obser		_	No. V	Donth (i	inahaa\.					
Surface Wat					inches): _					
Water Table Saturation P		<u> </u>			inches): _ inches):		Wetland Hydrolo	gy Present? Yes No X		
	pillary fringe)	·—	NO X	Deptii (i			Wetiana nyaroto	gy riesent: Tes NO_X		
	corded Data (stream	gauge, mor	nitoring well, aeria	photos	, previous	s inspec	tions), if available:			
Domarka										
Remarks:										

Project/Site: Brendel Lake Campground / Elizabeth Lake	Road (221016	6) City/Cou	nty: White L	ake Twp/Oakland	Sampling Dat	te: 4-6-2	2022
Applicant/Owner: Kem-Tec, Inc. (client)			State: MI	 Sampling Poil 	nt: C	DP12	
Investigator(s): R. Newkirk		Section, T	ownship, Ra	nge: NW 1/4; NW 1/4	<u>−</u> l; Section 27; T3N	 √1; R8E	
Landform (hillside, terrace, etc.): depression			Local relief (c	concave, convex, none): concave		
Slope (%): 2 Lat: 42.6397			83.500453	, , ,	Datum: WGS84	1	
Soil Map Unit Name: 27 - Houghton and Adrian mucks				NWI class	sification: PEM1C		
Are climatic / hydrologic conditions on the site typical for		: voor?	Yes X		xplain in Remarks		
Are Vegetation No , Soil No , or Hydrology No :		•		Circumstances" present			
	-					No	_
Are Vegetation No , Soil No , or Hydrology No s SUMMARY OF FINDINGS – Attach site ma				plain any answers in R cations. transects	•	eatures	. etc.
Hydrophytic Vegetation Present? Yes X No	<u> </u>		Sampled A	·	<u> </u>		
Hydric Soil Present? Yes X No			n a Wetland?		No		
Wetland Hydrology Present? Yes X No							
Remarks: Data point is located in the southeast corner of Wetlan VEGETATION – Use scientific names of pla							
	Absolute	Dominant	Indicator				
Tree Stratum (Plot size: 30)	% Cover	Species?	Status	Dominance Test w	orksheet:		
1. Quercus bicolor	35	Yes	FACW	Number of Dominan	•	0	(A)
Acer saccharinum Quercus rubra	<u>15</u> 10	Yes No	FACU FACU	Are OBL, FACW, or	_	6	_(A)
4.	10	INU	TACO	Total Number of Do Across All Strata:	minant Species	6	(B)
5.					t Species That		_(D)
· .	60	Total Cover		Percent of Dominan Are OBL, FACW, or		100.0%	(A/B)
Sapling/Shrub Stratum (Plot size: 15							_
1. Carpinus caroliniana	20	Yes	FAC	Prevalence Index v	vorksheet:		
2. Quercus bicolor	7	Yes	FACW	Total % Cover		tiply by:	_
3.				· —	16 x 1 =	16	_
4				· —	61 x 2 = _	122	_
5	27	Total Cover		·	25 x 3 =	75 40	_
Herb Stratum (Plot size: 5)		- Total Covel		UPL species	$\begin{array}{ccc} 10 & x & 4 & = \\ \hline 0 & x & 5 & = \\ \end{array}$	0	_
1. Carex hyalinolepis	12	Yes	OBL		112 (A)	253	(B)
Apocynum cannabinum	5	Yes	FAC	Prevalence Index		2.26	_(_)
3. Symplocarpus foetidus	4	No	OBL				_
4. Onoclea sensibilis	4	No	FACW	Hydrophytic Veget	ation Indicators:		
5.				1 - Rapid Test fo	or Hydrophytic Ve	getation	
6				X 2 - Dominance	Γest is >50%		
7				X 3 - Prevalence I			
8					al Adaptations ¹ (P		
9					irks or on a separa	,	•
10		Tatal Cause			drophytic Vegetati		•
Mandy Vine Stratum (Dlat size) 15	25=	=Total Cover		¹ Indicators of hydric be present, unless d			must
Woody Vine Stratum (Plot size: 15)			·	istanasa or broble	matic.	
2.				Hydrophytic Vegetation			
<u>-</u>		Total Cover		Vegetation Present? Yes	s X No		
Remarks: (Include photo numbers here or on a separ							
The second of th							

DE	Item A.
-	

Profile Desc	ription: (Descri	be to the depth	needed to doc	ument tl	he indica	tor or o	confirm the absence of	of indicators.)
Depth Matrix Redox Features								
(inches)	Color (moist)	<u> %</u>	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-16	10YR 2/1	100					Mucky Sand	
					·			
¹ Type: C=Co	oncentration, D=[Depletion, RM=F	Reduced Matrix,	MS=Mas	ked Sand	Grains	s. ² Location	: PL=Pore Lining, M=Matrix.
Hydric Soil		•						s for Problematic Hydric Soils ³ :
Histosol	(A1)		Sandy Gle	eyed Mat	rix (S4)		Coas	t Prairie Redox (A16)
Histic Ep	ipedon (A2)		Sandy Re	dox (S5)			Iron-N	Manganese Masses (F12)
Black His	stic (A3)		Stripped N	/latrix (Se	3)		Red F	Parent Material (F21)
Hydroge	n Sulfide (A4)		? Dark Surfa	ace (S7)			Very	Shallow Dark Surface (F22)
Stratified	Layers (A5)		Loamy Mu	icky Mine	eral (F1)		Other	r (Explain in Remarks)
2 cm Mu	ck (A10)		Loamy Gl	eyed Ma	trix (F2)			
Depleted	l Below Dark Surf	face (A11)	Depleted	Matrix (F	3)			
Thick Da	rk Surface (A12)		Redox Da	rk Surfac	ce (F6)		³ Indicator	s of hydrophytic vegetation and
X Sandy M	ucky Mineral (S1)	Depleted	Dark Sur	face (F7)		wetla	nd hydrology must be present,
5 cm Mu	cky Peat or Peat	(S3)	Redox De	pression	s (F8)		unles	s disturbed or problematic.
Restrictive I	Layer (if observe	ed):						
Type:								
Depth (ir	nches):						Hydric Soil Present	? Yes X No
Remarks:						J		
This data for	m is revised from	Midwest Regio	nal Supplement	Version 2	2.0 to incl	ude the	NRCS Field Indicators	s of Hydric Soils, Version 7.0, 2015
	/www.nrcs.usda.o							•
HYDROLO	GY							
Wetland Hyd	drology Indicato	rs:						
_	cators (minimum		ed; check all that	apply)			Secondar	ry Indicators (minimum of two required)
Surface \	Water (A1)		X Water-Sta	ined Lea	ves (B9)		Surfa	ce Soil Cracks (B6)
X High Wa	ter Table (A2)		Aquatic Fa	auna (B1	3)		Drain	age Patterns (B10)
X Saturation	on (A3)		True Aqua	atic Plant	s (B14)		Dry-S	Season Water Table (C2)
X Water M	arks (B1)		Hydrogen	Sulfide (Odor (C1))	Crayf	ish Burrows (C8)
Sedimen	t Deposits (B2)		Oxidized I	Rhizosph	eres on L	iving R	oots (C3)Satur	ration Visible on Aerial Imagery (C9)
Drift Dep	osits (B3)		Presence	of Reduc	ced Iron (C4)	Stunt	ed or Stressed Plants (D1)
Algal Ma	t or Crust (B4)		Recent Iro	n Reduc	tion in Til	led Soil	s (C6) X Geon	norphic Position (D2)
	osits (B5)		Thin Muck		` '		X FAC-	Neutral Test (D5)
X Inundation	on Visible on Aeri	al Imagery (B7)	Gauge or	Well Dat	a (D9)			
Sparsely	Vegetated Conc	ave Surface (B8	3) Other (Ex	olain in F	Remarks)			
Field Obser	vations:							
Surface Water	er Present?	Yes	No X	Depth (i	nches): _			
Water Table	Present?	Yes X	No		nches):			
Saturation P	resent?	Yes X	No	Depth (i	nches):	0	Wetland Hydrolog	gy Present? Yes X No
(includes car								
Describe Re	corded Data (stre	am gauge, mor	nitoring well, aeria	al photos	, previous	sinspec	ctions), if available:	
Domorko								
Remarks:								

Project/Site: Brendel Lake Campground / Elizabeth Lake	e Road (221016	6) City/Cou	nty: White L	ake Twp/Oakland	Sampling Da	ate: 4-6-	2022
Applicant/Owner: Kem-Tec, Inc. (client)				State: M	Sampling Po	oint: [DP13
Investigator(s): R. Newkirk		Section, T	ownship, Ra	nge: NW 1/4; NW	1/4; Section 27; T3	3N; R8E	
Landform (hillside, terrace, etc.): upland		1	Local relief (c	oncave, convex, no	one): none		
Slope (%):1 Lat: 42.639987		Long: -	83.50035		Datum: WGS8	84	
Soil Map Unit Name: 12 - Brookston and Colwood loa	ms			NWI c	lassification: PEM1	С	
Are climatic / hydrologic conditions on the site typical	for this time of	year?	Yes X	No (If no	o, explain in Remarl	ks.)	
Are Vegetation No , Soil No , or Hydrology No	significantly d	isturbed? A	re "Normal C	circumstances" pres	sent? Yes X	No	
Are Vegetation No , Soil No , or Hydrology No	naturally prob	lematic? (If needed, ex	plain any answers i	n Remarks.)		_
SUMMARY OF FINDINGS – Attach site m	•		g point lo	cations, transe	cts, important	features	s, etc.
Hydrophytic Vegetation Present? Yes N	lo X	Is the	Sampled A	'ea	_		
	lo X		n a Wetland?		NoX_		
Wetland Hydrology Present? Yes X	lo						
Remarks: Data point is located in upland approximately 25 feet VEGETATION – Use scientific names of pla		and D.					
Tree Otreture (Districts 200	Absolute	Dominant	Indicator	D T	4		
<u>Tree Stratum</u> (Plot size: 30) 1. Quercus rubra	% Cover 30	Species? Yes	Status FACU	Dominance Tes	nant Species That		
Betula alleghaniensis	15	Yes	FAC	Are OBL, FACW	•	2	(A)
3. Ulmus americana	10	No	FACW		Dominant Species		- ` ′
4.				Across All Strata		4	(B)
5					nant Species That		
Combiner/Charth Charter (Diet size)	55=	Total Cover		Are OBL, FACW	, or FAC:	50.0%	(A/B)
Sapling/Shrub Stratum (Plot size: 15 1. Carpinus caroliniana	.) 10	Yes	FAC	Prevalence Inde	v workshoot:		
2.		163	170	Total % Cov		ultiply by:	
3.				OBL species	0 x 1 =	0	_
4.				FACW species	10 x 2 =	20	_
5				FAC species	25 x 3 =	75	_
(5)	10=	Total Cover		FACU species _	30 x 4 =	120	_
Herb Stratum (Plot size: 5)	E	Voo		UPL species Column Totals:	0 x 5 =	0	
1. Carex sp. 2.	5	Yes		Prevalence In	65 (A) dex = B/A =	3.31	(B)
3.				i revalence in	<u></u>	0.01	_
4.				Hydrophytic Ve	getation Indicators	s:	
5.				1 - Rapid Te	st for Hydrophytic V	/egetation	
6					ce Test is >50%		
7					ce Index is ≤3.0 ¹		
8					ogical Adaptations ¹ (emarks or on a sepa		
9					Hydrophytic Vegeta		,
10	5 =	Total Cover			dric soil and wetland	, ,	,
Woody Vine Stratum (Plot size: 15)				ss disturbed or prob		/ IIIuSt
1. None	· ·			Hydrophytic	· ·		
2.				Vegetation			
	=	Total Cover	-	Present?	Yes No	X	
Remarks: (Include photo numbers here or on a sepa	arate sheet.)						

	cription: (Describe	to the dept				tor or c	onfirm the absence of	of indicators.)
Depth	Matrix		Redo	x Featur	es			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-10	10YR 4/3	100					Loamy/Clayey	
10-17	10YR 6/2	95	10YR 5/6	5	С	М	Loamy/Clayey	Prominent redox concentrations
								-
¹ Type: C=C	Concentration, D=Dep	letion, RM=	Reduced Matrix, N	иS=Mas	ked Sand	d Grains	. ² Location:	: PL=Pore Lining, M=Matrix.
	Indicators:							s for Problematic Hydric Soils ³ :
Histoso	I (A1)		Sandy Gle	yed Mat	rix (S4)		Coas	t Prairie Redox (A16)
Histic E	pipedon (A2)		Sandy Red	dox (S5)			Iron-N	Manganese Masses (F12)
Black H	istic (A3)		Stripped M	latrix (S6	6)		Red F	Parent Material (F21)
Hydroge	en Sulfide (A4)		Dark Surfa	ice (S7)			Very	Shallow Dark Surface (F22)
Stratifie	d Layers (A5)		Loamy Mu	cky Mine	eral (F1)		Other	(Explain in Remarks)
2 cm Mi	uck (A10)		Loamy Gle	eyed Mat	rix (F2)			
Deplete	d Below Dark Surface	e (A11)	Depleted N	∕latrix (F	3)			
Thick D	ark Surface (A12)		Redox Da	k Surfac	e (F6)		³ Indicators	s of hydrophytic vegetation and
Sandy N	Mucky Mineral (S1)		Depleted [Dark Sur	face (F7)		wetla	nd hydrology must be present,
5 cm Mi	ucky Peat or Peat (S3	3)	Redox De	oression	s (F8)		unles	s disturbed or problematic.
Restrictive	Layer (if observed):							
Type:								
Depth (i	nches):						Hydric Soil Present	? Yes No X
Remarks:								
This data fo	rm is revised from Mi	dwest Regio	onal Supplement \	ersion 2	2.0 to incl	ude the	NRCS Field Indicators	of Hydric Soils, Version 7.0, 2015
Errata (http:	://www.nrcs.usda.gov	Internet/FS	E_DOCUMENTS	nrcs142	p2_0512	93.docx).	-
HYDROLO	OGY							
Wetland Hy	drology Indicators:							
	icators (minimum of o	ne is requir	ed; check all that	apply)			Secondar	y Indicators (minimum of two required)
Surface	Water (A1)		Water-Sta	ned Lea	ves (B9)		Surfa	ce Soil Cracks (B6)
High Wa	ater Table (A2)		Aquatic Fa	iuna (B1	3)		Drain	age Patterns (B10)
X Saturati	on (A3)		True Aqua	tic Plant	s (B14)		Dry-S	season Water Table (C2)
Water N	/larks (B1)		Hydrogen	Sulfide (Odor (C1))	Crayf	ish Burrows (C8)
Sedime	nt Deposits (B2)		Oxidized F	Rhizosph	eres on L	iving R	oots (C3)Satur	ation Visible on Aerial Imagery (C9)
Drift De	posits (B3)		Presence		,	,		ed or Stressed Plants (D1)
Algal M	at or Crust (B4)		Recent Iro	n Reduc	tion in Til	led Soils	s (C6) Geom	norphic Position (D2)
	posits (B5)		Thin Muck		` '		FAC-	Neutral Test (D5)
	ion Visible on Aerial I			Well Dat	a (D9)			
Sparsel	y Vegetated Concave	Surface (B	8) Other (Exp	olain in R	temarks)			
Field Obse								
Surface Wa	ter Present? Ye	s			nches): _			
Water Table		s			nches): _			
Saturation F		s X	No	Depth (i	nches): _	10	Wetland Hydrolog	gy Present? Yes X No
	pillary fringe)							
Describe Re	ecorded Data (stream	gauge, mo	nitoring well, aeria	I photos	, previous	s inspec	tions), if available:	
D								
Remarks:								

Project/Site: Brendel Lake Campground / Elizabeth Lake	Road (221016	6) City/Cou	nty: White L	ake Twp/Oakland	Sampling Da	ate: 4-6-2	2022
Applicant/Owner: Kem-Tec, Inc. (client)				State: MI	Sampling Po	oint: [DP14
Investigator(s): R. Newkirk		Section, T	ownship, Ra	nge: NW 1/4; NW 1	/4; Section 27; T3	N; R8E	
Landform (hillside, terrace, etc.): hillside		!	Local relief (d	concave, convex, non	e): convex		
Slope (%): 5 Lat: 42.641022		Long: -	83.501859		Datum: WGS8	34	
Soil Map Unit Name: 11B - Capac sandy loam, 0 to 4 p	ercent slope	s –		NWI cla	ssification: PEM1	С	
Are climatic / hydrologic conditions on the site typical for	or this time of	year?	Yes X	No (If no,	explain in Remark	(s.)	
Are Vegetation No , Soil No , or Hydrology No s	significantly d	isturbed? A	re "Normal C	Circumstances" prese	nt? Yes X	No	
Are Vegetation No , Soil No , or Hydrology No ı	naturally prob	lematic? (If needed, ex	plain any answers in	Remarks.)		
SUMMARY OF FINDINGS – Attach site ma	ap showin	g samplin	g point lo	cations, transec	ts, important	features	, etc.
Hydrophytic Vegetation Present? Yes X No)	Is the	Sampled A	rea			
Hydric Soil Present? Yes No	X	withir	n a Wetland?	Yes	No X		
Wetland Hydrology Present? Yes No	<u> </u>						
Remarks:	north of Motle	and D					
Data point is located in upland approximatley 25 feet in	north of Wetla	and D.					
VEGETATION – Use scientific names of pla	nts.						
	Absolute	Dominant	Indicator				
Tree Stratum (Plot size: 30)	% Cover	Species?	Status	Dominance Test	worksheet:		
1. Quercus rubra	50	Yes	FACU	Number of Domina	•	0	(A)
Quercus bicolor Carya ovata	25 10	Yes No	FACU FACU	Are OBL, FACW, o	-	3	_(A)
4. Carpinus caroliniana	5	No	FAC	Total Number of D Across All Strata:	ominant Species	5	(B)
5.		140	170	Percent of Domina	ent Species That		_(D)
·	90 =	Total Cover		Are OBL, FACW, of	•	60.0%	(A/B)
Sapling/Shrub Stratum (Plot size: 15)				-		- ` ′
1. Carpinus caroliniana	10	Yes	FAC	Prevalence Index	worksheet:		
2. Fraxinus pennsylvanica	5	Yes	FACW	Total % Cove	r of: Mu	ıltiply by:	_
3				OBL species	0 x 1 =	0	_
4				FACW species	30 x 2 =	60	_
5		T-1-1-0		FAC species	15 x 3 =	45	_
Herb Stratum (Plot size: 5)	15=	Total Cover		FACU species UPL species	60 x 4 = 0 x 5 =	240 0	_
Herb Stratum (Plot size: 5) 1. Carex sp.	5	Yes		Column Totals:	105 (A)	345	(B)
2.		103		Prevalence Inde	`	3.29	_(D)
3.						0.20	_
4.				Hydrophytic Veg	etation Indicators	<u> </u>	
5.				1 - Rapid Test	for Hydrophytic V	egetation	
6.				X 2 - Dominance	e Test is >50%		
7				3 - Prevalence			
8					ical Adaptations ¹ (
9					narks or on a sepa	,	•
10	 _	Total Cause			ydrophytic Vegeta		
Woody Vine Stratum (Plot size: 15	5 =	Total Cover		¹ Indicators of hydribe present, unless		, ,,	must
1. None (Plot size: 15))			·	disturbed of prob	iemauc.	
2.				Hydrophytic Vegetation			
		Total Cover		Vegetation Present? Y	es X No		
Remarks: (Include photo numbers here or on a separ				•			
romano. (moidde priote numbers neie or on a separ	alo 311001.)						

Profile Desc	cription: (Describe	to the depth	n needed to docu	ument th	ne indica	tor or o	confirm the absence o	of indicators.)			
Depth	Matrix		Redo	x Featur	es						
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks			
0-9	10YR 3/2	100					Sandy				
9-16	10YR 5/2	95	10YR 5/4	5	С	М	Sandy	Distinct redox concentr	ations		
-											
-											
¹ Type: C=Co	oncentration, D=Dep	letion, RM=F	Reduced Matrix, N	иS=Mas	ked Sand	d Grains	s. ² Location:	PL=Pore Lining, M=Matrix.			
Hydric Soil	Indicators:						Indicators	s for Problematic Hydric S	oils³:		
Histosol	(A1)		Sandy Gle	yed Mat	rix (S4)		Coast	Prairie Redox (A16)			
Histic Ep	ipedon (A2)		Sandy Red	dox (S5)			Iron-N	Manganese Masses (F12)			
Black His	` '		Stripped M	•	6)			Parent Material (F21)			
	n Sulfide (A4)		Dark Surfa				Very \$	Shallow Dark Surface (F22)			
Stratified	Layers (A5)		Loamy Mu	-			Other	(Explain in Remarks)			
2 cm Mu	, ,		Loamy Gle	•	, ,						
	Below Dark Surface	e (A11)	Depleted N	,	,		2				
	rk Surface (A12)		Redox Dar		` '			s of hydrophytic vegetation a			
	lucky Mineral (S1)		Depleted D		, ,			nd hydrology must be preser	nt,		
5 cm Mu	cky Peat or Peat (S3	3)	Redox Dep	oression	s (F8)		unles	s disturbed or problematic.			
Restrictive I	Layer (if observed):										
Type:			_								
Depth (ir	nches):		_				Hydric Soil Present	? Yes	No X		
Remarks:											
								of Hydric Soils, Version 7.0	, 2015		
Errata (http:/	/www.nrcs.usda.gov	/Internet/FSI	E_DOCUMENTS/	nrcs142	p2_0512	93.docx	x).				
HYDROLO	GY										
Wetland Hy	drology Indicators:										
Primary India	cators (minimum of c	ne is require	ed; check all that a	apply)				y Indicators (minimum of two	required)		
Surface	Water (A1)		Water-Stai	ned Lea	ves (B9)			ce Soil Cracks (B6)			
	ter Table (A2)		Aquatic Fa	•	•			age Patterns (B10)			
Saturatio	, ,		True Aqua				Dry-Season Water Table (C2)				
	arks (B1)		Hydrogen					ish Burrows (C8)			
	t Deposits (B2)		Oxidized F	•		-	· · · —	ation Visible on Aerial Image	ry (C9)		
	osits (B3)		Presence of		,	,		ed or Stressed Plants (D1)			
	t or Crust (B4)		Recent Iro			led Soil	`	norphic Position (D2)			
	osits (B5)	(D7)	Thin Muck		` '		X FAC-I	Neutral Test (D5)			
	on Visible on Aerial I	0 , ,									
	Vegetated Concave	Surface (B	3)Other (Exp	olain in R	(emarks						
Field Obser											
Surface Wat		es			nches): _						
Water Table		es			nches): _		Marat 111 : :		M- V		
Saturation P		es	No X	⊔epth (ii	nches):		Wetland Hydrolog	y Present? Yes	No X		
(includes cap			itoring well as de	l phete:	n roud	ine	stions) if overlights				
Describe Re	corded Data (stream	gauge, mor	illoring well, aeria	i priotos	, previous	sinspec	cuoris), ii avallable:				
Remarks:											

Project/Site: Brendel Lake Campground / Elizabeth Lake	Road (22101	6) City/Cou	nty: White L	ake Twp/Oakland	Sampling Da	ate: 4-6-2	2022
Applicant/Owner: Kem-Tec, Inc. (client)				State: MI	Sampling Po	int: E	DP15
Investigator(s): R. Newkirk		Section, T	ownship, Ra	nge: NW 1/4; NW 1/	 '4; Section 27; T3	N; R8E	
Landform (hillside, terrace, etc.): depression			Local relief (c	concave, convex, none	e): concave		
Slope (%): 0 Lat: 42.64092			83.501994	, ,	Datum: WGS8	4	
Soil Map Unit Name: 27 - Houghton and Adrian Mucks				NWI clas	ssification: PEM1		
Are climatic / hydrologic conditions on the site typical fo	r this time of	fygar?	Yes X		explain in Remark		
Are Vegetation No , Soil No , or Hydrology No s		-		Circumstances" preser			
						No	_
Are Vegetation No , Soil No , or Hydrology No n SUMMARY OF FINDINGS – Attach site ma				plain any answers in f cations. transect	•	features	. etc.
Hydrophytic Vegetation Present? Yes X No			Sampled A	·			
			n a Wetland?		No		
Wetland Hydrology Present? Yes X No							
Remarks:		J					
Data point is located in the western most extend of We	etland D, nea	ar the west bo	undary of the	Project Site.			
VEGETATION – Use scientific names of plan	nts.						
T 0/ / (DI / : 00)	Absolute	Dominant	Indicator	.			
Tree Stratum (Plot size: 30)	% Cover 30	Species? Yes	Status FAC	Dominance Test v			
Populus deltoides Quercus bicolor	20	Yes	FACW	Number of Domina Are OBL, FACW, o	•	6	(A)
Salix amygdaloides	15	No	FACW		_		_ (/\)
4. Acer saccharinum	10	No	FACW	Total Number of Do Across All Strata:	minant Species	6	(B)
5. Quercus rubra	10	No	FACU	Percent of Dominar	nt Species That		_(-/
	85	Total Cover		Are OBL, FACW, o	•	100.0%	(A/B)
Sapling/Shrub Stratum (Plot size: 15)					-		- ` ′
1. Cornus sericea	15	Yes	FACW	Prevalence Index	worksheet:		
2. Quercus bicolor	8	Yes	FACW	Total % Cover	of: Mu	Itiply by:	_
3. Carpinus caroliniana	5	No	FAC	OBL species	12 x 1 =	12	_
4				FACW species	68 x 2 =	136	_
5				FAC species	35 x 3 =	105	_
Heads Official (Distriction 5	28	=Total Cover		FACU species	10 x 4 = _	40	_
Herb Stratum (Plot size: 5)	7	Vaa	OBL	UPL species Column Totals:	0 x 5 =	0	_ (D)
Carex hyalinolepis Symplocarpus foetidus	5	Yes Yes	OBL OBL	Prevalence Inde		293 2.34	_(B)
		163	OBL	Frevalence inde	X - D/A -	2.34	_
3. 4.				Hydrophytic Vege	tation Indicators		
5.					for Hydrophytic V		
6.				X 2 - Dominance		3	
7.				X 3 - Prevalence	Index is ≤3.0 ¹		
8.				4 - Morphologic	cal Adaptations ¹ (I	Provide su	pporting
9				data in Rem	arks or on a sepa	rate sheet))
10				Problematic Hy	drophytic Vegeta	tion ¹ (Expl	ain)
	12	=Total Cover		¹ Indicators of hydric			must
Woody Vine Stratum (Plot size: 15)				be present, unless	disturbed or probl	ematic.	
1. None				Hydrophytic			
2		Total Cover		Vegetation	ne Y Na		
		- i otal Cover		Present? Ye	es X No		
Remarks: (Include photo numbers here or on a separa	ate sheet.)						

Item A.	
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			tor or c	onfirm the absence of	of indicators.)		
· · · · · · · · · · · · · · · · · · ·							
(inches) Color (moist) %	Color (moist)	% Type ¹	Loc ²	Texture	Remarks		
0-18 10YR 2/1 100				Mucky Sand			
¹ Type: C=Concentration, D=Depletion, RM=	Reduced Matrix, M	S=Masked Sand	Grains.	² Location	: PL=Pore Lining, M=Matrix.		
Hydric Soil Indicators:					s for Problematic Hydric Soils ³ :		
Histosol (A1)	Sandy Gleye	ed Matrix (S4)		Coas	t Prairie Redox (A16)		
Histic Epipedon (A2)	Sandy Redo	ox (S5)		Iron-N	Manganese Masses (F12)		
Black Histic (A3)	Stripped Ma	trix (S6)		Red F	Parent Material (F21)		
X Hydrogen Sulfide (A4)	? Dark Surfac	e (S7)		Very	Shallow Dark Surface (F22)		
Stratified Layers (A5)	Loamy Mucl	ky Mineral (F1)		Other	(Explain in Remarks)		
2 cm Muck (A10)	Loamy Gley	ed Matrix (F2)					
Depleted Below Dark Surface (A11)	Depleted Ma	atrix (F3)					
Thick Dark Surface (A12)	Redox Dark	Surface (F6)		³ Indicator	s of hydrophytic vegetation and		
X Sandy Mucky Mineral (S1)	Depleted Da	ark Surface (F7)		wetla	nd hydrology must be present,		
5 cm Mucky Peat or Peat (S3)	Redox Depr	essions (F8)		unles	s disturbed or problematic.		
Restrictive Layer (if observed):							
Type:							
Depth (inches):				Hydric Soil Present	? Yes X No		
Remarks:							
This data form is revised from Midwest Regi	onal Supplement Ve	ersion 2.0 to incl	ude the l	NRCS Field Indicators	of Hydric Soils Version 7.0. 2015		
Errata (http://www.nrcs.usda.gov/Internet/FS							
	SE_DOCUMENTS/n	rcs142p2_0512					
	SE_DOCUMENTS/n	rcs142p2_0512			,		
	SE_DOCUMENTS/n	rcs142p2_0512			,		
HYDROLOGY	SE_DOCUMENTS/n	rcs142p2_0512 [!]					
	SE_DOCUMENTS/n	rcs142p2_0512 ^t					
HYDROLOGY					y Indicators (minimum of two required)		
HYDROLOGY Wetland Hydrology Indicators:		oply)		<u>Secondar</u>			
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required)	ed; check all that ap	oply) ed Leaves (B9)		Secondar	y Indicators (minimum of two required)		
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is requir X Surface Water (A1)	red; check all that ar X Water-Stain Aquatic Fau	oply) ed Leaves (B9)		Secondar Surfa	y Indicators (minimum of two required) ce Soil Cracks (B6)		
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is requir X Surface Water (A1) X High Water Table (A2)	red; check all that ar X Water-Stain Aquatic Fau True Aquatic	oply) ed Leaves (B9) na (B13)	93.docx)	Secondar Surfa Drain Dry-S	y Indicators (minimum of two required) ce Soil Cracks (B6) age Patterns (B10)		
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is requir X Surface Water (A1) X High Water Table (A2) X Saturation (A3)	red; check all that ap X Water-Stain Aquatic Fau True Aquatic X Hydrogen S	oply) ed Leaves (B9) na (B13) c Plants (B14)	93.docx)	Secondar Surfa Drain Dry-S	y Indicators (minimum of two required) ce Soil Cracks (B6) age Patterns (B10) beason Water Table (C2)		
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required in the second in the seco	red; check all that ap X Water-Stain Aquatic Fau True Aquatic X Hydrogen S Oxidized Rh	oply) ed Leaves (B9) na (B13) c Plants (B14) ulfide Odor (C1)	93.docx)	Secondar	y Indicators (minimum of two required) ce Soil Cracks (B6) age Patterns (B10) season Water Table (C2) ish Burrows (C8)		
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required in the second in the seco	x Water-Stain Aquatic Fau True Aquatic X Hydrogen S Oxidized Rh	oply) ed Leaves (B9) na (B13) c Plants (B14) ulfide Odor (C1) izospheres on L	e.iving Rc	Secondar Surfa Drain Dry-S Crayf oots (C3) Satur	y Indicators (minimum of two required) ce Soil Cracks (B6) age Patterns (B10) season Water Table (C2) ish Burrows (C8) ation Visible on Aerial Imagery (C9)		
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is requir X Surface Water (A1) X High Water Table (A2) X Saturation (A3) X Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3)	x Water-Stain Aquatic Fau True Aquatic X Hydrogen S Oxidized Rh	oply) ed Leaves (B9) na (B13) c Plants (B14) ulfide Odor (C1) izospheres on L Reduced Iron (e.iving Rc	Secondar Surfa Drain Dry-S Crayf Satur Stunt S (C6) X Geon	y Indicators (minimum of two required) ce Soil Cracks (B6) age Patterns (B10) beason Water Table (C2) ish Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1)		
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is requir X Surface Water (A1) X High Water Table (A2) X Saturation (A3) X Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) X Inundation Visible on Aerial Imagery (B7)	x Water-Stain Aquatic Fau True Aquatic X Hydrogen S Oxidized Rh Presence of Recent Iron Thin Muck S Gauge or W	oply) ed Leaves (B9) na (B13) c Plants (B14) ulfide Odor (C1) izospheres on L Reduced Iron (e.iving Rc	Secondar Surfa Drain Dry-S Crayf Satur Stunt S (C6) X Geon	y Indicators (minimum of two required) ce Soil Cracks (B6) age Patterns (B10) beason Water Table (C2) bish Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) horphic Position (D2)		
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is requir X Surface Water (A1) X High Water Table (A2) X Saturation (A3) X Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5)	x Water-Stain Aquatic Fau True Aquatic X Hydrogen S Oxidized Rh Presence of Recent Iron Thin Muck S	oply) ed Leaves (B9) na (B13) c Plants (B14) ulfide Odor (C1) nizospheres on L Reduced Iron (Reduction in Til Surface (C7)	e.iving Rc	Secondar Surfa Drain Dry-S Crayf Satur Stunt S (C6) X Geon	y Indicators (minimum of two required) ce Soil Cracks (B6) age Patterns (B10) beason Water Table (C2) bish Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) horphic Position (D2)		
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is requir X Surface Water (A1) X High Water Table (A2) X Saturation (A3) X Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) X Inundation Visible on Aerial Imagery (B7)	x Water-Stain Aquatic Fau True Aquatic X Hydrogen S Oxidized Rh Presence of Recent Iron Thin Muck S	pply) ed Leaves (B9) na (B13) c Plants (B14) ulfide Odor (C1) nizospheres on L Reduced Iron (Reduction in Til Surface (C7) fell Data (D9)	e.iving Rc	Secondar Surfa Drain Dry-S Crayf Satur Stunt S (C6) X Geon	y Indicators (minimum of two required) ce Soil Cracks (B6) age Patterns (B10) beason Water Table (C2) bish Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) horphic Position (D2)		
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required in the second in the seco	x Water-Stain Aquatic Fau True Aquatic X Hydrogen S Oxidized Rh Presence of Recent Iron Thin Muck S Gauge or W SS Other (Explain	pply) ed Leaves (B9) na (B13) c Plants (B14) ulfide Odor (C1) izospheres on L Reduced Iron (Reduction in Til Surface (C7) fell Data (D9)	e.iving Rc	Secondar Surfa Drain Dry-S Crayf Satur Stunt S (C6) X Geon	y Indicators (minimum of two required) ce Soil Cracks (B6) age Patterns (B10) beason Water Table (C2) bish Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) horphic Position (D2)		
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is requir X Surface Water (A1) X High Water Table (A2) X Saturation (A3) X Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) X Inundation Visible on Aerial Imagery (B7 Sparsely Vegetated Concave Surface (E	X Water-Stain Aquatic Fau True Aquatic X Hydrogen S Oxidized Rh Presence of Recent Iron Thin Muck S Gauge or W Other (Explain	poly) ed Leaves (B9) na (B13) c Plants (B14) ulfide Odor (C1) izospheres on L Reduced Iron (Reduction in Til Surface (C7) fell Data (D9) ain in Remarks)	iving Ro	Secondar Surfa Drain Dry-S Crayf Satur Stunt S (C6) X Geon	y Indicators (minimum of two required) ce Soil Cracks (B6) age Patterns (B10) beason Water Table (C2) bish Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) horphic Position (D2)		
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required X Surface Water (A1) X High Water Table (A2) X Saturation (A3) X Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) X Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (E1) Field Observations: Surface Water Present? Yes X	x Water-Stain Aquatic Fau True Aquatic X Hydrogen S Oxidized Rh Presence of Recent Iron Thin Muck S Gauge or W Other (Explain	oply) ed Leaves (B9) na (B13) c Plants (B14) ulfide Odor (C1) nizospheres on L Reduced Iron (Reduction in Til Surface (C7) fell Data (D9) ain in Remarks)	iving Ro	Secondar Surfa Drain Dry-S Crayf Satur Stunt S (C6) X Geon	y Indicators (minimum of two required) ce Soil Cracks (B6) age Patterns (B10) season Water Table (C2) sish Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) norphic Position (D2) Neutral Test (D5)		
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required X Surface Water (A1) X High Water Table (A2) X Saturation (A3) X Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) X Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (E1) Field Observations: Surface Water Present? Yes X Water Table Present? Yes X	x Water-Stain Aquatic Fau True Aquatic X Hydrogen S Oxidized Rh Presence of Recent Iron Thin Muck S Gauge or W Other (Explain	poply) ed Leaves (B9) na (B13) c Plants (B14) ulfide Odor (C1) nizospheres on L Reduced Iron (Reduction in Til Surface (C7) fell Data (D9) nin in Remarks) pepth (inches):	iving RoC4) led Soils	Secondar	y Indicators (minimum of two required) ce Soil Cracks (B6) age Patterns (B10) season Water Table (C2) sish Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) norphic Position (D2) Neutral Test (D5)		
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required X Surface Water (A1) X High Water Table (A2) X Saturation (A3) X Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) X Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (E1) Field Observations: Surface Water Present? Yes X Water Table Present? Yes X Saturation Present? Yes X	x Water-Stain Aquatic Fau True Aquatic X Hydrogen S Oxidized Rh Presence of Recent Iron Thin Muck S Other (Explain	pply) ed Leaves (B9) na (B13) c Plants (B14) ulfide Odor (C1) nizospheres on L Reduced Iron (Reduction in Til Gurface (C7) fell Data (D9) nin in Remarks) pepth (inches): pepth (inches):	iving Ro C4) led Soils	Secondar Surfa Drain Dry-S Crayf Soots (C3) Satur Stunt S (C6) X Geon X FAC-	y Indicators (minimum of two required) ce Soil Cracks (B6) age Patterns (B10) season Water Table (C2) sish Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) norphic Position (D2) Neutral Test (D5)		
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required in the image of the	x Water-Stain Aquatic Fau True Aquatic X Hydrogen S Oxidized Rh Presence of Recent Iron Thin Muck S Other (Explain	pply) ed Leaves (B9) na (B13) c Plants (B14) ulfide Odor (C1) nizospheres on L Reduced Iron (Reduction in Til Gurface (C7) fell Data (D9) nin in Remarks) pepth (inches): pepth (inches):	iving Ro C4) led Soils	Secondar Surfa Drain Dry-S Crayf Soots (C3) Satur Stunt S (C6) X Geon X FAC-	y Indicators (minimum of two required) ce Soil Cracks (B6) age Patterns (B10) season Water Table (C2) sish Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) norphic Position (D2) Neutral Test (D5)		
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required in the image) X Surface Water (A1) X High Water Table (A2) X Saturation (A3) X Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) X Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B7) Field Observations: Surface Water Present? Surface Water Present? Yes X Water Table Present? Yes X Saturation Present? Yes X (includes capillary fringe)	x Water-Stain Aquatic Fau True Aquatic X Hydrogen S Oxidized Rh Presence of Recent Iron Thin Muck S Other (Explain	pply) ed Leaves (B9) na (B13) c Plants (B14) ulfide Odor (C1) nizospheres on L Reduced Iron (Reduction in Til Gurface (C7) fell Data (D9) nin in Remarks) pepth (inches): pepth (inches):	iving Ro C4) led Soils	Secondar Surfa Drain Dry-S Crayf Soots (C3) Satur Stunt S (C6) X Geon X FAC-	y Indicators (minimum of two required) ce Soil Cracks (B6) age Patterns (B10) season Water Table (C2) sish Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) norphic Position (D2) Neutral Test (D5)		
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required in the image of the	x Water-Stain Aquatic Fau True Aquatic X Hydrogen S Oxidized Rh Presence of Recent Iron Thin Muck S Other (Explain	pply) ed Leaves (B9) na (B13) c Plants (B14) ulfide Odor (C1) nizospheres on L Reduced Iron (Reduction in Til Gurface (C7) fell Data (D9) nin in Remarks) pepth (inches): pepth (inches):	iving Ro C4) led Soils	Secondar Surfa Drain Dry-S Crayf Soots (C3) Satur Stunt S (C6) X Geon X FAC-	y Indicators (minimum of two required) ce Soil Cracks (B6) age Patterns (B10) season Water Table (C2) sish Burrows (C8) ation Visible on Aerial Imagery (C9) ed or Stressed Plants (D1) norphic Position (D2) Neutral Test (D5)		

Project/Site: Brendel Lake Campground / Elizabeth Lake	Road (221016	6) City/Cou	nty: White L	ake Twp/Oakland	Sampling Da	te: 4-6-2	2022
Applicant/Owner: Kem-Tec, Inc. (client)	_		State: MI	— Sampling Poi	nt: [DP16	
Investigator(s): R. Newkirk	Section, T	ownship, Ra	nge: NW 1/4; NW 1	 /4; Section 27; T3N	N; R8E		
Landform (hillside, terrace, etc.): depression			Local relief (d	concave, convex, none	e): concave		
Slope (%): 0 Lat: 42.641543		Long: -	83.500687		Datum: WGS84	1	
Soil Map Unit Name: 27 - Houghton and Adrian mucks	,			NWI clas	ssification: PFO1C		
Are climatic / hydrologic conditions on the site typical for		vear?	Yes X		explain in Remarks		
Are Vegetation No , Soil No , or Hydrology No		-		Circumstances" preser		No	
Are Vegetation No , Soil No , or Hydrology No				plain any answers in l			_
SUMMARY OF FINDINGS – Attach site m				-	·	eatures	, etc.
Hydrophytic Vegetation Present? Yes X No	0	Is the	Sampled A	rea			
Hydric Soil Present? Yes X No	0		n a Wetland?		No		
Wetland Hydrology Present? Yes X No.	0						
Remarks: Data point is located in a forested portion of Wetland VEGETATION – Use scientific names of pla							
	Absolute	Dominant	Indicator				
Tree Stratum (Plot size: 30)	% Cover	Species?	Status	Dominance Test v			
Betula alleghaniensis Oversya bisolar	25	Yes	FAC	Number of Domina		6	(A)
Quercus bicolor Carpinus caroliniana	<u>15</u> 10	Yes Yes	FACW FAC	Are OBL, FACW, o	_	6	_(A)
4.		103	170	Total Number of Do Across All Strata:	ominant Species	7	(B)
5.				Percent of Domina	nt Species That		_(-/
	50 =	Total Cover		Are OBL, FACW, o		85.7%	(A/B)
Sapling/Shrub Stratum (Plot size: 15)						
1. Carpinus caroliniana	20	Yes	FAC	Prevalence Index			
2. Celtis occidentalis	8	Yes	FAC	Total % Cove		tiply by:	_
3. Quercus bicolor	5	No	FACW	OBL species	3 x 1 = _	3	_
4				FACW species FAC species	20 x 2 =	40 189	_
5	33 =	Total Cover		FACU species	0	0	_
Herb Stratum (Plot size: 5)		TOTAL COVE		UPL species	0 x 5 =	0	_
1. Carex sp.	5	Yes		Column Totals:	86 (A)	232	(B)
2. Symplocarpus foetidus	3	Yes	OBL	Prevalence Inde	ex = B/A =	2.70	
3.					•		
4				Hydrophytic Vege			
5					for Hydrophytic Ve	getation	
6.				X 2 - Dominance			
7.				X 3 - Prevalence	index is ≤3.0° cal Adaptations¹ (F	rovido ou	nnorting
8 9.					arks or on a separ		
10.					, drophytic Vegetat	•	
	8 =	Total Cover		¹ Indicators of hydri		, ,	•
Woody Vine Stratum (Plot size: 15)			be present, unless			
1. None				Hydrophytic			
2.				Vegetation			
	<u> </u>	Total Cover		Present? Yo	es X No		
Remarks: (Include photo numbers here or on a sepa	rate sheet.)						

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)												
Depth Matrix Redox Features												
(inches)	Color (moist) %	Co	lor (moist)	%	Type ¹	Loc ²	Texture	Remarks			
0-16	10YR 2/1	100	_					Mucky Sand				
						·						
									_			
¹ Type: C=Co	oncentration, D=I	Depletion,	RM=Red	uced Matrix,	MS=Mas	ked Sand	Grains	s. ² Location	: PL=Pore Lining, M=Matrix.			
Hydric Soil									rs for Problematic Hydric Soils ³ :			
Histosol	(A1)			Sandy Gl	eyed Mat	rix (S4)		Coas	t Prairie Redox (A16)			
Histic Ep	ipedon (A2)		_	Sandy Redox (S5)				Iron-I	Manganese Masses (F12)			
Black His	stic (A3)		_	Stripped Matrix (S6)				Red Parent Material (F21)				
X Hydroge	n Sulfide (A4)		_	? Dark Surface (S7)				Very	Very Shallow Dark Surface (F22)			
Stratified	Layers (A5)			Loamy M	ucky Mine	eral (F1)		Other (Explain in Remarks)				
2 cm Mu	ck (A10)			Loamy Gl	eyed Mat	trix (F2)						
Depleted	l Below Dark Sur	face (A11)	_	Depleted	Matrix (F	3)						
Thick Da	rk Surface (A12)		_	Redox Da	rk Surfac	e (F6)		³ Indicators of hydrophytic vegetation and				
	ucky Mineral (S1	,	_	Depleted	Dark Sur	face (F7)		wetland hydrology must be present,				
5 cm Mu	cky Peat or Peat	(S3)	_	Redox Depressions (F8)				unless disturbed or problematic.				
Restrictive I	Layer (if observe	ed):										
Type:												
Depth (in	nches):							Hydric Soil Present	t? Yes <u>X</u> No			
Remarks:												
This data for	m is revised from	Midwest F	Regional	Supplement	Version 2	2.0 to incl	ude the	NRCS Field Indicators	s of Hydric Soils, Version 7.0, 2015			
Errata (http://	/www.nrcs.usda.	gov/Interne	t/FSE_D	OCUMENTS	3/nrcs142	p2_0512	93.docx	().				
HYDROLO	GY											
Wetland Hy	drology Indicate	rs:										
Primary India	cators (minimum	of one is re	equired; o	heck all that	apply)			Secondar	ry Indicators (minimum of two required)			
X Surface	Water (A1)			X Water-Sta	ained Lea	ves (B9)		Surface Soil Cracks (B6)				
X High Water Table (A2)				Aquatic F	auna (B1	3)		Drain	nage Patterns (B10)			
X Saturation (A3) True Aquatic Plants					atic Plant	s (B14)		Dry-S	Season Water Table (C2)			
X Water Marks (B1) X Hydrogen Sulfide Odor (C1))	Crayfish Burrows (C8)						
Sediment Deposits (B2) Oxidized Rhizospheres on Living F							iving R	oots (C3)Satur	ration Visible on Aerial Imagery (C9)			
Drift Dep	osits (B3)		_	Presence	of Reduc	ced Iron (C4)	Stunt	ted or Stressed Plants (D1)			
Algal Ma	t or Crust (B4)		_	Recent Ire			led Soi	ls (C6) X Geor	norphic Position (D2)			
	osits (B5)		_	Thin Muc		` '		X FAC-	Neutral Test (D5)			
X Inundation Visible on Aerial Imagery (B7) Gauge or Well Data (D9)												
Sparsely	Vegetated Cond	ave Surfac	e (B8) _	Other (Ex	plain in R	Remarks)						
Field Obser	vations:											
Surface Water		Yes X	_ ^	۸o		nches): _	3					
Water Table		Yes X		No		nches): _		1				
Saturation P		Yes X	_ ^	1 0	Depth (i	nches):	0	Wetland Hydrolog	gy Present? Yes X No			
(includes capillary fringe)												
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:												
Remarks:												
nomants.												

Project/Site: Brendel Lake Campground / Elizabeth Lake	Road (221016	6) City/Cou	nty: White L	ake Twp/Oakland	Sampling I	Date: <u>4-6-</u>	2022
Applicant/Owner: Kem-Tec, Inc. (client)				State: M	II Sampling F	Point:	DP17
Investigator(s): R. Newkirk		Section, T	ownship, Ra	nge: NW 1/4; NV	/ 1/4; Section 27; T	3N; R8E	
Landform (hillside, terrace, etc.): upland			Local relief (d	concave, convex, n	one): none		
Slope (%): 0 Lat: 42.641543		Long: -	83.500486		Datum: WGS	S84	
Soil Map Unit Name: 11B - Capac sandy loam, 0 to 4 p	percent slope	<u> </u>		NWI	classification: PFO	1C	
Are climatic / hydrologic conditions on the site typical for	or this time of	year?	Yes X	No (If n	o, explain in Rema	ırks.)	
Are Vegetation No , Soil No , or Hydrology No ;	significantly d	isturbed? A	Are "Normal C	Circumstances" pre	sent? Yes X	No	
Are Vegetation No , Soil No , or Hydrology No I	naturally prob	lematic? (If needed, ex	plain any answers	in Remarks.)		
SUMMARY OF FINDINGS – Attach site ma						t features	, etc.
Hydrophytic Vegetation Present? Yes No	о X	Is the	Sampled A	rea			
	X	within a Wetland? Yes No X					
Wetland Hydrology Present? Yes No	X X			_		_	
Remarks: Data point is located in upland approximately 75 feet	south of Wetl	and B.					
<u> </u>							
VEGETATION – Use scientific names of pla	nts. Absolute	Dominant	Indicator				
<u>Tree Stratum</u> (Plot size: 30)	% Cover	Species?	Status	Dominance Tes	st worksheet:		
1. Quercus rubra	40	Yes	FACU	Number of Dom	inant Species That		
2. Prunus serotina	20	Yes	FACU	Are OBL, FACW	/, or FAC:	2	(A)
3. Carpinus caroliniana	15	Yes	FAC		Dominant Species		
4				Across All Strata	a :	5	_(B)
5	75	Total Cayar			inant Species That		(A /D)
Sapling/Shrub Stratum (Plot size: 15	75 =	Total Cover		Are OBL, FACW	I, or FAC:	40.0%	_(A/B)
1. Carpinus caroliniana	, 20	Yes	FAC	Prevalence Ind	av workshoot		
2. Quercus rubra	10	Yes	FACU	Total % Co		fultiply by:	
3.				OBL species	0 x 1 =		_
4.				FACW species	0 x 2 =	0	_
5				FAC species	35 x 3 =	105	_
	30	Total Cover		FACU species	70 x 4 =	280	_
Herb Stratum (Plot size: 5)				UPL species	0 x 5 =	0	_
1. None				Column Totals:	105 (A)	385	_(B)
2.				Prevalence Ir	ndex = B/A =	3.67	_
3. 4.				Hydronhytic V	egetation Indicato	re.	
5.					est for Hydrophytic		
6.					nce Test is >50%	rogotation	
7.					ice Index is ≤3.0 ¹		
8.				4 - Morphol	ogical Adaptations ¹	(Provide su	pporting
9.				data in R	emarks or on a sep	parate sheet)
10				Problemation	Hydrophytic Vege	tation ¹ (Exp	lain)
Woody Vine Stratum (Plot size: 15	=	=Total Cover		,	dric soil and wetlar ss disturbed or pro	, ,,	/ must
1. None				Hydrophytic			
2				Vegetation			
	=	Total Cover		Present?	Yes No	<u> </u>	
Remarks: (Include photo numbers here or on a separ	rate sheet.)						

Item A.

	cription: (Describe	o the depti				tor or c	confirm the absence	e of indicators.)			
Depth	Matrix			x Featur		1 - 2	T	Demonto			
(inches)	Color (moist)	<u>%</u>	Color (moist)	<u>%</u>	Type ¹	Loc ²	Texture	Remarks			
0-10	10YR 3/2	100					Loamy/Clayey				
10-17	10YR 4/4	70	10YR 5/8	30	С	M	Loamy/Clayey	Prominent redox concentrations			
								-			
l ———											
1											
	oncentration, D=Dep	etion, RM=f	Reduced Matrix, N	/IS=Mas	ked Sand	d Grains		on: PL=Pore Lining, M=Matrix.			
Hydric Soil			0 1 01					ors for Problematic Hydric Soils ³ :			
Histosol	` '			Sandy Gleyed Matrix (S4)				ast Prairie Redox (A16)			
	pipedon (A2)			Sandy Redox (S5)				Iron-Manganese Masses (F12)			
	stic (A3)		Stripped M	•	3)		Red Parent Material (F21)				
	n Sulfide (A4)		Dark Surfa				Very Shallow Dark Surface (F22)				
	d Layers (A5)		Loamy Mu	-			Other (Explain in Remarks)				
	ick (A10)	(8.4.4)	Loamy Gle								
	d Below Dark Surface	(A11)	Depleted N		-		Starting to the start of the st				
	ark Surface (A12)		Redox Dar		, ,		³ Indicators of hydrophytic vegetation and				
	lucky Mineral (S1)		Depleted D		. ,		wetland hydrology must be present,				
5 cm IVIL	icky Peat or Peat (S3)	Redox Dep	pression	s (F8)		uni	ess disturbed or problematic.			
Restrictive	Layer (if observed):										
Type:											
Depth (ii	nches):		<u> </u>				Hydric Soil Prese	ent? Yes No X			
Remarks:											
This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015											
Errata (http:/	//www.nrcs.usda.gov/	Internet/FSI	E_DOCUMENTS/	nrcs142	p2_0512	93.docx).				
11)/22016											
HYDROLO	JGY										
Wetland Hy	drology Indicators:										
	cators (minimum of o	ne is require					Secondary Indicators (minimum of two required)				
	Water (A1)		Water-Stai		, ,		Surface Soil Cracks (B6)				
	iter Table (A2)	Aquatic Fa	-	-		Drainage Patterns (B10)					
Saturation			True Aqua				Dry-Season Water Table (C2)				
	arks (B1)		Hydrogen				Crayfish Burrows (C8)				
	nt Deposits (B2)		Oxidized R	•		•	· ,				
	posits (B3)			Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soi				Stunted or Stressed Plants (D1)			
	at or Crust (B4)					lled Soil	• •	omorphic Position (D2)			
	oosits (B5)	(D.7)	Thin Muck		, ,		FA	C-Neutral Test (D5)			
Inundation Visible on Aerial Imagery (B7) Gauge or Well Data (D9)											
? Sparsely Vegetated Concave Surface (B8) Other (Explain in Remarks)											
Field Obser											
Surface Wat				Depth (i							
Water Table					nches): _		l				
					Wetland Hydrol	ogy Present? Yes No X					
(includes capillary fringe)											
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:											
Domortica											
Remarks:											

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