July 2013 version

# ENVIRONMENTAL ASSESSMENT WORKSHEET

**This Environmental Assessment Worksheet (EAW) form and EAW Guidelines are available at the Environmental Quality Board's website at:**
**http://www.eqb.state.mn.us/EnvRevGuidanceDocuments.htm.** The EAW form provides information about a project that may have the potential for significant environmental effects. The EAW Guidelines provide additional detail and resources for completing the EAW form.
**Cumulative potential effects** can either be addressed under each applicable EAW Item, or can be addresses collectively under EAW Item 19.
**Note to reviewers:** Comments must be submitted to the RGU during the 30-day comment period following notice of the EAW in the *EQB Monitor*. Comments should address the accuracy and completeness of information, potential impacts that warrant further investigation and the need for an EIS.

1. **Project title:** **Hawkes Company, Peat Mining – Mercil Site**

2. **Proposer: Hawkes Company, Inc.**
   Contact person: Kevin Pierce
   Title: President
   Address: PO Box 14111
   City, State, ZIP: Grand Forks, ND 58208
   Phone: (701) 775-5156
   Fax: (218) 773-0701
   Email: kpierce@dakotapeat.com

3. **RGU: MN Dept. of Natural Resources**
   Contact person: Lisa Fay
   Title: Principal Planner
   Address: 500 Lafayette Rd.
   City, State, ZIP: St. Paul, MN 55155
   Phone: (651) 259-5110
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4. **Reason for EAW Preparation:** (check one)

| Required: | Discretionary: |
|---|---|
| ☐ EIS Scoping | ☐ Citizen petition |
| X Mandatory EAW | ☐ RGU discretion |
| | ☐ Proposer initiated |

   If EAW or EIS is mandatory give EQB rule category subpart number(s) and name(s):

Minnesota Rules, part 4410.4300, subpart 12A Nonmetallic mineral mining

5. **Project Location:**
   County: Marshall
   City/Township: New Maine
   PLS Location (¼, ¼, Section, Township, Range): W½ Section 13, E½ Section 14 and NW¼ Section 24, T157N, R44W
   Watershed (81 major watershed scale): Snake
   GPS Coordinates: 48.4174, -96.2722

Tax Parcel Number: Mercil site portion: 31-0073-003; other private land: 31-0134-000, 31-0133-003; state land portion: 31-7076-002, 31-7134-001

**At a minimum attach each of the following to the EAW:**

- County map showing the general location of the project;
    - Figure 1 – Project Location
- U.S. Geological Survey 7.5 minute, 1:24,000 scale map indicating project boundaries (photocopy acceptable); and
    - Figure 2 – U.S. Geological Survey Map
- Site plans showing all significant project and natural features. Pre-construction site plan and post-construction site plan.
    - Figure 3 – Project Features
    - Figure 4 – Soil Map
    - Figure 5 – Public Water and Wetlands
    - Figure 6 – Drainage Area
    - Figure 7 – Sedimentation Basin Design
    - Figure 8 – Native Plant Communities
    - Figure 9 – Sites of Biodiversity Significance: Cumulative Effects Assessment Area
    - Figure 10 – Water Resource Catchments: Cumulative Effects Assessment Area

**6. Project Description:**

a. Provide the brief project summary to be published in the *EQB Monitor*, (approximately 50 words).

Hawkes Co. Inc. (Hawkes Co.) is planning to expand their current peat mining activities to a new 299-acre site containing rich fen and upland located approximately 1.5 miles southeast of their current operations. Of this 299-acre site, Hawkes Co. proposes to mine 198 acres of peat. Peat mined from this site would be used as a soil additive for high-quality turf in sporting arenas and golf courses worldwide.

b. Give a complete description of the proposed project and related new construction, including infrastructure needs. If the project is an expansion include a description of the existing facility. Emphasize: 1) construction, operation methods and features that will cause physical manipulation of the environment or will produce wastes, 2) modifications to existing equipment or industrial processes, 3) significant demolition, removal or remodeling of existing structures, and 4) timing and duration of construction activities.

The proposed project consists of a 299-acre site near Newfolden, Marshall County, MN to be used for reed sedge peat mining (see Figure 3). Of this 299-acre site, 198 acres have been identified as suitable for peat mining. The 198 acres of peat resource are mostly on private land but also include 29.5 acres of School Trust Land currently being managed as part of the New Maine Wildlife Management Area (WMA). Hawkes Co. proposes to either lease or purchase approximately 160 acres from the state of Minnesota, through the Minnesota Department of Natural Resources (DNR) that would include this 29.5-acre portion of the peat resource in the proposed project.

Peat mining operations include site preparation, harvesting, packaging, and shipping. Site preparation and harvesting would occur within the 299-acre site. Peat material would be transported in bulk via truck to Hawkes Co. existing plant facilities in East Grand Forks for further processing, then packaging and shipping.

Site preparation activities include construction of the drainage system, construction of new roads and upgrades to existing roads, overburden removal and stockpiling. The drainage system would consist of a series of field ditches that connect to perimeter ditches that connect to a separate ditch that conveys water to the sedimentation basin system. All ditches would be approximately five feet deep by six feet wide. Approximately 3,100 linear feet of field ditches would be oriented in an east-west configuration approximately 800-1000 feet apart. Approximately 21,600 linear feet of perimeter ditches would convey water to the southeast portion of the site. A separate 2,600 linear feet of ditch would convey water from the perimeter ditch to the sedimentation basins (see Figure 3).

Road construction and overburden removal would begin once the drainage system is in place and the site is sufficiently dry to allow vehicle travel. Approximately four miles of 80,000-pound, 20-foot wide gravel roads would be constructed or upgraded on the site (see Figure 3). Approximately 13,615 feet of new road and 8,906 feet of existing road upgrades are proposed. Gravel would be obtained from a nearby gravel pit operated by Hawkes Co. The roads would allow for two-lane truck traffic. Road construction activities are proposed to occur during the spring, summer, or autumn months due to the freezing of water and ground during the winter months.

To prepare for mining, the existing vegetation and a thin layer of peat (to a depth of four to six inches) would be removed from the surface of the wetland (collectively referred to as overburden) and stockpiled along the edges of the mining site to be used as part of reclamation once peat harvesting is complete (see Figure 3 for overburden stockpile locations). Once the overburden has been removed, additional surface preparation prior to harvesting would include milling and harrowing. Milling shreds the top layer of peat to promote evaporative drying. The milled peat is turned periodically in the harrowing process until the peat is sufficiently dry for harvest.

Five acres of upland area adjacent to the mining area would be prepared for stockpiling/storing the harvested peat (see Figure 3 for mined peat stockpile locations). The sedge peat would be collected using vacuum harvesters. These specialized harvesters are either self-propelled or pulled behind a tractor. They pneumatically lift the air-dried peat from the harrowed field surface into collecting bins. The harvested peat would be dumped from the vacuum tanks into stockpiles near the end of each field. The stockpiled peat would be transported in bulk with covered, walking-floor trailers to the existing plant facilities in East Grand Forks, Minnesota for processing and bagging. No changes are proposed at the existing plant facilities in East Grand Forks to process peat from the proposed mining site.

With this harvesting system, approximately four inches of peat are removed each year. Hawkes Co. anticipates that approximately 36,000 cubic yards of sedge peat would be harvested over the life of the project. At this rate, it is estimated that the expansion area (mining of the Mercil site and a portion of the New Maine WMA) would extend the life of the Hawkes Co. existing operations for another 15 years.

Hawkes Co. proposes a phased mining approach where the southern portion of the peat area would be mined first, and subsequent phases opened to the north as needed. The southern portions would start to be reclaimed before the most northern portion of the mine area would be opened. The proposed reclamation consists of pushing the stockpiled overburden material into the mined area at a thickness of approximately six inches. The volume of overburden available may not be sufficient to cover the entire mined area to that thickness. In addition, removing nine to 60 inches of peat during mining would lower ground elevations within the mine area, which would result in more open water after mining is finished than is present now.

During phased reclamation, some field ditches may be filled with overburden material or plugged to assist in restoring hydrology to areas no longer being mined. Other ditches needed for drainage of areas upstream still being mined would remain in use. For example, the main ditch from the north to the

sedimentation basins would be left in place as it would continue to convey drainage water to the south into the sedimentation basins.

Establishment of vegetation would be initiated during the first normal planting period after the area is no longer scheduled to be disturbed or used in a manner that would interfere with the establishment and maintenance of vegetation. Hawkes Co. proposes using the seed bank and rhizomes within the stockpiled overburden to restore vegetation.

Monitoring of vegetation establishment would continue for a minimum of five years until the area has achieved 75% live vegetative cover comprised of wetland or typical peatland plant species (per MN mine reclamation rules 6131.0120, Subp. 2,B.(2)). Hawkes Co. has also proposed to control invasive species during this time through application of a Roundup Custom herbicide developed for use in aquatic environments. An Aquatic Plant Management permit would be required for use of herbicides to control aquatic plants within the public water wetlands.

If the seed bank and rhizomes in the stockpiled overburden are unsuccessful in establishing vegetation, Hawkes Co. proposes to use Board of Water and Soil Resources (BWSR) 34-271 Wet Meadow South & West seed mixture to augment establishment of vegetation, though this mix would yield a different plant community than what is present currently. The DNR may require a different seed mix be used in order to increase the potential for a more similar plant community to be established in reclamation. Collection of seed prior to overburden stripping for use in revegetation efforts would also improve the chances of a similar plant community in reclamation.

Reclamation of the entire site would not be completed until mining has concluded on the entire mining area. Reclamation activities include filling of all ditches and sedimentation basins with stockpiled overburden material to restore hydrology, removal of roads, removal of stockpiles, establishment of vegetation, and ongoing maintenance and monitoring until released from Permit to Mine reclamation requirements.

c. Project magnitude:

| | |
|---|---|
| Total Project Acreage | 299 |
| Linear project length | - |
| Number and type of residential units | 0 |
| Commercial building area (in square feet) | 0 |
| Industrial building area (in square feet) | 0 |
| Institutional building area (in square feet) | 0 |
| Other uses – specify (in square feet) | 0 |
| Structure height(s) | 0 |

d. Explain the project purpose; if the project will be carried out by a governmental unit, explain the need for the project and identify its beneficiaries.

The purpose of the proposed mining project is to extract economically viable peat for the continued need and use in the sports turf construction business sector. Peat is a common component in the design, construction, and maintenance of high performance sand-based turf root-zones for sports fields (ASTM F2396-11). The School Trust would gain a financial benefit from Hawkes Co. leases of School Trust Land that are part of the proposed project that includes a portion of the New Maine WMA.

e. Are future stages of this development including development on any other property planned or likely to happen? ☐Yes X No
If yes, briefly describe future stages, relationship to present project, timeline and plans for environmental review.

There are no plans currently proposed by Hawkes Co. for future peat mining and therefore no details for future projects, thus the answer to this item is "no." However, if demand for this type of peat resource continues, it is reasonable to anticipate there could be future applications to mine other, rich fen wetland communities. Future proposals would be subject to Minnesota rules regarding environmental review and peat mining.

f. Is this project a subsequent stage of an earlier project? X Yes ☐No
If yes, briefly describe the past development, timeline and any past environmental review.

The Hawkes Co. is currently mining at a permitted location approximately 1.5 miles northwest of this proposed area (see Figure 9). The DNR prepared an Environmental Impact Statement in 1996 for the currently permitted mining operation. The 1996 EIS was for a 575-acre site, of which 374 acres were proposed to be mined. Phased harvesting was to occur over a 10- to 15-year period, with reclamation beginning on each site when mining of that portion was complete. The EIS addressed the project proposed at that time, an alternative project, and a no-build alternative. Potential impacts to the wetland ecosystem, including fish and wildlife, vegetation, hydrology and water quality were assessed in the EIS for each alternative. Air quality, socioeconomics and cumulative effects were also assessed.

The company's processing plant is located in East Grand Forks, approximately 75 miles southwest of the mine site. The company also builds and markets soil/sand/peat blenders from its processing plant. The plant was not evaluated in the 1996 EIS and is not a part of the Permit to Mine.

**7. Cover types:** Estimate the acreage of the site with each of the following cover types before and after development:

| | **Before** | **During** | **After** | | **Before** | **During** | **After** |
|---|---|---|---|---|---|---|---|
| Wetlands | 243 | 45 | 243 | Lawn/landscaping | 0 | 0 | 0 |
| Deep water/streams | 0 | 0 | 0 | Impervious surface (roads) | 0 | 13 | 0 |
| Wooded/forest | 54 | 30 | 30 | Stormwater Pond | 0 | 1 | 0 |
| Brush/Grassland | 2 | 0 | 26 | Other (describe) Peat mine | 0 | 198 | 0 |
| Cropland | 0 | 0 | 0 | Stockpile/ overburden | 0 | 12 | 0 |
| | | | | **TOTAL** | **299** | **299** | **299** |

Hawkes Co. is proposing a phased mining approach such that the south portion of the peat mine area would be mined first, with subsequent phases mined to the north as additional product is needed. Reclamation would begin on the southern portion before the most northern portion of the mine would be opened. The "During" column represents a maximum of the mine area that would be used, with the area of active peat mining being less at any one time.

8. **Permits and approvals required:** List all known local, state and federal permits, approvals, certifications and financial assistance for the project. Include modifications of any existing permits, governmental review of plans and all direct and indirect forms of public financial assistance including bond guarantees, Tax Increment Financing and infrastructure. *All of these final decisions are prohibited until all appropriate environmental review has been completed. See Minnesota Rules, Chapter 4410.3100.*

| Unit of government | Type of application | Status |
|---|---|---|
| MPCA | NPDES/SDS | not applied for yet |
| MPCA | Construction Stormwater Permit | not applied for yet |
| DNR | Permit to Mine | not applied for yet |
| DNR | School Trust Land Lease | pending |
| DNR | Public Waters Work Permit | not applied for yet |
| DNR | Water Appropriation Permit | not applied for yet |
| DNR | Aquatic Plant Management Permit | not applied for yet |

For its current operations, Hawkes Co. currently holds the following state permits: Permit to Mine, NPDES/SDS Permit, Water Appropriations Permit, 401 Certification, Above-Ground Storage Tank permit.

**Cumulative potential effects may be considered and addressed in response to individual EAW Item Nos. 9-18, or the RGU can address all cumulative potential effects in response to EAW Item No. 19. If addressing cumulative effect under individual items, make sure to include information requested in EAW Item No. 19**

9. **Land use:**
    a. Describe:
        i. Existing land use of the site as well as areas adjacent to and near the site, including parks, trails, prime or unique farmlands.

The proposed mining operation is located on a private land parcel and School Trust Land that is being managed as part of the New Maine Wildlife Management Area (WMA).

School Trust Land is land that, at the time of statehood, the federal government granted to the State for the support of public schools. These lands include both the surface and mineral rights. When the State accepted the School Trust Lands, they accepted the terms and conditions of the grant and took on the role of trustee for the lands. This trustee relationship extends to all who make decisions affecting the School Trust Lands.

DNR has the statutory duty under Minnesota Statute § 127A.31 to "…secure the maximum long-term economic return from the school trust lands consistent with the fiduciary responsibilities imposed by the trust relationship established in the Minnesota Constitution, with sound natural resource conservation and management principles, and with other specific policy provided in state law."

The Mercil site is dominated by the public water wetland with some upland forest. Previously, the Mercil site was partially drained and used for farming and grazing. The U.S. Department of Agriculture has classified the wetlands on the site as prior-converted for purposes of compliance with provisions of the federal farm program. Review of historic aerial photography of the site indicates that in 1939 the southern

portion of the wetland was disturbed for agricultural purposes. The site has not been cropped or grazed since the mid-1950s.

Adjacent land use is mainly wetland and upland forest. There are limited agricultural fields and residences in the area. Hunting camps, stands, a hunting cabin, and the New Maine WMA are evidence that the area is used for recreational hunting. A portion of the Marshall County Drift Skippers Grant in Aid (GIA) snowmobile trail goes through the New Maine WMA. This trail would be widened substantially due to the road upgrades proposed as part of this mining project.

ii. Plans. Describe planned land use as identified in comprehensive plan (if available) and any other applicable plan for land use, water, or resources management by a local, regional, state, or federal agency.

Marshall County does not have a comprehensive land use plan. The county adopted a Local Water Management Plan for 2007-2012 and the plan was amended for 2012 -2015. The amended plan identifies three priority concerns, with goals and objectives targeted at addressing each of them. The three priority concerns as stated in the plan are: 1) Soil Erosion Causing Water Quality Impairments to Surface Waters, 2) Protect Groundwater-based Drinking Water Resources, and 3) Promote Flood Damage Reduction to Preserve Agricultural Land and to Prevent Property Damage. One of the objectives under Soil Erosion Causing Water Quality Impairments addresses reducing sediment and nutrient loads in the Lower Red (Tamarac), Middle, and Snake River Watersheds.

The New Maine WMA has a draft Management Guidance Document for management of the site. This document states that the WMA was originally established to maintain and improve existing wildlife habitat for wildlife production and public use. Management activities continue to work towards protecting, maintaining, and improving wildlife habitat for the diversity of native plants and animals characteristic of the Aspen Parklands ecosystem, and towards providing opportunities for public hunting, trapping, wildlife viewing, and other compatible outdoor activities. Snowmobiling in the WMA is also permitted on the Marshall County Drift Skippers GIA trail. The project would widen a portion of this trail, as it is part of a road that would be upgraded.

iii. Zoning, including special districts or overlays such as shoreland, floodplain, wild and scenic rivers, critical area, agricultural preserves, etc.

Marshall County does not have any zoning districts or overlays for the area of the proposed project, with the exception of septic tank zoning requirements that are countywide. There are no special state districts, critical areas, or federally protected lands in the project vicinity.

b. Discuss the project's compatibility with nearby land uses, zoning, and plans listed in Item 9a above, concentrating on implications for environmental effects.

The proposed project would not affect any areas of high human population density as the nearby area is sparsely developed with small scale agricultural practices. The largest challenges for project compatibility are associated with the onsite public water wetland (45-33W), which is an avoidance area under peat mining rules, and the New Maine WMA, which is adjacent to and part of the proposed project, and also an avoidance area under peat mining rules. Removing wildlife habitat during project operation and any disturbance to wildlife behavior and movement would be contrary to the WMA's purpose of maintaining and improving the existing wildlife habitat. In addition, the construction and expansion of haul roads

within the New Maine WMA would be contrary to the desired future condition for access to the WMA. The draft Management Guidance Document for the New Maine WMA states that the desired future condition is to maintain the unit's level of remoteness with no plans for additional construction of foot or vehicle access. Compatibility with Marshall County's amended Local Water Management Plan will need to be addressed for water quality of surface waters and flood control.

c. Identify measures incorporated into the proposed project to mitigate any potential incompatibility as discussed in Item 9b above.

Hawkes Co. would be required to reclaim the site after mining is complete (see Item 6b above for more detail). The reclamation will replace lost wildlife habitat, though the habitat would be different and this would change the species assemblage currently using the site. The project proposer has also indicated a willingness to limit peat mining operations during large game hunting seasons, although the specifics of these limitations have not been identified.

Mine drainage waters are proposed to exit the site through two settling basins, allowing for settling of suspended solids prior to discharge to receiving waters.

The company has been engaged with county engineers on solutions for potential flooding with the proposed project. The current Hawkes operation installed a stop-structure that, when lowered into place, stops all water from leaving the site. The county can dictate when that water needs to be held onsite. The proposed settling basins for this new project could be used to hold water on the proposed project site.

**10. Geology, soils and topography/land forms:**

a. Geology - Describe the geology underlying the project area and identify and map any susceptible geologic features such as sinkholes, shallow limestone formations, unconfined/shallow aquifers, or karst conditions. Discuss any limitations of these features for the project and any effects the project could have on these features. Identify any project designs or mitigation measures to address effects to geologic features.

Susceptible geologic features such as sinkholes, shallow limestone formations, unconfined/shallow aquifers, or karst conditions are not identified at the project site.

The region, including the proposed mining site, lies within what was once glacial Lake Agassiz. Lake Agassiz formed when the Red River Lobe of the Laurentide Ice Sheet receded north of the drainage divide separating Hudson Bay from the Gulf of Mexico. A series of beach strandlines around the southern end of the lake basin were linked to the southern outlet. Strandlines are essentially old shorelines formed by bodies of water, such as a lake or an ocean, that are now elevated above the present water level. The proposed mine site is situated between two large beach strandlines composed of coarse-grained sand and gravel. The sand and gravel materials overlie wave-planed glacial till. An abandoned Minnesota Geological Survey (MGS) boring is located 0.25 miles south of the site and the well log describes 465 feet of lacustrine and glacially derived material overlying weathered metabasalt. The MGS boring describes the upper most interval from two feet to 26 feet as coarse to very coarse sand.

Mining activities would not destroy the beach ridges, but some of these areas may be impacted by stockpiling of materials and by road construction/upgrades.

b. Soils and topography - Describe the soils on the site, giving NRCS (SCS) classifications and descriptions, including limitations of soils. Describe topography, any special site conditions relating to erosion potential, soil stability or other soils limitations, such as steep slopes, highly

permeable soils. Provide estimated volume and acreage of soil excavation and/or grading. Discuss impacts from project activities (distinguish between construction and operational activities) related to soils and topography. Identify measures during and after project construction to address soil limitations including stabilization, soil corrections or other measures. Erosion/sedimentation control related to stormwater runoff should be addressed in response to Item 11.b.ii.

Topographic relief of the on-site wetland ranges up to 2.25 feet across the site. The site generally slopes from the north to south with the lowest portions within the southeast part of the site. The sand ridges on either side of the wetland rise 10 to 20 feet above the wetland.

The predominant wetland soils on the site are classified as Markey muck, Deerwood muck, and Markey muck, ponded (Markey-1808) (see Figure 4). Marky muck is very poorly drained, frequently ponded with a typical profile of 0 to 25 inches of muck and 25 to 60 inches of sand. Deerwood muck is also very poorly drained and frequently flooded, but with a typical profile of 0 to 11 inches muck, 11 to 15 inches fine sandy loam, and 15 to 60 inches fine sand. Markey muck, ponded is similar to Markey muck and Deerwood muck with a typical profile of 0 to 40 inches muck and 40 to 60 inches sand. Available water capacity for the Markey muck and Markey muck, ponded are rated as very high with about 12.2 inches and 17.9 inches respectively. The Deerwood muck available water capacity is rated as moderate with about 7.6 inches available water capacity. Another difference between the Markey muck and Markey muck, ponded compared to the Deerwood muck is the maximum content of calcium carbonate. The Markey soils have a maximum calcium carbonate content of 5% and the Deerwood soil has a maximum calcium carbonate content of 20%. Soils adjacent to the wetland are various types of loamy sand.

The depth of mineable peat on the site varies from nine inches to 60 inches. The top four to six inches of wetland soils (above the mineable peat) would be removed and stockpiled for use in reclamation activities. The remainder of the wetland soils would be mined or drained as part of water management on the site.

Soils at the site are susceptible to compaction. The heavy equipment used in mining activities as well as in road construction/upgrades would result in soil compaction and/or disturbance of the soil profile.

**11. Water resources:**

a. Describe surface water and groundwater features on or near the site in a.i. and a.ii. below.

i. Surface water - lakes, streams, wetlands, intermittent channels, and county/judicial ditches. Include any special designations such as public waters, trout stream/lake, wildlife lakes, migratory waterfowl feeding/resting lake, and outstanding resource value water. Include water quality impairments or special designations listed on the current MPCA 303d Impaired Waters List that are within 1 mile of the project. Include DNR Public Waters Inventory number(s), if any.

The predominant surface water feature on the site is Unnamed Public Water Wetland 45-33W (see Figure 5). The public water wetland is approximately 190 acres in size and its Ordinary High Water (OHW) level is 1,138.50 ft msl per a survey completed in 2013. According to the National Wetlands Inventory (NWI), and using the Cowardin Classification System, the wetland is primarily palustrine emergent with pockets of scrub-shrub (broad leaved deciduous), with a saturated water regime on peat (organic) soil. A wetland delineation (see Figure 5) completed by Widseth Smith Nolting (WSN) in 2012 identifies the wetland as a Type 2 wetland under the Circular 39 classification. A site visit by DNR staff and further communication with the proposer have indicated that the wetland is likely a Type 2/Type 3 complex. The plant community associated with this public water wetland is classified as Prairie Rich Fen (OPp91) under the

DNR Native Plant Community Classification. This plant community has a conservation status rank of S3, which indicates that this type of wetland is vulnerable to extirpation in Minnesota. The public water wetland is also an important feature in a Site of High Biodiversity Significance. More information on the plant community and biodiversity significance is provided in response to Item 13 below.

There are also other wetlands in the area and onsite, not designated as public water wetlands, which appear to be Type 6 wetlands under the Circular 39 classification system (see Figure 5). Some of these wetlands would potentially be impacted by road construction or upgrade activities and ditching associated with the project. Delineation of these wetlands would be required before the Permit to Mine could be issued.

The proposed project site's surface water drains to the southeast through wetlands and ditches, eventually discharging to the Middle River approximately one-half mile southeast of the site (see Figures 6 and 10). The Middle River is impaired for aquatic life due to excessive turbidity and insufficient dissolved oxygen.

ii. Groundwater – aquifers, springs, seeps. Include: 1) depth to groundwater; 2) if project is within a MDH wellhead protection area; 3) identification of any onsite and/or nearby wells, including unique numbers and well logs if available. If there are no wells known on site or nearby, explain the methodology used to determine this.

Groundwater in the area is locally controlled by lacustrine and glacial deposits, and regional groundwater flow is from east to west. Site specific groundwater flow and aquifer connectivity is not known. The MGS boring identifies lacustrine deposits from two to 26 feet of coarse to very coarse sand. Glacial till below these sandy deposits is characterized as a sandy to clayey till. Groundwater is present at the ground surface in the area of the wetlands. The Prairie Rich Fen wetland plant community that dominates the site is dependent on relatively steady groundwater input.

The project site is not within a MDH wellhead protection area. The nearest city water supply is in Newfolden, approximately five miles south of the project site.

There are no known wells on the project site. The nearest documented well is the MGS abandoned well described in item 10a above, approximately 0.25 mile south of the site. A domestic well is documented at a property on the Middle River, approximately one mile east and upstream of the project site. It is likely there are domestic wells at several farmsteads in the vicinity of the project site, one about 0.25 mile northwest of the site and two within 0.25 mile east of the site. Well records were not available for these wells.

b. Describe effects from project activities on water resources and measures to minimize or mitigate the effects in Item b.i. through Item b.iv. below.

i. Wastewater - For each of the following, describe the sources, quantities and composition of all sanitary, municipal/domestic and industrial wastewater produced or treated at the site.

1) If the wastewater discharge is to a publicly owned treatment facility, identify any pretreatment measures and the ability of the facility to handle the added water and waste loadings, including any effects on, or required expansion of, municipal wastewater infrastructure.
2) If the wastewater discharge is to a subsurface sewage treatment systems (SSTS), describe the system used, the design flow, and suitability of site conditions for such a system.

3) If the wastewater discharge is to surface water, identify the wastewater treatment methods and identify discharge points and proposed effluent limitations to mitigate impacts. Discuss any effects to surface or groundwater from wastewater discharges.

As described in response to Item 6 above, the project would use a series of field ditches and perimeter ditches to drain the wetland and convey water to sedimentation basins before being discharged off-site (see Figure 6). All water proposed to be discharged from the site is classified as industrial wastewater by the MPCA. As such, the wastewater discharge would be subject to NPDES/SDS permit requirements. Estimated flow volumes as well as estimated characteristics of the proposed wastewater discharge are needed and would be required to be submitted with the NPDES/SDS permit application. Total suspended solids (TSS) and pH from the existing and proposed discharges would be limited by a reissued NPDES/SDS permit. Monitoring for mercury, dissolved oxygen, and other parameters of concern would be required for the proposed site as well as the existing facility if the NPDES/SDS permit is issued.

The sedimentation basins are proposed to meet water quality standards by conforming to the New Brunswick guidelines for design (see Figure 7). Specific design characteristics include:

- Minimum basin volume should be calculated on the basis of 25 $m^3$ per hectare of peatland area drained. This may be achieved by constructing one basin or a combination of two or more.
- The basins' minimum depth of water should be 1.5 m and the optimum length/width ratio of a sedimentation basin should be 6.5:1 to 12:1.
- Minimum retention time should be two hours.
- Basins should be equipped with floating booms or curtains near the outlet to prevent escape of floating debris. The location of these booms is suggested at a distance from the outlet equal to one quarter of the basin length.
- Where possible, the total required volume should be achieved by constructing two (or more) basins in line.
- The drainage area accommodated by one basin system should not exceed 100 hectares.
- Basins must be cleaned periodically so that the peat accumulation does not exceed 50% and preferably 25% of total basin volume. Operators must ensure that there is as least one meter of free depth over a minimum distance of 10 meters from the basin outlet.

The effectiveness of the New Brunswick method for water treatment at peat mining operations has been demonstrated (Gemtec Ltd., 1993), but it is conditional on regular monitoring of the basins and close adherence to a maintenance schedule. These activities would be addressed in the NPDES/SDS permit.

The two sedimentation basins are proposed to be constructed in a wetland area in the southeast portion of the project site. Depending on how the basins would be constructed, a WCA replacement plan application would be required. In either case, Hawkes Co. would have to show that non-wetland alternatives aren't available and mitigation would be required.

Wastewater at the project site would flow by ditches to the sedimentation basins in the southeast portion of the site. The proposed wastewater discharge from the sedimentation basins would be through a newly constructed ditch that discharges to an existing gully that drains to the Middle River approximately 1700 feet southeast of the discharge point. Approximately 20 miles downstream from this location, the Middle River is impaired for turbidity and dissolved oxygen. A Watershed Restoration and Protection Strategy (WRAPS), process led by MPCA, is currently being conducted for the Middle River as part of the Snake River major watershed. When this process is complete, individual point sources (such as the proposed project discharge) will receive a waste load allocation that will be incorporated into the NPDES/SDS permits.

ii. Stormwater - Describe the quantity and quality of stormwater runoff at the site prior to and post construction. Include the routes and receiving water bodies for runoff from the site (major downstream water bodies as well as the immediate receiving waters). Discuss any environmental effects from stormwater discharges. Describe stormwater pollution prevention plans including temporary and permanent runoff controls and potential BMP site locations to manage or treat stormwater runoff. Identify specific erosion control, sedimentation control or stabilization measures to address soil limitations during and after project construction.

All stormwater runoff from proposed mining areas and stockpile areas is considered industrial wastewater. All management and treatment would need to be in accordance with NPDES/SDS permit requirements. Runoff from the project site, including approximately four miles (13 acres) of roads, would be managed as stormwater under this permit (see Figure 6).

For construction of the roads, Hawkes Co. would need to apply for coverage under the General Stormwater Construction Permit from MPCA. Coverage under this general permit requires development of a Stormwater Pollution Prevention Plan.

iii. Water appropriation - Describe if the project proposes to appropriate surface or groundwater (including dewatering). Describe the source, quantity, duration, use and purpose of the water use and if a DNR water appropriation permit is required. Describe any well abandonment. If connecting to an existing municipal water supply, identify the wells to be used as a water source and any effects on, or required expansion of, municipal water infrastructure. Discuss environmental effects from water appropriation, including an assessment of the water resources available for appropriation. Identify any measures to avoid, minimize, or mitigate environmental effects from the water appropriation.

The proposed series of perimeter and field ditches would divert water from the wetland basin through a sedimentation basin system for settling, to a ditch that discharges into a gully and eventually into the Middle River. This diversion of surface and shallow groundwater would require a water appropriations permit from DNR. Hawkes Co.'s existing operations have had dewatering discharge rates ranging from 0.24 million gallons per day to 0.80 million gallons per day. The discharge point for Hawkes Co.'s existing operations is located approximately 1.5 miles northwest of the Mercil site (see Figure 10). Differences in site features and specific mining operations between the proposed mining area and the existing operations creates uncertainty about using monitoring from the existing operations to estimate discharges from the proposed project. The details on rates, volumes and source of water will be needed as part of an application for water appropriation. As stated below, MR 6115.0710 requires the applicant for a water appropriation permit for the purpose of dewatering to show that "excess water can be discharged without adversely affecting the public interest in the receiving waters."

Hawkes Co. proposes to block the outlets of the sedimentation basins during periods of high flow to offset the loss of water absorption capacity that would occur by removing the peat from the wetland. Blocking the sedimentation basin outlets would also allow the water to back up into the fields and ditches. It is unknown to what degree this proposed measure would offset the change in hydrology that would occur from the increased discharges to the wetlands and Middle River. Minnesota Rules part 6115.0710, ADDITIONAL REQUIREMENTS AND CONDITIONS FOR DEWATERING, identifies that in order to receive a water appropriation permit for dewatering, an applicant must show that the excess water can be discharged without adversely affecting the public interest in the receiving waters. Potential environmental effects due to increased discharges from the wetland include a change in wetland hydrology and associated changes in the plant community. Potential environmental effects due to increased discharges into the Middle River include a change in flow regime, which in turn could increase the sediment load

transported into the river or change the timing of flows. Additional potential impacts to wetlands, and proposed methods to reduce those impacts, are discussed below in response to Item 11.b.iv.

iv. Surface Waters

a) Wetlands - Describe any anticipated physical effects or alterations to wetland features such as draining, filling, permanent inundation, dredging and vegetative removal. Discuss direct and indirect environmental effects from physical modification of wetlands, including the anticipated effects that any proposed wetland alterations may have to the host watershed. Identify measures to avoid (e.g., available alternatives that were considered), minimize, or mitigate environmental effects to wetlands. Discuss whether any required compensatory wetland mitigation for unavoidable wetland impacts will occur in the same minor or major watershed, and identify those probable locations.

Unnamed Public Water Wetland 45-33W and other wetland areas within the Mercil site would be dewatered by the perimeter and field ditches that would be constructed as a part of the proposed project. After the site is dry enough to allow vehicular travel, the vegetation and a thin layer of peat would be removed and stockpiled for future use in site reclamation. The estimated depth of marketable peat resource varies from nine inches to 60 inches across the site, with an average depth of 32 inches. This peat material would be harvested and taken off site for processing and sale. Mining is anticipated to last approximately 15 years.

Proposed reclamation of the site consists of filling or plugging the ditches to allow restoration of the site to a wetland with stable water levels. Stockpiled peat material would be applied to revegetate the areas where peat was mined and the former ditch areas. The DNR believes it is unlikely that the seedbank and rhizomes would be viable enough after 15 years in a stockpile to effectively revegetate the site. There would be better potential for effective revegetation with the stockpiled overburden if Hawkes Co. would complete phased reclamation within a shorter timeframe. Additional revegetation efforts may be needed as discussed in Items 6b and Item 13d.

Monitoring for vegetation restoration success and control of invasive species are proposed until the site can be released from the reclamation requirements of the Permit to Mine. Vegetation monitoring would be required for a minimum of five years under the Permit to Mine after mining is done and reclamation work has been completed; the permit would identify specific monitoring requirements.

There are factors that generally have adverse effects to fens that could also impair successful reclamation of the fen. Ditching, dewatering, and other activities affecting hydrology can cause a reduction in the normal supply of groundwater, resulting in oxidation of the surface peat, releasing nutrients and fostering the growth of shrubs and tall, coarse vegetation that displaces the fen plants. Drainage changes due to mining alteration of the watershed, roads, and other features of a mining project can cause runoff, which can promote the invasion of aggressive invasive plant species such as reed canary grass that outcompete the fen plants. Drainage changes can also cause flooding, which drowns the fen plants. Sedimentation, the addition of nutrient rich water, and soil compaction can also cause changes in fen vegetation and hydrologic conditions. The reclaimed wetland is proposed by Hawkes Co. to return to a Type 2/Type 3 wetland complex with more open water than is currently present in the wetland. The site would not likely be reclaimed to a Prairie Rich Fen plant community. Hawkes Co. has provided existing reclaimed peat mining sites as examples of successful reclamation. These sites however, do not have the same reclamation requirements as this proposed site. The fact that this site is a public water wetland and part of a WMA on School Trust Land creates additional requirements beyond the typical reclamation

requirements that were applicable to the examples provided by Hawkes Co. The Permit to Mine Rules for peat mining identify WMAs and public waters as avoidance areas and require that the existing use be enhanced or that any affected area be replaced by an area of equal or greater public value (6131.0100, Subp. 3). Additionally, Public Waters Work rules require compensation for identified detrimental aspects of mining projects (6115.0280, Subp. 5). Types of compensation include:

- restoring degraded or impacted public waters having equal or greater public value; or
- creating or restoring additional replacement water areas having equal or greater public value; or
- any other measures approved by the commissioner that compensate for the detrimental aspects of the change.

Both the Permit to Mine rules and the Public Waters Work Rules use the concept of "equal or greater public value" as the criteria for mitigation or compensation for the proposed mining activity. Public values of wetlands are based on wetland functions. Minnesota Statute 103B.3355 identifies wetland functions as:

- water quality, including filtration, shoreland protections and groundwater recharge
- flood and stormwater retention
- public recreation and education
- commercial uses
- fish, wildlife, and native plant communities
- low-flow augmentation
- carbon sequestration; and
- other public uses

Hawkes Co. completed a wetland analysis using the Minnesota Routine Assessment Method (MnRAM) comparing the existing wetland to an assumed condition of the wetland after mining and reclamation have been completed. Hawkes Co. concludes that this assessment demonstrates the reclaimed wetland will have equal or greater public value than the existing wetland. However, the DNR has identified several issues with the assessment, including unsupported statements/assumptions and limitations of MnRAM, such that the conclusions cannot be relied upon as a true comparison of the public value of the wetland pre and post mining. The specific issues identified by DNR include:

- There is no support for the assumption that the post-mining wetland will have an exceptional vegetative index. In particular, the assumption that the reclaimed wetland will have little or no invasive species is not supported. Hawkes Co.'s reclamation of wetlands at existing mining operations has documented presence of invasive species to an extent that could not be classified as little or no invasive species. Hawkes Co.'s proposal to manage invasive species with chemical herbicides may reduce the presence of invasive species but it is unlikely to result in little or no invasive species.
- The time frame for determining the vegetative index of the reclaimed wetland is unidentified. It will certainly take several years for the reclaimed wetland to develop and there will likely be substantial changes in vegetation during the first ten years after mining is complete.
- Claims that the hydrologic regime of the reclaimed wetland will be similar to the existing wetland are unsupported. Hydrologic regime is dependent on climate, hydrologic conditions, terrain, and nature of vegetation. Removal of substantial amounts of peat to be replaced with open water and different wetland plant communities will change evaporation, plant uptake and groundwater infiltration. All of these changes and potential soil compaction from mining activities are likely to result in a different hydrologic regime for the wetland.

- Functional rating of existing wetland for aesthetics/recreation/education/cultural does not address consideration of the educational and scientific value of a high quality, undisturbed, rare wetland.
- MnRAM is not well suited for the type of comparison conducted by Hawkes Co. MnRAM is meant for on-the-ground observations. Attempting to apply MnRAM to an assumed wetland condition is too speculative to be reliable.
- Using MnRAM to compare two different types of wetland is inappropriate. The Board of Water and Soil Resource's comprehensive guidance for MnRAM cautions against drawing conclusions on such a comparison.

For these reasons, the conclusions in the MnRAM cannot be relied upon for determining if the reclaimed wetland has greater or equal public value than the existing wetland.

Wetland areas adjacent to the proposed mining operation have the potential to be impacted by mining operations. Direct impacts would occur from construction of ditches, roads and sedimentation basins. Ditches may also result in indirect impact by draining water away from the wetland plant communities and in increased sedimentation and/or nutrient deposition. In some cases the reduction in hydrology could cause a loss of wetland area; in other cases the wetland community could change, but still remain a wetland. The extent of potential indirect wetland impact has not been quantified but it is anticipated that at least some of the adjacent wetland areas would be impacted. DNR may consider monitoring for indirect wetland impacts as a condition in the Permit to Mine.

Hawkes Co. has submitted piezometer data, which are measurements of shallow groundwater levels, from their existing mining operations (Site 7 and Site 10) located approximately 0.75 mile northwest of the proposed project site. These data show that groundwater levels typically drop one to two feet during the growing season. The company asserts that, based on this piezometer data and the company's monitoring reports that include pre and post mining conditions, wetlands adjacent to existing Sites 7 and 10 show no substantial effect after 10 years of mining. DNR's review of the data indicates the piezometers were not surveyed and benchmarks were not identified, so it is difficult to compare water level changes from year to year and assess the applicability to the proposed project site. Peat soils are dynamic systems and unless piezometers are measured from the same fixed point from year to year, a comparison between years is not accurate. However, an overall trend can be observed and it is clear from piezometers #2-7 that water levels have dropped up to two feet from pre-mining conditions.

b) Other surface waters- Describe any anticipated physical effects or alterations to surface water features (lakes, streams, ponds, intermittent channels, county/judicial ditches) such as draining, filling, permanent inundation, dredging, diking, stream diversion, impoundment, aquatic plant removal and riparian alteration. Discuss direct and indirect environmental effects from physical modification of water features. Identify measures to avoid, minimize, or mitigate environmental effects to surface water features, including in-water Best Management Practices that are proposed to avoid or minimize turbidity/sedimentation while physically altering the water features. Discuss how the project will change the number or type of watercraft on any water body, including current and projected watercraft usage.

The proposed project has the potential to impact the Middle River by increasing the amount of water discharged into the river through the sedimentation basin discharges.

The proposed project will increase flows in the Middle River. Increasing bank full flow or channel forming flows (1-2 year recurrence intervals) over 10% has the potential to adversely affect river ecology.

A 20% change in annual flow regime for the entire river over the life of the project has the potential to adversely affect river ecology.

Using data from USGS gauge stations on the Middle River, DNR extrapolated river flows upstream to the proposed mine site discharge point to the Middle River. At a 1.25-year recurrence interval, flows were extrapolated from the USGS gauge to be 79 cubic feet per second (cfs) at the location of the proposed mine site discharge. Based on this, mine site discharges less than approximately 8 cfs would not be expected to adversely affect river ecology. Mine site discharges that change bank full flow by more the 8 cfs have the potential to negatively affect river ecology. Mine site discharge rates are closely correlated to precipitation events, so periods of high flow on the river would correspond to higher discharges from the mine site. In general it is anticipated that the mine site discharge will, to some extent, track with the flow regime of the river. However, the fact that the rich fen is groundwater fed could result in mine site discharges during low river flow time periods that exceed 20% of the river flow. The uncertainty around the rate of water that will be discharged from the proposed mine site make it difficult to predict potential impacts to river ecology from the increased flows.

The project would have no effect on watercraft usage on waterbodies.

**12. Contamination/Hazardous Materials/Wastes:**

a. Pre-project site conditions - Describe existing contamination or potential environmental hazards on or in close proximity to the project site such as soil or ground water contamination, abandoned dumps, closed landfills, existing or abandoned storage tanks, and hazardous liquid or gas pipelines. Discuss any potential environmental effects from pre-project site conditions that would be caused or exacerbated by project construction and operation. Identify measures to avoid, minimize or mitigate adverse effects from existing contamination or potential environmental hazards. Include development of a Contingency Plan or Response Action Plan.

MPCA's online mapping of "What's in my Neighborhood" was reviewed to determine the presence of any known existing contamination or potential environmental hazards. This review identified two inactive sites in relative proximity to the proposed mining area. Approximately one mile north of the proposed mining area is an unpermitted dump site called Middle River Dump. Unpermitted dumps are landfills that were never permitted. Generally they existed before the creation of the MPCA. They were not restricted to any type of waste but were often farm or municipal disposal sites that accepted household waste. Approximately one and a half miles west of the proposed mining area is a leak site called Larson Residence. Leak sites are locations where a release of petroleum products has occurred from a tank system. Leak sites can occur from aboveground or underground tank systems. Because of their distance from the project site, it is not anticipated that the proposed project would lead to exacerbation of contamination at these inactive sites.

The Minnesota Department of Agriculture also maintains a "What's in my Neighborhood" database. No agricultural spills were identified within 3.5 miles of the project site.

b. Project related generation/storage of solid wastes - Describe solid wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from solid waste handling, storage and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of solid waste including source reduction and recycling.

Solid waste would consist of typical non-hazardous wastes generated during use of the site. There would be minimal project-related generation or storage of solid waste. Any solid waste would be hauled offsite for disposal at a permitted solid waste handling facility.

c. Project related use/storage of hazardous materials - Describe chemicals/hazardous materials used/stored during construction and/or operation of the project including method of storage. Indicate the number, location and size of any above or below ground tanks to store petroleum or other materials. Discuss potential environmental effects from accidental spill or release of hazardous materials. Identify measures to avoid, minimize or mitigate adverse effects from the use/storage of chemicals/hazardous materials including source reduction and recycling. Include development of a spill prevention plan.

There would be minimal project-related use or storage of hazardous materials. Hazardous materials that are anticipated would be the typical fuels and oils associated with trucks, tractors, and vacuum harvesters. Small spills or leaks could occur during fueling or in the case of a mechanical failure. Releases such as these would be immediately cleaned up, and if above reportable quantities, reported to the state duty officer as required. The MPCA would require a spill response plan as part of the stormwater pollution prevention plan (SWPPP). Any on-site fuel storage would also be addressed by this plan.

d. Project related generation/storage of hazardous wastes - Describe hazardous wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from hazardous waste handling, storage, and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of hazardous waste including source reduction and recycling.

The proposed project would not generate or store hazardous wastes onsite.

**13. Fish, wildlife, plant communities, and sensitive ecological resources (rare features):**

a. Describe fish and wildlife resources as well as habitats and vegetation on or in near the site.

The proposed project site is located within a section of the Ecological Classification System (ECS) called the Lake Agassiz, Aspen Parklands. It is composed of a single landform, the basin of Glacial Lake Agassiz. See the response to Item 10 for more information on this landform. The vegetation patterns are a complex mosaic of: prairies, brushland, woodlands, and forests on uplands; and wet prairies, wet meadows, fens, and wet forests in lowlands. Gray wolves, sharp-tailed grouse, sandhill cranes, eared grebes, northern harriers, marbled godwits, American bitterns, Franklin's gulls, Assiniboia skipper, great gray owls and moose are examples of the wildlife found in this unique section. Hunting for deer, ruffed grouse, and wild turkey are popular activities that take place on the WMA and surrounding private lands.

The proposed project is within and adjacent to the New Maine WMA. The total land managed under the New Maine WMA is approximately 2,667 acres and is made up of several tracts of land. This unit contains a wide variety of habitat types including lowland coniferous forest, lowland deciduous shrubland, emergent wetlands, oak woodlands, oak savanna, and aspen forest. The upland areas are remnants of the beach ridges formed from Glacial Lake Agassiz, with the areas between beach ridges being flat in topography and lying slightly lower in elevation. This WMA was originally established to maintain and improve existing wildlife habitat for wildlife production and public use. Management activities continue to work towards protecting, maintaining, and improving wildlife habitat for the diversity of native plants and animals characteristic of the Aspen Parklands ecosystem, and towards providing opportunities for public hunting, trapping, wildlife viewing, and other compatible outdoor activities.

b. Describe rare features such as state-listed (endangered, threatened or special concern) species, native plant communities, Minnesota County Biological Survey Sites of Biodiversity Significance, and other sensitive ecological resources on or within close proximity to the site. Provide the license agreement number (LA-____) and/or correspondence number (ERDB 20140375) from which the data were obtained and attach the Natural Heritage letter from the DNR. Indicate if any additional habitat or species survey work has been conducted within the site and describe the results.

The proposed project is located within Minnesota Biological Survey (MBS) Marshall County Site 71, which is classified as a Site of High Biodiversity Significance. Sites of Biodiversity Significance have varying levels of native biodiversity and are ranked based on the relative significance of a site at a statewide level. Sites ranked as "High" contain very good quality occurrences of the rarest species, high quality examples of rare native plant communities, and/or important functional landscapes. The importance of MBS Site 71 stems from its internal diversity and relatively high quality of several of these communities, combined with the relatively unfragmented landscape of uplands and wetlands representing one of the best examples of the complex of ridge and wetland communities that forms in this beach-interbeach setting. At the time of the MBS survey, the 3,085-acre Site 71 was one of a group of contiguous, only partially fragmented set of 11 connected sites comprising over 12,000 acres of wooded uplands and adjoining wetlands west and northwest of the town of Middle River. While these other sites also contain beach-interbeach complexes, Site 71 is a particularly good example given the quality, diversity, and density of the multiple native plant community types.

The acreages of native plant communities within the project area were estimated using MBS data that was collected from limited site visits and aerial photography. The actual acreage and types of plant communities could be more accurately delineated by on-site plant surveys. A total of 292.1 acres of native plant communities within the Marshall County MBS Site 71, would be directly impacted by the proposed project. These communities include:

- Aspen – Oak Woodland Complex (9.3 acres)
- Aspen Woodland/Forest Complex (8.8 acres)
- Willow-Dogwood Shrub Swamp (9.3 acres)
- Northern Wet Ash Swamp (5.6 acres)
- Northwestern Wet Aspen Forest (23.7 acres)
- Tamarack-Black Spruce Swamp (Aspen Parkland) (45.3 acres)
- Prairie Rich Fen (189.7 acres)

Both the Tamarack-Black Spruce Swamp (Aspen Parkland) and the Prairie Rich Fen have a Conservation Status Rank of S3, indicating that these types of wetlands are vulnerable to extirpation within Minnesota (see Figure 8 and Attachment 1- NHIS review letter). There are many Prairie Rich Fen native plant communities within this ecoregion, however the quality and size of this rich fen combined with the surrounding landscape context make this site a particularly good example of this type of plant community.

An Ecological Evaluation of Marshall County MBS Site 71 included surveys conducted on August 28 and September 1, both in 1992. At the time of these surveys three plant species of state special concern were identified: blunt sedge (*Carex obtusata*), northern androsace (*Androsace septentrionalis*), and McCall's willow (*Salix macalliana*). The willow is a wetland plant found in shrub swamps and the other two are upland plants found on the sand ridges.

Hawkes Co. conducted a Rapid Floristic Quality Assessment (FQA) for the Mercil Site wetland (the Prairie Rich Fen) that is proposed for mining. The field survey data for the FQA was collected on October 23, 2013. This assessment indicated that the Mercil Site has high floristic quality and integrity. However,

the timing of the data collection does not allow a botanist to detect all plant species that might be of greatest biodiversity interest at the site.

The yellow rail (*Coturnicops noveboracensis*), a state-listed species of special concern, has been documented approximately one mile north of the proposed project in a separate Prairie Rich Fen, and may be using the wetland habitats within the proposed mining area. Yellow rails are small, secretive birds that are difficult to see but easy to identify by sound. Recent surveys have documented yellow rails in numerous counties in north-central and northwestern Minnesota, indicating that this species is somewhat more widespread in suitable habitat than previously believed (but not enough to change its status when it was re-assessed in 2013). Yellow rails breed in sedge or grass dominated wetlands, particularly wet prairie and rich fens with narrowleaved sedges. They are sensitive to small changes in hydrology; even slight changes in water levels can make a wetland unsuitable.

Calcareous fens

The predominant wetland community at the Mercil site is characterized as Prairie Rich Fen. Beach ridges, geologic features from the former Glacial Lake Agassiz, are known to support calcareous fens on the downslope side of the ridges.

The State list of calcareous fens does not include a calcareous fen at or near the Mercil site. However, DNR technical staff have identified a potential for a calcareous fen to be present within or near the proposed mine site.

There are three main factors that lead DNR technical staff to believe there is a potential for a calcareous fen to be on or near the site:

1. Other calcareous fens in the region being located in similar landscape features adjacent to beach ridges.
2. Potential for upwelling groundwater near the eastern portion of the wetland plant community adjacent to the beach ridge that would support a calcareous fen.
3. Limited site survey information for plant species that are associated with calcareous fens. The FQA described above does include some plant species that are associated with calcareous fens, but this identification is not sufficient. The FQA survey was conducted outside the necessary growing season for positive identification of calcareous fen indicator plant species.

In order to confirm the presence or absence of calcareous fen, a survey specifically for calcareous fen indicator plants should be completed in June, with potentially a second site visit in August, by a surveyor with expertise in identification of these types of plants. June and August are the months in which these types of plants bloom and/or seed, and are more easily identifiable so it is important that the survey be completed during these time periods. Calcareous fens are specifically identified for protection under the Minnesota Wetland Conservation Act:

> Under MN Statute 103G.223: Calcareous fens, as identified by the commissioner by written order published in the State Register, may not be filled, drained or otherwise degraded, wholly or partially, by any activity, unless the commissioner, under an approved management plan, decides some alteration is necessary.
>
> Under MN Rules Chapter 8420.0935, Subp. 1: Calcareous fens, as identified by the Commissioner (DNR), must not be impacted or otherwise altered or degraded, wholly or partially, by any action, unless the Commissioner, under an approved management plan, decides some alteration is necessary.

At this time it is not known if a calcareous fen is present at the proposed project site. If a calcareous fen is identified, a DNR-approved fen management plan would be required before any mining activity could affect the fen. The fen management plan would identify measures necessary to avoid impacts to the fen and, if per the above Rules, the DNR determines that alteration of the fen is necessary, identify compensatory mitigation requirements.

c. Discuss how the identified fish, wildlife, plant communities, rare features and ecosystems may be affected by the project. Include a discussion on introduction and spread of invasive species from the project construction and operation. Separately discuss effects to known threatened and endangered species.

There are 292.1 acres of native plant communities within the 299-acre project area. Almost all of these native plant communities would be directly affected by the proposed project through the activities of road construction/upgrades, stockpiling, drainage systems, and mining of the peat. There may be some areas (totaling approximately 30 acres) of upland forest that would remain intact within the project site. Approximately 79% of the directly-affected project site (235 acres) consists of Prairie Rich Fen and Tamarack-Black Spruce Swamp (Aspen Parkland), two rare native plant communities that would be directly impacted and are considered vulnerable to extirpation in Minnesota (conservation rank S3). Approximately 8% of MBS Site 71 would be directly affected by the proposed mining project, leading to additional fragmentation of the Site and loss of one of a few high quality examples of a beach ridge wetland complex in this landscape setting.

Peat mining within the MBS Site of Biodiversity Significance would further compromise the ecological integrity of this Site and, potentially, adjacent Sites of Biodiversity Significance by reducing the number of rare species present, by decreasing the size and condition of the native plant communities, and by changing the landscape context and function. Rare native plant communities would be eliminated through direct mining impacts and degraded through hydrological changes. The Prairie Rich Fen would be ditched and drained to allow for mining. Species typical of rich fens require stable hydrological regimes. Because of the role of groundwater in these fen wetlands, local disturbance within the fen is likely to have impacts beyond the mined area.

The state-listed plants of special concern documented within areas to be disturbed by the project would be eliminated. Plants that occur outside of the mining area may be affected by hydrological changes and competition from invasive species.

Disturbance of habitat by the project and increased noise associated with mining equipment and human activity would affect wildlife in the area. Wildlife that may be using the site, including the yellow rail, would likely be dislocated to adjacent or nearby habitats. These habitats may not be as suitable for these species, and/or competition for feeding, resting and breeding spaces in these areas may create additional stress on individuals or local populations. The portion of the New Maine WMA to be mined would not be suitable for hunting, wildlife viewing or other recreational activities during mining operations. Other areas of the WMA could also be impacted because of mining activity. Hauling and noise from the work would disrupt wildlife and this could impact hunting and other WMA activities.

Road construction and other ground disturbing activities would lead to removal of mature trees, and potential establishment of invasive plant species which could further degrade plant communities and wildlife habitat in the area. Once established, the spread of invasive plant species could extend well beyond the project area. It should be noted that portions of the Mercil site already contain some invasive plant species.

As described above in response to EAW Item 11, the perimeter ditches have the potential to reduce the water table adjacent to the project site by up to one to two feet. Wetland plant communities adjacent to the perimeter ditches could be adversely affected by this reduction in the water table. Wetland plants in this area that are

adapted to the current wet/saturated conditions would be outcompeted by plant species that do not tolerate wet conditions. This would result in a change to the wetland plant communities adjacent to the mine site.

d. Identify measures that will be taken to avoid, minimize, or mitigate adverse effects to fish, wildlife, plant communities, and sensitive ecological resources.

Hawkes Co. proposes a phased mining approach that would only open portions of the mining area at one time. They plan to reclaim the site by plugging ditches to restore hydrology, and subsequently using stockpiled overburden that would also serve as a seed and rhizome source to re-establish vegetation within the wetland. Roadways would be removed and revegetated along with other disturbed areas. Re-establishment of vegetation would be monitored for a minimum of five years after completion of mining (as per the Permit to Mine requirements) and the company proposes to manage invasive species through application of a Roundup Custom herbicide developed for use in aquatic environments. An Aquatic Plant Management permit would be required for use of herbicides to control aquatic plants within the public water wetland. If seeds and rhizomes from stockpiled overburden are insufficient for re-establishment of vegetation, Hawkes Co. proposes to use BWSR 34-271 Wet Meadow South & West seed mixture to augment establishment of vegetation, though it would yield a different plant community than what is currently present. The DNR may require a different seed mix be used in order to increase the potential for a more similar plant community to be established in reclamation. Collection of seed prior to overburden stripping for use in revegetation efforts would also improve the chances of a similar plant community in reclamation.

The mined wetland area would return to a wetland community, though it would not be the same as the existing community. Hawkes Co.'s existing reclaimed sites and reclamation literature indicate that reclamation of the Mercil site is unlikely to restore the same native plant community values that exist today. The reclaimed wetland would likely have a different mix of plant species and increased open water, potentially attracting different wildlife species.

**14. Historic properties:**

Describe any historic structures, archeological sites, and/or traditional cultural properties on or in close proximity to the site. Include: 1) historic designations, 2) known artifact areas, and 3) architectural features. Attach letter received from the State Historic Preservation Office (SHPO). Discuss any anticipated effects to historic properties during project construction and operation. Identify measures that will be taken to avoid, minimize, or mitigate adverse effects to historic properties.

There are no known historic structures, archeological sites, and/or traditional cultural properties on or in close proximity to the site. The SHPO database review is included as Attachment 2.

**15. Visual:**

Describe any scenic views or vistas on or near the project site. Describe any project related visual effects such as vapor plumes or glare from intense lights. Discuss the potential visual effects from the project. Identify any measures to avoid, minimize, or mitigate visual effects.

There are no officially designated scenic views or vistas on or near the project site that would be obstructed by the project. However, users of the WMA enjoy the vistas that exist today and these would be different or no longer present after the project.

There are no visual effects such as intense lighting related to the proposed operation. Other visual effects from mining operations would be limited because of the forestlands around the site.

**16. Air:**

a. Stationary source emissions - Describe the type, sources, quantities and compositions of any emissions from stationary sources such as boilers or exhaust stacks. Include any hazardous air pollutants, criteria pollutants, and any greenhouse gases. Discuss effects to air quality including any sensitive receptors, human health or applicable regulatory criteria. Include a discussion of any methods used assess the project's effect on air quality and the results of that assessment. Identify pollution control equipment and other measures that will be taken to avoid, minimize, or mitigate adverse effects from stationary source emissions.

There are no stationary source emissions associated with the proposed project.

b. Vehicle emissions - Describe the effect of the project's traffic generation on air emissions. Discuss the project's vehicle-related emissions effect on air quality. Identify measures (e.g. traffic operational improvements, diesel idling minimization plan) that will be taken to minimize or mitigate vehicle-related emissions.

There would be a small increase in off-site vehicular traffic due to the proposed mining activity. Onsite traffic would consist of a tractor with a vacuum harvester attachment to collect the peat, an occasional bulldozer and a side-dump tractor-trailer for transport. The tractor and vacuum harvester would operate during active mining, and idling would be kept to a minimum. The tractor would not be running during times when peat is being loaded from the temporary storage stockpile into a side-dump trailer for transport. Air emissions from vehicle operations are expected to be similar to farming operations in the area.

c. Dust and odors - Describe sources, characteristics, duration, quantities, and intensity of dust and odors generated during project construction and operation. (Fugitive dust may be discussed under item 16a). Discuss the effect of dust and odors in the vicinity of the project including nearby sensitive receptors and quality of life. Identify measures that will be taken to minimize or mitigate the effects of dust and odors.

The typical mining season is from May to November. During active mining periods, dust may be generated onsite and may migrate off-site, depending on wind conditions. All vacuum harvesters would be equipped with collection systems to limit dust migration off-site. Peat and overburden stockpiles could also be sources of dust during periods of strong winds. Truck traffic on the gravel access roads is anticipated to be the largest source of dust from the project, though substantial dust can also be generated from peat fields on windy days. Dust may increase the nutrient load to wetlands off site if it settles there. The NPDES permit from the MPCA would have requirements to control dust. Some options for dust control/suppression that may be addressed in the permit include watering of gravel roads or application of chemicals such as magnesium chloride. Covering of stockpiles would also help mitigate dust migration offsite.

Buffering provided by the forested area around the site and the relatively remote location of the project are factors limiting the adverse effects to sensitive receptors. Significant adverse effects from dust are not anticipated.

Offensive odors are not anticipated to be generated by the project.

**17. Noise**

Describe sources, characteristics, duration, quantities, and intensity of noise generated during project construction and operation. Discuss the effect of noise in the vicinity of the project including 1) existing noise levels/sources in the area, 2) nearby sensitive receptors, 3) conformance to state noise standards, and 4) quality of life. Identify measures that will be taken to minimize or mitigate the effects of noise.

Existing noise levels at the site are minimal and are estimated at about 30 dBA for secluded woods. Noise generated from the proposed project would consist of intermittent sounds associated with peat mining vehicles. Most notable would be the vacuum harvester that collects and contains the peat being pulled by a common field tractor. Point source attenuation would be in accordance with Minnesota State Noise Pollution Control Rules 7030.0040 under daylight operating hours (7 AM to 10 PM). On occasion, a tractor-trailer and bulldozer would be onsite to collect the harvested peat from stockpiles for transport to the East Grand Forks processing facility.

Under routine operations, it is expected that the noise generation would be similar to farming operations in the area and would be mitigated by the surrounding forestlands. There are two residential or farmstead properties 0.25 miles to the east of the project site and another 0.25 miles northwest of the site. These are the nearest sensitive receptors and would not be expected to be adversely impacted by the noise generated during operations.

Noise from the peat mining operation would adversely impact wildlife nearby. The level of increased noise is anticipated to be similar to that of farming operations.

**18. Transportation**

a. Describe traffic-related aspects of project construction and operation. Include: 1) existing and proposed additional parking spaces, 2) estimated total average daily traffic generated, 3) estimated maximum peak hour traffic generated and time of occurrence, 4) indicate source of trip generation rates used in the estimates, and 5) availability of transit and/or other alternative transportation modes.

The mine site would be accessed by an existing road to the south and construction of a new road to the north that would connect to an abandoned township road. These roads would be constructed or upgraded to 80,000-pound, 20-foot wide gravel roads to allow for two-lane truck traffic. See EAW Item 6 for additional information regarding road construction; see Figure 3 for the locations of new and upgraded roads proposed. Daily traffic would consist of access by employees and truck traffic for hauling peat to the existing processing plant in East Grand Forks. Maintaining current production rates, approximately 300 truckloads of peat (average of two truckloads per day) would be shipped from the project site each year. The peak shipping season occurs from January through October with a maximum of four truckloads per day.

b. Discuss the effect on traffic congestion on affected roads and describe any traffic improvements necessary. The analysis must discuss the project's impact on the regional transportation system. *If the peak hour traffic generated exceeds 250 vehicles or the total daily trips exceeds 2,500, a traffic impact study must be prepared as part of the EAW.* Use the format and procedures described in the Minnesota Department of Transportation's Access Management Manual, Chapter 5 *(available at: http://www.dot.state.mn.us/accessmanagement/resources.html)* or a similar local guidance,

The proposed project would not be expected to cause or contribute to traffic congestion. Upgrading the abandoned township road and a portion of the southern access road are the only planned road improvements.

c. Identify measures that will be taken to minimize or mitigate project related transportation effects.

There are no mitigation measures proposed to address transportation impacts.

**19. Cumulative potential effects:** (Preparers can leave this item blank if cumulative potential effects are addressed under the applicable EAW Items)

a. Describe the geographic scales and timeframes of the project related environmental effects that could combine with other environmental effects resulting in cumulative potential effects.

The proposed project would provide for approximately 15 years of mining with several years of reclamation activities after the completion of mining. The two potential environmental effects from the proposed project that are most likely to combine with environmental effects of other projects are effects to native plant communities and impacts to surface water resources such as changes in hydrology or water quality. The geographic scales for potential cumulative effects from each of these project specific effects are different. The native plant community effect has a *landscape community* geographic scale, while the water resource effect has a *watershed* geographic scale.

Native Plant Community

The proposed project is within a Site of Biodiversity Significance that represents a contiguous complex of native plant communities at a landscape geographic scale. MBS has identified other Sites of Biodiversity Significance adjacent to Marshall County MBS Site 71. Two of these sites, MBS Site 72 and MBS Site 74, have similar plant communities and landscape context as MBS Site 71. The close proximity of these sites combined with their similar plant community composition and landscape features makes all three Sites of Biodiversity Significance a reasonable geographic scale for identifying potential cumulative effects (see Figure 9).

All three of these sites are complexes of forest, wet meadow and fens, representing a high quality example of the Glacial Lake Agassiz beach ridge-wetland community complex. Site 71 is the largest at 3,941 acres and is classified as having High Biodiversity Significance. Site 72 is 956 acres of Outstanding Biodiversity Significance. Site 74 is 1,699 acres of Outstanding Biodiversity Significance. All three sites combined equal 6,596 acres.

Water Resources

The proposed project is within the Middle River watershed. Each watershed is subdivided into smaller catchments (or watershed subdivisions) where all surface water flows to a common point. The Mercil site is mainly in one catchment area with the access roads crossing over into an adjacent catchment area. This adjacent catchment also contains a portion of the Hawkes Co. existing peat mining operations. Hawkes Co.'s existing operations and proposed project site lie within a total of three catchment areas. There are two additional catchment areas that flow to the Middle River between the proposed project site and the existing Hawkes Co. peat mining operations. The town of Newfolden lies within one of these catchments. These five catchments all contribute to the Middle River and provide a reasonable geographic scope for assessing potential cumulative effects to water resources (see Figure 10). This area is large enough to capture activities within the watershed, but not so large as to dilute the assessment.

b. Describe any reasonably foreseeable future projects (for which a basis of expectation has been laid) that may interact with environmental effects of the proposed project within the geographic scales and timeframes identified above.

DNR area staff and the Marshall County Environmental Services Administrator were contacted to identify if there are any applications, projects, or plans that could be considered as reasonably foreseeable

future projects (for which a basis of expectation has been laid) within the geographic areas of the native plant communities and water resources discussed above. No reasonably foreseeable future projects were identified.

Although there are no future projects, there are existing activities that have impacts to plant communities and water resources that could combine with the proposed project to produce potential cumulative effects. Hawkes Co.'s existing peat mining operations, limited agricultural practices and a gravel mine are within the geographic scope for the native plant community assessment. Hawkes Co.'s existing peat mining operations, a gravel mine, agricultural practices and the town of Newfolden are within the geographic scope for the water resources assessment. Agricultural practices include small scale crop/hay production and two registered feedlots.

c. Discuss the nature of the cumulative potential effects and summarize any other available information relevant to determining whether there is potential for significant environmental effects due to these cumulative effects.

Native Plant Communities

As stated above the total acreage for all three Sites of Biodiversity Significance is 6,596 acres. Hawkes Co.'s existing peat mining operation is within both MBS Site 71 and Site 72. The Mercil site is mainly within Site 71; a small portion of an access road lies outside of all three Sites of Biodiversity Significance. The existing operation has impacted 199 acres of Site 72 (21%) and 232 acres (6%) of Site 71, which accounts for 431 acres and 7% of all three Sites of Biodiversity Significance. The proposed project would impact 298 acres of Site 71 (8%). The potential cumulative impact to the Sites of Biodiversity Significance by the existing and proposed Hawkes Co. mining activities, using a simple measurement of acres, is 729 acres or 11% of the total area. The existing gravel mine and agricultural activities contribute an additional 267 acres (4%) of impact to the Sites of Biodiversity Significance. Combined with proposed and existing Hawkes Co. peat mining operations, the total cumulative impact to these MBS Sites of Biodiversity is 996 acres (15%).

**Cumulative Effects to MBS Sites of Biodiversity Significance**

| | MBS Site 71 Impact (acres, % of total site) | MBS Site 72 Impact (acres, % of total site) | MBS Site 74 Impact (acres, % of total site) | Total Impact (acres, % of total of all three sites) |
|---|---|---|---|---|
| Proposed Project | 298 ac (8%) | na | na | 298 ac |
| Existing and Former Operations | 232 ac (6%) | 199 ac (21%) | na | 431 ac (7%) |
| Subtotal Hawkes Co. Peat Mining operations | 530 ac (14%) | 199 ac (21%) | na | 729 ac (11%) |
| Agricultural and Gravel Mine | -- | -- | -- | 267 ac (4%) |
| Total | 530 ac | 199 ac | | 996 ac (15%) |

A simple measurement of acres directly impacted does not fully capture the extent of potential cumulative effects to the native plant communities. The existing Hawkes Co. operation (included on Figure 9) mined a rich fen that was between two strandlines of upland forest plant communities that lie in a generally north to south orientation. The proposed project at the Mercil site would mine another rich fen east of a strandline that extends to the north and east of the existing peat mine operation. This strandline/upland next to wetland/fen plant communities is not necessarily unique in this area. In fact, there are thousands of acres of fens in Marshall County alone. What makes this upland/wetland complex unique is the large, intact, high quality rich fen and its stark contrast and compact juxtaposition to the upland strandline forested plant community. This example of contrasting plant communities associated with the Lake Agassiz beach ridges is a significant landscape component of the state's natural heritage. The specific expression of this landscape component that existed at the currently mined site and that exists at the proposed mine site is an exemplary model of how these plant communities relate to the geology of the area. While there are other rich fen wetland communities associated within beach ridge landscape context in Marshall County, this particular rich fen community is one of the highest quality examples.

Water Resources

The Middle River has water quality impairments for turbidity and dissolved oxygen. The MPCA recently prepared the Draft Snake River Watershed Stressor Identification Report (February 2017) that describes the results of biological monitoring conducted in the watershed to identify if specific stream reaches are impaired for aquatic life (i.e. not supporting a healthy fish and/or macroinvertebrate assemblage). Only one stream reach or section of the Middle River was identified as being impaired for aquatic life. This impaired stream reach is approximately 18-20 miles downstream from the town of Newfolden and from the catchment areas subject to this potential cumulative effects assessment.

Both the existing Hawkes Peat mining operation and the Town of Newfolden contribute total suspended solids to the Middle River. These contributions do not likely significantly contribute to the total suspended solids load to the river due to the existing treatment systems in place for both, and the long distance the peat mine discharge travels in ditches before being discharged to the Middle River. The contribution of registered feedlots and other agricultural operations to the total suspended solids load is unknown.

The existing peat mining operation is anticipated to continue discharging until 2022. Assuming a 2018 start of operations at the Mercil site, there would be overlapping discharges from both Hawkes Co. sites to the Middle River. Hawkes Co. proposes to use sedimentation basins to treat runoff from the proposed project site prior to discharge to a gully southeast of the project site. The company intends that this treatment would prevent or minimize contributions of suspended solids to the Middle River from the project site. As part of the NPDES/SDS permitting process for the proposed project, an antidegradation review would be conducted in accordance with Minnesota Rules, chapter 7050.0250 – 7050.0335. Also, the Middle River is currently undergoing the Watershed Restoration and Protection Strategy (WRAPS) process led by MPCA. When this process is complete, individual point sources such as the proposed Mercil discharge would receive waste load allocation that would be incorporated into NPDES/SDS permits.

A potentially more important cumulative effect to water resources would be the changes in hydrology to the system due to discharges from the existing peat mining operations, Newfolden discharges, and agricultural ditching discharges combining with discharges from the Mercil site. The altered hydrology would put additional water in the stream and could affect stream geomorphology as well as downstream flooding. Stable river systems are able to maintain a balance in water discharge energy and stream

channel erosion. Increases in water discharge can increase the energy of the stream and in turn increase stream channel erosion, which would lead to increased total suspended solids in the stream. It could also lead to other environmental effects such as stream channel incision, loss of floodplain connection and loss of aquatic habitat. The degree of change in hydrology from the existing peat mine operation, Newfolden discharges, and agricultural ditching in the catchment area is unquantified. It is also uncertain how much the proposed project would contribute to the existing hydrology alteration and any associated increases in total suspended solids.

The Town of Newfolden is permitted for a discharge of 0.032 MGD (0.05 cfs) under its NPDES/SDS permit. They have a pond system, so the discharge is controlled, and they are only allowed to discharge during April-June and September-December. Data from Hawkes Co.'s existing operations indicates contributions of about 0.23 cfs of flow during most flows, with peak flows of 10.35 cfs. It is uncertain if the proposed mine would contribute similar discharge rates. The bank full flow of the Middle River at the USGS Railway Street gauge in Newfolden is 134 cfs. A cumulative 10% change (about 13 cfs) in this flow could result in negative effects to the river ecology.

**20. Other potential environmental effects:** If the project may cause any additional environmental effects not addressed by items 1 to 19, describe the effects here, discuss the how the environment will be affected, and identify measures that will be taken to minimize and mitigate these effects.

The proposed project site is within a public water wetland and a Wildlife Management Area. Both of these are identified as avoidance areas under Minnesota Rules part 6131.0100 Peatland Reclamation Standards –Siting. In order to obtain a peatland reclamation permit in an avoidance area, there must be no other reasonable or prudent alternative. To address this requirement, Hawkes Co. has conducted an evaluation of alternative sites. As part of this evaluation the company developed criteria determining if alternative sites would meet the peat product specifications of the end users and the site/resource requirements for the site to be a reasonable option for Hawkes Co. These criteria are identified below:

<u>Peat Product Specifications</u>

| | |
|---|---|
| pH | 6.0 – 7.0 |
| Organic content | > 85% |
| Degree of decomposition | Hemic |
| Woody debris | Minimal |

<u>Site/Resource Specifications</u>

| | |
|---|---|
| Property availability | Available for sale or lease |
| Resource thickness | 30 inches minimum |
| Resource areal extent | 80 acres minimum |
| Drainage potential | Sufficient slope and existing ditches |
| Transportation and shipping | Close proximity to all weather roads |
| Proximity to processing plant | 75 mile radius of East Grand Forks, MN |

The Hawkes Co. alternative site evaluation considered 15 alternative sites. Of these 15 sites, only two met both the Hawkes Co. criteria for peat product and site/resource specifications. One of these sites is within the New Maine WMA and on its own did not meet the areal extent specification. Since the time of the alternative site evaluation this site has been added to the Mercil Site as part of the proposed peat mine. The DNR has not yet determined if the site will be available for peat mining, but the proposal is being evaluated as part of this environmental review.

The other site, Viking East Site, met all specifications and is on state land within Marshall County and Pennington County (Sections 6, 7, and 8 of T154N, R44W). The evaluation identified that the Viking

East Site is within a Site of Outstanding Biodiversity Significance and there is a calcareous fen near the site. Both of these factors would have environmental and/or regulatory ramifications, but the site is not within a known avoidance area under Minnesota Rules part 6131.0100.

**RGU CERTIFICATION.** *(The Environmental Quality Board will only accept **SIGNED** Environmental Assessment Worksheets for public notice in the EQB Monitor.)*

**I hereby certify that:**

- The information contained in this document is accurate and complete to the best of my knowledge.
- The EAW describes the complete project; there are no other projects, stages or components other than those described in this document, which are related to the project as connected actions or phased actions, as defined at Minnesota Rules, parts 4410.0200, subparts 9c and 60, respectively.
- Copies of this EAW are being sent to the entire EQB distribution list.

Signature Lisa R Fay Date May 8, 2017

Title Principal Planner