

Hinckley Wetland Mitigation Site

Wetland Mitigation Plan

Poly Met Mining Inc.



POLYMET
MINING

May 2014

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1.0 Introduction

On behalf of Poly Met Mining Inc. (PolyMet), Barr Engineering Co. has prepared this wetland restoration plan to provide compensatory wetland mitigation to replace unavoidable wetland impacts associated with PolyMet's NorthMet Project. The project site is located in the St. Louis River #3 major watershed and a total of 939 acres of wetland impacts are proposed. The compensatory mitigation activities described in this report include those planned within one property located near Hinckley, Minnesota in Pine County.

The Hinckley mitigation location is the site of an active sod production facility that encompasses approximately 511 acres of land, on which, 303 acres of wetland restoration and 91 acres of upland buffer preservation is proposed (Figure 1). The site is located in the Snake River #36 major watershed. PolyMet has entered into an option agreement with the landowner formalizing the landowner's intent to allow the restoration activities.

This report includes discussions of the restoration site, construction activities, vegetation establishment and management activities, wetland restoration goals, performance standards, schedules, and monitoring plans. A preliminary wetland restoration plan was submitted to the U.S. Army Corps of Engineers (USACE) and Minnesota Department of Natural Resources (MDNR) Division of Lands and Minerals in August 2007. The plan was reviewed by the USACE, MDNR, and MPCA; comments were provided, and the plan was resubmitted for review. A final review was conducted by the same agencies and a final plan was submitted in January 2008. A revised permit application was submitted to the USACE and MDNR in August 2013 to start the permitting process. The agencies determined that hydrologic monitoring should be conducted to justify the proposed crediting in the plan and the plans should be revised to comply with standards that have changed since the initial submittal. Therefore, this plan was developed to comply with the current Wetland Conservation Act (WCA) rules (Minnesota Rules Chapter 8420) as administered by the Minnesota Department of Natural Resources – Division of Lands and Minerals, Section 404 of the Clean Water Act as administered by the USACE, and Minnesota Rules 7050.0186 (wetland mitigation) as administered by the Minnesota Pollution Control Agency.

Permanent Conservation Easements similar to the example provided in Appendix A will be prepared and recorded to cover the wetland restoration and associated upland buffer areas within one year after starting the restoration activities at the site.

2.0 Wetland Mitigation Crediting

Because the wetland mitigation site included in this plan is located outside of the project watershed, all mitigation associated with this plan will be conducted at a ratio of 1.25:1 or 1.5:1 in accordance with USACE guidance. Current guidance from the USACE regarding conditions that constitute in-advance compensatory mitigation was provided in a memo dated May 29, 2013. Restoration successfully completed following the guidance in that memo and comprised of the same type as the impacted wetlands will be credited at a 1.25:1 ratio and replacement out-of-kind will be credited at a 1.5:1 ratio. Should in-kind compensatory mitigation be deemed unsuccessful such that an equal area of in-kind replacement is not provided for the impacts, those impacts will be replaced at a 1.5:1 ratio. Wetland replacement completed at the site will be required at a 1.5:1 ratio in accordance with the WCA, because it is located outside of the project watershed. Should additional wetland mitigation credits be established beyond the needs for direct impacts, the excess credits will be utilized to compensate for indirect wetland impacts.

The proposed wetland replacement credit areas are shown in Figure 2. The credits were calculated based on:

- Soil survey information (Figure 3)
- Target plant communities (Figure 1) developed based on existing elevations, proposed elevations, and planned hydrologic restoration
- Existing wetland boundaries (Figure 4)
- Other site conditions

These credits are summarized in Table 1 based on actions eligible for credit in the WCA rules. Proposed actions eligible for credit include the following with references to the applicable subpart under the WCA Chapter 8420.0526:

- Upland buffer credit [Section 404 (upland buffers) and WCA-Subp. 2] is applied to areas that are not expected to develop as wetland after restoration is complete. These areas will be restored to native, non-invasive vegetation. Upland buffer credits are credited at 25% of the area maintained as upland buffer (4:1 ratio of upland acres to credit). Credit from upland buffers will not exceed 25% of the total credit from the site. A total of 91.2 acres of upland buffer and 22.8 credits are estimated to result from the proposed wetland restoration work (Table 1).
- Credit for restoration of completely drained wetlands [Section 404 (restoration via reestablishment) and WCA-Subp. 3] is applied to the majority of the wetland restoration areas on the site presently under cultivation. The estimated area of wetland that is expected to develop is discussed in Section 7.0. Areas that are presently non-wetland and develop as wetland after restoration are proposed as 100% credit for the area restored (1:1; wetland to credit). An estimated 277.4 acres of drained wetland are planned to be restored with the project for 277.4 credits (Table 1).

- Restoration of partially-drained wetland [Section 404 (restoration via rehabilitation) and WCA-Subp. 4] currently applies to the existing wetland in the south-central portion of the site (Figure 2). This existing wetland area is partially drained by the ditches adjacent to portions of the wetland. Restoration will restore natural hydrology to this wetland by removing the drainage system. This would qualify as credit for restoration via rehabilitation under the USACE's policy (Reference (1)) and is proposed for 50% credit of the area restored (2:1; wetland to credit). The partially-drained wetland area encompasses 8.8 acres for 4.4 credits (Table 1).

Table 1 Wetland Bank Credit Summary

Restoration Method	Area (acres)	Percent Credit	Credits
Upland buffers	91.15	25%	22.79
Partially-drained wetlands	8.75	50%	4.38
Restoration of drained wetlands	277.39	100%	277.39
Ditches	17.2	0%	0
Total for Site	394.50		304.56

No credit is proposed within the right-of-way along Township Road 56 along the south side of the property. In addition, no credit is proposed within the 50 foot wide right-of-way on either side of the railroad centerline within the eastern part of the property. Finally no credit is proposed within the assumed 33 foot wide easement area centered on County Ditch 7 through the property (Figure 2).

In order to adequately track the timing of wetland mitigation construction and wetland impacts, a structured accounting system may be needed to determine the required mitigation ratios. This information could be provided in the MDNR Permit to Mine annual report. The annual report could include a tabulation of wetland mitigation that was constructed, including the dates when construction was completed and wetland impacts that occurred by December 31 of each year. This information would be submitted using the schedule for the Permit to Mine annual report, typically within one month after the end of the year.

3.0 Wetland Mitigation Goals

To the degree feasible, the primary goal of the wetland mitigation plan for PolyMet is to restore high quality wetland communities (Reference (2)) of the same types as those impacted by the project. While it is not practicable to replace all impacted wetland types with an equivalent area of in-kind wetland due to site limitations, technical feasibility, and other considerations; the goal of the mitigation plan is to replace the wetland types in-kind to the degree practicable in order to replace lost wetland functions and values. A summary of the acreage of each targeted wetland restoration community and the projected credits are provided in Table 2. A total of 303 acres of wetland restoration is proposed (Figure 1), including 3 wetland community types that are planned to replace impacts in-kind to the degree practicable, constrained by the restoration of wetland types that are ecologically suitable and sustainable for the landscape area.

Table 2 Target Plant Community Summary

Targeted Plant Community	Area (acres)	Credits
Sedge/Wet Meadow	55.15	51.37
Shrub-Carr/Alder Thicket	239.13	226.43
Hardwood Swamp	9.07	3.97
Wetland Total	303.35	281.77
Upland Buffer	91.15	22.79
Total for Site	394.50	304.56

Detailed descriptions of the targeted wetland communities within the wetland restoration area are provided in the following sections.

3.1 Sedge/Wet Meadow

A total of 55.2 acres of sedge/wet meadow wetland is planned in three areas of the site (Table 2, Figure 1). Wet meadows typically form in the transition zone from upland to aquatic systems, often intergrading into sedge meadows and shrub-carr. The wet meadow community is targeted for a dominance of native grasses and perennial forbs, although sedges, rushes, ferns, and some shrubs may also be present. Sedge meadows typically form with a slightly wetter landscape position than wet meadows, with saturation near the surface typical and shallow inundation of 2-3 inches common, particularly early in the growing season. The sedge meadow community is targeted for a dominance of primarily native sedges, however, grasses such as Canada bluejoint and manna grass may be present along with scattered perennial forbs and some shrubs. The muck and mineral soils are typically saturated close to the surface for short to long duration during the growing season with shallow inundation occasionally occurring for long periods of time.

3.2 Shrub-Carr/Alder Thicket

A total of 239.1 acres of shrub-carr/alder thicket wetland is planned in one location at the site (Table 2, Figure 1). Shrub-carr/alder thicket communities are typically saturated close to the surface for much of the

growing season with occasional short-term inundation during floods and following snowmelt, particularly where a hummocky surface is present. The vegetation is expected to be composed of at least 50 percent areal coverage of shrubs, including primarily willow or speckled alder with meadowsweet and dogwood. The understory vegetation is expected to be composed of grasses such as Canada bluejoint and manna grass along with scattered, perennial forbs. The tree coverage is variable, typically with less than 25 percent coverage of trees taller than six feet. The shrub-carr/alder thicket restoration areas contain sapric to hemic organic soils.

3.3 Hardwood Swamp

A total of 9.1 acres of hardwood swamp wetland is planned in one location (Table 2, Figure 1). The hardwood swamp is an existing, partially drained wetland dominated by quaking aspen, alder, raspberry, Canada bluejoint and sedges. The hardwood swamp area is primarily underlain by organic soils.

4.0 Wetland Mitigation Performance Standards

Performance standards have been developed for each wetland community type targeted in the wetland restoration plan to guide the restoration activities and to determine success. The performance criteria include measures to evaluate whether or not the hydrology and vegetation meet the plan goals. Should the performance standards not be met during the established monitoring period (five years for sedge/wet meadow and existing hardwood swamp and eight years for the shrub communities), a proposal will be submitted to the USACE and the MDNR Division of Lands and Minerals describing the corrective actions proposed and an implementation schedule.

4.1 General Performance Standards

Several general performance standards apply to all wetland restoration areas:

- More than 75 percent areal coverage of the vegetation in each wetland community shall be facultative (FAC) or wetter (FACW, OBL) as listed in the current version of the National Wetland Plant List (NWPL, current version) for the Northcentral and Northeast region.
- Invasive plant species shall not comprise more than 15 percent cumulative areal coverage within any by the end of the monitoring period. Invasive species include those provided in Table 3 and non-native species listed by the MDNR (Reference (3)).
- Native, non-invasive species shall comprise at least 85 percent areal coverage.

Table 3 Potentially Problematic Invasive Species

Common Name	Scientific Name
Flowering rush	<i>Botomus umbellatus</i>
Smooth brome grass	<i>Bromus inermis</i>
Canada thistle	<i>Cirsium arvense</i>
Glossy false buckthorn	<i>Frangula alnus</i>
Yellow iris	<i>Iris pseudacorus</i>
Non-native honeysuckles	<i>Lonicera x bella; Lonicera tartarica, etc.</i>
Bird's Foot trefoil	<i>Lotus corniculatus</i>
Purple loosestrife	<i>Lythrum salicaria</i>
Sweet clover	<i>Melilotus alba</i> or <i>M. officianalis</i>
Reed canary grass	<i>Phalaris arundinacea</i>
Common reed	<i>Phragmites australis</i>
Common buckthorns	<i>Rhamnus cathartica</i>
Curly dock	<i>Rumex crispus</i>
Foxtail	<i>Setaria spp.</i>
Perennial sow thistle	<i>Sonchus arvensis</i>
Common tansy	<i>Tanacetum vulgare</i>
Narrowleaf cattail	<i>Typha angustifolia</i>
Blue cattail	<i>Typha x glauca</i>

4.2 Hydrology

Due to the nature of the site, it is expected that the extent and duration of soil saturation and high water table will gradually increase as the site develops more dense vegetation and hydrology stabilizes following removal of the drainage system. Therefore, it is expected that the duration of the high water table at the site will gradually become more similar to the reference wetlands as these conditions develop. The hydrology success criteria are designed to reflect the incremental changes in hydrology. All restored wetland areas must meet the minimum hydrology standard during each year of monitoring in which precipitation conditions are within or wetter than the normal range.

4.2.1 Sedge/Wet Meadow

The sedge/wet meadow communities are likely to consist of saturation to the surface to inundation by up to 3 inches of water throughout much of the growing season, under normal to wetter than normal conditions (70 percent of years based on the most recent 30-year record of precipitation). If hummocky microtopography develops, inundation of up to 6 inches may occur within hollows between hummocks for extended duration. During drier than normal precipitation conditions, the duration of saturation is expected to be within 25 percent of that documented within the reference wetland.

4.2.2 Shrub-Carr

The hydrology in the shrub-carr community is likely to consist of saturation to the surface throughout the growing season, under normal to wetter than normal conditions (70 percent of years based on the most recent 30-year record of precipitation). Inundation shall not occur (unless there are site-specific conditions). An exception can be made for sites with hummocky microtopography: hollows between hummocks can have standing water depths of up to 6 inches for extended duration. For years in which precipitation conditions are drier than normal, the duration of saturation is expected to be within 25 percent of that documented within the reference wetland.

4.2.3 Hardwood Swamp

The hydrology in the hardwood swamp community is likely to consist of saturation within 6 inches of the surface, to inundation by up to 6 inches of water, for a minimum of 28 consecutive days or two periods of 14 consecutive days, during the growing season, under normal to wetter than normal conditions (70 percent of years based on most recent 30-year record of precipitation). Inundation by more than 6 inches of water during the growing season shall not occur except following the 10-year frequency or greater storm/flood event. Inundation greater than 6 inches of water shall have a duration of less than 14 days. An exception can be made for sites with hummocky micro-topography: hollows between hummocks can have standing water depths of 6 to 12 inches for extended duration.

A similar reference wetland has the same wetland community type or a comparable hydrologic regime to the restored target community type. One reference wetland has been established adjacent to the site within a sedge meadow, which also has shrub-carr components. A second reference wetland has been established approximately three miles north of the site, which includes hardwood swamp, shrub-carr, and sedge meadow components.

4.3 Vegetation

Vegetation development within the restored wetlands is planned to start with emphasis on developing the herbaceous layer in the first one to two years followed by the addition of shrubs in the shrub-carr community. While no seeding is planned within the first couple of years, our experience indicates that a diverse, native herbaceous community is likely to develop from the seedbank and natural seed dispersal mechanisms. This natural regeneration has been observed to result in similar diversity and cover compared to sites that have been seeded. If vegetation development is not adequate to meet the success criteria, seed may be installed after the first or second growing season. These community type success criteria will be used to determine success of the wetland replacement site.

4.4 Sedge/Wet Meadow

4.4.1 Growing Season 1

- Herbaceous vegetation shall cumulatively comprise at least 50 percent areal cover.
- At least 30 percent areal cover shall be comprised of at least 3 species of native, non-invasive plants.

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- No more than 50 percent areal cover of non-native or invasive species will be present.

4.4.2 Growing Season 2

- Herbaceous vegetation shall cumulatively comprise at least 60 percent areal cover of native non-invasive species.
- At least 40 percent areal cover shall be comprised of at least 4 species of native, non-invasive plants.
- No more than 25 percent areal cover shall be comprised of non-native or invasive species.

4.4.3 Growing Season 3

- Herbaceous vegetation shall cumulatively comprise at least 70 percent areal cover of native, non-invasive species.
- At least 60 percent areal cover shall be comprised of at least 6 species of native, non-invasive plants.
- No more than 15 percent areal cover shall be comprised of non-native or invasive species.

4.4.4 Growing Seasons 4-5

- Herbaceous vegetation shall cumulatively comprise at least 85 percent areal cover of native, non-invasive species.
- At least 10 species of native, non-invasive plants shall be present and at least 4 species shall be dominants as determined by an approved vegetation dominance test or will have a vegetative diversity/integrity rating of high quality using the Minnesota Routine Assessment Method (MnRAM) for Evaluating Wetland Functions.
- To be considered sedge meadow, sedge species shall be dominant by the end of the fourth full growing season; most of which should be the genus *Carex*, but also may include spike-rushes, bulrushes, and nut-grasses. Grasses, forbs, and true rushes may comprise the remaining herbaceous cover.
- No more than 15 percent areal cover shall be comprised of non-native or invasive species.
- Shrub and tree vegetation shall cumulatively comprise less than 30 percent areal cover.

4.5 Shrub-Carr/Alder Thicket

4.5.1 Growing Season 1

- Herbaceous vegetation shall cumulatively comprise at least 70 percent areal cover.
- At least 40 percent areal cover shall be comprised of at least 5 species of native, non-invasive plants.
- No more than 50 percent areal cover of non-native or invasive herbaceous species will be present.

4.5.2 Growing Season 2

- Herbaceous vegetation shall cumulatively comprise at least 70 percent areal cover.
- At least 60 percent areal cover shall be comprised of at least 6 species of native, non-invasive plants.

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- No more than 35 percent areal cover of non-native or invasive herbaceous species will be present.
 - At least 200 stems per acre of woody plants over 80 percent of the designated shrub-carr community will be present, including willow, dogwood, alder, and other native species present in the reference wetlands. No more than 5 percent areal cover of non-native or invasive shrub species will be present.

4.5.3 Growing Season 3

- Herbaceous vegetation shall cumulatively comprise at least 70 percent areal cover.
- At least 6 species of native, non-invasive plants shall be present or the community will have a vegetative diversity/integrity rating of high quality using the current version of MnRAM.
- No more than 20 percent areal cover of non-native or invasive herbaceous species will be present.
- At least 200 stems per acre of woody plants over 80 percent of the designated shrub-carr community will be present, including willow, dogwood, alder, and other native species present in the reference wetlands. No more than 5 percent areal cover of non-native or invasive shrub species will be present.

4.5.4 Growing Seasons 4-8

- Herbaceous vegetation shall cumulatively comprise at least 70 percent areal cover.
- At least 8 species of native, non-invasive plants shall be present or the community will have a vegetative diversity/integrity rating of high quality using the current version of MnRAM.
- No more than 15 percent areal cover of non-native or invasive herbaceous species will be present.
- At least 200 stems per acre of woody plants over 80 percent of the designated shrub-carr/alder thicket community will be present, including willow, dogwood, alder, and other native species present in the reference wetlands or the total native shrub and tree sapling cover will exceed 60 percent. No more than 5 percent areal cover of non-native or invasive shrub species will be present.

4.6 Hardwood Swamp

- The existing density of hydrophytic trees will be maintained or will be comparable to the reference wetland.
- The coverage of herbaceous vegetation will be maintained or will be comparable to the reference wetland.
- No more than 15 percent areal cover of non-native or invasive herbaceous species will be present.
- No more than 5 percent areal cover of non-native or invasive tree or shrub species will be present.

4.7 Upland Buffer

4.7.1 Growing Season 1

- Vegetation will comprise at least 50 percent areal cover, which shall be composed of native perennial species, including at least six species of native/non-invasive plant species.

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- The herbaceous layer or herbaceous communities shall be comprised of four or more species of native/non-invasive plants.
 - No more than 50 percent areal cover shall be comprised of non-native or invasive vegetation and no more than 5 percent areal cover of non-native or invasive shrub and tree species shall be present.

4.7.2 Growing Season 2

- Vegetation will comprise at least 60 percent areal cover, which shall be composed of native perennial species, including at least seven species of native/non-invasive plant species.
- The herbaceous layer or herbaceous communities shall be comprised of five or more species of native/non-invasive plants.
- No more than 35 percent areal cover shall be comprised of non-native or invasive vegetation and no more than 5 percent areal cover of non-native or invasive shrub and tree species shall be present.

4.7.3 Growing Season 3

- Vegetation will comprise at least 70 percent areal cover, which shall be composed of native perennial species, including at least eight species of native/non-invasive plants.
- The herbaceous layer or herbaceous communities shall be comprised of six or more species of native/non-invasive plants.
- No more than 20 percent areal cover shall be comprised of non-native or invasive vegetation and no more than 5 percent areal cover of non-native or invasive shrub and tree species shall be present.

4.7.4 Growing Seasons 4-5

- Vegetation will comprise at least 90 percent areal cover, which shall be composed of native perennial species, including at least ten species of native/non-invasive plants.
- The herbaceous layer or herbaceous communities shall be comprised of eight or more species of native/non-invasive plants.
- No more than 15 percent areal cover shall be comprised of non-native or invasive vegetation and no more than 5 percent areal cover of non-native or invasive shrub and tree species shall be present.

5.0 Wetland Restoration Site Description

5.1 Hinckley Wetland Mitigation Site Description

The Hinckley wetland mitigation plans include the restoration of 303 acres of wetland and the preservation of 91 acres of upland buffer on the site (Figure 1). The wetland restoration site is located in Section 5, Township 39 North, Range 22 West, Pine County, Minnesota. The site is located in the Snake River #36 major watershed and Bank Service Area #6 (Figure 1). The National Wetland Inventory map for the wetland restoration area is provided in Figure 5.

5.1.1 Geology and Soils

Patterson and Knaeble (Reference (4)) mapped the surficial geology within the restoration area as primarily peat and organic-rich sediment deposited in marshes and shallow lakes during the Holocene and Late Pleistocene. An area of silty and sandy sediment deposited in shallow water is also mapped within the southeast corner of the Hinckley wetland restoration site over sandy deposits (Reference (4)). Knaeble, et al. (Reference (5)) show the presence of Glacial Lake Grantsburg encompassing the proposed Hinckley wetland restoration site during the period when the Grantsburg sublobe of the Des Moines lobe advanced into Pine County from the southwest. During that period, till and lake sediment were deposited over much of southern Pine County, including the proposed wetland restoration site (Reference (5)).

County Well Index boring logs in the vicinity of the restoration site indicate deposits of primarily clay and clay mixed with gravel or rock from the surface down to depths up to 80 feet with some layers of sand and sandy gravel intermixed. Bedrock (primarily sandstone) is typically present at depths ranging from 70 feet to 80 feet. The soils within the wetland restoration areas are mapped in the Soil Survey of Pine County, Minnesota (Reference (6)) as primarily peat soils throughout approximately the northern three-fourths of the site with mineral soils mapped along the south and east sides of the property. The Natural Resources Conservation Service (NRCS) has conducted a more detailed mapping of the soils within the site, and a preliminary mapping of the soils was obtained from the public record as part of another project, however, it is not in a format that can be readily published. The preliminary NRCS soil mapping indicates that the majority of the site is Markey muck within the northern three-fourths of the site and the south-central portion. The area located east of the railroad tracks is mapped as Cathro muck. The non-hydric mineral soils are mapped primarily within proposed upland buffer areas. The majority of the upstream watershed area is also mapped as peat soils. The water table appears to be near the surface throughout much of the general area, as indicated by the large wetland complexes underlain by peat soils.

5.1.2 Topography

The topographic relief is minimal throughout the site. A topographic survey of the site was completed and a one-foot contour map was created from the data (Figure 1). Detailed survey data indicates ground elevations on the wetland restoration site range from about 985 feet MSL to 1000 feet MSL with elevations in the ditches down to 979 feet MSL and on the dikes up to 1004 feet MSL. The gradient in the wetland restoration area ranges from flat to about 1 percent.

5.1.3 Climate and Hydrology

The average annual precipitation for Hinckley, based on the current 30-year normal period 1971-2000 is 31.2 inches (Reference (7)). A water budget completed by Lindholm et al. (Reference (8)) for the Snake River watershed calculated general runoff in the watershed to be 8.5 inches based on annual, average precipitation of 28.93 inches from the normal period 1939-1968. The average annual precipitation for the current normal period (1981-2010) from the nearest National Weather Service station (Mora) is 29.74 inches. The wetland restoration site is located near the middle of the Snake River watershed, for which the water budget was calculated. While the average annual runoff value calculated by Lindholm et al. (Reference (8)) may not accurately reflect runoff conditions in all areas of the watershed, it provides a reasonable estimate for computing an order-of-magnitude water volume that might be expected to discharge from various portions of the watershed.

5.1.4 Hydrology

A total of approximately 6,360 acres of upstream watershed area drains to and through the site (Figure 6). The primary drainage feature affecting the site is an unnamed tributary that carries discharge from the 5,634 acre upstream drainage area. The portion of this tributary that runs through the restoration site is designated as County Ditch 7 (Figure 1). It appears that the county ditch was constructed prior to 1939 (Figure 7) and the current agricultural production areas today have been farmed since prior to 1939, with the exception of the northeast corner. Based on review of the 1991 aerial photograph (Figure 8), it appears that the northeast corner of the site had not been cultivated as of 1991. While not confirmed, it has been reported that much of that area was put into production in about 1997. County Ditch 7 splits within the wetland restoration site with a portion discharging to Pokegama Creek approximately 4.5 miles east and the other discharging to Mud Creek approximately 0.7 miles downstream of the site (Figure 6).

Hydrology will be restored within the majority of the proposed wetland restoration areas by reestablishing the natural discharge flow pathways from the large wetland complexes located north of the farm. As the farm was developed, starting in the early 1900s, a ditch system was constructed to intercept that discharge and either route it around the farm or utilize it for irrigation/water supply. Those natural flow paths will be restored to the planned restoration areas.

5.1.5 Wetland Delineation

Existing wetlands on the site have been preliminarily identified as shown on Figure 4. The final delineation of wetlands present within the site will be conducted in the field early in the 2014 growing season. All private ditches within the site have wetland characteristics, which will be specifically documented and located in the field. The existing, hardwood swamp and sedge meadow wetland located in the south-central portion of the property was identified approximately six years ago and will be redelineated in 2014. The final delineation of wetlands throughout the property will be conducted based on additional hydrology monitoring data from early in the 2014 growing season along with field evaluation.

6.0 Wetland Restoration Plan

The site was previously managed as a sod production facility and is currently in row crop agricultural production, both of which require considerable control over the hydrology of the site. The site hydrology is controlled by a series of ditches throughout the site, typically surrounded by a system of dikes with outlet structures through the perimeter dikes. Water levels in the ditches are typically maintained approximately 2-5 feet below the field elevations to ensure an aerated rooting zone without soil saturation. The goal for each step in the restoration process is to continually progress toward the final goal of establishing wetland communities with the appropriate hydrology and dominated by characteristic native vegetation.

6.1 Hinckley Wetland Restoration Construction Plan

The ultimate objective of the plan is to restore the hydrologic connection between the upstream watersheds and the site and disable the internal drainage system within the site. The hydrology will be restored by filling ditches and utilizing broad, rock-lined overflow weirs, eliminating culverts, where possible, to establish specific hydrologic conditions that will meet the goals and performance standards described in Sections 4.0 and 5.0.

The restoration process will start with activities to restore the hydrology. Prior to constructing the surface inlets and outlets, silt fence/barrier will be installed downstream of the restoration areas within the primary outlet ditches. Before restoration work begins within the site, the water flow from the upstream watershed will be temporarily blocked to prevent flooding during construction. In general, the proposed outlet modifications will be constructed first, then moving upstream within the site, culverts will be removed and internal ditches will be filled in accordance with the plans. The final step will be to reestablish the connections to upstream watersheds. The final connection to upstream watersheds will be sequenced by first constructing the inlet weirs and lastly, filling the exterior ditch.

The inflow/outflow weirs will be constructed by lowering sections of dike to the elevations within approximately a 20 foot bottom width with 20H:1V slopes connecting into the top of the established dike. Each overflow would then be covered with 1/2-inch to 4-inch rock over geotextile fabric to a depth of 12 inches and extending up the sides of the overflow 1-2 feet in elevation. The rock will also extend on the upstream and downstream slopes. Organic or mineral hydric soils removed from the dike during construction will be utilized to fill the interior field ditches where practical. After the water supply has been reestablished, efforts will be focused on establishment of the targeted wetland communities as described in Section 7.3.

6.2 Vegetation Restoration/Management

An adaptive management program is proposed to guide the development of the restored wetlands to the targeted conditions. The vegetative restoration community types proposed are shown on Figure 1 and are summarized in Table 2. The herbaceous layer vegetative restoration of each wetland community will be conducted to promote the establishment of characteristic native species that are present in the seed bank

or that may be transported to the area from adjacent wetlands. By reestablishing the hydrologic connection to upstream wetlands as the first restoration activity at the site, one of the primary seed transport mechanisms will be restored to assist in the development of wetland communities native to the area. The process for restoration of the wetlands is designed to meet the goals described in Section 4.0 and the performance objectives described in Section 5.0 in the most effective manner.

The goal of the restoration is to provide a setting and conditions in which the restoration areas will be restored to naturally self-sustaining and functioning wetlands to the extent feasible. The proposed wetland communities have been planned in areas that appear to match the natural hydrologic characteristics of each community type. However, during the restoration process, it is expected that the defined areas and wetland communities may change to some degree and the plan will allow for adaptation to the conditions.

Reference wetlands have been identified in the vicinity of the site for each restoration community type that represent an approximation of the wetland communities anticipated after restoration. It is recognized that this process cannot be accomplished within a year or two, but will take time, and therefore, short-term interim goals are also included in the performance standards.

6.2.1 General Site Preparation

Prior to or concurrent with conducting hydrologic restoration activities, existing, non-native and invasive vegetation will be removed from the restoration site through mechanical means or herbicide application. Treatment methods that may be used include mowing (for annual weeds), selective herbicide application (for broadleaf weeds or non-native or invasive grasses), or broad-spectrum herbicide application (for areas where limited desirable species are present).

6.2.2 Natural Regeneration - All Communities

The proposed vegetation establishment and maintenance activities anticipated to meet the goals of the plan are listed for the conditions described as appropriate to the restoration schedule:

- **Presence of reed canary grass or other non-native grasses.** Spray grass-selective herbicide at label rates in late fall (after desirable native vegetation has senesced) within wetland restoration areas containing more than 20 percent areal coverage of reed canary grass or other non-native or invasive grasses and all dikes and ditch slopes adjacent to the wetland restoration areas. The purpose of this treatment is to kill reed canary grass and other actively growing non-native grasses while desirable native plants are dormant. Other restoration projects have had considerable success using this treatment recently.
- **Presence of broadleaf weeds.** Spray perimeter dikes and slopes adjacent to wetland restoration areas and other areas where warranted with a broadleaf herbicide (e.g., Transline) at recommended rates targeting stinging nettle, Canada thistle, and other broadleaf non-native species.

- **Revegetate berms and dikes.** Seed ditch banks and dikes with an appropriate native grass seed mix.
- **Hydrologic restoration and monitoring.** Construct hydrologic restoration activities as described in Section 6.1 within 4 weeks after initial herbicide application where invasive or non-native vegetation is a concern. Monitor water levels in restored wetlands to determine if target hydrology is present.
- **Presence of annual weeds.** Where annual weeds are present, mow seeded areas to 6-8 inch height with low ground-pressure mower to prevent any annual weeds present from going to seed.
- **Vegetation characterization.** Characterize vegetation establishing in each wetland restoration area in June and August of each year to determine necessary management and establishment procedures. Vegetation characterization will include documenting all species present and the approximate areal coverage of each species by conducting meandering surveys within each wetland restoration area as described in Section 8.0.
- **General weed control.** Continue treatments 1, 2, and 5 annually until reed canary grass, stinging nettle, Canada thistle and other non-native or invasive species are adequately controlled (see list in Table 3).
- **Site specific treatment.** Spot spray wetland restoration areas two times annually to control reed canary grass and other perennial non-native or invasive species for up to 8 years in shrub communities and 5 years in other communities following initial restoration. Extensive treatments may not be needed after a sustainable wetland dominated by characteristic native vegetation is established such that the performance standards described in Section 4.0 are achieved.
- **Weed control.** Conduct a spring burn in the sedge/wet meadow communities after the second or third growing season to kill weed seed and promote germination of native plants, assuming that there is sufficient fuel for burning and assuming that there are no concerns with fire management due to climate conditions or potential for peat fires.

6.2.3 Seeding/Planting – Sedge/Wet Meadow and Shrub-Carr/Alder Thicket Communities

Diverse, native, herbaceous wetland vegetation is expected to develop in the restoration wetlands from the existing seedbank and from the wetland vegetation that surrounds the wetland restoration sites (both through vegetative propagation and through seed transport) or by other seed dispersal methods. At the end of the second growing season, a detailed assessment of seed bank re-establishment will be conducted within the wetland areas. Based upon the results of the assessment as per the performance standards in Section 4.0, areas that have not met the requirements will be seeded as follows:

- **Sedge and wet meadow** areas that do not have adequate wetland vegetation cover or appropriate species established after the second full growing season will be seeded in the fall of the second full growing season with appropriate seed mixes. Seed mixes will be submitted for review and approval prior to seeding.
- **Shrub-carr/alder thicket communities.** Shrub-carr/alder thicket wetlands that do not meet the performance standards after the second full growing season will be planted with locally collected dormant cuttings of willow and dogwood species, which will be staked in the fall or spring at approximately 220 shrubs per acre. Alder thicket wetlands that do not meet the performance standards after the second full growing season will be seeded with locally collected alder seed, collected from approximately one acre of alder thicket for every five acres of restored wetland to be seeded. Shrub cutting survival and development from seed will be closely monitored and corrective measures will be planned and implemented if shrub mortality surpasses 50 percent.

6.2.4 Hardwood Swamp

The existing hardwood swamp wetland will be managed to minimize the prevalence of non-native, invasive species, however, active seeding and planting are not expected to be needed. Should conditions develop that are not consistent with performance standards, a plan will be developed for management to achieve those standards.

6.2.5 Upland Area Management

Vegetation in the existing upland areas will be managed to promote natural succession of the existing plant communities. Each of the plant cover layers – ground, shrub, and tree layers – will be managed to promote the ecological integrity and function of native plant communities. The primary maintenance activity will be control of non-native invasive species such as, but not limited to buckthorn, honeysuckle, and garlic mustard. Protecting the site from further disturbances and allowing natural colonization and successional processes will maintain ecosystem biodiversity and structure.

Maintenance activities will include:

- Monitoring site to identify and anticipate problems with invasive species before they reach problem proportions. Particular attention will be paid to edges of the upland sites.
- Removing or treating with appropriate herbicides all non-native or invasive plant species when found; timing/season of treatment will be based upon best practices for control of the species.
- Seeding of upland buffers with State seed mix 36-311 Woodland Edge Northeast at a rate of 8.5 pounds/acre native species.

7.0 Wetland Restoration and Management Schedule

The following schedule represents a preliminary plan of the expected activities that may be involved in restoring wetlands at the site. However, with an adaptive management perspective, it should be recognized that the timing of specific establishment and management activities are likely to change as the restoration work progresses. The overall schedule for restoration activities at the site is to complete the majority of the restoration work within the first 4 years of the project. Within first year after permit issuance, the Year 1 restoration work will be completed within the site. The remaining restoration activities will generally follow the conceptual schedule provided below.

The wetlands restored as mitigation for the Project will require regular management to become established. This is critical in the first five to eight years and should be recognized as integral to the wetland mitigation success. Management will include both eliminating non-native and invasive species, creating ideal conditions for the native plants to flourish, and seeding/planting to supplement natural regeneration. Weeds can establish quickly as the wetlands develop because the ground is bare at the time of restoration. Some weeds are very aggressive and will out-compete the desirable wetland seedlings. Therefore, weed removal and careful monitoring is important during the early stages of the restoration. As native plants grow and spread over the years, and as thatch builds, the site will become less vulnerable to weed species. Removal of weeds does continue to be important during the first five to eight years to ensure that the native plant communities become established. Structures constructed to control hydrology within the restoration areas will be inspected annually during the established monitoring period and repairs will be made to maintain the goals of the plan. After final certification of the restored wetlands by the appropriate regulatory agencies, the land owner of each site will be required by the Permanent Conservation Easements that will be recorded after completion of construction (examples provided in Appendix A), to regularly inspect and maintain those structures to sustain the goals of the approved plan.

7.1 Year 1

7.1.1 Fall/Winter

- Apply herbicide to areas where undesirable natural vegetation is present.
- Fill ditches as shown on the plans.
- Complete hydrologic restoration construction as described in Section 6.1 and as shown on the wetland restoration plans.
- Spray grass-selective and broad-leaf herbicides on dikes and dike slopes adjacent to restoration areas.
- Seed dike and dike slopes with an appropriate native grass seed mix.
- Spray restoration fields containing at least 20 percent areal coverage of non-native or invasive grass species with grass-selective herbicide.
- Seed upland buffer areas with State seed mix 32-241.

7.1.2 Spring/Summer

- Monitor water levels in restored wetlands.
- Characterize vegetation in restoration areas in June and August followed by development of specific management objectives for the remainder of the year based on the findings.
- Mow sedge/wet meadow, shrub-carr, and upland buffer areas in spring if annual weeds are present.
- Apply grass-selective and broad-leaf herbicide to upland buffers, dikes, and dike slopes where non-native or invasive species are present.
- Spot spray wetland restoration areas to eliminate non-native or invasive species.

7.2 Year 2

7.2.1 Fall – End of First Full Growing Season

- Complete monitoring report, including documentation of wetland establishment activities completed during the previous year conducted in comparison to the plan and recommended actions for the following year.
- Monitor water levels in restored wetlands.
- Apply herbicides as necessary to control non-native and invasive species in all communities.

7.2.2 Spring/Summer

- Monitor water levels in restored wetlands.
- Spray grass-selective and broad-leaf herbicides (typically in early June) in upland areas adjacent to restoration areas where non-native or invasive grass and forb species are present before seed production is complete.
- Characterize vegetation in restoration areas in June and August followed by development of specific management objectives for the remainder of the year based on the findings.
- Spot spray or wick-apply wetland restoration areas with grass-selective and non-selective or other appropriate herbicide to eliminate non-native or invasive species.
- Mow restored wetlands if annual weeds are present prior to seed production.

7.3 Year 3

7.3.1 Fall – End of Second Full Growing Season

- Complete monitoring report, including documentation of wetland establishment activities completed during the previous year conducted in comparison to the plan and recommended actions for the following year. Make recommendations for permanent water level control adjustments that may be needed for restored wetlands to better promote vegetation development that meets performance standards.
- Monitor water levels in restored wetlands.
- Apply herbicides as necessary to control non-native and invasive species in all communities.
- If shrub development does not conform to performance standards, conduct shrub staking or seeding.

-
- If species diversity or vegetative cover development in herbaceous layer do not conform to performance standards, conduct seeding.

7.3.2 Spring/Summer

- Monitor water levels in wetlands.
- Spray grass-selective and broad-leaf herbicides (typically in early June) in upland areas adjacent to restoration areas where non-native or invasive grass and forb species are present before seed production is complete, reseed if bare soils are present.
- If shrub development does not conform to performance standards, conduct shrub staking or seeding.
- Characterize vegetation in restoration areas in June and August followed by development of specific management objectives for the remainder of the year based on the findings.
- Spot spray or wick-apply wetland restoration areas with grass-selective, broad-leaved, or non-selective herbicide to eliminate non-native or invasive species.
- If non-native or invasive species are present in the sedge meadow or wet meadow communities, conduct a spring burn.

7.4 Years 4-5

Many of the management activities described for Year 3 will be continued in Years 4 and 5 along with the monitoring activities. If shrub development does not conform with performance standards, shrub seedlings or cuttings will be planted as described in Section 6.2.3. The monitoring report completed after the fifth growing season will assess whether or not restored wetland communities (with the exception of shrub communities) are in conformance with performance standards such that the five year monitoring would be sufficiently complete.

7.5 Years 6-8

Because establishment of shrub communities can take longer, active management and monitoring will be conducted for eight years within shrub community. Many of the management activities described for Years 4-5 will be continued in Years 6-8 along with the monitoring activities.

8.0 Wetland Mitigation Monitoring

The wetland restoration area will be monitored for at least five years (eight years for shrub communities) beginning in the first full growing season after beginning hydrologic restoration to document the progress and condition of the wetland communities at the mitigation site. For wetlands other than shrub communities, monitoring reports will be prepared each year in years 1 through 5 following construction. For shrub communities, monitoring reports will be prepared and submitted in years 1, 2, 3, 5, and 8 following construction. The monitoring report completed after the final growing season will assess whether or not the restored wetlands are in conformance with performance standards.

Hydrologic parameters will be evaluated in the mitigation area more intensively during the first two years and then at a level appropriate to the hydrologic characteristics of each area thereafter. Any significant modifications to the monitoring frequency proposed herein will be described in a revised monitoring plan to be submitted for review and approval prior to implementation. In addition to monitoring the restored wetlands, one reference wetland of each wetland restoration community type (if available) will be monitored within the general area of the restoration site, in areas with relatively natural hydrologic conditions. A monitoring plan will be submitted for review and approval that will include proposed locations of reference wetlands prior to implementing the monitoring program. Continuous recording wells will be utilized to the extent feasible.

8.1 Hydrologic Monitoring Years 1-5

Hydrologic monitoring in the restored wetland communities will be conducted using shallow wells placed within each restored wetland area. Water elevations will be recorded several times per day throughout the growing season.

8.2 Hydrologic Monitoring Years 6-8

8.2.1 Shrub-Carr/Alder Thicket

If the monitoring conducted during Years 1-5 indicate a stable and consistent hydrologic regime similar to the reference wetlands, water elevations will be recorded several times per day throughout the growing season during Years 6-8 for the shrub communities, but data will only be collected one time at the end of the growing season.

In wetlands where water elevation fluctuations differ substantially from the reference wetlands, water elevations will be recorded several times per day throughout the growing season in Years 6-8 for the shrub community. Water level data will be collected approximately two times during the growing season to assist in determining the need for any corrective actions.

8.3 Vegetation Monitoring

A detailed vegetation survey will be conducted once per year (typically August) in each wetland mitigation community, as well as the reference wetland communities, to evaluate the success of the restoration

during the appropriate monitoring period for each community type. A time meander search will randomly sample 20 percent of each wetland restoration community. Documentation photographs will also be taken in August from fixed reference points around each restored wetland area.

8.4 Monitoring Report

A monitoring report will be prepared annually during the 5-year monitoring period for all except the shrub community. Annual monitoring reports will be prepared following growing seasons 1, 2, 3, 5, and 8 following restoration for the shrub community. The report will describe the status of the wetland mitigation, summarize the results of the vegetative and hydrologic monitoring, and discuss management activities and corrective actions conducted during the previous year, and activities planned for the following year. The report will be submitted to the USACE and MDNR by December 31 of each year. The annual report will include the following information at a minimum:

- A brief description of the wetland mitigation area, including location, size, vegetative and hydrologic monitoring data, current wetland types and desired wetland types.
- Preparation of an as-built survey within the first year after construction is complete along with a comparison of the as-built survey to the approved plans. This as-built survey will be prepared upon the completion of establishing the permanent overflow structures, which may not be completed during the first year.
- A summary of water level measurements taken to date and a determination whether the hydrology in the wetlands meets the design elevations and wetland hydrology criteria as defined in the performance standards.
- Vegetation survey information, including species and percent areal coverage within each restored wetland community and a determination of whether the vegetation meets the performance criteria.
- A map of the various plant communities present within the restoration areas will be prepared as distinctly different communities develop.
- Color photographs of the wetland mitigation sites taken in August of each year at designated photo-reference points.
- A summary of management activities and/or corrective actions conducted in the wetlands during the previous year and activities planned for the following year.

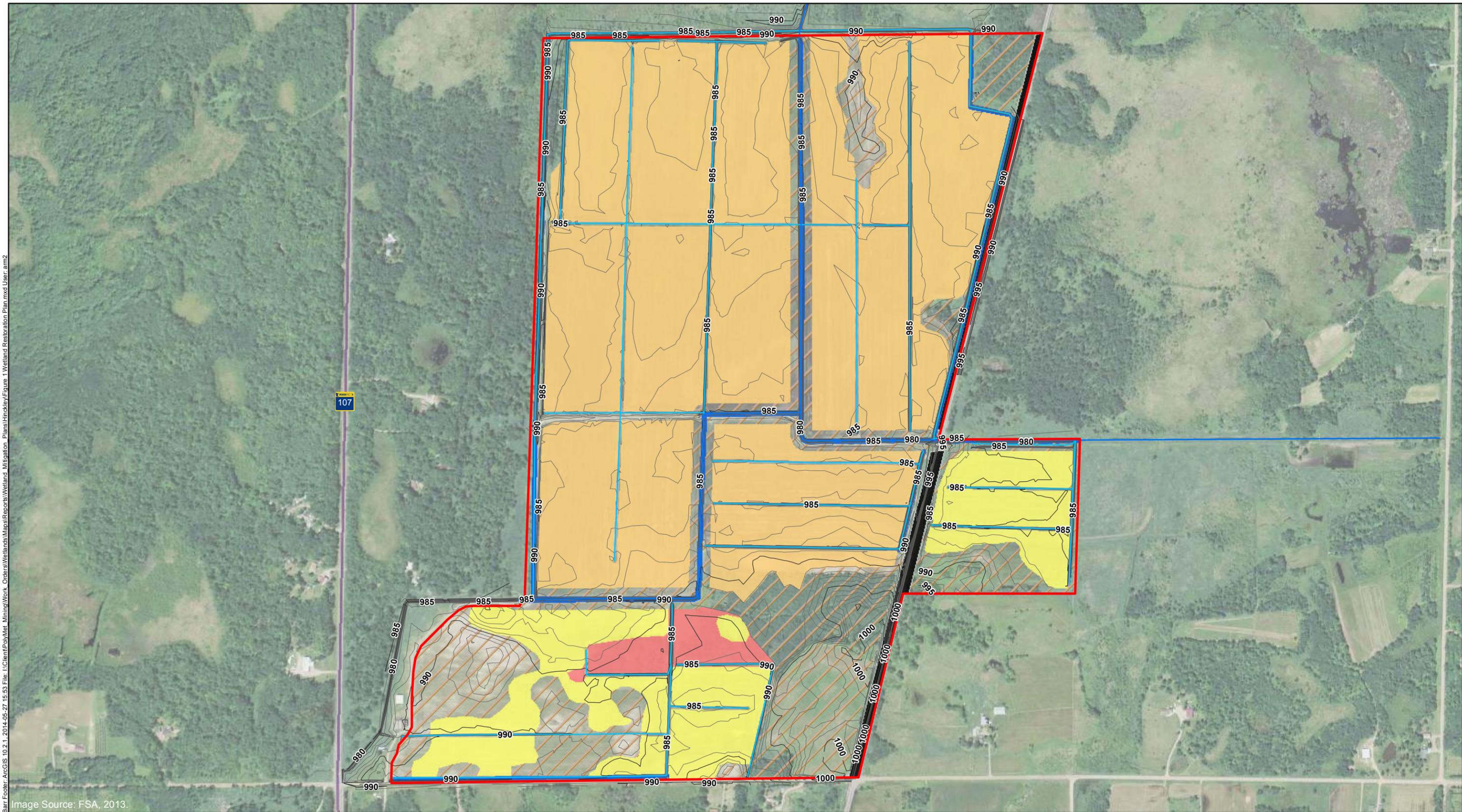
9.0 References

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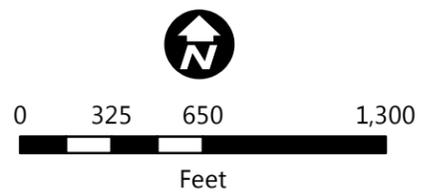
Figure

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Image Source: FSA, 2013.



- | | | |
|--------------------------|---------------|--------------------------|
| Wetland Restoration Plan | Upland Buffer | Hinckley Mitigation Site |
| Hardwood Swamp | Ditch | Public Ditches |
| Shrub-carr/Alder thicket | None | Private Ditch |
| Sedge/Wet Meadow | | Surface Elevation |
| | | 5-Ft Contour |
| | | 1-Ft Contour |



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 Figure 1
 WETLAND RESTORATION PLAN
 NorthMet Project
 Poly Met Mining Inc.
 Hoyt Lakes, MN

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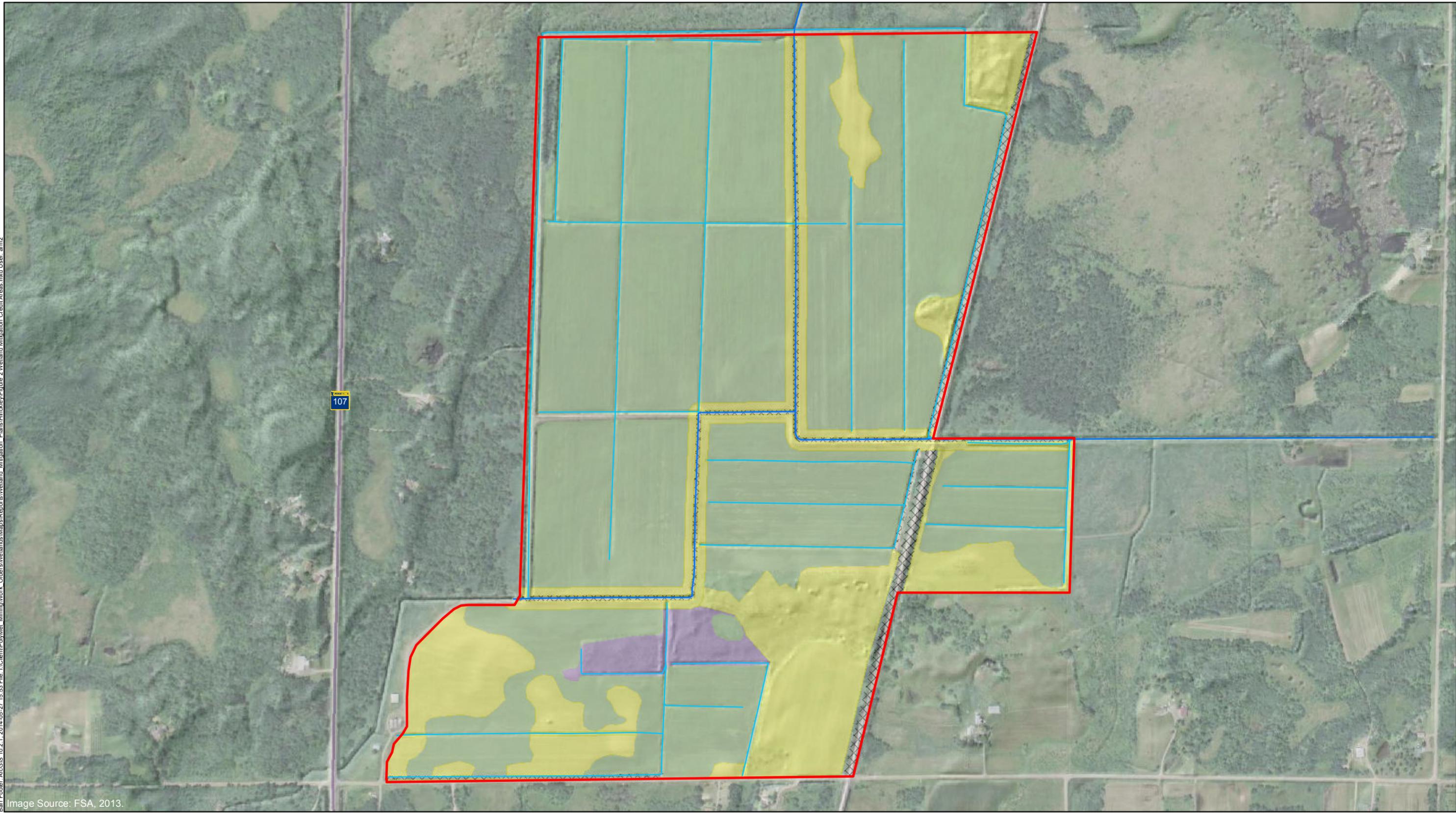
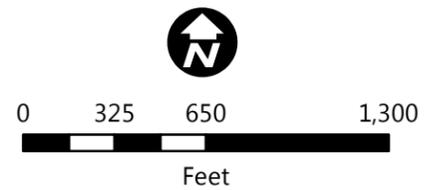


Image Source: FSA, 2013.

- | | |
|-------------------------|--------------------------|
| Wetland Credits | Hinckley Mitigation Site |
| Drained - 100% | Public Ditches |
| Partially Drained - 50% | Private Ditch |
| Upland Buffer - 25% | |
| No Credit - 0% | |



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 Figure 2
 WETLAND MITIGATION CREDIT AREAS
 NorthMet Project
 Poly Met Mining Inc.
 Hoyt Lakes, MN

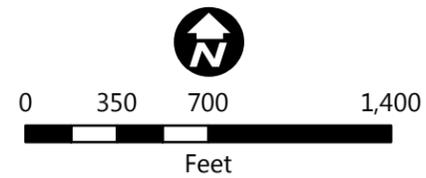
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Image Source: FSA, 2013.

Map Unit Symbol	Map Unit Name
Ac	Adolph silty clay loam
Fs	Freer silt loam
Kn	Knife Lake silt loam
Mf	Milaca fine sandy loam
Mv	Milaca very fine sandy loam
P	Peat

- Hinckley Mitigation Site
- Pine County Soils with Map Unit Symbol



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 Figure 3
 SOILS
 NorthMet Project
 Poly Met Mining Inc.
 Hoyt Lakes, MN

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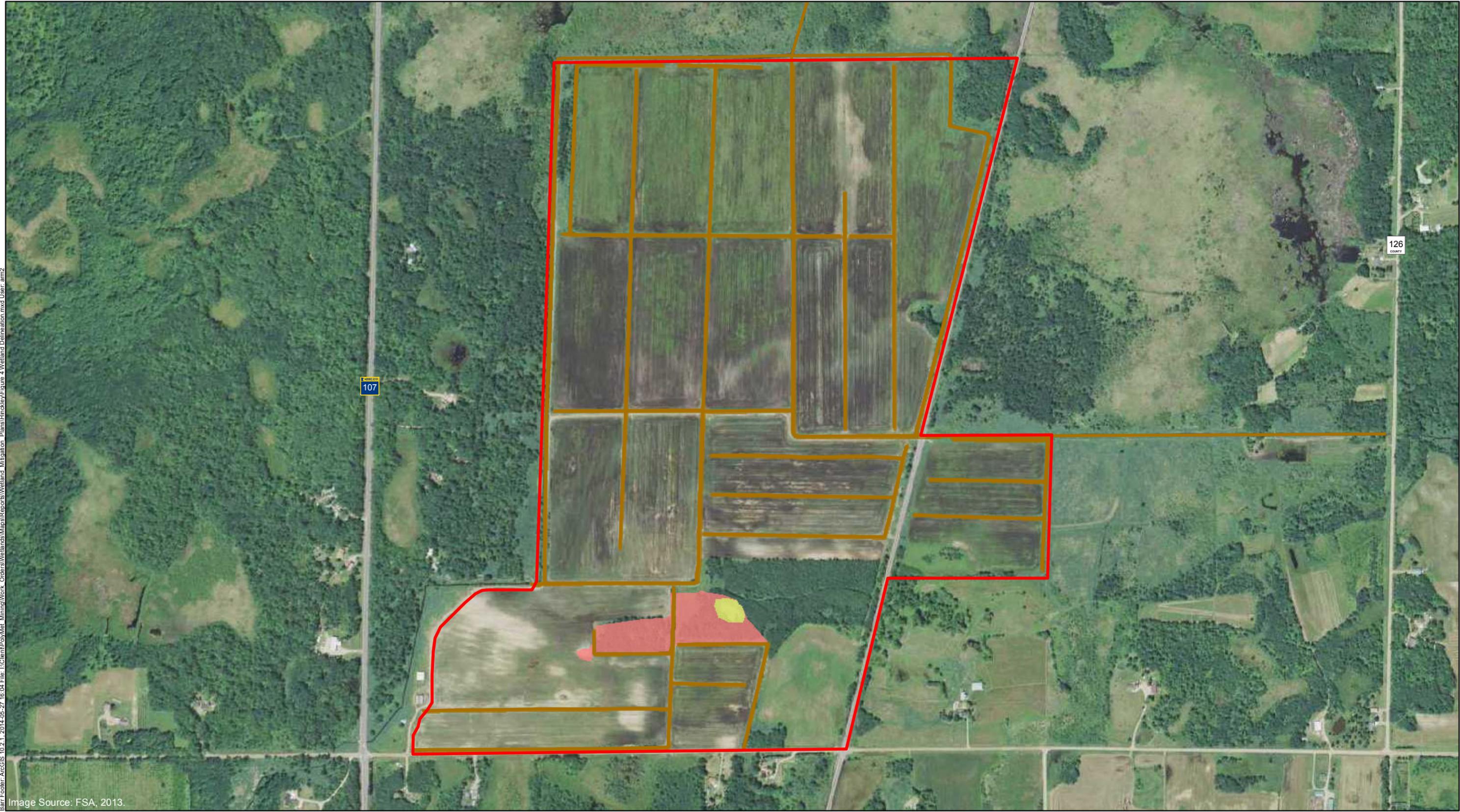
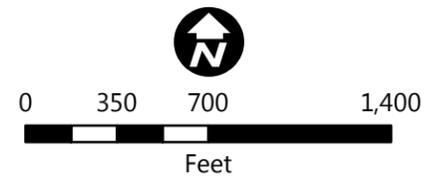
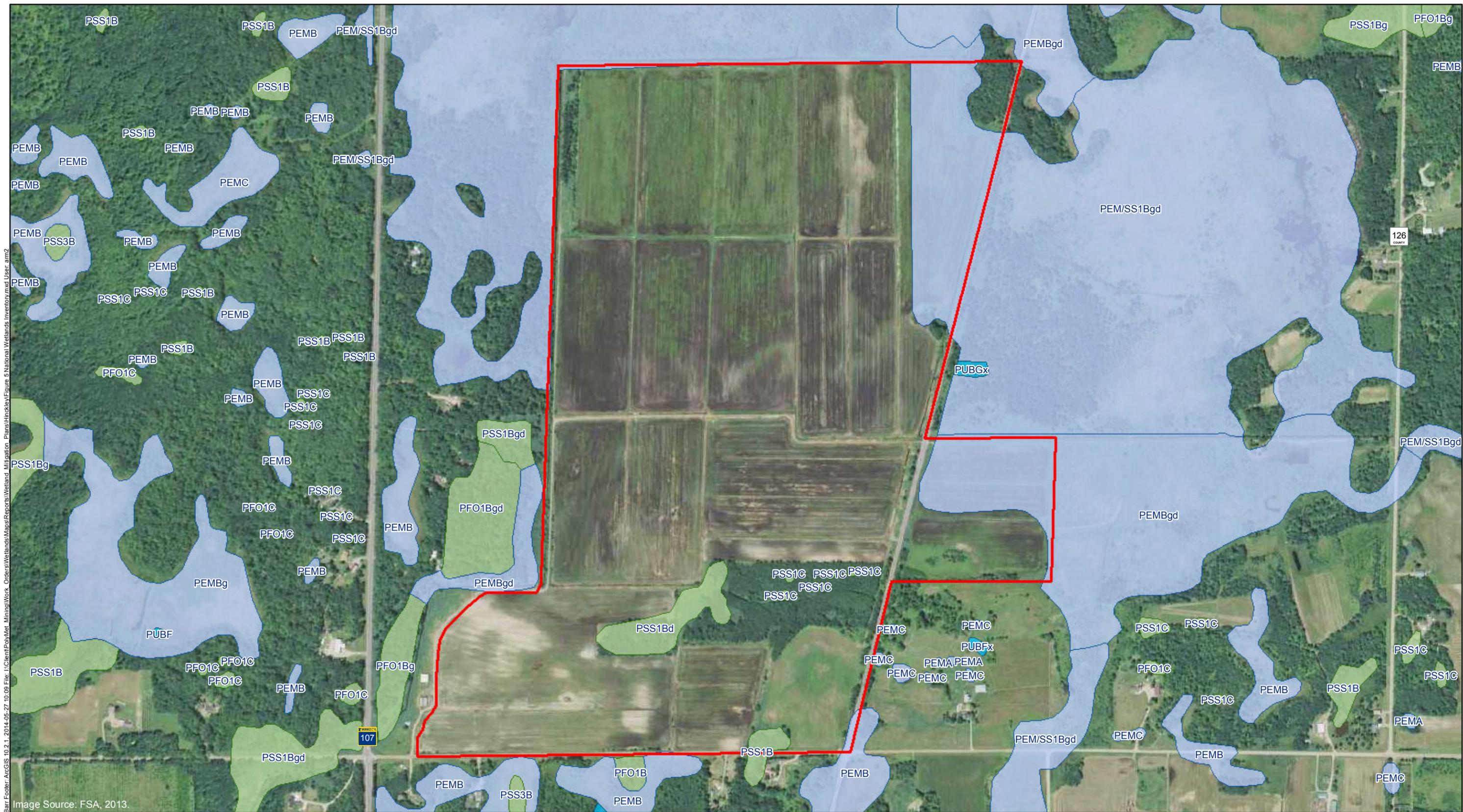


Image Source: FSA, 2013.

- Wetland Delineation
- Hardwood swamp
 - Sedge meadow
 - Shallow marsh
 - Hinckley Mitigation Site



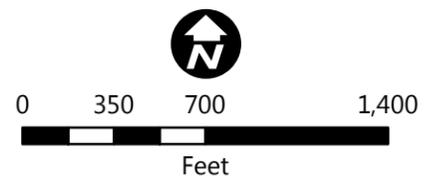
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 WETLAND DELINEATION
 NorthMet Project
 Poly Met Mining Inc.
 Hoyt Lakes, MN



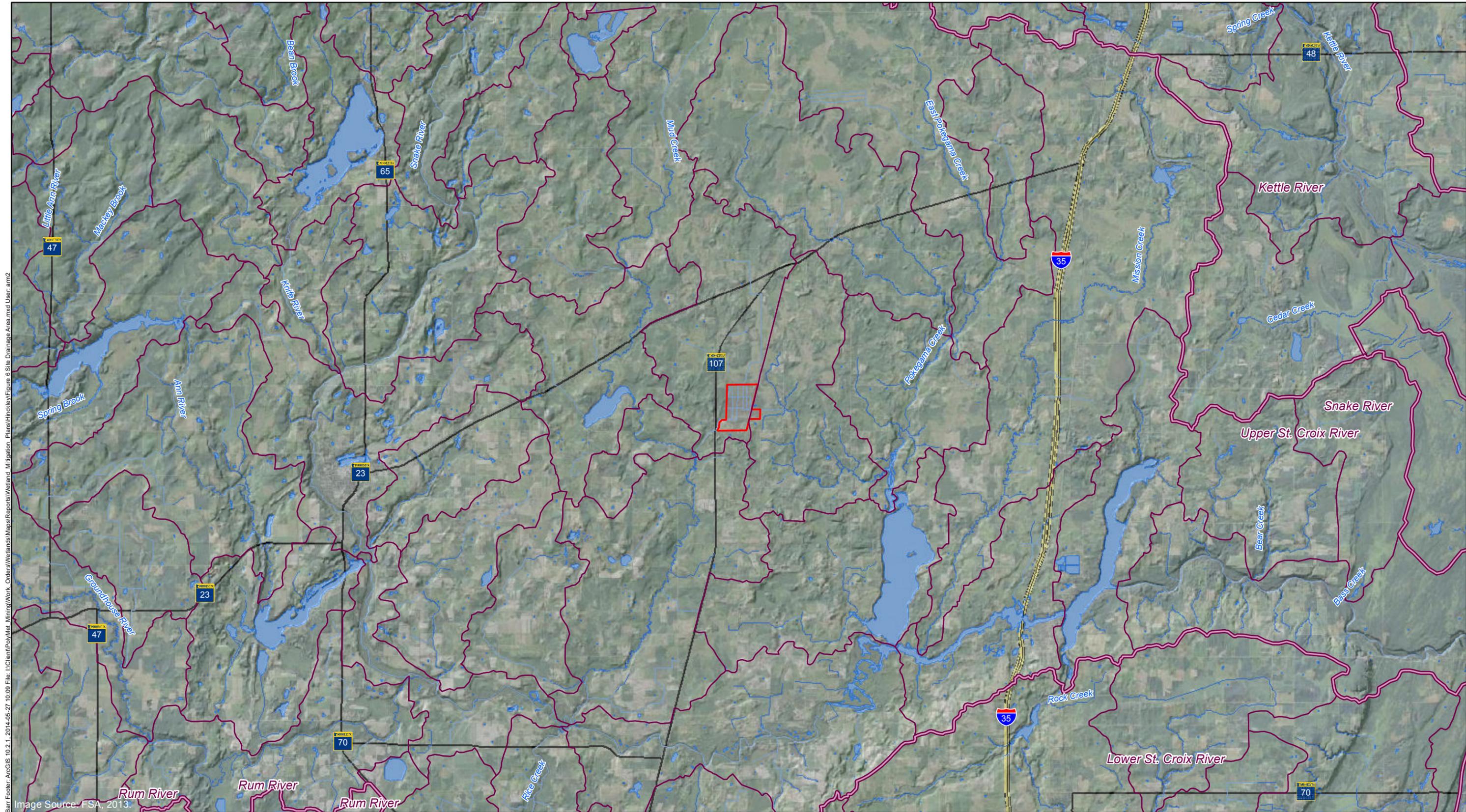
Barr Footer: ArcGIS 10.2.1, 2014-05-27 10:09 File: I:\Client\Polymet\Mining\Work_Orders\Wetlands\Map\Reports\Wetland_Mitigation_Plans\Hinckley\Figure 5 National Wetlands Inventory.mxd User: arm2

Image Source: FSA, 2013.

- National Wetlands Inventory (NWI) ▭ Hinckley Mitigation Site
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Riverine

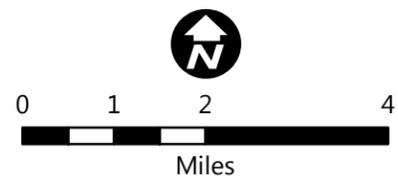


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 Figure 5
 NATIONAL WETLANDS INVENTORY
 NorthMet Project
 Poly Met Mining Inc.
 Hoyt Lakes, MN



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 Image Source: FSA, 2013.

- Hinckley Mitigation Site
- Watersheds - DNR Level 4
- Watersheds - DNR Level 8
- ~ Flowlines
- ☪ Waterbodies
- Ditches

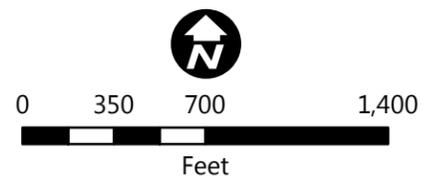


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 Figure 6
 SITE DRAINAGE AREA
 NorthMet Project
 Poly Met Mining Inc.
 Hoyt Lakes, MN

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 Hinckley Mitigation Site

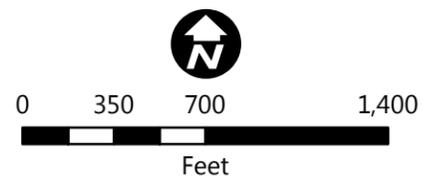


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Figure 7
1939 AERIAL PHOTO
NorthMet Project
Poly Met Mining Inc.
Hoyt Lakes, MN

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 Hinckley Mitigation Site



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Figure 8
1991 AERIAL PHOTO
NorthMet Project
Poly Met Mining Inc.
Hoyt Lakes, MN

Appendix A

Permanent Conservation Easement Example

(Above Space is Reserved for Recording Information)

**PERPETUAL CONSERVATION EASEMENT
FOR WETLAND BANK**

Grantor:

Location: within Section 5, Township 39 North, Range 22 West, County of Pine

This Perpetual Conservation Easement for Wetland Replacement (“Easement”) is made on (date) by the undersigned, hereinafter referred to collectively as the “Grantor”:

RECITALS

A. This Easement is made pursuant to and in furtherance of the Wetland Conservation Act of 1991, as amended, Minn. Stat. §103G.222, *et. seq.* (“WCA”) and the rules implementing WCA, Minn. R. ch. 8420 (“WCA Rules”).

B. This Easement pertains to all or part of the real property in Pine County, Minnesota, which is legally described on *Exhibit A* attached hereto and made a part hereof (“Real Property”).

C. The Real Property is the subject of a wetland bank plan pursuant to Minn. R.8420.0740.

D. The Grantors include all of the following (1) all the fee owners of the Real Property and (2) the applicants under the bank plan if different from the fee owners. The term “Grantor” includes all of the Grantors if there is more than one. The Grantors are jointly and severally responsible for complying with the terms of this instrument. This Easement and the duties and restrictions contained in it shall also run with the land.

E. WCA is administered by the State of Minnesota through its Board of Water and Soil Resources (“State”).

F. The local government unit (“LGU”) charged under WCA with approval of the subject wetland replacement plan (“replacement plan”) is the Minnesota Department of Natural Resources – Division of Lands and Minerals. The subject wetland mitigation plan includes all fully executed forms provided by the State, all supporting maps, engineering plans, drawings, monitoring plan, vegetation establishment plan and management plan and facilities maintenance plan. A complete copy of the replacement plan is on file at the LGU. The address of the LGU is 1525 Third Avenue East, Hibbing, MN 55746. The State is responsible for the acceptance of this Easement.

G. The replacement plan requires the restoration or creation of a wetland on the portion of the Real Property designated in Exhibit B attached hereto and made a part hereof (“Replacement Area”). The replacement plan may also require the establishment of upland buffer within the Replacement Area. This Easement pertains to both wetlands and specified uplands within the Replacement Area.

H. The Replacement Area is subject to the WCA, WCA Rules and all other provisions of law that apply to wetlands, except that the exemptions in Minn. Stat. §103G.2241 and Minn. R. 8420.0122 do not apply to the Replacement Area, pursuant to Minn. Stat. §103G.222, subd. 1(h) and Minn. R. 8420.0115.

I. All references in this Easement to Minnesota Statutes and to Minnesota Rules are to the statutes and rules currently in effect and as amended or renumbered in the future.

J. The purposes of this Easement are to maintain and improve the ecological values of the Replacement Area through the means identified in the replacement plan and to preserve the Replacement Area in a natural condition in perpetuity.

IN ADDITION, THE GRANTORS, FOR THEMSELVES, THEIR HEIRS, SUCCESSORS AND ASSIGNS COVENANT THAT THEY:

1. Shall establish and maintain wetlands and upland buffers within the Replacement Area as specified in the replacement plan approved by the LGU and on file at the offices of the LGU. The wetland and any specified upland buffer area shall be the size and type specified in the replacement plan. Grantor shall not make any use of the Replacement Area that would adversely affect any of the functions or values of the area. Those functions and values are identified in Minn. R. 8420.0540, subp. 10, or specified in the approved replacement plan.

2. Shall pay the costs of establishment, maintenance, repairs and reconstruction of the wetlands and specified upland buffers within the Replacement Area, which the LGU or the State may deem necessary to comply with the specifications for the Replacement Area in the approved replacement plan. The Grantor’s obligations under this paragraph include the payment of any lawful taxes or assessments on the Real Property.

3. Shall establish and maintain visible monuments such as signs, numbered fence posts or survey posts at prominent locations along the boundary of the Replacement Area in accordance with the approved replacement plan. If numbered fence posts are used, Grantor’s Replacement Plan must contain a survey or scaled drawing of the property that corresponds to the fence post numbering. Posts

must be at least 4 feet high and notably visible on the landscape. If signs are used, such signs must be have a surface area of at least one quarter (1/4) square feet, mounted on a fence post at least 4 feet above ground, and minimally contain the words "Boundary of Wetland Replacement Area - Subject to Perpetual Conservation Easement Restrictions – Contact MN Board of Water and Soil Resources or Local Soil and Water Conservation District for Further Information." Said monuments must be made of non-degradable material and shall be at least four feet in height.

4. Grants to the LGU, the State, and the agents and employees of the LGU and the State, reasonable access to the Replacement Area for inspection, monitoring and enforcement purposes. The LGU, the State, and the agents and employees of the State are hereby granted a perpetual ingress and egress easement ("Access Easement") for access to and from the Replacement Area. The Access Easement shall be over and across the area ("Access Area") that is specified on Exhibit A attached hereto and made a part hereof or, if not specified on Exhibit A, the most reasonably direct and convenient route between the Replacement Area and a public road. If all or any part of the Access Area is owned by a person or entity other than Grantor, then the owner has joined in this Easement for purposes of granting the Access Easement by signing below. The signed written consent and subordination of all other holders of interests in the Access Area has been or will be obtained by Grantor and recorded in the same manner as specified in paragraph 5 below. This Easement grants no access to or entry to the Real Property, the Replacement Area, or the Access Area to the general public.

5. Represents that Grantor is (a) the fee owner of the Real Property and (b) the applicant under the replacement plan, if different from the fee owner. Grantor represents that all other parties who may have an interest in the Real Property (e.g., mortgagees, contract for deed vendees, holders of easements, etc.) have consented and subordinated their interests to this Easement by signing below. If it is determined at any time that there is any other party who may have an interest in the Real Property that is prior to this Easement, then Grantor shall immediately obtain and record a consent and subordination agreement signed by such other party. Acceptance of this Easement does not release Grantor from the obligation to obtain and record a consent and subordination agreement signed by any party who may have an interest in the Real Property that is prior to this Easement, even if such interest was of record at the time of acceptance.

6. Will record this easement at Grantor's expense in the real property records of the county where the Real Property is located. Said recording shall take place within 30 days of the State's acceptance of this Easement. The Grantor shall provide the original copy of the recorded easement to the State prior to making any credits from this replacement area available for use.

7. Acknowledge that this Easement shall be unlimited in duration, without being re-recorded. This Easement shall be deemed to be a perpetual conservation easement pursuant to Minn. Stat. ch. 84C.

8. Acknowledge that, unless expressly authorized in writing by the LGU in the approved replacement plan, Grantor:

- (a) Shall not produce agricultural crops on the Replacement Area, except that this provision does not restrict the harvest of the seeds of native vegetation if only the seed-head is

removed in the process of harvest and does not involve the use of vehicular, motorized equipment;

- (b) Shall not cut hay, mow vegetation or cut timber on the Replacement Area except as allowed or prescribed in the Replacement Plan;
- (c) Shall not make any vegetative alterations on the Replacement Area that do not enhance or would degrade the ecological functions and values of the Replacement Area. Vegetative alterations shall be limited to those listed in the approved replacement plan;
- (d) Shall not graze livestock on the Replacement Area;
- (e) Shall not place any materials, substances or other objects, nor erect or construct any type of structure, temporary or permanent, on the Replacement Area.
- (f) Shall not allow vehicular traffic on the Replacement Area except for the purpose of implementing construction or maintenance activities specifically authorized in the replacement plan.
- (g) Shall not alter the topography of the Replacement Area by any means including plowing, dredging, filling, mining or drilling except for the purpose of implementing construction or maintenance activities specifically authorized in the replacement plan.
- (h) Shall not modify the hydrology of the Replacement Area in any way or by any means including pumping, draining, ditching, diking, impounding or diverting surface or ground water into or out of the Replacement Area except for the purpose of implementing construction or maintenance activities specifically authorized in the replacement plan.
- (i) Shall regularly inspect and maintain structures specified in the Replacement Plan in good working condition to sustain the goals in the approved Replacement Plan.

9. Acknowledge that the Grantor is responsible, at Grantor's cost, for weed control by complying with noxious weed control laws and emergency control of pests necessary to protect the public health on the Replacement Area.

10. Acknowledge that this Easement may be modified only by the joint written approval of the LGU and the State. If the Replacement Area has been used to mitigate wetland losses under the Federal Water Pollution Control Act, the U.S. Army Corps of Engineers (or successor agency) must also agree to the modification in writing.

11. Acknowledge that this Easement may be enforced, at law or in equity, by the LGU or the State. The LGU and the State shall be entitled to recover an award of reasonable attorney's fees from Grantor in any action to enforce this Easement. The right to enforce the terms of this Easement is not waived or forfeited by any forbearance or failure to act on the part of the State or LGU. If the subject Replacement Area is to be used partially or wholly to fulfill permit requirements under the Federal Water Pollution Control Act or a federal farm program, then the provisions of this Easement

that run to the State or the LGU may also be enforced by the United States of America in a court of competent jurisdiction.

12. Acknowledge that this Easement is not valid until the Easement has been accepted by the State, the Grantor has recorded this Easement and the State has received evidence of such recording.

EXHIBIT A
Legal Description of Real Property

EXHIBIT B
Map or Survey of Bank Area