

10.0 SUBSTATION ENVIRONMENTAL EVALUATION

This chapter describes the existing conditions of the natural and built environments, the potential effects to these environments and recommended mitigation for the proposed Project substations. The Environmental Setting section of this chapter discusses the existing environmental conditions within the Substation *Study Area*, as depicted on Map 2-2. The discussion of specific issues, such as Section 10-2 Human Settlement, describes the potential direct/indirect effects and mitigation for each *substation*, as depicted on Map 2-2.

10.1 Description of Environmental Setting

Both of the proposed substations are located in the Nashwauk Uplands subsection of the Superior Uplands section of the Laurentian Mixed Forest Province. This area is characterized by end moraines, rolling till plains and flat outwash plains that are associated with the Rainy Lobe glacier. Lakes, small bogs, and potholes are common features within the Nashwauk Uplands Ecological Subregion. This area typically receives about 24 to 27 inches of annual precipitation.

Pre-settlement vegetation in upland areas where the substations are proposed generally consisted of mixed hardwood and coniferous forests. Today, the dominant vegetation is quaking aspen (DNR ECS, 2008).

The location for the proposed Mine Substation is identified in GAP coverage as upland shrub and appears from 2008 high resolution aerial photography to be dominated by very young aspen and pine growing over mine stockpiles. South and east of the Mine Substation, disturbed grassland and mine associated stockpiles, tailing basins and ore pits are common. West and north of this lie extensive stands of maple/basswood forest (GAP, 1990s). Bare soil and grasslands created by forest clearing in the surrounding landscape are common.

The location for the proposed Steel Plant Substation is identified in GAP data as a mix of upland shrub and upland aspen/birch forest. The proposed substation would be located in an area at the edge of past and present mining operations that roughly parallels the mines of the Iron Range.

10.2 Human Settlement

It is not expected that substation construction would affect any of the following Human Settlement subcategories as described in Section 6.2.1. The following provides a discussion of the land use resources that may be affected.

10.2.1 Land Use

Direct/Indirect Effects

Mine Substation

The nearest home to the proposed Mine Substation is located more than 1.1 miles away to the north between Little Sucker and Big Sucker lakes and across mostly forested lands. The nearest homes to the south are located more than 1.6 miles away, on the other side of the proposed Taconite Plant location near Snowball Lake. No direct effects on human settlements due to the substation construction are expected. Figure 1 displays proposed substation locations. Appendixes A.2 to A.11 contain detailed figures that include the location of homes near these facilities.

Steel Plant Substation

The nearest residence to the proposed Steel Plant Substation is located approximately 0.6 mile from the perimeter fence of the facility on CR 611. The area between this home and the proposed substation is comprised of re-growth dense coniferous and deciduous forest. No direct effects on human settlement due to substation construction are expected.

Mitigation

It is not expected that substation construction would affect any of the following Human Settlement subcategories as described in Section 6.2.1, and no specific mitigation for potential impacts to Human Settlement issues have been identified.

10.2.2 Noise

Audible noise may be generated by substation equipment, with the main source of noise from a substation due to the operation of the transformers. Noise from a transformer is present whenever it is energized and is nearly constant with only a slight variation associated with the operation of the cooling fans or pumps. The transformers added as part of this Project would be within the Essar Mine and the Essar Steel Plant substations that are located on ESM property.

The primary land uses in the area around the substations are forested and industrial. ESM operations would consist of mining and operation of the taconite and steel plants. Because this is not a populated area, noise associated with the operations of the two substations would not be an issue.

Mitigation

The primary land use in the area around the Project's substations is industrial and consists of mining and operation of the taconite and steel plants. Therefore, noise mitigation would not be necessary.

10.3 Land-Based Economics**Introduction**

The Mine and Steel Plant Substations would be constructed on property owned by ESM. The substation sites are currently idle land that is part of the future mining operation. Therefore, this section would not include forestry and tourism since they would not be affected by the Project.

Effects*Mine Substation*

The construction of the Mine Substation would result in the permanent conversion of 1.4 acres of young aspen growth over disturbed ground to the substation footprint. Lands are owned by ESM, and would serve to benefit mining and processing operations. Loss of a total of 1.4 acres of previously disturbed land is not expected to have an effect on land-based economics. Figures 2, 4, and 5 display land-cover and economic resources near proposed substations.

Steel Plant Substation

The construction of the Steel Plant Substation would result in the permanent conversion of approximately 4.5 acres of mixed re-growth forest to the permanent substation footprint. Lands are owned by the mine, and would serve to benefit mining and processing operations. Loss of a total of 4.5 acres of previously disturbed land is not expected to have an effect on land-based economics.

Mitigation

Loss of a total of six acres of previously disturbed land is not expected to have an effect on land-based economics and no mitigation is proposed.

10.4 Archaeological and Historic Resources***Introduction***

See Section 6.4 for a description of archaeological and historic resources.

Direct/Indirect Effects***Mine Substation***

The proposed substation is located on spoil pile and logged areas north and west of large open pit mining areas. Archaeological sites are identified beginning four miles north of the site in forested lands beyond the area of past active mining. No effects to archaeological resources due to substation construction are expected.

Identified historic resources are concentrated in the nearby cities of Calumet, Marble, and Nashwauk with the nearest historic site being the Hill Annex Mine located 1.8 miles from the proposed substation.

There are no historic resources known to exist in the Mine Substation Project area.

Steel Plant Substation

The proposed substation is located north and west of former Butler pit mining areas. The nearest identified archaeological site is located more than four miles northwest of the site in forested lands beyond the area of past active mining. No effects to archaeological resources due to substation construction are expected.

There are no historic resources known to exist in the Steel Plant Substation Project area.

Mitigation

No effects to Historic or Archaeological Resources due to substation construction are expected and no mitigation activities are proposed.

10.5 Natural Environment***Introduction***

This section discusses the general effects of substation construction on the natural environments. Since the effects would be limited to a small area within the overall mining operation, this discusses the impacts to directly effected resources only. Impacts to wetlands and water resources are not anticipated.

Direct/Indirect Effects***Mine Substation***

The landscape of the proposed Mine Substation is comprised of past dumping of mine spoils and logging with regrowth of early succession tree species. The substation would be located adjacent to the taconite plant crusher and concentrator facilities. The substation would be surrounded by access roads on all sides, completely disconnecting this site from remnant natural surroundings. The construction of the substation would result in the permanent lost of 1.4 acres of degraded forest on mine spoils.

Steel Plant Substation

The Steel Plant Substation site would be located at the intersection of the existing CSAH 58 and Hilltop Road in an area surrounded by logged forest, young regrowth forest, shrubland and mine spoils. The construction of the substation would result in the permanent loss of approximately six acres of degraded forest on mine spoils.

Mitigation

Because the locations for the substations have been altered on numerous occasions in the past century, they represent a relatively small footprint within the operational area. They are located within or adjacent to existing and future mining operations; therefore, effects to the natural environment are expected to be minimal and no specific mitigation measures are proposed.

10.6 Rare and Unique Natural Resources

Introduction

See Section 6.6 for a discussion of rare and unique natural resources.

Direct/Indirect Effects

There are no identified threatened or endangered species or plant communities located within the footprint of the proposed Mine or Steel Plant substations. State-listed *Botrychium oneidense* (State Endangered) *Botrychium pallidum* (State Special Concern), *B. simplex* (State Special Concern), *B. minangense* (State Special Concern) and *B. rugulosum* (State Threatened) are known to occur on nearby spoil piles on lands similar in character to the proposed substation locations, and could occur within the footprint areas of either substation. Due to the poor quality of habitat, and the location of the substations in close proximity to a range of mining, mine processing, and roadways, it is not expected that the substation construction would have an adverse effect on habitat fragmentation.

Mitigation

The Applicants would continue to consult with the DNR and the USFWS regarding threatened and endangered species and their potential presence within the entire Project area, including substations.

Impacts to threatened, endangered and sensitive species and communities would be avoided to the extent practicable. In the event that avoiding impacts to threatened or endangered species is not feasible, the Applicants would work closely with the regulatory agencies to identify appropriate measures to minimize impacts, as well as compensatory mitigation for impacts that cannot be avoided