

cropland, the right-of-way will be re-vegetated according to agreements with the landowner or appropriate government agency.

7.0 4415.0140 - LOCATION OF PREFERRED ROUTE AND DESCRIPTION OF ENVIRONMENT

7.1 Subpart 1: Preferred Route Location

The application must identify the preferred route for the proposed pipeline and associated facilities on any of the following documents, which must be submitted with the application:

- A. United States Geological Survey topographical maps to the scale off 1:24,000, if available;
- B. Minnesota Department of Transportation County Maps; and
- C. Aerial photos or other appropriate maps of equal or greater detail in items A and B. The maps; or photos may be reduced for inclusion in the application. One full sized set shall be provided to the MPUC.

All topographic, county highway maps, aerial photographs and other interpretive maps showing the location of the proposed route are provided in Appendix D of this application.

A milepost map is provided as Figure 9, Appendix D identifying significant features along the Nashwauk-Blackberry proposed pipeline route. The general location of the proposed Nashwauk-Blackberry pipeline route is shown in Figure 8, Appendix D as traversing from the GLG 36 inch diameter pipeline south of State Highway 2 near the unincorporated community of Blackberry, Minnesota to the termination point, approximately 13 miles north and 9 miles east, near the City of Nashwauk, Minnesota. The proposed pipeline originates in the northwest $\frac{1}{4}$ of the southwest $\frac{1}{4}$ of Section 10, Township 54 North, Range 24 West, Itasca County (Latitude 47.172070, Longitude -93.383398). The proposed natural gas pipeline will terminate in the northeast $\frac{1}{4}$ of the northeast $\frac{1}{4}$ of Section 36 in Township 57 North Range 23 West, Itasca County (Latitude 47.384504, Longitude -93.196173).

7.2 Subpart 2: Other Route Locations

Figures D4 and D5 show the range of route alternatives considered in the Itasca County Infrastructure process, as well as the 5 major route alternatives. Section 2 of the Environmental

Assessment Supplement (Appendix E) provides a detailed analysis of these alternatives. Section 12 of this application provides a summary of this analysis.

7.2.1 No Build Alternative

The “no build” alternative will involve not constructing the proposed natural gas pipeline and will avoid any impacts identified in this application. This alternative will not satisfy the need to provide the Minnesota Steel Nashwauk Taconite Reduction Plant with the natural gas necessary for the conversion of iron ore to steel. Nashwauk does not believe the proposed MSNTRP is feasible without the construction of the proposed Nashwauk-Blackberry pipeline.

7.3 Subpart 3: Description of Environment

The applicant must provide a description of the existing environment along the preferred route.

The following section is a description of the existing environment along the proposed (preferred) pipeline right-of-way including land use, human settlement, cultural resources, vegetation, wildlife, rare and unique natural resources, endangered species, recreational areas, geology, soils and water resources. Environmental descriptions for the four alternative routes are described in detail in Appendix E

7.3.1 Land Use

The proposed pipeline will be built in a semi-rural area of southeastern Itasca County in northeastern Minnesota. This area of Itasca County is a mix of forested land, mineland, wetlands, pasture and small farms. This area is not considered prime farmland compared to most Minnesota agricultural soils. The proposed pipeline route will cross portions of the Cities of Taconite and Nashwauk. A detailed map of land use and land cover along the proposed route is provided as Figure 3, Appendix D.

According to county zoning information, approximately 42% of the route is farm-residential, 7% is municipal (cities of Taconite and Nashwauk), and 51% is industrial. In general, the south end of the route is predominantly farm-residential, the middle section is municipal and the north end of the route is predominantly industrial land with a small bit of municipal land at the extreme northeast end of the pipeline. Itasca County zoning along the proposed route is shown by the map in Figure 7, Appendix D.

The length of the proposed pipeline route is approximately 23.5 miles. The majority of the route will be located in undeveloped farm-residential and industrial land in an area heavily modified by past iron mining and land reclamation activities. Much of the farm-residential land is in second growth forestry ranging from 10 to 50 or more years in age. The farm residential also has numerous scattered wetlands and small plots of agricultural soils.

The industrial land has been used for mining and mineland reclamation over the last century. This industrial land includes a range of forestry, wetland and agricultural uses. The proposed pipeline will be routed along existing road and utility rights-of-way in an attempt to minimize the number of landowners who will be affected. The project study area shows a substantial area of clustered tailings areas, associated mineland reclamation areas and mine pits. There are many disturbed areas not suitable for agriculture and forestry as shown by the map in Figure 4, Appendix D.

Very few homes or other structures are within 500 feet of the proposed route. The route does pass through the small city of Taconite. There are approximately 200 to 400 parcels of property crossed by the route, depending on whether the route study area is ¼ mile wide or ½ mile wide. Except for public roads, the proposed pipeline passes through private land for most of the route.

7.3.2 Human Settlement and Population Density

Itasca County has a total land area of 1,856,000 acres or 2,900 square miles, of this total about 170,700 acres or 267 square miles is water surface. About 1,331,600 acres of the total is forestland; 121,000 acres is farmland. There are many thousands of acres of mineland, especially near the southeast corner of the county where the project is being proposed. The population of the county was 44,384 in 2005. The county has 14 incorporated cities – Bigfork, Bovey, Coleraine, Deer River, Effie, Grand Rapids, Keewatin, Marble, Nashwauk, Squaw Lake, Taconite, Warba and Zemple. The county is sparsely settled with an overall average population density of 17 persons per square mile. The Highway 169 route from Grand Rapids to Keewatin is the most densely populated part of the county with approximately 14,000 people living in the roughly 50 square miles along the main road. This will be approximately 280 people per square mile in this portion of the county. The largest city and county seat is Grand Rapids with a population of 7,764 in 2004.

7.3.3 Natural Environment

Itasca County is in the northeast to north-central part of Minnesota. The winters are very cold and the summers are short and fairly warm. The short growing season limits crops mainly to hay and cold-tolerant small grains. Almost 90% of the county is forestland, about 5% is cropped. Approximately 2% of the county is iron mining area consisting of ore pits and tailings areas. The area around the proposed pipeline segment between Taconite to Nashwauk has a large percentage of land modified by mining activities.

7.3.4 Cultural Resources - Archaeological and Historical Considerations

Section 106 of the National Historic Preservation Act requires consideration of impacts on historic, archaeological and cultural properties determined eligible for listing on the National Register of Historic Places (NRHP). The Area of Potential Effects (APE) for archaeological resources is defined as all areas of potential effects from aspects of direct, physical impacts through the construction of the gas pipeline and other associated facilities. The potential area of impact due to pipeline construction includes not only the area within the right-of-way but also nearby areas used during project construction. Specifically, the recommended APE for the architectural history resources extends to 0.25 miles from the centerline of proposed pipeline routes along existing or new proposed rights of way, giving a ½ mile wide study area.

The Minnesota Historical Society State Historical Preservation Office (SHPO) was contacted to review the route pursuant to the Minnesota Historic Sites Act and the Minnesota Field Archaeology Act. SHPO file review of the route portion between Taconite and Nashwauk is currently underway.

7.3.5 Archaeological Resource Model and Survey

During June and July 2005, an initial screening-level cultural resources assessment of portions of proposed pipeline route was conducted. The project study area was 4,970 acres for associated pipeline and transmission line routes. Additional screening level assessment is currently underway for this project.

This evaluation consisted of three major steps: a review of SHPO file, the development of a GIS based sensitivity model, and a limited field survey to verify model predictions. Background research was first conducted using the SHPO site files for information on

previously identified archaeological sites and cultural resource surveys within one mile (1.6 kilometer [km]) of the project area.

The criteria for examining undisturbed portions of the following areas included those:

- Within 500 feet (ft.) (150 meters [m]) of an existing or former water source (lake, pond, river, stream).
- Elevated, comparatively well drained areas within, or immediately adjacent to, a marsh or wetland of 10 acres (4.0 hectares) or greater in extent.
- Topographically prominent areas that command a wide view of the surrounding landscape.
- Areas adjacent to a known or suspected portage or transportation route.
- Located within 300 feet (100 m) of a previously reported site.
- Located within 300 feet (100 m) of a former or existing historic structure or feature (such as a building foundation or cellar depression).

Areas of sensitivity were ranked in terms of the frequency in which previously recorded sites occurred. Areas were then categorized in terms of high, moderate and low potential for the location of archaeological sites. Based on this sensitivity model, a limited archaeological survey was conducted covering land identified as high potential or moderate. No archaeological resources were encountered in either the high or the moderate potential areas identified.

SHPO and appropriate federal agencies and tribes will be consulted to address the proposed strategy area prior to any additional testing. Reports outlining the results of the investigation will be forwarded to the SHPO and other appropriate agencies for review and comment. Construction will not commence until appropriate consultation, identification, and treatment of historic, archaeological and cultural resources has occurred.

7.3.6 Parks and Recreational Areas

The Hill-Annex State Park is near portions of the pipeline. Area lakes provide numerous recreational opportunities for area residents. Activities such as swimming, boating, fishing, bird watching and other similar activities are prevalent. Gibbs Park is located on Holman Lake about 2.1 miles from the proposed pipeline. The park includes a fishing pier, swimming beach

and picnic area. The fishing pier is a cooperative project between Iron Range Township and the MDNR. The forested areas in the project area also allows for some recreational activities such as hiking, biking, hunting, bird watching and similar activities.

There are no designated Federal Wildlife Refuges, Waterfowl Production Areas, or National Forests within or immediately adjacent to the proposed pipeline route. No MDNR Wildlife Management Areas (WMAs), Wildlife Refuges, state Scientific and Natural Areas (SNA), designated Game Lakes, or Designated Trout Streams are within or immediately adjacent to such areas.

7.3.7 Ecological Resources: Plants, Animals, And Endangered Species

Nashwauk will be contacting USACE, MDNR, Minnesota Board of Water and Soil Resources (BWSR) and Soil and Water Conservation District (SWCD) to ensure all appropriate permits and ecological review and evaluations are conducted as part of the proposed pipeline project.

This section describes the ecological conditions and biological communities that are present on the proposed pipeline route, including an analysis of flora and fauna and occurrences of habitat for state and federally rare, special concern, threatened, or endangered species. A variety of wildlife species are supported by habitat in the area of the proposed pipeline. This habitat includes agricultural fields, open land, woodlands, reclaimed mineland and wetlands.

7.3.7.1 Flora

The ecological plant communities in the Nashwauk gas pipeline project area are influenced by topography and land uses. Timber harvesting is the primary land use that has impacted much of natural, forested vegetation in the region. Timber harvesting has influenced the composition and dynamics of most of forest cover in the region. Both clear cutting and selective harvesting of timber are applied to defined tracts of land within the pipeline right-of-way resulting in a patchwork like pattern of cleared recently cut areas and stands of forest cover of varying ages and compositions. Land uses are discussed in Section 7.3.1.

Much of the regional flora has been observed through field reconnaissance activities completed for other nearby projects. The common ecological communities observed in the region are classified following the descriptions derived from the *Field Guide to the Native Plant*

Communities of Minnesota: The Laurentian Mixed Forest Province (MNDNR 2003), a vegetation classification system for north central and northeastern Minnesota.

Much of the forested habitats in vicinity of the pipeline right-of-way consist of northern mesic hardwood forest, which is typical on well-drained to moderately well drained loamy soils, most often on stagnation moraines and till plains and less frequently on bedrock hills. The plant community association is dominated with sugar maple (*Acer saccharum*), basswood (*Tilia americana*), and northern red oak (*Quercus rubra*). The presence of paper birch (*Betula papyrifera*) and red maple (*Acer rubra*), and occasionally yellow birch (*Betula allegheniensis*) and quaking aspen (*Populus tremuloides*) are also observed.

Other common forested habitats in the vicinity of the pipeline are northern wet-mesic boreal hardwood-conifer forest. This hardwood forest is most commonly observed on level, clayey sites with high local water tables on glacial lake deposits, stagnation moraines, and till plains. The plant community association is variable, with canopy species generally dominated by quaking aspen, paper birch, and balsam fir (*Abies balsamea*). Other less frequent associates are red maple, white spruce (*Picea alba*), or black ash (*Fraxinus nigra*).

Very commonly found throughout the region, and certainly with the vicinity of the pipeline right-of-way are areas of second growth aspen forest, which are near even-age stands emerging after logging activities. This community has a tree canopy dominated with quaking aspen and balsam poplar (*Populus balsamifera*).

In areas where the proposed pipeline follows existing, linear, maintained rights-of-way the vegetation is dominated with herbaceous species and occasional shrubs. Wetland habitats are also commonly found through out the existing right-of-way, but are generally vegetated with herbaceous species and few shrubs due to maintenance activities keeping shrubs and trees from overgrowing the right-of-way. Uplands in the right-of-way are generally dominated with old field grasses and forbs.

7.3.7.2 Fauna

Fauna (animals) within the vicinity of the pipeline right-of-way are typical to northern. The following discussion describes the wildlife habitats as related to the wetland and upland

vegetative communities within the region, and faunal assemblages that are expected to occur within these habitats.

The fauna utilizing habitats found within the northern mesic hardwood forest are common to second growth mixed forests. Avifauna (birds) diversity is highest within this community compared to other habitats. This includes nesting and foraging habitats for songbirds and raptors. The northern mesic hardwood forest also provides suitable habitats for reptiles, primarily nesting habitats for turtles when aquatic habitats are in close proximity, and for the two species of snake found in northern Minnesota. The list of potential mammals that utilize this northern mesic hardwood forest includes predators and large ungulates such as moose and deer that are common to northern Minnesota. Beaver also utilize this community for forage.

As a wildlife habitat, the northern wet-mesic boreal hardwood-conifer forest provides similar habitat components as the northern mesic hardwood forest community. The well defined shrub layer and older tree canopy increases the habitat structure and complexity of the regional flora, and likely that area within the proposed right-of-way.

Faunal biodiversity within the second-growth aspen forest vegetative community is expected to be lower than forest habitats described above due to the lack of habitat complexity and structure, and tree diversity. This may be especially applicable to the younger stands of aspen. In contrast, these aspen communities also provide habitat for species that may not be found in other habitats and/or have habitat preferences that are exclusive to aspen forests. The presence of the aspen communities within the region likely increases the overall habitat complexity within the proposed project area. Quaking aspens are often considered keystone species for which many other species are dependent on. Aspens are an important part of the north woods food web for many levels of fauna ranging from microscopic insects, to beaver and moose. Aspen stands are likely perpetuated through clear cutting activities as many stands of aspens are even aged and shaped like clear cut parcels.

Wetland habitats for fauna are relatively diverse and common throughout the proposed pipeline right-of-way. The Type 8 bog habitat is the most unique and is potential habitat for rare species of fauna, primarily birds, insects and small mammals. All other types of wetlands (Types 1-7) that are not hydrologically connected to lakes are the most important for amphibians. These

wetlands provide optimum amphibian breeding habitats due to a lack of fish (predators) populations.

Scrub-shrub and forested wetlands provide nesting and foraging habitat for songbirds and raptors. The forested bog wetlands also provide habitat for insect fauna that are exclusive to bog habitats. Open shallow and deep water marsh wetlands and the lake shore fringes provide foraging habitats for wading birds, rails, and waterfowl. Fish habitats are typically restricted to lakes in the region, but the pipeline right-of-way does not specifically cross any lakes in the area.

7.3.7.3 Rare and Unique Natural Resources

The following discussions regarding threatened, endangered, and other rare species are separated based on federal and state protection and regulatory authority.

Federal Protected Species

The entire pipeline ROW has potential habitat for or is within the range of three federally-listed species, bald eagle (*Haliaeetus leucocephalus* – federal status, de-listed threatened), gray wolf (*Canis lupus* – federal status, threatened); and Canada lynx (*Lynx canadensis* – federal status, threatened).

The federal Endangered Species Act is regulated by the U.S. Fish & Wildlife Service (USFWS) and entire pipeline project area is within USFWS Region 3. The Region 3 list of federally protected species describes Itasca County, Minnesota as occurring within the breeding range of bald eagle, within primary range of the gray wolf, and within range of the Canada lynx. There are no federally protected plant species identified by the USFWS within the pipeline right-of-way project area.

The USFWS should be contacted by the Minnesota Department of Commerce, as the lead agency reviewing this permit, to request if there is a need for Endangered Species Act Section 7 Formal Consultation, and for general guidance to ensure compliance with the federal Endangered Species Act related to the proposed project activities.

Minnesota Protected Species

The MNDNR Natural Heritage Information System (NHIS) database contains documented occurrences of non-status (tracked), special concern, threatened, and endangered species; sensitive ecological and natural resources; and, results of the Minnesota County Biological Survey (MCBS). This data request was made June 8, 2007.

State-listed threatened or endangered species are protected under the Minnesota Endangered Species Statute (Minnesota Statutes, Section 84.0895). The MNDNR was contacted to request a review of the NHIS for occurrences within the Nashwauk, Taconite, and Bovey regions relative to the proposed pipeline right-of-way. At the request of the MNDNR, the specific locations of these occurrences are not provided in this permit application to protect the integrity of these rare or protected species.

7.3.7.4 Minnesota Endangered Species Act

The MDNR Natural Heritage Information System (NHIS) database contains documented occurrences of non-status (tracked), special concern, threatened, and endangered species; sensitive ecological and natural resources; and results of the Minnesota County Biological Survey (MCBS). State-listed threatened or endangered species are protected under the Minnesota Endangered Species Statute (Minn. Stat. § 84.0895). The MDNR was contacted to request a review of the NHIS for occurrences within the proposed pipeline routes, which includes the Nashwauk, Taconite, and Bovey areas. There are 17 occurrences of state-listed rare or protected species identified by the MDNR NHIS within the Nashwauk, Taconite, and Bovey areas. Of these occurrences, only three species are within a one-mile radius of the proposed pipeline route. Nashwauk will work with the MDNR to ensure that appropriate steps are taken to protect any endangered species at risk in the proposed pipeline route.

7.3.7.5 Geology

The project area has very complex geology. The area has been thoroughly studied and characterized due to the extensive mining activities near the proposed project. The extent of disturbed mineland is shown in Figure 4, Appendix D. The bedrock geology has little impact on shallow pipeline installation.

The Nashwauk-Blackberry pipeline route is located within the Superior Upland Section of the Laurentian Upland of the Canadian Shield physiographic province (Leonards, 1962). The physical landscape of the region is typified by forests, lakes and bogs in glacial till over

somewhat shallow bedrock. The landscape has been greatly affected by the glaciers that covered the land, the last of which left the area about 12,000 years ago. The maximum elevation along the proposed pipeline route is approximately 1,400 feet above mean sea level (MSL) near Nashwauk. The minimum elevation along the route is in Blackberry Township with an elevation of approximately 1,300 feet above MSL. General site topography is shown in Figure 2, Appendix D.

The proposed pipeline route is in an area that generally consists of low glacial moraines and till plains. The till is typically 25 feet thick or less along the proposed pipeline route. Bedrock outcrops also exist in the area. Much of the till has been stripped and removed along the Iron Range as part of past mining operations. The elevation of the till plains to the north and south of the site are at about elevation 1,330 feet MSL. Physically, the local landscape is dotted with 300-to-400-foot deep mine pits, large mine-pit overburden spoil piles, and tailing basins, all of which are associated with former iron ore mining activity. The extent of the mining disturbance near the proposed pipeline route is shown in Figure 4, Appendix D.

The surface geology in the route area consists of glacial outwash deposits, floodplain alluvium, and organic deposits. The glacial units originated from the three following sources (from earliest to latest): (1) Pre-late Wisconsinan deposits; (2) Superior Lobe deposits; and (3) Des Moines Lobe deposits. These glacial units include calcareous and noncalcareous components that make up glacial outwash sand, gravel, drift, and till. Some units contain modern and historic stream deposits that have been deposited onto floodplains during flood stage. Some of the deposits are re-deposited components of previously placed glacial deposits, creating ambiguous unit transitions in some areas. The organic deposits contain peat organic-rich silt and clay, and include small bodies of open water. Bedrock also either outcrops, or is present within 5 feet of the surface, at some points along the route.

7.3.7.6 Soils

The native soils in the area are a complex mixture of mineral soils, mostly Boralfs such as Nashwauk fine sandy loam and Warba fine sandy loam on the upland areas. The mineral soils are mainly light-colored, sandy, glacially deposited and formed under forest vegetation. A mix of fibric, hemic and sapric organic soils such as Cathro muck, Greenwood peat, Blackhoof muck and Mooselake mucky peat dominate the lower wet areas. About one quarter of the entire county consists of peats or organic soils. The project study area contains many clustered mine

pits, tailings disposal areas and associated mineland reclamation parcels. Specific soils information for the proposed route in Itasca County was obtained from the Natural Resource Conservation Service (NRCS).

7.3.8 Water Resources and Water Quality

7.3.8.1 Streams

The proposed pipeline project crosses Swan River twice, a small stream tributary to the Swan River and an intermittent stream connecting Big and Little Diamond Lakes, according to the USGS topographic maps. Swan River is a protected water. Neither of the other crossings is listed as protected waters by the MDNR. The three pipeline crossings, which have not been ground-checked, include: an unnamed intermittent stream connecting Little Sucker Lake and Big Sucker Lake and two crossings of an unnamed intermittent stream draining into Little McCarthy Lake. These seven (7) stream crossings have been identified along the route of the proposed pipeline for an estimated total of 1,713 linear feet. The proposed method of crossing will be directional drilling such that there are negligible impacts to the streams. All appropriate MDNR permits will be secured prior to crossing streams. MDNR officials have indicated a preference that stream crossings in the area should be directionally drilled whenever possible. The method of crossing these streams during construction will minimize or avoid impacts to the bed and banks and is discussed in greater detail in the environmental impact section that follows this description narrative portion.

7.3.8.2 Groundwater

The proposed pipeline is planned in an area that is primarily end moraine with rolling and hilly topography with numerous lakes and potholes. Groundwater is found locally in saturated glacial drift, outwash deposits, buried glacial aquifers and Precambrian sedimentary bedrock. Sand and gravel aquifers occur between till and ice contact features of the end moraine. Most aquifers are artesian and some are water table. Aquifers range in thickness from 2 to 50 feet across the pipeline route study area.

7.3.8.3 Watershed

The proposed route is located within the Mississippi Headwaters portion of Upper Mississippi River Basin. The Upper Mississippi River Basin originates at the Headwaters in Itasca State Park (Itasca County) and ends where the Mississippi River combines with the St. Croix River near Hastings. As the river runs its course, it drains a mixture of forests, prairie, agriculture and

urban land areas. The Upper Mississippi River Basin covers approximately 20,100 square miles and drains 15 of the 80 major watersheds in Minnesota.

7.3.8.4 Wetlands

Wetlands in the project area are regulated by several agencies including the USACE and EPA at the federal level, and the Minnesota Board of Water and Soil Resources (BWSR) and the Minnesota Department of Natural Resources (MDNR) at the state level. At the federal level, Section 404 and Section 401 of the Clean Water Act provide regulation of wetlands that are hydrologically connected to U.S. Navigable Waters. The Minnesota Wetland Conservation Act (WCA) regulates wetlands at the state level (Minn. R. ch. 8420). Itasca County Soil and Water Conservation District has accepted responsibility for administering the WCA in the project area. Other state wetland regulations include designated Protected Waters and Protected Waters Wetlands regulated by the MDNR (Minn. R. 6115.0010–6115.0810). The Ordinary High Water Level (OHWL), as established by the MDNR, of Protected Waters Wetlands defines the upper extent of jurisdiction by the MDNR on these protected habitats.

In Minnesota and for the project, wetland impacts may require permits or approvals from as many as three agencies, the USACE (and the EPA through the USACE), the designated WCA Local Government Unit (LGU) under the oversight of BWSR, and the MDNR. In contrast, impacts to wetlands that are hydrologically isolated from U.S. Navigable Waters and are not MDNR Protected Waters Wetlands may only require WCA approval. However, formal jurisdiction of these wetlands is determined by each respective agency.

Wetlands are classified following the *Classification of Deepwater Habitats of the United States* (Cowardin et al., 1979) and USFWS Circular 39 publication *Wetlands of the United States* (Shaw and Fredine, 1956). Both systems were used to classify the wetlands along the proposed pipeline route. There are eight recognized wetland types in Minnesota that are defined by Circular 39.

There are a total of seven river or stream crossings associated with proposed pipeline route. Each of these river crossings has associated wetland areas. Two of these crossings are over the Swan River. The other crossings are over a tributary of the Swan River (perennial) and a perennial stream between Big and Little Diamond Lakes. The perennial stream between Big and Little Diamond Lakes was the only water crossing in this alternative that was field

surveyed during the 2005 field season due to access limitations. The Swan River is the only water body identified as a protected water by the MDNR PWI, and therefore will require a license to cross this water body for the proposed pipeline. Additional field delineation will be required in spring 2008 to determine the amount of additional wetland impact from the route extension between Taconite and Nashwauk.

Wetland habitats associated with the water crossings for the proposed pipeline route are based on NWI classification and mapping. In areas where 2005 field surveys were conducted, the classification given is based on observations made during the field surveys. The wetland habitat for the two Swan River crossings is mapped by NWI as Type 1 (PFO1A) seasonally flooded and Type 6 (PSS/EM5C) scrub-shrub habitats. The wetland habitat at the tributary to the Swan River is mapped by NWI as Type 2 (PEM5Bd) wet meadow habitat. The perennial stream between Big and Little Diamond Lake was mapped during the 2005 field surveys and included Type 3 (PEMC) shallow marsh habitat. Total length of water crossings for these four crossings is estimated at 133 linear feet.

The three additional crossings added to the extended route have not yet been field evaluated for wetland type and length. Nashwauk will be conducting additional wetland delineation in accordance with applicable state and Federal guidelines during spring 2008.

7.3.8.5 Surface Waters Near The Proposed Pipeline Route

The proposed pipeline route lies within the northernmost region of the Upper Mississippi River Basin (UMRB) Watershed. The major surface waters near the Site are listed in Table 1.

Table 1
Surface Water Bodies Near The Proposed Pipeline Route

Surface Water	Watershed
Big Diamond Lake	Swan River
Canisteo Mine Pit (CMP)	Swan River
Dunning Lake	Swan River
Greenway Mine Pit	Prairie River
Hill-Annex Mine Pit	Swan River
Holman Lake (Hill Lake)	Swan River
Lind Mine Pit	Prairie River
Little Diamond Lake	Swan River
Lower Panasa Lake	Swan River
Mississippi River	Mississippi River
Oxhide Creek	Swan River
Little McCarthy Lake	Prairie River
Little Sucker Lake	Prairie River
Big Sucker Lake	Prairie River

The Prairie River Watershed includes the northern and eastern portions of the project site. The Canisteo Mine Pit (CMP) Watershed is isolated from the other watersheds as the CMP does not have an outlet. The remaining surface water bodies listed in Table 1 are all within the Swan River Watershed. The Prairie River and the Swan River both drain to the Mississippi River.

The area of the proposed pipeline route contains many small wet surface depressions, wetlands, and several intermittent unnamed streams. The proposed pipeline will be constructed in an area that is along an existing drainage divide. The northern portion of the proposed pipeline lies in the Sucker Brook watershed that drains into the Prairie River. The southern portion lies in a sub-watershed that drains into the CMP. Potential impacts to these water-bodies from storm water discharges from the project during construction and operation will be minimized by appropriate storm water best management practices (BMP).

8.0 4415.0145 - ENVIRONMENTAL IMPACT OF PREFERRED ROUTE

The applicant must also submit to the MPUC along with the application an analysis of the potential human and environmental impacts that may be expected from pipeline right-of-way preparation and construction practices and operation and maintenance procedures. The impacts include but are not limited to the impacts for which criteria are specified in part 4415.0040 or 4415.0100.

In accordance with the requirements of Minnesota Rules 4415.0145 and 4415.0040, this section presents an analysis of the potential for human and environmental impacts from the Project. The proposed pipeline route requires approximately 23.5 miles of 24-inch diameter steel pipe to transport natural gas be installed in Itasca County.

8.1 Human Settlement

The overall human and environmental impact from this project is not likely to be significant, as long as all appropriate and specified mitigation measures for ROW preparation, construction and pipeline operation and maintenance are followed. The following sections provide more detailed analyses of the various factors considered in reaching this conclusion. Specific analyses of the impacts are identified in the following sections.

Economic benefits to the local economy will be realized during construction because of the project labor workforce. These benefits will include expenditures for materials, workforce lodging, fuel sales, grocery sales and restaurant expenditures. Additional local benefits will include easement payments, permit fees and property tax revenues.

The proposed project may result in short-term impacts to the human environment during pipeline construction activities. Impacts to existing roads within the project area will be short-term and minimal. Nashwauk will construct the pipeline across paved roads and railroads using boring or directional drill methods in order to avoid impacts to road surfaces or railroads and to minimize traffic interruptions. Unpaved roads may be crossed by boring, or open-cut construction methods. In the event that an unpaved road is open-cut, Nashwauk will minimize traffic disruptions by maintaining one open lane of traffic except when the pipeline is being trenched and backfilled. Nashwauk will obtain all necessary permits for ROW crossings. Transportation of equipment and materials to the ROW could also result in short-term impacts to traffic in the area, but these are expected to be minimal.

During construction, there will be short-term noise impacts from excavating and clearing equipment as construction progresses along the right-of-way. The proposed pipeline will include a compression facilities so there may be minimal exhaust or other noise that can be associated with compressor stations. Any noise generating will meet all appropriate MPCA noise area classification standards. Air emission will comply with MPCA air emission

standards. Once installed and functioning, the pipeline will not generate significant noise under normal operations.

8.2 Cultural Resources

Nashwauk has completed preliminary research regarding cultural resources that could potentially be impacted by the project. Further office research is being conducted. Field investigations were not undertaken Spring 2007 due to delays in permit submission and processing. The results of this research will determine the extent of historical, cultural and archeological investigation undertaken in Spring 2008. The next step will involve detailed discussions regarding cultural resource survey methodologies with the Army Corps archaeologist and MNSHPO. The purpose of these discussions will be to develop a cultural resource field survey plan based on the preliminary research that has been completed by Nashwauk. Nashwauk will work with the Army Corps and MNSHPO to determine which areas along the proposed route will be considered high, medium or low potential for cultural resource sites. Nashwauk, in conjunction with the Army Corps and MNSHPO, will then use this information to develop a specific strategy for the cultural resource field investigations and survey report.

8.3 Prime Farmland

The Federal Farmland Protection and Policy Act of 1981 and the Minnesota Agricultural Land Preservation and Conservation Policy Act (M.S. 17.80-17.84) have been enacted to ensure that impacts to agricultural lands and operations are integrated into the NEPA process, and the impacts upon agricultural land are minimized to a reasonable extent. Because the supply of high quality farmlands is limited, the U.S. Department of Agriculture (USDA) encourages management and wise use of our nation's prime farmland. For the Nashwauk PUC gas pipeline project, the preferred gas pipeline alternative and the four alternative alignments were evaluated to identify any soils classified by the Natural Resources Conservation Service (NRCS) as being Prime or Statewide Important Farmland.

Prime farmland, as defined by the USDA, is land that is best suited for food, feed, forage, fiber, and oilseed crops (USDA, 1987). It may exist as cultivated land, pasture, woodland, or other land that is not urban, built up land, or a water area. The soil qualities, growing season, and moisture supply are those needed for a well managed soil to produce a sustained high yield of crops in an economic manner. Prime farmland produces the highest yields with minimal inputs

of energy and economic resources, and farming it results in the least damage to the environment. It has an adequate and dependable supply of moisture from precipitation or irrigation. The temperature, growing season, and acidity of the soil are all favorable. Prime farmland is not excessively erodible, is not saturated with water for long periods, and is not frequently flooded during the growing season. The slope ranges from 0 to 6 percent.

In some areas, land that does not meet prime farmland criteria is designated as “farmland of statewide importance.” These lands do not meet the criteria for prime farmland, however, under favorable conditions the yield of food, feed, fiber, forage, and oilseed crops may be as high as the yield of prime farmland. The criteria for designating farmland of statewide importance are determined by appropriate state agencies (NRCS, 2006).

For the proposed pipeline and four additional pipeline alternatives, soils that are within the right of way and have been designated as prime or statewide important farmland in Itasca County, Minnesota are shown in Figure 6. Some soils have a seasonally high water table, but qualify for prime farmland where they have been drained. Soils fitting these characteristics are noted as prime farmland “if drained” in Figure 6.

The U.S. Department of Agriculture tracks conversions of prime or statewide important soils to other uses through their Natural Resources Conservation Service (NRCS). Impacts or direct conversions of prime or statewide important farmland will require completion of a Farmland Conversion Impact Rating (Form AD-1006) to be completed by the NRCS in Itasca County, Minnesota through their review of the Environmental Impact Statement prepared for this project during the NEPA review process.

Impacts to prime farmland, farmland of statewide importance, and prime farmland if drained within the proposed pipeline right of way are described herein. These impacts are assessed where the proposed route would cross the soil consociations with the special farmland designations described above.

The proposed pipeline requires a temporary right of way to be impacted only during construction. After construction is complete, this area will be restored to pre-construction conditions. Permanent impacts to prime farmland and farmlands of statewide importance will be limited to those areas of the permanent right of way. However, at this time the exact location of the permanent right of way has not been established, therefore prime farmland impacts are

based on linear feet crossed by the pipeline. For the preferred route, a total of 70,710 linear feet (approximately 13.4 miles) of pipeline will cross prime farmland, 15,291 linear feet (approximately 2.9 miles) will cross prime farmland if drained, and 2,106 linear feet (approximately 0.4 miles) of pipeline will cross farmland of statewide importance, all of which are summarized in Table 2. Soil consociations with these special farmland designations are found within approximately 70 percent of the linear length of the preferred route.

**Table 2
Prime and Statewide Important Farmland –Preferred Route Pipeline ROW**

NRCS Soil Designation	Linear Feet (lf)	Approximate Miles
Prime Farmland	70,710 lf	13.4 miles
Prime Farmland, if drained	2,106 lf	0.4 miles
Farmland of Statewide Importance	15,291 lf	2.9 miles
Subtotal	88,107 lf	16.7 miles
Total Route Length	125,044 lf	23.7 miles
Percent of Soils in Route Designated as Prime Farmland, Statewide Important, or Prime Farmland if drained	70%	

Where pipeline excavation and installation is conducted on cropland, some mixing of the topsoil and subsoil is inevitable. Landowner may experience a slight decline in productivity in the soil above the pipeline. To compensate for this potential lost production, Nashwauk agrees to pay landowners 100 percent damages for one year’s worth of reduction in agricultural production across the entire cultivated area of gas pipeline right of way. Nashwauk will pay 15 percent damages for the second year and 10 percent damages for the third year reduction in agricultural production across the entire cultivated area of gas pipeline right of way. Although very little active farmland will be disrupted by construction of the proposed pipeline route, any areas of prime farmland that are or have been used for cropland in the last three years and are impacted by pipeline right of way will be managed in compliance with the Agricultural Impact Mitigation Plan provided in Appendix B of this application.

8.4 Vegetation

Typical vegetative communities for the region that could occur within the proposed pipeline route are described in Section 7.3.7.1. Survey of these vegetative communities have not been completed for the proposed pipeline route, however, impacts to vegetative communities within

the pipeline route are summarized using land coverages provided by the LandSat-Based Land Use-Land Cover (Raster) data provided by the Manitoba Remote Sensing Centre.

Clearing of the right of way in non-agricultural areas will be limited to the minimum amount required to install safely the proposed pipeline. After construction, Nashwauk will only maintain a minimum amount of cleared right-of-way for operations and maintenance purposes. Construction of the proposed pipeline will result in short term impact to vegetation and not cause any appreciable change in the type of vegetation cover. Where the route is in forested use, vegetation maintenance to control tree and shrub regrowth along the right of way will be necessary.

The preferred pipeline route is 23.5 miles in length. A mix of wetland and upland habitat types are within this corridor, and are summarized below in Table 3. Wetland habitat is found within three (3) miles of the corridor. It is anticipated that establishment of new right of way for the proposed route would require tree and shrub clearing for installation of the pipeline. Deciduous, mixed wood, and regeneration/young forests are the most common vegetative habitats that will be cleared for the pipeline route. Grassland habitats are not anticipated to be cleared of trees and shrubs, although these habitats could be used for access and staging of construction equipment as the pipeline is installed. In the future, the right of way will be mowed/brushed as needed to manage re-emerging trees and shrubs.

**Table 3
Summary of Vegetative Communities and Miles Crossed within
Preferred Pipeline Route**

Vegetative Community ¹	Linear Feet (lf)	Approximate Miles
Coniferous Forest	5,869	1.1
Deciduous Forest	25,684	4.9
Grassland	15,469	2.9
Mixed Wood Forest	23,236	4.4
Regeneration/Young Forest	25,157	4.8
Shrubby Grassland	5,060	1.0
Open Water	197	0.0
Wetlands – Bogs	9,315	1.8
Wetlands – Marshes & Fens	6,295	1.2
Total Acres	116,282 linear feet	22.0 miles
¹ Plant Community description based on the LandSat-Based Land Use-Land Cover (Raster) data (Manitoba Remote Sensing Centre).		

There will be tree cutting and vegetation clearing along the 23.5-mile pipeline right of way. Impacts to vegetation and wildlife along the proposed route are expected to be minimal due to the widespread abundance of similar habitat present. Long-term impacts to vegetation associated with construction of the proposed pipeline will primarily include the clearing and maintenance of forest vegetation along the permanent right of way. During construction activities, the removal of vegetative cover and exposure of soil will increase the potential for wind and water erosion, and may increase soil temperatures because of additional sunlight exposure.

Other construction impacts such as the clearing of temporary right-of-way and workspace will be largely short-term in nature. Nashwauk will minimize impacts to vegetation adjacent to the right of way by restricting construction activities to only the approved work areas. After construction of the proposed project is completed, the work areas will be restored to pre-construction conditions to the extent possible. This restoration may include re-vegetation with seed mixtures specified by permit conditions, land managing agencies, or landowners. It is expected that the immediate restoration efforts following construction will help ensure only short-term impacts to vegetation. After construction is completed, Nashwauk will maintain a route right of way that will be cleared of trees and shrubs to facilitate operation, maintenance, and inspection of the pipeline. Along with pipeline markers, this route right of way will also enhance pipeline safety by prominently identifying the location of the pipeline.

Given that the proposed pipeline route is located within a timber production area subject to frequent clear cutting, comprised entirely of secondary growth, and within the forest setting of northern Minnesota, trees are not rare and no significant impacts to trees are anticipated. The need for tree mitigation is not anticipated, nor is mitigation for impacts to other vegetative communities occur anticipated.

8.5 Wildlife

Construction of the proposed facilities will likely result in temporary impact on wildlife habitat, as well as minor, temporary impact on wildlife in the immediate vicinity of the construction areas. Vegetation clearing will result in reduced cover, nesting, and foraging habitat for some wildlife. Species that are more mobile will be temporarily displaced from the construction areas to similar habitats nearby. The proposed construction may temporarily displace avian, mammal, amphibian, and reptile species. Although some loss of less mobile wildlife such as small

mammals, amphibians, and reptiles, may incur within the construction work area, it is likely that the vast majority of wildlife will relocate to suitable adjacent habitats during construction. Most likely, the displaced species will either recolonize in adjacent areas or reestablish their original habitat after construction activities have been completed. Long-term effects to wildlife will be limited. The primary long-term effect will be a permanent widening of pipeline corridors. Future periodic maintenance of the right of way will comply with any wildlife timing windows as specified by agencies. Construction and maintenance of the proposed project will not significantly alter the character of the landscape along the route. Consequently, effects on wildlife will be mostly temporary in nature.

8.6 Endangered Resources

The Minnesota Department of Natural Resources (MNDNR) was contacted to review the Natural Heritage Information System (NHIS) database to determine if any rare plant or animal species or other significant natural features are within the vicinity of the project. The data for the project area was received June 8, 2007. Nashwauk has had discussions with the DNR regarding potential impacts to state-listed threatened or endangered species. Nashwauk is committed to compliance with DNR requirements related to the state protected species.

The MNDNR NHIS database shows no bald eagle nesting areas within a 1.5-mile radius of the preferred pipeline route. In addition, no other known records of state-listed plant or animal species or rare natural features are within 0.5-mile of the preferred pipeline route. These resources are not anticipated to be affected due to the proposed project. However, this does not preclude coordination with the MNDNR to determine the significance of potential impacts. For these reasons, coordination with MNDNR will be completed as soon as possible to determine the potential effects on all State-listed species or their habitats within the vicinity of the project.

For federally-listed species (Canada lynx and grey wolf), coordination with the U.S. Fish and Wildlife Service to determine the potential effects on habitat for the Canada lynx and grey wolf should be initiated. The USFWS should be contacted by the Minnesota Department of Commerce, as the lead agency reviewing this permit, to request if there is a need for Endangered Species Act Section 7 Formal Consultation, and for general guidance to ensure compliance with the federal Endangered Species Act related to the proposed project activities. Similarly, effects on bald eagles should also be determined by the U.S. Fish and Wildlife Service through the Section 7 consultation process.

8.7 Land Use

Land within the permanent right-of-way and any temporary workspace will be impacted during the construction period. The impact will be short-term, as the construction period normally will last about thirty (30) days at any one location.

All land will be restored as nearly as practicable to pre-construction conditions. No land will be removed from agricultural use since the pipeline will be buried well below plow depth and drain tile. The cropland could return to production as soon as construction was completed. Farmers will receive compensation for reduced productivity for the year of construction and the following two years, if appropriate. All pre-existing agriculture uses will be able to continue within the new permanent right-of-way after completion of this project.

Construction of the Nashwauk Blackberry Project will require the permanent and temporary use of approximately 260 acres of land including hayfields, pasture, wetland, and timberland and mineland areas. All landowners will be compensated for their project-related losses according to agreements negotiated between each landowner and Nashwauk. Compensation rates will be based on the market value of comparable land in the area, potential value of agriculture production or timber lost. Long-term effects of crop yields are not expected because Nashwauk will use construction and restoration techniques designed to protect or restore soil productivity. These techniques and procedures to be used are described in Nashwauk's AIMP (Appendix B).

Agricultural loss compensation can be paid at the request of the land owner or any property that has been used for actual agricultural production in the last five years based on the present value of the crop yield expected for that crop or a similar crop capable of growing within the normal rotation patterns of agriculture in southeast Itasca County. In case of dispute over land productivity the Itasca County Agricultural Stabilization Service will be consulted for data and yield estimation.

Construction also will result in the removal of approximately 100 acres of timber resources within the construction corridor. To mitigate for the impact of this loss, Nashwauk will give the landowners the option to take custody of merchantable timber.

Construction may affect appurtenant agriculture items such as drainage systems, fences and livestock. When active tile drainage systems are encountered temporary repairs will be made immediately to allow continuation of flow. A local tile contractor will make permanent repairs prior to the start of restoration activities.

The contractor will install temporary gates in fences crossed by this project. The contractor will rebuild the fence where it is crossed. If it is necessary for livestock or farm machinery to cross the open trench, equipment bridges or trench plugs will be strategically located to allow access. The Contractor will use appropriate fencing or other means to prevent livestock from falling into open trenches.

The proposed pipeline route crosses four county roads: 10, 21, 58, 70, and State Highway 169. There is existing railroad, under which the pipeline will need to pass. Nashwauk will work closely with MDOT staff to determine the specific highway crossing plans and procedures.

There are a number of recreational areas near the proposed project and snowmobile trails that follow existing transmission line rights-of-way. Segments of these trails will be diverted and/or closed temporarily for construction of the pipeline.

8.8 Terrain and Geology

Along the proposed route, the terrain is level to gently rolling with little or no elevation change. Little or no grading is anticipated in order to prepare the surface for the construction equipment over most of the route.

The overall effects of construction and operation of the proposed project on topography and geology will be minor, limited primarily to the results of construction activities. The primary effect from construction is disturbance of slopes along the proposed project right-of-way because of excavation activities. Impacts on topography will be limited to the construction phase, during which time conditions along the pipeline right-of-way will be temporarily altered. Slopes may be re-contoured to accommodate construction equipment. Following the completion of construction, topographic and drainage conditions along the proposed pipeline right-of-way will be restored as close as practicable to their pre-construction configuration. Minor short-term impacts resulting from the spreading of excess soil from the excavation over the right-of-way and from the placement of a small berm of mounded soil over the pipeline will

occur. This technique is also referred to as “crowning” the trench. This will be done as necessary to compensate for settling of backfill and to reduce ditch slumping.

Little or no impact to the terrain and geology should result from construction, operation or maintenance of the pipeline facilities. No special construction techniques are expected to be necessary because of the terrain or geology. Impacts will be limited to the construction phase. The limited shallow excavation and site restoration associated with the proposed pipeline will not have a significant impact on geology or soils in the area. The minimal impacts on the limited farmland disturbed is compensated by easement amounts and damages for crop loss to be paid, when appropriate.

Sand, gravel and iron ore are the primary mineral resources likely to occur along the proposed pipeline route. No active mining operation will be directly affected by the construction of the pipeline. Any mineral reserves within the permanent right-of-way could not be utilized for the life of the project. Given the small area required by the pipeline relative to the widespread distribution of surrounding resources, this limitation should not impose any hardship.

8.9 Soils

In the mineland areas of southeast Itasca County there is a great deal of soil and geologic heterogeneity. The landowner will to require extensive rock removal in some circumstances. After completion of the pipeline installation activities required below, Nashwauk shall remove rocks, which are six (6) inches in diameter, or greater from surface of disturbed soil on the entire construction area, unless that rock is used as part of trench backfill in accordance with approved pipeline installation procedures. Where an excessive amount of rocks are present in the backfill, the pipeline will be protected with rock shield or similar protective coating and/or backfilled with clean padding or clean sand prior to backfilling with the rocky material. The amount of rock on the right-of-way after construction will be similar to that on adjacent off right-of-way areas. Rocks so removed will be hauled off the landowner’s premises or disposed of on the landowner’s premises at a location that is mutually acceptable to the landowner, the tenant and Nashwauk, and at Nashwauk’s cost and expense.

Potential temporary impacts to soils resulting from construction and operation of the proposed pipeline project include increased potential for soil erosion; soil compaction; loss of soil productivity associated with mixing of topsoil; introduction of rock into the topsoil; and poor

revegetation following construction. The magnitude of these impacts depends on several factors including the characteristics of the major soil types that will be crossed by the proposed pipeline and the quality of construction restoration techniques.

Mixing of topsoil with sub-soil could affect productivity of cropland. Soil segregation practices eliminate most mixing of topsoil and subsoil. Nashwauk will employ topsoil segregation methods in annually cultivated or rotated agricultural lands. Where appropriate, the contractor will use double ditching techniques that involve removing the top soil first to a stockpile along the outer edge of the easement. Then a second excavation will remove the sub-soil to a stockpile adjacent to the top soil. After installing the pipe, the contractor replaces the subsoil first and then the top soil such as to maintain soil segregation. Nashwauk will suspend construction activity on the right-of-way when conditions such as wet weather are conducive to soil compaction.

Temporary and permanent erosion control measures will be employed during construction to minimize erosion caused by water and wind. Soil loss by wind could likely occur when the right-of-way area is very dry after the vegetative cover has been removed. During construction, activity will be limited when there was enough wind to cause erosion. Dust control will be done as needed, during the construction phase with water applied by spray bars mounted on trucks equipped with water tanks. Excessive dust is detrimental to construction activities and is controlled diligently to avoid loss of production and to promote safety. After construction, restoration of the right-of-way in non-cropland areas includes seeding and mulching that help prevent fugitive dust emissions. Impact to soils will be short term.

The potential for erosion caused by water is a concern in the construction and operation of the proposed pipeline project. Water erosion is strongly related to the permeability of a soil and to the cohesion of the soil particles that compromise a soil. Other soil properties that influence water erosion include soil texture, percent of organic matter, soil structure, and soil infiltration capacity. Soils containing high portions of silt and very fine sand are most erodible. Well-drained and well-graded gravels and gravel-sand mixtures with little or no silt are the least erodible soils. Erosion is influenced by slope length and gradient; the frequency, intensity, and duration of rainfall; and the amount of time bare soils are exposed.

Movement of heavy construction equipment can produce soil compaction. Soil characteristics that affect soil compaction include soil texture, soil moisture, grain size distribution, and porosity. Soil compaction has a restrictive action on water penetration, root development, and the rate of diffusion of oxygen into soils. Compaction has the effect of reducing yields of most agricultural crops. Soils with a surface texture of sandy clay loam, or finer, with a drainage class of somewhat poorly drained through very poorly drained, are likely to be susceptible to compaction. After construction is complete, if excessive compaction is found, mitigative measures may include remedial tillage and/or planting deep rooted legumes to correct compacted areas. Chisel or other type plowing, and/or other measures, during restoration of the affected area will mitigate soil compaction.

In the case of a claims for damages related to soil compaction, upon request, Nashwauk itself shall pay for, or at the landowner's or tenant's option, reimburse the landowner or tenant for the cost of having a member of the Minnesota Association of Professional Soil Scientists, who is also licensed by the State of Minnesota, or an appropriately qualified Minnesota licensed professional engineer perform a soil survey for bulk density and field moisture on the right-of-way and on adjacent land in the same field containing the same soil map units. As long as the adjacent lands contain the same soil map units, the selected adjacent land is assumed to be suitable for purposes of establishing the preconstruction conditions that existed in the right-of-way. Said soil survey shall be performed pursuant to the protocol identified in the USDA's Soil Survey Methods Manual (Soil Survey Investigations Report No. 42, Version 3.0, January 1996, which may be found at <http://soils.usda.gov/procedures/lmm/ssir42.pdf>.

Nashwauk will minimize the adverse impacts to soils by implementing mitigative measures and BMPs. Nashwauk will also develop erosion control plans in conjunction with the Minnesota Pollution Control Agency (MPCA) storm-water discharge permit. Temporary erosion controls may include slope breakers, mulching, and the use of silt fences. Following construction, revegetation, seeding, lime application and fertilization will commence as soon as possible in accordance with any existing permit requirements, negotiations with landowners and recommendations from land management agencies. In order to protect topsoil resources, topsoil segregation procedures will be used as required in areas specified by applicable regulations, permit conditions or landowner requests. Environmental Inspector(s) will be used to ensure contractor compliance with these procedures.

8.10 Groundwater

Construction of the proposed pipeline may cause minor impact on groundwater flow in localized areas, but will not affect overall groundwater recharge in the project area. Shallow groundwater is not a major source of drinking water in the area. Construction equipment could also cause compaction of organic and mineral soils, resulting in locally reduced water infiltration rates. Pipeline construction, operation, and maintenance activities are not expected to have long-term impacts on groundwater resources. Potential short-term construction impacts to surficial aquifers may include increased temporary turbidity from excavation, short-term disruption of recharge and localized flow along the pipeline trench. Impacts to groundwater will be short term. Construction of the proposed pipeline will not require the installation or abandonment of any water wells or connection to or changes in any public water supply. There were no wells within 500 feet of the proposed pipeline.

The pipeline trench will generally be approximately 7 feet deep and will not intersect any drinking water aquifers. In low-lying areas, de-watering of the trench may be required and could temporarily affect groundwater levels in the immediate vicinity of the trench.

Accidental spills or leaks of hazardous liquids could contaminate soil and groundwater. Contaminated soils could continue to leach pollutants to the groundwater for an extended period after the spill or leak. Nashwauk will monitor the pipeline to prevent leakage. A spill response plan will be developed as part of the final pipeline permit.

Nashwauk will apply for all necessary best management practices to trench dewatering discharges. These will be directed to vegetated upland areas to prevent sediment from entering waterbodies, wetlands and negatively impacting groundwater resources to the maximum extent practicable. These discharges will be managed in accordance with Nashwauk's permits issued by the appropriate state agencies.

8.11 Overview of Wetland Impacts and Contact with Regulatory Agencies

The following subsections describe effects on wetlands due to construction and operation activities, particularly where impacts may be minimized or avoided due to construction practices, or where temporary impacts may be restored. Under Minnesota law, and through a memorandum of understanding between the Minnesota Board of Water and Soil Resources (BWSR) and the U.S. Army Corps of Engineers (USACE) – St. Paul District, wetland impacts

are generally evaluated on a per acre basis, without regard to wetland type being affected when the Minnesota Wetland Conservation Act (WCA) *de minimis* thresholds have been exceeded (Minn. Stat. § 103G.2241, subd. 9). An exception to this rule is for wetlands that may have particular ecological uniqueness or protection status (e.g., calcareous fens) or are otherwise legally protected under other state and/or federal law (e.g., wetlands in state Scientific and Natural Areas, state-designated trout waters, Outstanding Resource Value Waters, etc.). Higher replacement ratios are sometimes utilized when regulatory agencies determine that impacted wetlands have a higher value relative to other wetland types (e.g., impacts to tamarack bogs may be regulated at higher levels than impacts to a disturbed, urbanized wetland).

Special or protected wetlands are not known to occur within the proposed pipeline route. However, to some extent, areas of tamarack and spruce bogs are located within each of these along the route. No wetland type is anticipated to require higher mitigation requirements over any other type (e.g., Type 7 forested wetlands will not require higher mitigation requirements than Type 6 scrub-shrub or Type 3 emergent wetlands). However, these mitigation requirements will be negotiated during the wetland-permitting phase of the project.

8.11.1 Wetlands

A total of (24.69) acres of wetland habitat is located in the proposed temporary right-of-way. For permanent ROW, these wetland impacts will be reduced to (17.47) acres. Temporary impacts will result from construction activities and will be mitigated by restoring the area after construction is completed. Temporary wetland impacts will include tree and shrub clearing for construction staging areas paralleling the pipeline route. The 70-foot-wide permanent right-of-way will include approximately 1300 linear feet of wetland or roughly 2 acres of wetlands modified by pipeline installation, and the 30-foot-wide temporary workspace may include an additional 1300 linear feet. In the worst case approximately one more acre of wetland modified by pipeline installation.

To minimize wetland impacts at water crossings, the proposed pipeline will be directionally drilled under the water body starting at approximately 100 feet from the edge of each bank. In this instance, wetland impacts associated with water crossings will include 1.34 acres in the temporary right-of-way and 0.94 acres in the permanent right-of-way. The remainder of the gas pipeline will be placed within the proposed pipeline route using open trench installation techniques. Soils and vegetation that become compacted because of construction will be

restored by loosening such soils and reseeded the area with grasses and broad-leafed herbaceous plants native to the region.

Directional drilling for the crossing of selected water bodies or wetlands is detailed in Section 9.2.2.3 of Appendix E the Environmental Analysis Supplement to this permit application. This technique does require an additional temporary easement area to install a pilot hole and lay out base material to support the drilling rig needed to pass the drilling tools under the water body to be crossed. While the directional drilling will avoid many of the direct impacts (e.g., bank clearing, bed disturbances) on the waterbody and associated fisheries, there is the possibility that an inadvertent release of drilling fluids could occur within the waterbody. This occurs when the drilling fluid (composed mostly of water and bentonite clay) finds pathways through natural fissures in the soil and rock between the drill path and waterbody. Impacts on waterbodies from a drilling mud release are primarily limited to increased turbidity.

Geotechnical investigations will be conducted at each site preliminarily identified for directional drilling to confirm the suitability and design parameters for this method. Geotechnical investigations are necessary because the pipeline route will cross regions with soils that may not be conducive to directional drilling technology, such as soils containing cobbles, boulders, layers of gravel, and/or non-cohesive sands. If these investigations determine that there potentially could be installation problems using directional drilling at the waterbody crossing, an alternate environmentally acceptable method will be specifically designed for the crossing.

Typically, stream bank and streambed restoration and stream bank revegetation will not be necessary when the stream is crossed using directional drilling.

Directional Drilling Plan

For each waterbody or wetland that will be crossed using the Directional Drilling method, a site-specific plan will be developed that includes:

- (1) site-specific construction diagrams that show the location of mud pits, pipe assembly areas, and temporary areas to be disturbed or cleared for construction;

- (2) a description of how an inadvertent release of drilling mud will be contained and cleaned up; and
- (3) a contingency plan for crossing the waterbody or wetland in the event the directional drill is unsuccessful and how the abandoned drill hole would be sealed, if necessary.

Wetlands will not be drained or permanently filled during construction/restoration of the proposed project. Nashwauk will restore the impacted wetlands to pre-construction conditions to the extent possible. Construction of the proposed pipeline may result in minor short-term disturbances to wetlands including the following: loss of wetland vegetation, wildlife habitat and aesthetics associated with clearing and other construction activities; soil disturbance associated with trenching, equipment traffic and the limited pulling of stumps; and temporary increases in turbidity and fluctuations in wetland hydrology associated with trenching, equipment traffic and spoil storage. The duration of impacts to forest and scrub-shrub wetlands will be longer than other wetland types due to the additional time required for re-establishment of woody vegetation. These impacts will be temporary because the wetland hydrology will be restored, the hydric topsoil will be replaced, and the wetlands will be allowed to revegetate naturally.

In preparation for construction, clearing crews will cut existing wetland vegetation off at ground level and remove it from the wetland. Nashwauk will limit the pulling of stumps in wetlands to the trench line unless safety concerns warrant otherwise. Excavated stumps will be removed from the wetland. After clearing activities are complete, timber riprap and/or erosion control mats may be utilized as necessary to minimize construction impacts to the wetlands and create a safe, stable working surface. In addition, temporary sediment controls will be installed to contain soil within the construction right-of-way. Backfilling of the excavated wetland material will take place after pipeline installation is complete. Nashwauk may use weights or concrete coated pipe in wetlands to secure the position of the pipeline. In areas where trench dewatering is necessary, Nashwauk will use construction methods designed to prevent heavily silt-laden water from entering a water body or undisturbed portion of a wetland, such as filtering the water through geotextile filters.

Where wetlands are adjacent to the construction right-of-way and the right-of-way slopes toward the wetland, Nashwauk will install sediment barriers along the edge of the construction

right-of-way as necessary to contain spoil and sediment within the construction right-of-way and prevent sediment flow into the wetland.

Following the lowering-in of the pipe, the trench will be backfilled with the excavated trench spoil and the right-of-way will be restored as close as possible to its pre-construction contours. Restoration and revegetation will be conducted in accordance with permit requirements and landowner arrangements. This restoration will help restore existing groundwater and surface water flow patterns within the wetlands.

After construction is completed in wetland areas, the permanently maintained right-of-way will gradually re-establish as emergent wetlands. In non-maintained areas, wetlands will be allowed to revert naturally to pre-construction conditions. The purpose of this restoration is to restore existing groundwater and surface water flow patterns within the wetlands. Minimal loss of wetland acreage is expected from construction and operation of the proposed pipeline project.

8.11.2 Surface Water

The pipeline will not cross any major rivers or large bodies of water. Accordingly, the risk of damage resulting from activities associated with this project is negligible. Nashwauk proposes to cross the streams using directionally drilling techniques on the seven stream crossings minimizing the risk of contamination to surface waters.

Directional drilling construction methods will be utilized by Nashwauk to minimize impacts to streambed and banks during pipeline installation. Potential impacts to streams during directional drilling include inadvertent release of drilling mud. The directional drilling process involves a drilling fluid primarily made up of clay bentonite and water. The purposes of this fluid include lubrication and stabilization of the borehole. A release of drilling mud can occur when the pressure of the drilling fluid causes the fluid to migrate from the borehole to the surface and out in all direction, following any matrix material fractures. The extent of a release can be limited by careful monitoring and having appropriate equipment and response plans. Nashwauk will develop a directional drill contingency plan that will include procedures regarding clean up of inadvertent release material.

In areas where there are slopes adjacent to streams, Nashwauk may also install sediment barriers at the base of the slope with materials such as silt fence, staked hay or straw bales, or

sand bags. Sediment barriers help prevent siltation from entering the stream. The sediment barriers will also be inspected and maintained until permanent re-vegetation measures are successful. Slope breakers may also be installed as necessary to minimize runoff into a stream. Slope breakers are positioned at an angle across the right-of-way in order to direct runoff to adjacent vegetated areas. The purpose of slope breakers is to reduce runoff velocity and divert water off the construction right-of-way. Following installation of the pipeline, construction debris will be removed and work areas graded as near as possible to preconstruction conditions. As necessary, Nashwauk will also apply mulch, consisting of straw, hay, erosion control fabric and/or some other functional equivalent, in order to stabilize the soil.

The open-cut construction method, which may be utilized to cross narrow intermittent tributaries or ditches, will require in-stream trenching, backfilling and stream bank restoration. This stream crossing method may result in short-term, localized increase in turbidity, possible disruption of local fish populations and other aquatic organisms, and disturbance of wetland and/or riparian vegetation. At the open-cut streams, banks and approaches may be graded during construction to provide a safe and level work area. Furthermore, temporary bridges may be needed to allow equipment to cross the streams. Areas affected by construction will be restored to original contours to the extent possible and revegetated according to the permit conditions and recommendations of landowners or land management agencies. No long-term effects to surface water resources are anticipated.

Nashwauk may use staging areas/extra workspaces at each water body crossing to facilitate construction activities. The dimensions of the extra workspaces will vary based on site specific conditions. Generally, Nashwauk will use an additional 40 foot wide by 200 foot long area to facilitate safe working conditions at crossing locations. This extra workspace will be used to provide additional area for equipment mobilization, operation and temporary storage.

Sediment transport of surface waters will be limited by hay bales, geotextiles or other appropriate BMPs to contain any inadvertent soil erosion during excavation and pipeline installation. Nashwauk will manage site excavation to minimize soil erosion from affecting surface waters. After backfilling of the trench is complete, the disturbed areas will be re-graded as close as possible to pre-construction contours. Disturbed stream banks will be stabilized with erosion control methods such as geotextile fabric, erosion control blankets or comparable materials as necessary.

Wetland habitat associated with the water crossings for proposed pipeline route is based on NWI classification and mapping. In areas where 2005 field surveys were conducted, the classification given is based on observations made during the field surveys. The wetland habitat for the two Swan River crossings is mapped by NWI as Type 1 (PFO1A) seasonally flooded and Type 6 (PSS/EM5C) scrub-shrub habitats. The wetland habitat at the tributary to the Swan River is mapped by NWI as Type 2 (PEM5Bd) wet meadow habitat. The perennial stream between Big and Little Diamond Lake was mapped during the 2005 field surveys and included Type 3 (PEMC) shallow marsh habitat. Total length of water crossings for this alternative is estimated at 133 linear feet. The location and wetland types associated with the water crossings for proposed pipeline are summarized in Table 2.

**Table 4
Water Crossings for proposed Nashwauk-Blackberry Gas Pipeline**

Stream Crossing Location	MDNR PWI	Milepost (mile + linear feet)	Length of Water Body Crossing	Adjacent Wetland Types	
				Cowardin**	Circular 39**
Swan River (perennial)	Yes	4+2170	60 linear feet	PFO1A	Type 1
Tributary of Swan River (perennial)	No	5+1460	10 linear feet	PEM5Bd	Type 2
Swan River (perennial)	Yes	9+4560	60 linear feet	PSS/EM5C	Type 6
Perennial stream between Big and Little Diamond Lakes (Basin E1)*	No	12+2000	3 linear feet	PEMC	Type 3
Unnamed intermittent stream connecting Little Sucker Lake and Big Sucker Lake	Unknown	19+2500 estimated	60 linear feet estimated	Unknown	Unknown
First crossing of an unnamed intermittent stream draining into Little McCarthy Lake.	Unknown	20+2500 estimated	60 linear feet estimated	Unknown	Unknown
Second crossing of an unnamed intermittent stream draining into Little McCarthy Lake.	Unknown	20+4500 estimated	60 linear feet estimated	Unknown	Unknown
Total: 1713 linear feet*					
Includes 100 foot wide buffer strips on either side of the stream being crossed					
* = This information has been field verified for four of the seven crossings.					
** = Cowardin and Circular 39 refer to two different, but widely used systems of wetland classification					

Prior to placing the pipeline in service, the contractor will hydrostatically test the pipeline. Nashwauk proposes to withdraw approximately 2,500,000 gallons from local water supplies. Nashwauk will screen water intakes to prevent entrapment of fish and debris. Nashwauk will not withdraw or discharge water during critical fish spawning periods. No chemicals will be added to the hydrostatic test water. The water will be tested for permit-required parameters during withdrawal, after the pipeline is filled, and during discharge. Discharge will be back into

local drainages or other locations as per permit requirements dictate. The discharge rate will be regulated and splash plates or other similar devices installed to disperse the discharge to prevent erosion, streambed scour, suspension of sediments, or excessive stream flow. Nashwauk will obtain a water appropriation permit from the MDNR and the discharge permit from the MPCA for the hydrostatic test water. This impact is expected to be minimal and short term.

Since Nashwauk will be directionally drilling the water and wetland crossings, impacts to surface waters are negligible. There are seven river or stream crossings associated with the proposed pipeline route. Four of these crossings and associated wetland areas were identified in field surveys in 2005. Additional fieldwork is planned in spring 2008 to complete information collection on the proposed route. Two of these crossings are under the Swan River (perennial). The other crossings are under a perennial tributary of the Swan River, a perennial stream between Big and Little Diamond Lakes, an unnamed Creek between Little Sucker and Big Sucker Lake, and twice across an unnamed stream flowing to Little McCarthy Lake. The perennial stream between Big and Little Diamond Lakes was the only water crossing in this alternative that was field surveyed during the 2005 field season due to access limitations. The Swan River is the only water body identified as protected water by the MDNR Protected Waters Inventory (PWI), and therefore will require a MDNR License to cross this water-body for a gas pipeline.

8.12 Economic Impacts

The purpose of the proposed pipeline is primarily to provide natural gas to a proposed new steel plant in Nashwauk any related and associated growth. The local economy will benefit from construction of the gas pipeline. Pipeline construction will require highly skilled, highly paid construction workers including heavy equipment operators, pipe fitters, iron workers and other trades who will add significant payroll into the regional economy. The pipeline will contribute property taxes to Itasca County. The state and counties will also benefit from income and sales taxes paid because of the construction of the project.

There may be additional industrial or manufacturing businesses that may locate adjacent to the proposed gas pipeline route. The principal economic activity within and adjacent to the proposed gas pipeline route is forestry and recreational with some small amount of farming. The most economically important crops produced are hay and oats.

Some short-term socioeconomic effects will occur to the population centers along the route. Approximately half of the anticipated work force will be from outside the local area. Their economic activities (e.g., housing rental, hotels, fuel sales, restaurants, and grocery stores) will add to the economies of some of the population centers along the route. About the same number of local workers will be employed which will increase the amount of local payrolls during the construction period. No significant or long-term demands for local government facilities or services will occur because of the relatively short construction period.

Impacts to existing roads within the project area will be short-term and minimal. Pipeline crossings of paved roads as well as any important or heavily traveled gravel roads will be bored. This will eliminate most all impact to traffic. No new roads will be constructed. Necessary road crossing permits will be obtained from state or local authorities. The proposed pipeline will have no impacts to existing railroads.

An analysis of the impacts from construction of the proposed pipeline indicates these will be temporary. No long-term impacts are anticipated. The pipeline will be installed almost entirely in forested land that will continue to be used for the same purpose after the project was completed.

8.13 No Action Alternative

Under the No Action alternative, no new pipeline will be constructed. Not installing the proposed pipeline will result in no construction-related temporary impacts to agriculture or residences caused by open trenching or directional-drilling entrance and exit pits. However, under the No Action alternative, there will be no high-pressure natural gas supply available to the MSNTRP or other customers, which could not operate.

8.14 Pipeline Cost and Accessibility

The proposed pipeline project is estimated to cost approximately \$25.0 Million. Improving the accessibility to natural gas in the Taconite-Nashwauk area will have a long-term positive economic impact in this portion of Itasca County.

8.15 Use of Existing Rights-of Way

The preferred route for this pipeline will parallel existing electric transmission line right-of-way, existing gas pipeline right-of-way and state and county road right-of-way to the maximum

extent possible. Nashwauk will strive to avoid individual residences, buildings and sensitive areas such as wetlands and other areas that will impact the environment or present difficult construction problems. Nashwauk will investigate all opportunities to share or parallel any existing rights-of-way that will not increase the environmental or economic impact of the project. The preferred route will minimize the impacts to the landowners while ensuring the safety of the pipeline. The route is proposed to be 23.5 miles, with a right-of-way of 70 feet for 188 acres of right-of-way land. Temporary right-of-way may consume a maximum of an additional 83 acres of land.

8.16 Impact Mitigation by Regulatory and Permit Conditions

Potential negative human, environmental and public health impacts, which could result from the proposed pipeline project, are mitigated by several factors. Several levels of regulatory controls are placed on the project by the need to apply for and obtain Federal, State, County and Local permits and the requirement to follow permit conditions for separate actions or portions of the project. These include an overall project permit, requiring review by several independent agencies charged with responsibility for management of environmental resources, discharge limitations, restrictions on land use modification material specifications and building permit standards. Additional protection is provided by on-site material and installation inspection by the Contractor, third party environmental inspectors and agency personnel. Finally the pipeline is subject to a system integrity test before any natural gas is permitted to flow.

8.17 Potential Impacts and Planned Mitigation Measures

There will be minimal impacts to human settlement from the pipeline. Nashwauk will consult with and work with affected landowners during permitting, final design, and easement negotiation to avoid and minimize any temporary or permanent impacts to residences, farms, or other business.

Construction along the pipeline route will cause temporary disturbance to forestry and recreational areas, but is not expected to have long term impacts in the area. No significant long term impacts to vegetation and wildlife; geology and soils; and water resources and wetlands are expected. Best management practices (BMPs) such as silt fencing and erosion control measures will be implemented during construction to protect adjacent wetlands and to preserve soil biota in excavated areas. Top soils (approximately the top 12 inches) from excavated areas will be set aside separately, so that deeper spoil material can be backfilled first. As a result, the

backfilled soil column will be functionally similar to its current condition in terms of seed reservoirs and nutrient distribution. Seeding with native plant species appropriate to the hydrologic regime is planned for final restoration.

8.17.1 Noise

The proposed pipeline route is in rural, generally forested areas, and is sparsely populated. The construction process for the Nashwauk-Blackberry pipeline is expected to generate noise during the site preparation and excavation phases. Although construction noise will be below daytime state standards, because of its transitory nature and common fluctuations in the background noise level, construction activity will occasionally be discernable at the nearest receptors. Because of the temporary nature of the linear construction activities, pipeline construction noise will result in short-term temporary noise impacts. However, these impacts will be diminished once the construction operation moves away or is completed.

8.17.2 Predicted Cumulative Impacts

A new industrial facility of the magnitude of Minnesota Steel Nashwauk Taconite Reduction Plant is expected to result in a positive economic impact on the area population. The associated gas pipeline needed to facilitate this project is an essential component of the final facility. Availability of additional natural gas supply in the area could increase the rate at which land in the area is converted into industrial and commercial development. There could be some increase in residential construction due to this project. The proposed pipeline is not likely to have a significant impact on residential development in the immediate area.

Construction of the pipeline route will not have any direct impact on the cultural, historic or aesthetic values of the area. The area presently has gas and oil pipelines, power lines and utility towers. Installation of the pipeline will not change land use patterns. No significant change in the vegetation, wildlife, soils, geology, wetland or water quality is expected to occur because of this proposed project.

8.18 Pipeline Setback Ordinance

Nashwauk will follow all relevant policies, rules and regulations of the state and federal agencies and local government land use laws including ordinances adopted under Minnesota Statutes, section [299J.05](#), relating to the location, design, construction, or operation of the

proposed pipeline and associated facilities. This includes requiring a minimum setback of at least 50 feet from pipelines in areas where residential or other development is allowed.

9.0 4415.0150 RIGHT-OF WAY PROTECTION AND RESTORATION MEASURES

9.1 Subpart 1. Protection

The applicant must describe what measures will be taken to protect the right-of-way or mitigate the adverse impacts of right-of-way preparation, pipeline construction, and operation and maintenance on the human and natural environment.

Protection of the right-of-way and mitigating adverse impacts on the human and natural environment has been a focal point for Nashwauk during the planning and routing phase of the project and will continue to be a high priority during the construction and restoration phases of the project. Nashwauk will implement various measures to protect the right-of-way or mitigate the adverse impacts of right-of-way preparation, pipeline construction, and operation and maintenance on the human and natural environment. These measures include but are not limited to, utilizing low impact construction techniques in sensitive areas (horizontal directional drilling), installing erosion and sedimentation control measures, and restoring the right-of-way as close as possible to pre-construction conditions. Nashwauk will work closely with the landowners and applicable agencies to ensure proper restoration of the right-of-way are accomplished.

Nashwauk will utilize Environmental Inspector(s) during construction and restoration activities to ensure environmental compliance throughout the duration of the project. Environmental inspection activities will include monitoring compliance with permit requirements, inspection of erosion control and sedimentation methods, inspection of topsoil segregation procedures, compliance with stream and wetland construction and mitigation procedures and permits, spill response activities, inspection of water appropriation and dewatering activities and implementation of restoration plans. The project contract documents will specifically address environmental compliance requirements and the construction contractor will be held responsible for mitigating any adverse impacts as identified by Nashwauk, applicable agencies or landowners.

9.1.1 Human Environment

Nashwauk will provide protection of the human environment by limiting construction activities to approved workspaces, maintaining safe working conditions along the right-of-way and by providing consistent communication with all affected parties during construction, restoration and operation/maintenance of the facilities. The presence of dust will depend on soil characteristics and weather conditions. To minimize dust in residential areas, water may be applied to the right-of-way if deemed necessary by Nashwauk.

9.1.2 Erosion Control

Nashwauk will develop a Spill Prevention Containment and Countermeasure (SPCC) Plan procedure that deals with the protection, mitigation and restoration measures employed for a pipeline project. This document is available from Nashwauk upon request. The SPCC document will be included in the construction specifications attached to the prime contractor's agreement. It is an integral part of the construction inspection process and the relevant portions, or the documents in their entirety will be issued to construction personnel and all contractors associated with the work.

In addition to those measures addressed by the SPCC plan, Nashwauk will comply with the requirements of regulatory and permitting agencies such as the Army Corps of Engineers, Minnesota DNR and other agencies that may include conditions with permits.

Almost the entire route is located on private property. Landowners will participate in developing the measures taken to mitigate any impacts to the land during construction or operation of the pipeline.

Erosion control is achieved through nature by vegetation including grasses, trees and brush. Nashwauk will remove only those trees necessary to facilitate construction activities, create a safe working environment, and protect the pipeline integrity. Temporary erosion control measures such as trench breakers, slope breakers, silt fences, and staked straw bales will be installed and maintained at appropriate locations as necessary to minimize erosion and sedimentation. Temporary erosion controls will be properly maintained throughout construction and reinstalled as necessary until restoration is complete.

Trench breakers will be installed as necessary in the sloped areas, to prevent subsurface erosion along the pipe; and will be installed in wetlands, as needed, to maintain original wetland hydrology. Trench breakers are sacks of soil placed from the bottom of the ditch to the natural ground surface, completely surrounding the pipe. Trench breakers help to prevent erosion of the backfill from both surface flow and subsurface flow of water.

Slope breakers will be utilized if necessary on side hills and consist of a ditch or mound of excavated material that slows the flow of water by re-directing the flow nearly 90 degrees, while decreasing its velocity. The slope breakers act to impede the water's ability to carry and transport suspended solids down the slope.

Silt fences will be installed as necessary to filter waterborne sediment, acting as a temporary replacement for the natural filtration effect of the vegetative cover. Silt fences will be installed as needed adjacent to wetland areas and creek crossings to minimize silt-laden water from entering these water bodies. Staked straw bales may also be utilized for the same purposes as the silt fencing.

Construction in wetlands may be facilitated by the use of timber construction mats, timber riprap, or low ground pressure equipment to minimize disturbance to the wetland. In areas where traditional trenching will take place in wetlands, trench dewatering may be necessary to facilitate construction. If possible, discharge from trench dewatering will be directed to vegetated upland areas to minimize the potential of trench water flowing into water bodies and wetlands.

9.2 Subpart 2. Restoration

The applicant must describe what measures will be taken to restore the right-of-way and other areas adversely affected by construction of the pipeline.

Minnesota Rules Section 4415.0195 allows certain construction related activities such as tile repair, soil segregation, livestock and crop protection, repair to private roads and fence and gate repair or replacement to be negotiated with the landowner. Nashwauk will generally not initiate negotiations for these tasks but will expect to perform them with contractor personnel. One restoration item that is traditionally negotiated with landowners is reseeded of non-cropland areas such as pastureland. The Minnesota Public Utilities Commission will attach the following

conditions to the routing permit as per the above-mentioned MN Rules 4415.0195 relative to ROW preparation, construction, clean up, and restoration:

- A. Nashwauk shall comply with all applicable state rules and regulations.
- B. Nashwauk shall clear the right-of-way only to the extent necessary to assure suitable access for construction, safe operation, and maintenance of the pipeline.
- C. Stream banks disturbed by pipeline construction must be stabilized using native plant species indigenous to the project area, or by other methods as required by applicable state and/or federal permits.
- D. Precautions shall be taken to protect and segregate topsoil in cultivated lands unless otherwise negotiated with the affected Landowner.
- E. Compaction of cultivated lands by Nashwauk must be kept to a minimum and confined to as small an area as practicable.
- F. Precautions to protect livestock and crops must be taken by Nashwauk unless otherwise negotiated with the affected Landowner.
- G. All appropriate precautions to protect against pollution of the environment must be taken by Nashwauk.
- H. All waste and scrap that is the product of the pipeline construction process must be removed or properly disposed of before construction ends.
- I. Clean up of personal litter, bottles, and paper deposited by right-of-way preparation and construction crews must be done on a daily basis.
- J. Nashwauk shall repair or replace all drainage tiles broken or damaged during right-of-way preparation, construction and maintenance activities, unless otherwise negotiated with the affected Landowner.
- K. Nashwauk shall repair all private roads and lands damaged when moving equipment or when obtaining access to the right-of-way, unless otherwise negotiated with the affected Landowner.
- L. Nashwauk shall repair and replace all fences and gates removed or damaged as a result of right-of-way preparation, construction, and maintenance activities, unless otherwise negotiated with the affected Landowner

- M. Shelterbelts and trees must be protected by Nashwauk to the extent possible in a manner compatible with the safe operation, maintenance and inspection of the pipeline. Nashwauk proposes to drill directionally under shelterbelts and trees affected by the construction.
- N. Nashwauk shall, to the extent possible, restore the area affected by the pipeline to the natural conditions that existed immediately before construction of the pipeline. Restoration must be compatible with the safe operation, maintenance, and inspection of the pipeline.
- O. Portions of the route cross cultivated agricultural land. For cultivated agricultural land, a detailed agricultural mitigation plan will be developed as part of the route permit process. A draft agricultural mitigation plan is provided in Appendix B This draft will be revised in consultation with affected landowners, the Minnesota Department of Agriculture, and other regulatory agencies. See Minnesota Statutes 116C.61, Subd. 3(b).
- P. Nashwauk will employ an environmental inspector with expertise in soil science to be present during all topsoil stripping, segregation, replacement and restoration activities associated with installation of this gas pipeline. The inspector's role is to document the process in a daily log of field notes with additional text and photographs as needed. The Environmental Inspector shall advise the Contractor of appropriate procedures and monitor the application of these conditions to the Contractor and Nashwauk periodically. Top soil stripping storage and replacement shall be conducted as is detailed in the AIMP in Appendix B of this application.

10.0 4415.0160 - OPERATIONS AND MAINTENANCE

Pipeline operations and maintenance are assumed to be in compliance with all applicable state and federal rules or regulations, unless determined otherwise by the state or federal agency having jurisdiction over the enforcement of such rules or regulations. For public information purposes, the applicant must provide a general description of the anticipated operation and maintenance practices planned for the proposed pipeline.

Nashwauk Public Utilities Commission will own and operate the proposed pipeline under the applicable jurisdiction of the U.S. Department of Transportation (DOT), Minnesota Public Utilities Commission (PUC), and the Minnesota Office of Pipeline Safety (MNOPS). All facilities proposed for the Nashwauk-Blackberry pipeline project will be designed, operated

and maintained in accordance with DOT Minimum Federal Safety Standards in Title 49 of the CFR, Part 192 (49 CFR 192). These regulations are meant to ensure adequate protection for the public from failures of natural gas pipeline and related facilities. Part 192 defines and specifies the minimum standards for operating and maintaining pipeline facilities including the establishment of an Emergency Plan, which provides written procedures to minimize hazards from a gas pipeline emergency. Key elements of the Emergency Plan include procedures for:

- A facility-specific Operation and Maintenance (O&M) Plan;
- Procedures for continuing surveillance of its facilities to determine and take appropriate action concerning changes in class location, failures, leakage history, corrosion, substantial changes in cathodic protection requirements, and other unusual operation and maintenance conditions;
- Receiving, identifying, and classifying emergency events – gas leakage, fires, explosions and natural disasters;
- Establishing and maintaining communications with local fire, police and public officials, and coordinating emergency responses;
- Making personnel, equipment, tools and materials available at the scene of an emergency;
- Protecting people first and then property, and making them safe from actual or potential hazards, minimizing damage; and
- Planning for Emergency shutdown of the system, procedures for investigation of failures and safely restoring service after problem has been resolved.
- The safety standards specified in Part 192 require each pipeline operator to:
 - Develop an emergency plan, working with local fire departments and other agencies to identify personnel to be contacted, equipment to be mobilized, and procedures to be followed to respond to a hazardous condition caused by the pipeline or associated facilities;
 - Establish and maintain a liaison with the appropriate fire, police and public officials in order to coordinate mutual assistance when responding to emergencies;
 - Establish a continuing education program to enable customers, the public, government officials, and those engaged in excavation activities to recognize a natural gas pipeline emergency and report it to appropriate public officials;

- Use only qualified personnel to operate and maintain the pipeline in accordance with an Operator Qualification Plan;
- Have, maintain and implement a Pipeline Integrity Management Plan for transmission lines in High Consequence areas; and
- Ensure that personnel working on these facilities are part of a random drug testing program.

Before placing the pipeline in service, Nashwauk will prepare a procedural manual for operation, maintenance and emergencies to include the pipeline facilities of the proposed new pipeline. Nashwauk will operate its pipeline facilities in compliance with applicable pipeline safety regulations. Nashwauk will inspect and maintain its pipeline facilities in compliance with MNOPS regulations. Nashwauk will become a member of the Gopher State Excavators One-Call system that is vital in helping to prevent damage to underground pipelines by excavators and others performing underground construction. Semi-annual inspections of the pipeline right-of-way will be conducted for gas leak detection and cathodic protection surveys will be conducted annually.

If State or Federal rule changes occur in the future, Nashwauk will upgrade their O&M plan to reflect these new requirements. Any additional inspections or maintenance that may be required due to the new Federal Pipeline Integrity rulemaking, or any other code requirements, will be performed on the pipeline facilities.

10.1 Patrolling and Leak Surveys

The transmission line facility will be monitored periodically to determine and take appropriate action concerning changes in class locations, gas leakage, erosion, cathodic protection requirements and other conditions affecting safe transmission line operation, in accordance with 49 CFR Part 192. The transmission line will be leak-surveyed at intervals not exceeding fifteen months, but at least once each calendar year.

10.2 Line Markers for Gas Lines

The transmission line will be identified by an approved gas line marker which will be placed and maintained as close as practical over the buried pipeline at each crossing of a public road, railroad, river and wherever else necessary to identify the location of the facility to reduce the possibility of damage or interference. The transmission line will be patrolled at least two times per year, not to exceed 8 months between patrols.

10.3 Corrosion Control

The transmission line will be externally coated and cathodically protected to prevent corrosion as required by 49 CFR Part 192, Subpart I-Requirements for Corrosion Control (192.451 through 192.491).

10.4 Telemetry

Nashwauk will own and maintain equipment that telemeters gas flow to a central dispatching office. Gas pressure and gas temperature may also be telemetered to the dispatching office. This allows instruments to monitor the gas flows and pressures on a 24-hour basis.

10.5 Line Valves

Transmission line valves may consist of main line valves, blow-off valves, lateral line valves, and station valves. Each valve that may be needed for the safe operation of the proposed transmission line will be checked and serviced as required by applicable regulations. Each valve shall be secured with a locking device to prevent operation by unauthorized personnel.

10.6 ROW Maintenance

Nashwauk will conduct routine maintenance and vegetation clearing along their pipeline route to facilitate right-of-way inspection activities. A zone of approximately 15 feet centered over the pipeline is typically kept clear of trees and brush.

10.7 Record Keeping and Maps

Records and maps are maintained and updated to indicate the location and identification of all primary components of the pipeline system. Route alignment sheets and other system maps are provided to public agencies to assist in identifying the presence of the pipeline and/or in preparing for potential emergencies.

10.8 Safety Considerations

Safety is a prime consideration for employees who will be operating and maintaining the pipeline system, and also for the general public. Safety code compliance is achieved through adherence to 49 CFR Part 192 as defined by the U.S. DOT.

General Safety Procedures:

- Strict adherence to Operations and Maintenance Plans.
- The pipeline MAOP is assured by over pressure protection equipment.
- Company signs, with emergency numbers, are posted along the pipeline.
- Ignition sources are minimized.
- Smoking will be prohibited in and around any structure or area containing gas facilities.
- “No Smoking” signs are posted where appropriate.
- Above ground facilities will be painted or coated to prevent atmospheric corrosion.

10.9 Emergency Response

Federal rules require pipeline companies to prepare a procedural manual for operations, maintenance and emergency plans. The State Fire Marshall has the authority to inspect the proposed pipeline to ensure compliance with safety requirements pursuant to Minnesota Statutes, Section 299F.63. Nashwauk will follow a manual of written procedures for conducting normal operations and maintenance activities and handling abnormal operations and emergencies.

11.0 4415.0165 - LIST OF GOVERNMENT AGENCIES AND PERMITS

Each application must contain a list of all the known federal, state, and local agencies or authorities and titles of the permits they issue that are required for the proposed pipeline and associated facilities.

**Table 5
List of Required Government Permits**

Agency / Unit Of Government	Title Of Permit / Regulations Involved	Description / Actions Required
FEDERAL		
United States Army Corps of Engineers	Section 10 United States Army Corps River Crossing Permit	Navigable Waterway Crossing Permit
United States Army Corps of Engineers	Section 404 Federal Wetland Permit, Federal Clean Water Act	Wetland Crossing Permit Environmental Document Review and Comments
United States Fish and Wildlife Service	Section 7 Consultations Endangered Species Act, Migratory Bird Treaty Act, Fish and Wildlife Coordination Act	Endangered Resources Consultations Environmental Document Review and Comments
STATE		

**Table 5
List of Required Government Permits**

Agency / Unit Of Government	Title Of Permit / Regulations Involved	Description / Actions Required
Minnesota Public Utility Commission	Partial Exemption and Route Permit Application	Environmental and Technical review of the proposed project
Minnesota Department of Natural Resources	Public Waters Work Permit, License for Utility Crossings of Public Lands and Waters	Rivers/Streams Crossing Permit Environmental Document Review and Comments
Minnesota Department of Natural Resources	Temporary Water Appropriation permit	Hydrostatic Test Water Appropriation Permit
Minnesota Department of Natural Resources	State Endangered Resources, Consultation	Endangered Resources Consultations
Minnesota Pollution Control Agency	NPDES Discharge Permit for Hydrostatic Testing Water	NPDES Discharge Permit Hydrostatic Water Discharge Permit MN0063649
Minnesota Pollution Control Agency	Water Appropriation Permit Trench Water Appropriation Permit Section 401 Water Quality Permit, Federal Clean Water Act	NPDES Discharge Permit Trench Water Discharge Permit MN0063649 Environmental Document Review and Comments
Minnesota Pollution Control Agency	NPDES General Storm Water Permit for Construction Activity	NPDES Discharge Permit Construction Stormwater Discharge Permit MN0063649
Minnesota Historical Society Project Review	Cultural Resources	Minnesota Historical Society (MnSHPO) Section 106 Consultation Cultural Resource Consultation
Minnesota Department of Transportation	Utility Permits, Highway or Road Crossing Permits	Minnesota Department of Transportation Road Crossing Permits Road encroachment approval
Minnesota Board of Water and Soil Resources	Minnesota Wetland Conservation Act	Environmental Document Review and Comments
Itasca County	Road and Ditch Crossing Permits	City and County Permits Road Crossing Permits Environmental and right-of-way county approvals
Watershed Districts	Wetland Conservation Act Exemptions (Local Government Unit) Watershed District Permits/Approvals	Consultations and permitting with local watershed districts/watershed management organizations
Iron Range Resources Board	Economic Development Notification and Grant Applications	Environmental Document Review and Comments
Arrowhead Regional Development Commission	Economic Development Notification and Grant Applications	Environmental Document Review and Comments
Various TWP	Road and Ditch Crossing Permits, Building Permits	Road Crossing Permits Road boring and encroachment approval

12.0 EVIDENCE OF CONSIDERATION OF ALTERNATIVE ROUTES

Nashwauk evaluated many route alternatives in determining its final preferred route. It compared several factors for each alternative, including the ability to meet project objective, technical and economic feasibility and potential environmental and human impacts. A detailed discussion of the route alternatives is provided in Section 2 of the Environmental Assessment Supplement (Appendix E) to this application.

Nashwauk identified and rejected four major route alternatives because of significant difficulties with meeting project goals, higher incremental costs, construction issues, and/or environmental or human impacts. For each major route alternative, Nashwauk quantified and compared potential environmental and human impacts. As a result of this analysis, Nashwauk narrowed the major route alternatives to the preferred route. Nashwauk then refined the preferred route to minimize to the extent practicable the impact on the environment and humans. To ensure that all reasonable route alternatives are considered Nashwauk will use the Citizens Advisory Committee and the recommendations of the Administrative Law Judge developed during the public hearing to guide its evaluation and final selection of a preferred pipeline route.

13.0 REFERENCES

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