Version 8/08rev

ENVIRONMENTAL ASSESSMENT WORKSHEET

Note to preparers: This form and EAW Guidelines are available at the Environmental Quality Board's website at: http://www.eqb.state.mn.us/EnvRevGuidanceDocuments.htm. The Environmental Assessment Worksheet provides information about a project that may have the potential for significant environmental effects. The EAW is prepared by the Responsible Governmental Unit or its agents to determine whether an Environmental Impact Statement should be prepared. The project proposer must supply any reasonably accessible data for — but should not complete — the final worksheet. The complete question as well as the answer must be included if the EAW is prepared electronically.
Note to reviewers: Comments must be submitted to the RGU during the 30-day comment period following notice of the EAW in the *EQB Monitor*. Comments should address the accuracy and completeness of information, potential impacts that warrant further investigation and the need for an EIS.

1. **Project title** Lake Superior – Poplar River Water District

2. **Proposer** Lutsen Mountains, Corp.
   Contact person Tom Rider
   Title Co-President, Lutsen Mountain
   Address PO Box 129
   City, state, ZIP Lutsen, MN 55612
   Phone (218) 406-1301
   Fax (218) 663-7109
   E-mail tom@lutsen.com

3. **RGU** Minnesota Department of Natural Resources
   Contact person Randall Doneen
   Title Environmental Review Planning Director
   Address 500 Lafayette Road, Box 25
   City, state, ZIP St. Paul, MN 55155-4025
   Phone (651) 259-5156
   Fax (651) 297-1500
   E-mail EnvironmentalRev.dnr@state.mn.us

4. **Reason for EAW preparation** (check one)
   ___EIS scoping _X_ Mandatory EAW ___Citizen petition ___ RGU discretion ___Proposer volunteered

   If EAW or EIS is mandatory give EQB rule category subpart number:
   Minnesota rules, chapter 4410.4300, subpart 24. A

   and subpart name: Water appropriation and impoundments

5. **Project location** County: Cook County City/Township: Lutsen Township

   Sections 20, 21, 28, 29, 32, and 33 Township: 60 North Range: 3 West

   GPS Coordinates N 47.6346 W -90.7106
   Tax Parcel Number – many parcels

   Attach each of the following to the EAW:
   - County map showing the general location of the project;
     - County Map

- U.S. Geological Survey 7.5 minute, 1:24,000 scale map indicating project boundaries (photocopy acceptable);
  - USGS Map

- Site plan showing all significant project and natural features.
  - Aerial Photograph
  - Pipeline Map with elevation profile
  - Soil Types U of M Report Page 8

6. **Description**

a. Provide a project summary of 50 words or less to be published in the *EQB Monitor.*

This project provides for the creation by the state legislature of a public rural water district (hereinafter the "District") and the construction by the District of a water pipeline and water appropriation from Lake Superior to provide potable and raw water to residential, commercial, and government customers within the district.

b. Give a complete description of the proposed project and related new construction. Attach additional sheets as necessary. Emphasize construction, operation methods and features that will cause physical manipulation of the environment or will produce wastes. Include modifications to existing equipment or industrial processes and significant demolition, removal or remodeling of existing structures. Indicate the timing and duration of construction activities.

This project involves the creation by the state legislature of a public Rural Water District and the construction by the District of a water pipeline from Lake Superior. This pipeline will serve residential, commercial, and government customers within the physical boundaries of the district.

Potable water will be provided to any party within the district that requests hook-up and pays all fees and otherwise meets the criteria established by the District. A potable water plant will be constructed at Caribou Highlands Resort and piping will be installed to allow distribution to area resorts and home owners.

Raw water will also be provided to all customers who request this, similarly subject to all fees and criteria established by the District. Initially, raw water will be supplied for:

- turf irrigation at a public golf course (Superior National at Lutsen, hereinafter "SNL");
- snowmaking at a private ski resort (Lutsen Mountains, hereinafter "LM"); and
- firefighting (filling tanker trucks) by local fire departments.

The water utility, all of which involves new construction, will consist of the following elements:

- Intake. An intake will be located in Lake Superior. This intake will consist of an approximately 4' diameter pipe extending about 150 feet into the Lake with a screen on the end. This pipe will be set so that the end will be at least 10 feet below lake level in order to prevent damage to the pipe from waves or ice.
- Pump house. A pump house connected to the intake will be located on the shore of Lake Superior. The intake will connect to a 20'-deep wet well inside the pump house. Four vertical centrifugal pumps in the pump house will draw water from the wet well and pump it into and up the pipeline.
- Pipeline. A 20" pipeline will leave the pump house and travel north into the District about 8500 feet. The end of this pipe will be connected to a 14" pipe that will run about 4,000 feet further north into the District. The entire pipeline will span, from south to north, nearly the entire District and provide the main trunk from which private and public parties in the District can draw off water either directly or through smaller spur lines that will be constructed as needed. Located next to the pipeline, along its entire 12,500' length, will be a smaller-diameter potable water pipeline. Separate

smaller-horsepower pumps in the pump house will pump raw water to the potable water plant through this pipe.

- Water Treatment Plant. A water treatment plant will be located at Caribou Highlands (CH), near the end of the pipeline. This plant will be initially designed to produce 20 gpm, and will be designed to be expanded to 100 gpm as demand warrants. The plant will consist of a raw water tank, feeding into a microfiltration system. Chlorine will be added before the water leaves the plant. This plant will meet all MDH rules and regulations and will be operated by properly licensed personnel.

Construction is anticipated to take one to two years. Some construction is proposed to take place fall and winter of 2012, but the majority of the work would proceed in the summer of 2013. It is possible that the project will not be completed and operational until the summer of 2014

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

There are several project purposes. With respect to raw water, LM currently draws snowmaking water from the Poplar River. This appropriation has raised concerns from Minnesota Department of Natural Resources (MDNR) about impacts to river resources during low flow conditions. The MDNR has given Lutsen Mountains four years to find an alternate source for this water. Lake Superior is the only viable alternative source for the volume of water needed for snowmaking. With respect to irrigation at SNL, the County is engaged in an expansion plan for the golf course which will include increased irrigation, and the existing system will not be able to meet the requirements of this new system. SNL currently draws water from Lake Superior but the existing pipeline is too small and near the end of its useful life to meet the needs of the course going forward. With respect to potable water, wells tapping into the local aquifers continue to decline in production. These aquifers appear to be small and fragile and are unable to meet current demands. Providing a public water supply from Lake Superior will decrease demand on this over-stressed aquifer system, allowing them to recover and meet the more moderate demands of a smaller population of remote landowners. It is expected that the larger resorts will be the first adapters of the public water system. Last, the local fire departments have poor access to water for re-filling tankers during a fire, which is especially problematic given the vast size of the County. This pipeline would provide a filling station near state Highway 61 allowing fire departments in Lutsen, Tofte, and Schroeder to fill tankers quickly. This location is both centrally located within the county and located immediately next to the main state highway through the County. This filling station will allow fire departments to re-fill a 3,000 gallon tanker in minutes, enhancing public safety for people and property by allowing more rapid response by firefighters. This system would also be available to DNR and US Forest Service in the event of a forest fire in the area, such as the Pagami Lake fire last summer that threatened this region. The large amount of forest land in Cook County makes it at high risk for large and dangerous forest fires. In addition, since many fires in the BWCAW are not actively suppressed, these fires can threaten adjacent landowners and the lack of water can severely hamper firefighting operations, putting people and property at risk.

d. Are future stages of this development including development on any other property planned or likely to happen? _X_Yes __No
If yes, briefly describe future stages, relationship to present project, timeline and plans for environmental review.

Future stages would involve increasing the capacity of the water treatment plant to the extent need grows. In addition, spur lines would be constructed from the main trunk line to establish connections for new users. The timeline for any of these activities is unknown as it will be determined by demand for water by landowners and residents within the District.

The SNL golf course is proposing course alterations within the existing property of the golf course. Expanded irrigation capacity associated with the proposed District water appropriation are planned to

be incorporated in the proposed alterations.

The current snow making infrastructure for LM allows for snow making on 285 acres. The existing LM ski runs are 317 acres. LM proposes to expand the existing snow capacity infrastructure to the entire 317 acres for an increase in snowmaking capacity for 32 acres. In addition to the existing ski runs LM proposes to construct an additional 31 acres of ski runs and trails that will include snow making infrastructure. The timing of the additional ski runs is dependent on LM economic factors. A total of 63 acres for additional snowmaking area are proposed.

e. Is this project a subsequent stage of an earlier project? _X_Yes __No
If yes, briefly describe the past development, timeline and any past environmental review.

Most of the water use from the proposed Lake Superior water appropriation will serve existing uses such as the Lutsen Resort, SNL and some residential development. A portion of this development was subject the Lower Poplar River Alternate Urban Area Review (AUAR) prepared by Cook County in 2006.

7. **Project magnitude data**
Total project acreage:

The only land alteration associated with the project is approximately 3 acres associated with the construction of the pipeline, pump house and water intake structure

The entire proposed Poplar Water District includes approximately 3,500 acre. Within the district there are 250 acres of golf course irrigation and approximately 317 acres of ski runs. 285 acres of the existing ski runs already benefit from snow making that will be replaced by the Lake Superior water appropriation. An additional 31 acres of ski runs are planned for construction as economic condition allow. The proposed water appropriation would provide increase snowmaking to all existing 317 acres of ski runs as well as the proposed 31 acres of ski runs for a total of 348 acres of ski runs that would benefit from snowmaking.

Number of residential units: unattached attached maximum units per building
Commercial, industrial or institutional building area (gross floor space): total square feet

Indicate areas of specific uses (in square feet):

Office	Manufacturing
Retail	Other industrial
Warehouse	Institutional
Light industrial	Agricultural

Other commercial (specify) 600 sq. ft. pump house
Building height If over 2 stories, compare to heights of nearby buildings

The only new structure proposed as part of this project is the pump house. The water treatment plant will be located inside an existing building at the CH.

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

Unit of government	Type of application	Status
Minnesota Pollution Control Agency	NPDES/SDS Construction Stormwater General Permit	To be applied for

MDNR	Water appropriation permit	Application pending
MDNR	Work in public waters	Application pending
MDNR	Licensed to Cross public land/water	To be applied for
MDNR	Permit for appropriation of water from infested waters	To be applied for
MDNR	Threatened and Endanger Species Takings Permit	To be applied for if needed
U.S. Army Corps of Engineers	Section 404 Permit	To be applied for
Cook County	Grade and fill permit	To be applied for
Cook County	Building permit	To be applied for

9. **Land use.** Describe current and recent past land use and development on the site and on adjacent lands. Discuss project compatibility with adjacent and nearby land uses. Indicate whether any potential conflicts involve environmental matters. Identify any potential environmental hazards due to past site uses, such as soil contamination or abandoned storage tanks, or proximity to nearby hazardous liquid or gas pipelines.

   The pipeline will pass through three parcels of land, all of which are long-standing, fully-developed commercial recreational properties. These properties are:

   Lutsen Resort. The pipeline will begin at Lutsen Resort (hereinafter "LR") on Lake Superior. This is where the intake pipe, the pump house, and the first section of pipeline will be located. This land has been a resort for 125 years. The pipeline will lie primarily within a golf/frisbee golf course on their property. It will then pass by an employee housing building and then under State Highway 61.

   Superior National Golf Course. On the north side of Highway 61, the pipeline will pass through SNL, mostly through the driving range and then along the side of a fairway.

   Lutsen Mountains. As the pipeline continues north through the golf course, it ultimately enters land owned by LM, a ski resort first established in 1948. All of the land on which the remaining part of the pipeline will pass is fully developed ski runs or roads. The pipe will pass under the Poplar River, which will be accomplished either through directional boring or a trench (discussions between engineers and DNR are ongoing about how best to accomplish this). There are no known environmental conflicts with any of these land uses.

   The Minnesota Pollution Control Agency's (MPCA) website, "What's in My Neighborhood" was reviewed to identify any underground tanks past environmental hazards within the project area. The website did identify a leak site at the Lutsen Ski Area Maintenance facility. A fuel oil leak was discovered in March of 2007 and following remediation activity the leak site was closed by the MPCA in April of 2011. There are some contaminated soils remaining on site. Construction of the pipeline will extend up to the water treatment plant at the CH. The site of the spill is further north than the CH so the area with remaining contaminated soils will not be crossed by the pipeline.

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

    There are no permanent changes to cover types proposed as part of this project with the exception of a 600 sq. ft. pump house. The approximate 3,500 acres water district is comprised of mainly wooded/forest area but also includes roads, houses, and recreational development such as resorts, ski areas, and a golf course. The project will not change any of these cover types with exception of small disturbances to forested areas as part of pipeline construction. Most of the forested areas are avoided by using roadway and other previously disturbed areas for the pipeline.

	Before	**After**		**Before**	**After**
Types 1-8 wetlands			Lawn/landscaping		

Wooded/forest	Impervious surfaces
Brush/Grassland	Stormwater Pond
Cropland	Other (describe)
TOTAL	

If **Before** and **After** totals are not equal, explain why:

11. **Fish, wildlife and ecologically sensitive resources**
a. Identify fish and wildlife resources and habitats on or near the site and describe how they would be affected by the project. Describe any measures to be taken to minimize or avoid impacts.

The majority of the water district is located within the Poplar River Watershed. The Poplar River is a designated trout stream. With the exception of the pipeline crossing the proposed water district infrastructure will not affect the stream. The proposed Lake Superior water appropriation could have a positive effect on the river by discontinuing the existing Poplar River water appropriation allowing additional flow in the river during late fall and winter.

The Poplar River Water District is located within the North Shore Highlands Subsection of the Ecological Classification System. The terrain varies from rolling hills to steep cliffs with many short streams typically ending in a waterfall near Lake Superior. Approximately 70% of the subsection is forested mostly by aspen-birch forest with minor amounts of white and red pine, mixed hardwood pine, and conifer bogs and swamps. The MDNR 2006 Comprehensive Wildlife Conservation Strategy identifies key habitats within the subsection as upland red-white pine coniferous forests, lowland coniferous forests, shoreline-dunes-cliff/talus, deep lakes, and the Poplar River. The construction of the water intake, pump house, and pipeline will have very little if any affect to these habitats. The upland portions of the construction area will be re-vegetated, with the exception of the pump house. The water intake structure will be in a deep lake habitat and the pipeline will cross the Poplar River. Both of these construction activities will require a work in public waters permit to ensure protection of ecological resources. The water intake will be screened to prevent aquatic organisms from entering the water intake.

The ground disturbed by construction could become established with invasive plant species. The introduction of invasive species would have a negative effect on habitat within the area. Measures to limit this effect are addressed as part of the MPCA Construction Stormwater General Permit by requiring rapid re-vegetation of disturbed areas.

The crossing of Poplar River by the pipeline has the potential to disrupt fish and aquatic organisms in the area of the crossing and downstream. If a trench crossing is proposed the timing of construction will be critical to protect fisheries. Directional drilling could be considered, but this approach carries risk from drilling mud fracturing out of the drill hole (“frac out”) and entering the river. The specific method used to cross the river will be determined as part of the permit to work in public waters and the license to cross public waters.

There is a potential for aquatic organisms to be sucked into the water intake structure. To minimize the potential the intake will have at least a 0.25 inch screen size.

There is a potential that aquatic invasive species such as Zebra Mussel, Spiny Waterflea, Viral hemorrhagic septicemia (VHS) could enter the water system and be transferred to other water bodies with the proposed raw water uses (snow making, irrigation and firefighting). The potential of spread of aquatic invasive species through snow making and irrigation is not probable due to the cold temperatures associated with snow making and inhospitable environment associated with irrigation. It

should also be noted that the golf course is currently irrigated from a Lake Superior water appropriation so there would be no increase in risk of the spread of invasive species due to irrigation. The risk for spreading aquatic invasive species is associated with the direct transfer of water from Lake Superior to other water bodies. The potential for this type of transfer through firefighting is limited, but it could occur if the water used to fight a fire is sprayed directly into a water body or if after the fire is over the remaining water in the tanker truck is discharged into a water body.

Minnesota Rules part 6216.0500 address the appropriation for water from infested waters. Water from designated infested waters may not be diverted to other waters or transported on public roads unless it is an emergency that threatens human safety or property, or under a permit issued under this part. Although the firefighting water use would be covered under the emergency exemption, the water appropriation permit that would be issued under Minnesota Statutes 103G will include provisions to prevent the spread of invasive species such as filtering of water and requirements for disposal of water not consumed as part of a fire fight.

b. Are any state-listed (endangered, threatened or special concern) species, rare plant communities or other sensitive ecological resources on or near the site? _X_Yes __No
If yes, describe the resource and how it would be affected by the project. Describe any measures that will be taken to minimize or avoid adverse impacts. Provide the license agreement number (LA-___) and/or Division of Ecological Resources contact number (ERDB 20120301-0003) from which the data were obtained and attach the response letter from the DNR Division of Ecological Resources. Indicate if any additional survey work has been conducted within the site and describe the results.

The Minnesota Natural Heritage Information System was queried to determine if any rare species or other significant natural features are known to occur within an approximate one-mile radius of the proposed water intake and pipeline (See Attachment A). Based on the query several rare features have been documented within the search area. Two of these features have the potential to be adversely affected by the project. Black hawthorn (*Crataegus douglasii*), a state-listed threatened species, has been documented along the Poplar River in the immediate vicinity of the proposed pipeline crossing. In Minnesota, this species occurs on rocky or gravelly stream banks, lakeshores, shrub thickets, forest margins, and rock outcrops. Minnesota's endangered species law and associated rules prohibit the destruction of threatened plants without a permit. The other rare feature is a Site of High Biodiversity Significance identified by the Minnesota County Biological Survey along the shoreline of Lake Superior. Sites ranked as High contain very good quality occurrences of the rarest species, high quality examples of the rare native plant communities, and/or important functional landscapes. This particular Site contains Gravel/Cobble Beach and Wet Rocky Shore native plant communities. The proposed water intake and pipeline will intersect this Site of High Biodiversity Significance.

The proposed pipeline crossing of the Poplar River will attempt to use existing disturbed corridors such as roads. Once the final location of the crossing has been determined a qualified botanist, from MDNR list of qualified botanists, will be employed to survey any areas along the Poplar River where brush or tree clearing will occur. Measure to avoid destruction of Black hawthorn plants will be investigated and if it is determined that effects to the plants are unavoidable the water district will need to apply for and receive a special permit from the MDNR for the taking of threatened or endangered species. This permit will ensure appropriate avoidance measures are considered and require mitigation for any effects. Potential mitigation measures include restoration of disturbed plants, enhancement of nearby communities, or financial contribution for better understanding and restoration of the plant species as a whole.

Crossing of the Gravel/Cobble Beach with the water intake and pipeline is unavoidable. The location of the pipeline and water intake will be regulated by the MDNR Work in Public Waters permit. Consideration of this permit application will include measure to minimize disruption of this native plant community and provide for mitigation of any unavoidable effects through restoration of the disturbance after construction is complete. The disruption will be temporary during construction and will be limited to only that required for placement of the water intake structure and the 14" pipeline.

The pump house will be located on an existing disturbed area and will not affect the native plant community.

12. **Physical impacts on water resources.** Will the project involve the physical or hydrologic alteration — dredging, filling, stream diversion, outfall structure, diking, and impoundment — of any surface waters such as a lake, pond, wetland, stream or drainage ditch? _X_Yes __No
If yes, identify water resource affected and give the DNR Public Waters Inventory number(s) if the water resources affected are on the PWI: Lake Superior (16-1P) and the Poplar River Describe alternatives considered and proposed mitigation measures to minimize impacts.

    The construction of the water intake within Lake Superior will require excavation of the lake bed and potentially blasting of bedrock to place the intake pipe in a protected location. The pipeline will extend approximately 150 feet into the lake and be at least ten feet below lake level.

    The pipeline from the pump house to the water treatment plant is proposed to cross the Poplar River approximately 8,000 feet upstream from where the river enters Lake Superior. This 14" pipe and the smaller diameter potable water pipe will be placed beneath the bed of the river either through the use of directional boring or trench construction.

    Both these activities have the potential for release of sediment into the water bodies during construction activities. These activities will require a Work in Public Waters permit that will include permit conditions to limit the release of sediment. Examples of permit conditions include timing of construction and the use of floating silt fences.

13. **Water use.** Will the project involve installation or abandonment of any water wells, connection to or changes in any public water supply or appropriation of any ground or surface water (including dewatering)? _X_Yes __No
If yes, as applicable, give location and purpose of any new wells; public supply affected, changes to be made, and water quantities to be used; the source, duration, quantity and purpose of any appropriations; and unique well numbers and DNR appropriation permit numbers, if known. Identify any existing and new wells on the site map. If there are no wells known on site, explain methodology used to determine.

    The District proposes a new water appropriation from Lake Superior to supply water to existing uses of snow making, irrigation, and potable water use. The proposed water appropriation includes expansion for each of these uses and adds firefighting as a purpose. Permit volumes requested will be 225 MGY for snowmaking and firefighting, 50 MGY for golf course irrigation, and 20 MGY for potable water. The total appropriation would therefore be 295 MGY. The current water appropriation for current snowmaking allows 150 MGY from the Poplar River. Current water use under the snow making water appropriation is between 80 MGY to 120 MGY. The current water appropriation golf course irrigation is 23 MGY and the water use is under this appropriation is typically close to the authorized amount. CH has a current water appropriation of 16.4 MGY from eight wells. The current water use under this appropriation is approximately 5 to 6 MGY. See table 13-1 for comparison of current water authorization, current water use, and proposed water authorization.

Water use type	Authorized appropriation (MGY)	Current water Source	Current water use (MGY)	Proposed water appropriation (MGY)
Snow making	150	Poplar River	80 – 120	225
Irrigation	23	Lake Superior	23	50
Potable drinking water	16.5*	Wells	5 – 6*	20

*This authorization and current water use is limited to the CH and does not include other potable drinking water uses in the area that may abandon existing wells to use the water district appropriation.

The project may involve the abandonment of wells – as wells decrease in production, it is anticipated that property owners (especially commercial users) will abandon these wells and connect to the water treatment plant.

The size of Lake Superior compared to the amount of the proposed appropriation is such that there would be no measureable effect to the lake due to the appropriation. Most of the appropriation will return to the lake as runoff. In addition the proposed appropriation would reduce the reliance on the groundwater and the Poplar River from water uses in the area. This proposed change in water source will have benefits to water resources in the area.

14. **Water-related land use management district.** Does any part of the project involve a shoreland zoning district, a delineated 100-year flood plain, or a state or federally designated wild or scenic river land use district? _X_Yes __No
If yes, identify the district and discuss project compatibility with district land use restrictions.

The project is located within the North Shore Coastal Management Zone (NSCMZ). The rules for the NSCMZ are incorporated into the Cook County zoning regulations. The District is proposed to serve existing uses with the allowance for some expansion. These uses are compatible with the Cook county zoning regulations.

15. **Water surface use.** Will the project change the number or type of watercraft on any water body? __Yes _X_No
If yes, indicate the current and projected watercraft usage and discuss any potential overcrowding or conflicts with other uses.

16. **Erosion and sedimentation.** Give the acreage to be graded or excavated and the cubic yards of soil to be moved:
acres ~ 3 acres ; cubic yards . Describe any steep slopes or highly erodible soils and identify them on the site map. Describe any erosion and sedimentation control measures to be used during and after project construction.

No soil will be moved permanently – only disturbed during construction and then restored to its original condition after construction. As noted above, approximately 3 acres of soil will be disturbed during construction. Construction will be phased so that only a small fraction of that total will be disturbed at any one time. A Stormwater Pollution Prevention Plan (SWPPP) will be filed with the MPCA SDS/NPDES construction storm water permit. In addition to typical construction stormwater Best Management Practices (BMPs) the SWPPP will also include enhanced BMPs described in Appendix A of the construction stormwater general permit for protection of impaired waters and trout streams. These enhanced BMPs include rapid stabilization, address increased storm volumes, and measures to prevent temperature increases. Nearly all of the pipeline route is over flat or gently-sloping land. The project gains about 412' over 2.13 miles which is an average gradient of 4%. The attached map (Pipeline Map with elevation profile) shows the profile along the pipeline route. There are three relatively steep slopes, all very short in length, as is shown on the attached map. Starting at the lake, the first slope is just above the lakeshore, and is 125' long and 37% in slope. The second steep slope is the bottom pitch on Caribou ski run, and is 300' long and 35% grade, and the last steep slope is the bottom pitch on Bridge ski run, which is 150' long and 20% slope.

17. **Water quality: surface water runoff**
a. Compare the quantity and quality of site runoff before and after the project. Describe permanent controls to manage or treat runoff. Describe any stormwater pollution prevention plans.

Construction activities associated with the planned water district infrastructure are limited because most of the proposed water uses within the district are existing uses that would not change surface water runoff. The only planned permanent activities with potential for changing surface water runoff are associated with SNL golf course and irrigation alterations, construction of approximately 31 acres

of new ski runs and trail, and runoff from increased snow making.

Golf course alterations include potential extension and realignment of fairways. All of these changes will be limited to the existing golf course property, but could result in additional golf turf within the water district. The current golf course irrigation covers approximately 20% of the golf course turf. The proposed increase in irrigation water would allow for irrigation of approximately 50% of the golf course turf. These changes to golf course alterations and irrigation are not anticipated to result in measurable changes to surface water runoff due to the limit of these changes and the infiltration capacity of the golf turf. Irrigation will infiltrate into the soil and any water not used by the turf will recharge the shallow aquifer. Any additional discharge from this aquifer to surface waters due to irrigation will be limited. Construction practices during the golf course alteration could result in temporary of the increases of sediment in stormwater. MPCA's construction stormwater permit and Cook County's grade and fill permit will incorporate erosion control practices such as the use of silt fences, timing of ground disturbing activities, and rapid re-vegetation to minimize the potential for temporary increases of sediment in stormwater.

There are an additional 31 acres of ski runs and trails proposed at LM associated with the following planned expansions:

- 25 acres of new ski runs on the North face of Moose Mountain
- 2 acres of new trail between Caribou and White Wolf
- 4 acres for a kids adventure area on Ullr Mountain

These proposed expansions have the potential to increase sediment in stormwater runoff. As described below the Poplar River is currently listed as impaired for elevated sediment levels on the MPCA 303d list of impaired waters. Several studies have been performed to identify and assess sediment loading in the Poplar River. *Poplar River Turbidity Assessment* (2008 RTI International) assessed various sediment sources and used WEPP model to allocate sediment loads from these sources. In this analysis the ski runs and roads were lumped together as a single sediment source. This study reported that ski runs and roads contribute a median sediment load of 661 tons/year, which is 33% of the total sediment load generated within the Lower Poplar River Watershed. The Upper Poplar River Watershed contributes between 11% and 34% of the total sediment in the Poplar River. The most recent study *Poplar River Sediment Source Assessment*, (2010 University of Minnesota) provides a more detailed analysis of sediment sources within the Poplar River watershed include sediment from existing ski runs. An important consideration for estimating sediment contribution from these ski runs is the infiltration capacity of the ski run. The 2010 Sediment Source Assessment found drastic differences in infiltration capacity of ski runs depending if the ski run was graded as part of construction. Infiltration rates in adjacent forested areas were twice as much as infiltration on non-graded ski slopes and forty times as much as infiltration on graded slopes. The report hypothesizes the reduction in infiltration rate is due to exposure of heavier subgrade soils due to being graded. To date there has not been an evaluation specifically addressing sediment in runoff due to snow making.

Expansion of the ski runs and additional snow making within the watershed has the potential to increase sediment in runoff and within the Poplar River. Using USGS 1911-61 data, during the snowmelt season (March, April, May) the Poplar River flows a total of 1,570 million cubic feet (MCF) of water. Assuming an appropriation of 100 MG (13.4 MCF) for snowmaking, the net snowmelt to the River would be 9.2 MCF after reductions for areas not in the watershed, and after allowances for evaporation and soil absorption. This snowmelt would add 0.59% to the total flow during this period. Lutsen Mountain hopes to add snowmaking capacity to another 32 acres of existing runs that do not currently have snowmaking, and add snowmaking to 31 acres of new trails and runs. These two combined would increase the snowmaking acreage by 22% and annual snowmaking water use would be increased proportionately to the 98 to 146 MG/season range at the end of this 15-year period. A 22% increase (see above, takes into account improvements planned over next 10 to 15 years) will add another 0.13% to these flows. In addition to the increase in instream flows the increased snow making will increase the runoff from the land which could result in additional sediment in the runoff. An

approximation of the increased runoff can be obtained estimating baseline runoff from the 348 acre ski run area. The watershed is 72,960 acres so the 348 acres would provide 7.5 MCF of the 1570 MCF of total spring flow. Adding the 22% increase in snow making to 9.2 MCF estimate would result in approximately 11.2 MCF increase from the 348 acre ski area.

While the additional snow is one factor that could contribute to increased erosion and sediment reaching the Poplar River, there are many additional factors that must also be considered. The permeability of the soil, slope, ability of for dislodged soil particles to settle out, level of vegetative uptake, connectivity to the river, and the presence of Best Management Practices (BMP) on the land all contribute to determining how much erosion reaches the Poplar River. The proposed increase in snowmaking for existing ski runs is intended for 32 acres of ski runs that do not currently have snow making. All of this area is on Mystery Mountain that is farthest from the Poplar River and is relatively flat. In addition much of this area was not graded so it maintains a higher level of infiltration capacity. These factors combined with previous and proposed efforts to implement BMPs will minimize the potential for increased erosion due to increased snow making.

In addition, the manufactured snow itself may reduce the potential for increased erosion. According to Lutsen Mountian staff, manufactured snow is twice as dense as packed natural snow. Over time, this snow tends to consolidate into larger and larger particles. These particles are different the natural snow as they are essentially small ice particles with much less surface area than natural snow. This reduction in surface area helps slow down the melting of the particle. By the end of the season, much of this snow has consolidated into sheets of ice that melt very slowly. The melting of these sheets is catalyzed more by temperature than by rainfall events. The ice sheets from manufactured snow have been observed on the Lutsen Mountain ski runs months after all natural snow has melted. The slower melting helps reduce any increases in erosion that would occur from increased instream erosion

Lutsen Mountain has participated in and implemented several measures to reduce sediment loading to the Poplar River. The Poplar River Management Board is a non-profit organization of private landowners and public agencies that was formed to address sediment loading in the Poplar River. Examples of projects that have been implemented due to the efforts of this board include:

- Elimination of approximately 50% of service road and trails within the ski area,
- Implementation Mega Slump project to stabilize large rotational slump on the Poplar River,
- Implementation of Brule tight line stormwater system,
- Implementation of Eagle Ridge stormwater management system, and
- Planned project for 2012 season is the Ullr tight line stormwater system.

Continued water quality monitoring by the MPCA has shown a trend toward reduced sediment load within the Poplar River, indicating that these efforts have been successful.

In addition to previous efforts that have been implemented there are other efforts planned to continue sediment load reductions. The Caribou Highland Flowpath project is a proposed project that partially funded by a GLC Grant to address existing development and steep slopes near the Poplar River. This flowpath area was identified as a potential area for sediment source reduction as part of the more detailed 2010 U of M report. This project is currently planned for implementation during the 2012 construction season. Two additional projects are planned for design next winter with construction during the 2013 construction season. One of these projects is the Mystery Mountain Flowpath project that was also identified in the 2010 U of M report for potential sediment source reduction. The last currently planned project is associated with Eagle Mountain Road improvements to address sediment load from roads in that area. These past projects and planned projects for stormwater management will reduce sediment load to the Poplar River.

The planned expansions for ski runs and trails will be subject to MPCA construction stromwater general permit as well as Cook County stormwater management requirements. These regulatory

authorities will consider the Poplar River impairment and trout stream designation for development of BMPs and permanent stormwater management. Lutsen Mountain has preliminary plans for developing the 25 acres of new ski runs on the North face of Moose Mountain. These plans call or tree and brush removal without grading to maintain infiltration capacity as much as possible. Additional measures to slow down runoff from the proposed ski runs include construction of water bars and check logs.

b. Identify routes and receiving water bodies for runoff from the site; include major downstream water bodies as well as the immediate receiving waters. Estimate impact runoff on the quality of receiving waters.

Approximately 80% of snowmaking water would drain into the Poplar River, and 20% would drain directly to Lake Superior. As mentioned above the Poplar River is impaired for turbidity due to sediment runoff within the watershed. Increases in sediment runoff due to construction activities, snow making, irrigation, and planned expansions will be minimized as part of Stormwater Pollution Prevention Plans (SWPPP) required for these activities. Any potential increase in sediment load to the Poplar River will be compensated by previous, ongoing and future stormwater management projects as part of the Total Maximum Daily Load (TMDL) process that is underway as a result of the turbidity impairment.

18. **Water quality: wastewaters**

a. Describe sources, composition and quantities of all sanitary, municipal and industrial wastewater produced or treated at the site.

The proposed water district will not result in any change to the existing domestic and commercial wastewater generation or treatment.

b. Describe waste treatment methods or pollution prevention efforts and give estimates of composition after treatment. Identify receiving waters, including major downstream water bodies (identifying any impaired waters), and estimate the discharge impact on the quality of receiving waters. If the project involves on-site sewage systems, discuss the suitability of site conditions for such systems.

N/A

c. If wastes will be discharged into a publicly owned treatment facility, identify the facility, describe any pretreatment provisions and discuss the facility's ability to handle the volume and composition of wastes, identifying any improvements necessary.

N/A

19. **Geologic hazards and soil conditions**

a. Approximate depth (in feet) to ground water:

minimum – a few feet near Lake Superior
average – Further North the depth can be as much as 300 ft;

to bedrock:

minimum – At the surface near Lake Superior
average – Further North the bedrock gets deeper.

Describe any of the following geologic site hazards to ground water and also identify them on the site map: sinkholes, shallow limestone formations or karst conditions. Describe measures to avoid or minimize environmental problems due to any of these hazards.

There are no known geologic hazards to groundwater in the area.

b. Describe the soils on the site, giving NRCS (SCS) classifications, if known. Discuss soil texture and potential for groundwater contamination from wastes or chemicals spread or spilled onto the soils.

Discuss any mitigation measures to prevent such contamination.

Limited soil data exists for the area. Soil texture is generally very fine, with a high percentage of clay and silt, with pockets of sand and gravel. The attached figure (Soil Types U of M Report Page 8) was prepared as part Poplar River TMDL effort. Generally the soils in the watershed are poorly drained in depressions and moderately drained on summits and slopes. The proposed water district construction does not include the use of any chemicals or production of wastes that may contaminate the groundwater. Construction equipment will use typical fuel oil products. If there is any blasting required as part of placing the water intake structure there would be explosives temporarily on-site.

20. **Solid wastes, hazardous wastes, storage tanks**
a. Describe types, amounts and compositions of solid or hazardous wastes, including solid animal manure, sludge and ash, produced during construction and operation. Identify method and location of disposal. For projects generating municipal solid waste, indicate if there is a source separation plan; describe how the project will be modified for recycling. If hazardous waste is generated, indicate if there is a hazardous waste minimization plan and routine hazardous waste reduction assessments.

N/A

b. Identify any toxic or hazardous materials to be used or present at the site and identify measures to be used to prevent them from contaminating groundwater. If the use of toxic or hazardous materials will lead to a regulated waste, discharge or emission, discuss any alternatives considered to minimize or eliminate the waste, discharge or emission.

N/A

c. Indicate the number, location, size and use of any above or below ground tanks to store petroleum products or other materials, except water. Describe any emergency response containment plans.

N/A

21. **Traffic.** Parking spaces added:
Existing spaces (if project involves expansion):
Estimated total average daily traffic generated:
Estimated maximum peak hour traffic generated and time of occurrence:
Indicate source of trip generation rates used in the estimates.
If the peak hour traffic generated exceeds 250 vehicles or the total daily trips exceeds 2,500, a traffic impact study must be prepared as part of the EAW. Using the format and procedures described in the Minnesota Department of Transportation's Traffic Impact Study Guidance *(available at: http://www.oim.dot.state.mn.us/access/pdfs/Chapter%205.pdf)* or a similar local guidance, provide an estimate of the impact on traffic congestion on affected roads and describe any traffic improvements necessary. The analysis must discuss the project's impact on the regional transportation system.

The proposed water district will not result in any change to parking of traffic generation. Cook County prepared an Alternate Urban Areawide Review for the Lower Poplar River that evaluated existing parking and traffic as well as an increases under the development scenarios evaluated in the that document. Full development scenarios identified increased parking and improvements to the intersection of CR5 and CR61.

22. **Vehicle-related air emissions.** Estimate the effect of the project's traffic generation on air quality, including carbon monoxide levels. Discuss the effect of traffic improvements or other mitigation measures on air quality impacts.

N/A

23. **Stationary source air emissions.** Describe the type, sources, quantities and compositions of any emissions from stationary sources of air emissions such as boilers, exhaust stacks or fugitive dust sources. Include any hazardous air pollutants (consult *EAW Guidelines* for a listing) and any greenhouse gases (such as carbon dioxide, methane, nitrous oxide) and ozone-depleting chemicals (chloro-fluorocarbons, hydrofluorocarbons, perfluorocarbons or sulfur hexafluoride). Also describe any proposed pollution prevention techniques and proposed air pollution control devices. Describe the impacts on air quality.

    N/A

24. **Odors, noise and dust.** Will the project generate odors, noise or dust during construction or during operation? _X_Yes __No
    If yes, describe sources, characteristics, duration, quantities or intensity and any proposed measures to mitigate adverse impacts. Also identify locations of nearby sensitive receptors and estimate impacts on them. Discuss potential impacts on human health or quality of life. (Note: fugitive dust generated by operations may be discussed at item 23 instead of here.)

    During construction of the water intake and pipeline there is a potential dust and noise. Any drilling or blasting of bedrock needed to place the water intake or pipeline will create the loudest noise. These activities will be limited to the construction period and will occur during daylight hours. There are some residences and resorts within the construction area that will be able to hear the construction activities.

25. **Nearby resources.** Are any of the following resources on or in proximity to the site?
    Archaeological, historical or architectural resources? __Yes _X_No
    Prime or unique farmlands or land within an agricultural preserve? __Yes _X_No
    Designated parks, recreation areas or trails? _X_Yes __No
    Scenic views and vistas? _X_Yes __No
    Other unique resources? __Yes _X_No
    If yes, describe the resource and identify any project-related impacts on the resource. Describe any measures to minimize or avoid adverse impacts.

    <u>Designated Parks.</u> The Superior Hiking Trail passes within a mile of the end of the pipeline. Since the pipeline will be buried, and will be located quite far from the trail, there should not be any impacts to the Trail.

    <u>Scenic Views and Vistas.</u> The views from the tops of the mountains (Moose and Eagle) are quite good. Since the pipeline will be buried and will be located some distance from these mountain tops, there will be no impacts to these vistas.

26. **Visual impacts.** Will the project create adverse visual impacts during construction or operation? Such as glare from intense lights, lights visible in wilderness areas and large visible plumes from cooling towers or exhaust stacks? __Yes _X_No
    If yes, explain.

27. **Compatibility with plans and land use regulations.** Is the project subject to an adopted local comprehensive plan, land use plan or regulation, or other applicable land use, water, or resource management plan of a local, regional, state or federal agency? _X_Yes __No.
    If yes, describe the plan, discuss its compatibility with the project and explain how any conflicts will be resolved. If no, explain.

    The area within the proposed water district is zoned by the Cook County zoning ordinance as Resort Commercial with a small area zoned single residential. The proposed water district does not propose any changes to the existing land use. The existing uses are compatible with these zoning districts. The area is also subject the Lower Poplar River AUAR and an existing Planned Use Development. The

construction of the water district infrastructure and any expansion of the ski runs and golf course would be subject Cook County land use regulations include the potential requirement for a conditional use permit that would establish any project specific conditions to ensure land use compatibility.

28. **Impact on infrastructure and public services.** Will new or expanded utilities, roads, other infrastructure or public services be required to serve the project? _X_Yes __No.
If yes, describe the new or additional infrastructure or services needed. (Note: any infrastructure that is a connected action with respect to the project must be assessed in the EAW; see *EAW Guidelines* for details.)

    The proposed project is an expanded utility in that the project is the development of a water district to supply both raw water and treated water to existing uses within the proposed district. The project will not result in increased need for other infrastructure or other public services.

29. **Cumulative potential effects.** Minnesota Rule part 4410.1700, subpart 7, item B requires that the RGU consider the "cumulative potential effects of related or anticipated future projects" when determining the need for an environmental impact statement.
Identify any past, present or reasonably foreseeable future projects that may interact with the project described in this EAW in such a way as to cause cumulative potential effects. (Such future projects would be those that are actually planned or for which a basis of expectation has been laid.)
Describe the nature of the cumulative potential effects and summarize any other available information relevant to determining whether there is potential for significant environmental effects due to these cumulative effects *(or discuss each cumulative potential effect under appropriate item(s) elsewhere on this form).*

    The proposed project will have the following environmental effects that could combine with other projects to for cumulative potential effects:
    - Increased sedimentation of the Poplar River and Lake Superior associated with temporary construction activities, proposed ski and golf expansions and increased snow making.
    - Disturbance of Rock/Cobble beach native plant community with the a Site of High Biodiversity
    - Effects to Black hawthorn (*Crataegus douglasii*), a state-listed threatened species, that has been documented along the Poplar River in the immediate vicinity of the proposed pipeline crossing.

    There are no other known future potential projects, for which a basis of expectation has been laid, that will contribute to the cumulative effects to the Rock/Cobble Beach native plant community.

    The only known future potential projects, for which a basis of expectation has been laid, that could contribute to increase sedimentation of the Poplar River and Lake Superior are the proposed expansions of the ski runs, golf course and increased snow making. The potential for increased sedimentation due to these activities was addressed in response to Item 17 above. All of these activities will be subject to ongoing public regulatory authority under MPCA construction stormwater general permit and the Cook County stormwater permit. In addition any direct effects to public water from construction activities will be subject to MDNR work in public waters permit. These regulatory authorities combined with sediment load reduction efforts under the TMDL process described in Item 17 will limit the potential for increased sedimentation to the Poplar River and Lake Superior.

30. **Other potential environmental impacts.** If the project may cause any adverse environmental impacts not addressed by items 1 to 28, identify and discuss them here, along with any proposed mitigation.

    None.

31. **Summary of issues.** *Do not complete this section if the EAW is being done for EIS scoping; instead, address relevant issues in the draft Scoping Decision document, which must accompany the EAW.*
List any impacts and issues identified above that may require further investigation before the project is

begun. Discuss any alternatives or mitigative measures that have been or may be considered for these impacts and issues, including those that have been or may be ordered as permit conditions.

None.

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

I hereby certify that:

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

Signature _____ Date 6/8/2012

Title Environmental Review Planning Director

Environmental Assessment Worksheet was prepared by the staff of the Environmental Quality Board at the Minnesota Department of Administration, Office of Geographic and Demographic Analysis. For additional information, worksheets or for *EAW Guidelines*, contact: Environmental Quality Board, 658 Cedar St., St. Paul, MN 55155, 651-201-2492, or http://www.eqb.state.mn.us