DEPARTMENT OF NATURAL RESOURCES

RECORD OF DECISION

In the Matter of the Determination of the Need for an Environmental Impact Statement for the Knowlton Creek Stream Restoration Project in St. Louis County, Minnesota

FINDINGS OF FACT, CONCLUSIONS, AND ORDER:

FINDINGS OF FACT

1. The framework for addressing degradation of Great Lakes aquatic resources has evolved over more than a quarter century into a binational effort to remove impairments in specific areas of the Great Lakes where wildlife habitat had degraded or serious sediment contamination had occurred. The Minnesota Department of Natural Resources (MNDNR) became a partner in this effort, working along with other federal, tribal, state, and local agencies and community partners to focus on one specific area of the Great Lakes, the St. Louis River Area of Concern (AOC). As part of this process of restoration planning, the MNDNR and partners identified the need to stabilize and restore the Knowlton Creek stream channel that has been contributing excessive sedimentation to the Lower St. Louis River.

2. Under the management of the U.S. Environmental Protection Agency (EPA) and the Government of Canada, the U.S.-Canada Great Lakes Water Quality Agreement (Annex 2 of the 1987 Protocol) was established to identify AOCs as "geographic areas that fail to meet the general or specific objectives of the agreement where such failure has caused or is likely to cause impairment of beneficial use (BUIs) of the area's ability to support aquatic life." More simply put, an AOC is a location that has experienced significant environmental degradation. Forty-three AOCs have been identified: 26 located entirely within the United States; 12 located wholly within Canada; and five that are shared by both countries.

3. Seven of the AOCs selected, including the St. Louis River AOC, are located within the Lake Superior basin. The St. Louis River is the only AOC located in Minnesota and one of five AOCs in Wisconsin. The St. Louis River, the largest U.S. tributary to Lake Superior, enters the southwest corner of the lake between Duluth, Minnesota and Superior, Wisconsin. As it approaches Duluth and Superior, the river takes on the characteristics of a 12,000 acre freshwater estuary.

4. The two federal governments are cooperating with state and provincial governments to develop and implement Remedial Action Plans (RAPs), which address one or more of 14 BUIs identified for the Great Lakes AOCs. Examples of BUIs associated with the St. Louis River AOC include fish consumption advisories, fish tumors and other deformities, excessive loading of sediment and nutrients, and loss of fish and wildlife habitat. Sediment contamination is a serious problem in many AOCs. The binational effort is meant to restore beneficial uses of the ecosystem by cleaning up severely contaminated and degraded locations around the Great Lakes.

5. Delisting the AOCs contributes to the sustainability of local communities and of the Great Lakes region. Delisting is achieved by essentially two processes: restoring fish and wildlife habitat and populations that are ecologically and economically significant at a local, lake and basin-wide scale; and removing major sources of contaminants and other stressors that have been impairing water quality and restricting beach use and fish and wildlife consumption.

6. In 1992, the RAP for the St. Louis River AOC outlined future cleanup projects necessary for delisting the Area of Concern. The RAP was updated in 1995 and 2013. Wisconsin and Minnesota have been working together since 2010 on restoration and remediation projects at critical sites in the St. Louis River.

7. The 2013 RAP update, referred to as the St. Louis River AOC Implementation Framework and completed by the Minnesota Pollution Control Agency (MPCA), outlined plans to be taken by federal, tribal, state, and local organizations to remove the nine BUIs identified for the St. Louis River AOC. The comprehensive strategic action plan provides the procedures necessary to delist this AOC by 2025.

8. Given the amount of physical habitat that was lost or degraded during the last century, fish and wildlife habitat impairments are targeted for restoration and protection. The RAP indicates that the removal of the Loss of Fish and Wildlife Habitat BUI would be justified upon completion of several key tasks, including the rehabilitation of at least 1,700 aquatic habitat acres, 50% of the aquatic areas known to be degraded. The Knowlton Creek Stream Restoration project would contribute to removal of St Louis River AOC Beneficial Use Impairments (BUIs) 2 - Degraded Fish and Wildlife Populations, 6 - Excessive Loading of Sediments and Nutrients (indirectly) and 9 - Loss of Fish and Wildlife Habitat.

9. Knowlton Creek empties into the St. Louis River, which flows about nine miles further before reaching Lake Superior. Approximately 4.3 mi of Knowlton Creek and tributaries were recently designated as trout habitat by MNDNR Fisheries. The upper three-quarters of the watershed (above 1000 ft) is situated above the project area. The steeper mid-section and flatter lower section of the watershed contain the project area and collectively range in elevation from 600 feet to 1000 feet.

10. The Minnesota Department of Natural Resources (MNDNR) proposes to restore and enhance habitat for trout and associated cold-water organisms, using Natural Channel Design techniques to stabilize approximately 6,491 feet of Knowlton Creek and tributaries in Duluth, Minnesota. The project area is located within the Spirit Mountain Recreation Area Recreation Park (SMRA), a component unit of the City of Duluth, St. Louis County, Minnesota. The entire project lies within the lower- and mid-elevations of Knowlton Creek watershed and includes both floodplain and in-stream work.

11. The MNDNR-sponsored project would cause a realignment of a designated trout stream. Any action to realign a trout stream requires the completion of an Environmental Assessment Worksheet (EAW) (*Minnesota Rules*, part 4410.4300, subpart 26, Stream Diversion). Because the MNDNR is the proposer of the project, it is the designated responsible governmental unit (RGU), pursuant to *Minnesota Rules*, part 4410.0500, subpart 1.

12. The MNDNR prepared an EAW for the proposed project according to guidance under *Minnesota Rules*, parts 4410.1400 and 4410.1500.

13. The EAW was filed with the Minnesota Environmental Quality Board (EQB) and a notice of its availability was published in the EQB Monitor on July 20, 2015. A copy of the EAW was sent to all persons on the EQB Distribution List, to those persons known by the Department to be interested in the proposed project, and to those persons requesting a copy. A press release announcing the availability of the EAW was sent to newspapers and radio and television stations statewide. Copies of the EAW were also made available for public review and inspection at the Minneapolis Central Public Library; the MNDNR Library (St. Paul); the Duluth Library; and the

MNDNR Northeast Regional Office (Grand Rapids). The EAW was also made available to the public via posting on the MNDNR's website.

14. The 30-day EAW public review and comment period began July 20, 2015 and ended August 19, 2015, pursuant to *Minnesota Rules*, part 4410.1600. The comment period closed at 4:30 pm. The opportunity was provided to submit written comments on the EAW to the MNDNR by U.S. Mail, by facsimile, or electronically by email.

15. The EAW is incorporated by reference into this Record of Decision on the determination of need for an environmental impact statement (EIS).

16. During the 30-day EAW public review and comment period, two comments on the EAW were received. Comments are listed below and a summary of the comment and responses are included with this Record of Decision. Copies of the comments received have been attached to this Record of Decision (Attachment 1).

    1. Mike Schrage (August 2, 2015)
    2. Patrice Jensen on behalf of Minnesota Pollution Control Agency (August 17, 2015)

17. One commenter expressed support or approval of the project.

    RESPONSE: Comment noted.

18. The MPCA provided a letter stating that staff had reviewed the EAW and did not have further comments at this time.

    RESPONSE: Comment noted.

19. The MNDNR has determined that the following issues reviewed for potential environmental effects in the EAW have no or very limited potential for environmental effect.

a. **Groundwater (EAW Item No. 11).** Due to the nature of project activities, the construction and operation of this project would not have an effect on groundwater supply or quality.

b. **Hazardous Waste Historical Presence (EAW Item No. 12a).** During investigations to complete the EAW, no potential environmental effects related to existing hazardous wastes on or near the project area were identified.

c. **Visual Impacts (EAW Item No. 15).** During investigations to complete the EAW, a very limited potential for environmental effects related to visual impacts was identified.

20. Based upon the information contained in the EAW, the MNDNR has identified the following potential environmental effects associated with the project:

    a. Project Magnitude, Scheduling, and Construction
    b. Compatibility with Plans, Ordinances, and Land Uses
    c. Compatibility with Transportation
    d. Surface Waters
    e. Invasive Species Management and Control
    f. Wildlife and Habitat
    g. Rare Features & Native Plant Communities
    h. Hazardous Materials Used
    i. Construction and Municipal Wastes

j. Vehicle Emissions
k. Dust and Odors
l. Noise
m. Archaeological, Historical, and Architectural Resources
n. Cumulative Potential Effects

Each of these environmental effects is discussed in more detail below.

a. **Project Magnitude, Scheduling, and Construction (EAW Item No. 6b)**. Anthropogenic land uses, including general urban development in the watershed, multiple recreational developments, snowmaking operations at SMRA, backflow surge releases from the Cloquet water system, and storm events have resulted in severe impacts to the Knowlton Creek stream channel and high sedimentation rates in the receiving waters (St. Louis River Bay). Storm events during the last decade, including a greater than a one-hundred year flood event in June 2012, resulted in severe bank erosion on both the main stem and tributaries of Knowlton Creek and in the major failure of a derelict railroad causeway. The sediment collected on the floodplain along the downstream, flatter reaches of the creek and contributed to the formation of a delta at the mouth of the creek in the bay.

Although water temperatures of Knowlton Creek are generally viable for trout, the current stream environment does not support a resilient habitat for brook trout and other cold water organisms. The creek exhibits flashy flows. During intervals of low flow and hot weather, oxygen and/or temperature levels can reach lethal levels. Trout streams in urban Duluth are being marginalized by increased impervious surface areas, concomitant temperature rises of inflows, and the conditions of streams are further being exacerbated by the effects of climate change.

The project area encompasses 35 acres of forested habitat on the mid and lower elevations of Knowlton Creek. Approximately 1.3 miles across 24 reaches (mostly contiguous) were selected on the basis of suitability and need for enhancement. The stream restoration work would occur in three sectors, the lower Unnamed Tributary (UT) to Knowlton Creek (two reaches of 0.1 miles), Upper reaches of the UT to Knowlton Creek and other smaller tributaries referred to as Upland Areas (seventeen reaches of 0.6 miles), and the Knowlton Creek Main Stem (five reaches of 0.6 miles). The project would be completed in stages with Sectors 1 and 2 being constructed during fall of 2015 and Sector 3, constructed during the mid-summer and late fall of 2016.

The restoration methodology being applied is a geomorphologic approach appropriate for the creek's hydrology following the Natural Channel Design methodology. The approach applies engineering, geologic, and biological principles into designs that are based on how the landscape is shaped by flowing water. Project designs would be certified by a Registered Professional Engineer licensed in Minnesota.

Modelling data has been analyzed using a set of process equations that link the three-dimensional morphology of the river with the controlling boundary conditions. The HEC-RAS model was developed to characterize flows of the channel segments. The model was run for bankfull, 10, 25, 50, 100, and 500-year storm events. The FLOWSED/POWERSED sediment transport models and the BANCs model were employed by Stantec engineering and design contractors to compare pre- and post-project channel bank erosion.

Construction would involve adjusting the channel's dimensions, pattern of sinuosity, and profile through channel shaping and placement of boulder and log energy dissipation structures to improve channel stability and trout habitat. Three types of restoration approaches would be applied on the focus reaches: establishing a hydraulic connection between the channel and

floodplain; cutting a new floodplain with the channel at its current (or sometimes raised) elevation; and stabilizing stream banks. These components would include adjusting the stream channel size, location, and shape and enhancing vegetation in the riparian corridor by reseeding ground cover and planting native shrubs and trees.

The proposed boulder and wood structures largely create step-pool sequences along each reach. Four general categories of structures proposed---vanes, cross-vanes, riffles, and toe wood revetments—include eight types of stream stabilization structures, totaling 339 structures within the three sectors. Often collectively regarded as riffle structures or habitat features, they create hydraulic complexity (turbulence, upwelling, downwelling) that enhances aquatic habitats. The types of structures proposed are: Oblique Vanes (Rock and Log Riffles, Boulder Vane Riffles, and Log Vane Boulder Hooks); Cross-vanes (Boulder Jam Steps and Log Steps); Riffles (Rock Cascades and Rock Riffles) and Toe Wood (Wood Toe with COIR (Fiber Mat) Wrapped Soil). The average distance of separation of the proposed structures would be about 20 feet. Appropriate erosion control measures would be applied.

The causeway over Knowlton Creek at the derelict DWP railroad line washed out in 2012. The concrete culvert has remained in the stream channel since that time. The SMRA reduced the grade of the washed out banks and reseeded disturbed slopes with funding from Minnesota flood relief. Removal of the remaining concrete culvert would be completed as part of this project.

The construction plan identifies areas of potential grubbing, excavating, filling, leveling, placing boulder and log structures, removing trees and other vegetation, rutting, seeding/planting, and installing of erosion control measures. Anticipated construction equipment includes: 330-class or smaller excavators, a bulldozer, marookas (tracked dump trucks) and a front-end loader. The smaller excavators and tracked vehicles would be operated primarily along the streambank in the immediate project area. Existing roads and trails would be used for construction access where possible.

Project disturbances would be limited to shorelands worked for reconnecting the floodplain (twelve acres), access and staging areas (one acre), and work on the stream channel below the creek's bankfull level (below the OHWL) (three acres). The project magnitude is defined by modelling results and engineering specifications necessary for achieving restoration by the three main approaches. Scheduling and phasing of construction would be employed to reduce potential effects on the stream channel. Late summer and fall seasons are the period of low rainfall for the area. The risk of the watershed receiving a high rainfall event would be lowest during this period. The contractor has responsibility of reestablishing vegetation in a timely manner.

The Quality Assurance Project Plan Guidelines (QAPrP) for AOC projects indicates that successful BUI removal must be based on a premise that biological indicators will respond positively to aquatic habitat improvements completed at the restoration site. A Quality Assurance Project Plan (QAPP) would be prepared for this project and submitted to the federal funding partners (US Environmental Protection Agency and the National Fish and Wildlife Foundation (NFWF-SOGL) as a condition of project fund application.

Beneficial effects include improved channel stability, enhanced trout habitat, and a reduction of sediment reaching the St. Louis River estuary, thus contributing to the removal of BUI 6, Excessive Loading of Sediments and Nutrients. Bank erosion would be reduced. Efforts to revegetate disturbed areas with native plants would be beneficial to wildlife and provide further protection from erosion caused by overland flow. Efforts to reconnect the floodplain to the stream channel would improve existing wetland hydrology. In addition, over one-half acre of wetland would be created.

Construction disturbances would be temporary, limited in extent, and reversible through mitigation and on-going regulatory authority.

The design, scheduling, and construction of the project would have temporary and limited environmental effects on the project area as described in Finding 20a through 20n.

b. **Compatibility with Plans, Ordinances, and Land Uses (EAW Item No. 9)**

Land cover of the project area remains relatively undeveloped and forested. The area lies within Duluth's Western Planning Area, the SMRA, and Bardon's Peak Forest Park, one of Duluth's Natural Areas. The project area is owned and administered primarily by the City of Duluth and would be subject to the City's Unified Development Code (UDC) zoning ordinances. Numerous road, railroad, and trail corridors--Grand Avenue (Highway 23), a Burlington Northern-Santa Fe railroad grade, the Munger State Trail, Duluth Western Waterfront Trail, Duluth Traverse Trail, and the Superior Hiking Trail—transect the project area. Additional utility buildings and corridors (water, sewer, and others) also occur within the project area.

The City's Comprehensive Plan (2006) identifies the project area's current land use as mostly outdoor recreation. The future land use designation for the SMRA is Recreational, for the most part, and the future land use designation for the Knowlton Creek riparian area is Preservation. The land uses in the project area are limited to low intensity uses, such as trail development, viewshed protection and water access for passive use (e.g. walk-in fishing with limited parking). Project area lands and surrounding vicinity are mostly within the Sensitive Lands Overlay (SLO) District, having high natural resource and scenic value and substantial restrictions to development due to development limitations. The project serves as a positive force for protecting surface water from the combined impacts of point and non-point sources of pollution.

The project area is within UDC Residential-Rural (RR-1) zone, designated low density development with minimum lot sizes of five acres. A portion is also mapped as UDC Residential-Traditional (R-1) zone, which accommodates traditional neighborhoods of single-family detached residences. The project area's R-1 zone only contains lands that fall within one or more Natural Resource Overlay Districts including wetlands, floodplains, shorelands, and storm water rate control zones. As indicated in Duluth's future land use map, some nearby lands along Grand Avenue (Hwy 23) are designated as potentially developable for urban residential, urban commercial, or traditional neighborhood land uses.

The lower part of the construction zone is mapped within the Federal Emergency Management Agency (FEMA) 100-year general development floodplain (Zone A). The shoreland zone extends 150 feet from the OHWL of Knowlton Creek, a designated Cold Water Stream. The project is within the Lake Superior Coastal Zone under the jurisdiction of the Minnesota Lake Superior Coastal Program (MLSCP) and would be subject to the federal consistency review to determine whether projects are consistent with the enforceable policies of MLSCP. St. Louis County, Minnesota, Comprehensive Water Management Plan (SLCWMP), Update 2010 – 2020 identifies priority concerns and actions for meeting its water quality objectives.

The 2008 Master Plan recreational concept map for SMRA provides a framework for future operations of the recreation area. The mid- and lower area of Knowlton Creek watershed, including the project area, is designated as a "multi-use recreation development area." The concept map indicates a potential increase in low intensity uses, including removal and relocation of a maintenance building and trail, campground expansion close to the Knowlton Creek, and development of a new and expanded system for snowmaking coinciding with the development of a reliable water source and run off delivery system.

The project would be compatible with the City's comprehensive plan and long-range resource management plan. The project would meet requirements of the local RR-1 and R-1 zoning and overlay districts. Modeling results indicate no effect to floodwater surface elevation due to the project. Natural Channel Design stabilization is compatible with "natural environment" shoreland management. No consistency issues with the MLSCP have been identified. The project also supports objectives identified by the MNDNR's Knowlton Creek Stream Management Plan (2010). City of Duluth Shoreland and Floodplain, Erosion and Sediment Control, and Fill, and Excavation and Grading permits would be required. City of Duluth engineers and planners would approve the finalized design plan.

Compatibility with Adjacent and Nearby Land Uses: Noise and other potential environmental effects of project actions on nearby land uses are discussed under the specific environmental effect as organized in the topics below.

The project would be consistent with current and future land use plans and zoning regulations and would improve stream function and aquatic/riparian habitat for fish and wildlife.

The project would be compatible with plans, ordinances, and land uses in the project locale, City of Duluth, and in St. Louis County in general.

c. C**ompatibility with Transportation (EAW Item Nos. 6b and 18)**

The movement of crews, equipment, fuel, and construction materials would likely generate some increased traffic in the vicinity. Construction crew parking would be away from public highways. Most vehicle use of public highways would occur during the start and end of the work schedules but could occur at any time during the hours of equipment operation from 6:00 AM to 10:00 PM. Less than 20 daily trips are anticipated during most of the construction period.

Discussions have been ongoing between the MNDNR and Minnesota Department of Transportation (MnDOT) regarding the new bridge under construction for the Grand Avenue crossing of Kingsbury Creek (Project No. SP 6910-89) and the proposed bridge for the Grand Avenue crossing of Knowlton Creek (Project No. SP 6910-96), which is slated for construction next year. The existing culverts, including the Munger Trail Knowlton Creek crossing, hamper passage of fish and other organisms. The Munger Trail crossing would not be completed within this project. The proposed new bridges are being designed with a natural stream bottom to restore fish passage. The MNDNR fisheries staff would continue to coordinate with MnDOT and the City of Duluth on bridge development issues related to recreation and fish ecology. Enhancements to the bridge developments would include increasing the width of the channel passage below the crossing and incorporating water control structures (vanes) to improve stream stability and fisheries ecology.

No traffic congestion would be expected on Grand Avenue as a result of project construction or operation. The construction contractor would be required to place and maintain Truck Hauling and Construction Entrance warning signage during construction, if warranted.

The project would be compatible with public transportation infrastructure and developments.

d. **Surface Waters (EAW Item Nos. 6b and 11)**

The entire project area lies within the lower- and mid-elevations of Knowlton Creek watershed and the development includes both shoreland and in-stream work. The channel slope of these reaches varies from nearly level to very steep. The watershed is typical of those in Duluth in that

they have short, steep gradients and run through areas of shallow soils over bedrock causing flashy flows that rise and dissipate quickly. Most of the watershed contains forest, wetland, or shrub/grass cover and about fourteen percent is developed (nine percent rural and five percent urban).

Knowlton Creek and tributary channels have been impaired by the impacts of excessive runoff moving through the watershed. The outcome of the impairment that extended over 40 years had been the deposition of sediment into an aquatic area behind Tallas Island in the St. Louis River estuary. Some of the deposition was removed by excavation in 2010. A sediment delta formed again at the mouth of Knowlton Creek in the bay during the June 2012 floods.

Environmental effects from the project on surface waters that include Knowlton Creek, the St. Louis River bay, and associated wetlands are summarized under this topic. The Knowlton Creek watershed (1.5 square miles) drains into the St. Louis Bay, a designated public water (PWI No. 975W). The St. Louis River flows about nine miles further where it empties into Lake Superior. Lake Superior is an Outstanding Resource Value Water (ORVW).

Determining that the stream would be able to support a cold water fish assemblage in 2008, the MNDNR designated Knowlton Creek as a trout stream. The declaration automatically places the creek on the public waters inventory. The MPCA intends to reclassify Knowlton Creek and three others (Merritt, Coffee, and Buckingham Creeks) in the Duluth area as a Class 2A water (cold water stream) in future rulemaking to be consistent with the recent MNDNR trout stream reclassification.

Knowlton Creek is classified by the MPCA (see *Minnesota Rules*, part 7050.0470) as a Class 2B, 3C, 4A, 4B, 5, and 6 waterbody and protected by the numeric and narrative water quality (WQ) standards found in *Minnesota Rules*, parts 7050.0220 through 7050.0226, and part 7050.0210. The narrative standards described under *Minnesota Rules*, part 7050.0210 apply to all waterbodies, regardless of their designated use classification. Further, the more restrictive WQ standards for the parameters listed at *Minnesota Rules* 7052.0100, subpart 5 (e.g., total mercury limit), apply to Knowlton Creek because it is within the Lake Superior Basin.

The MPCA has not yet assessed Knowlton Creek to determine whether it is meeting the applicable state water quality standards. Of the neighboring waterbodies located within, or close to, one mile of this project that have been assessed, two are currently not meeting some of the standards: Kingsbury Creek and the lower portion of Stewart Creek. Waters determined not to be meeting applicable standards are considered impaired, as identified on the MPCA's CWA 303(d) Impaired Waters List. Currently, Kingsbury Creek's aquatic life designated use is listed as impaired based on macroinvertebrate bioassessments and fishes bioassessments. The lower portion of Stewart Creek's aquatic/recreation designated use is listed as impaired due to excessive e-coli. The Knowlton Creek restoration project would not have an effect on either of these nearby impaired waterbodies because they are in different minor watersheds.

The St. Louis Bay waters are designated as class 2B waters and receiving waters are listed as impaired waterways on the MPCA's Clean Water Act 303d Impaired Waters List. Specifically, the MPCA has identified that the following contaminants exceed the applicable state water quality standards for this reach of the St. Louis River: concentrations of dioxin, DDT, dieldrin, PCBs, and mercury in the water column and PCBs and mercury in fish tissue

Erosion and Sedimentation. The steep mid-elevation channel banks are unstable and eroding badly. Aggradation in the lower elevations of the watershed has reduced flood plain connectivity

to the creek channel and additional instability in the channel banks. The instability has caused excessive sediment to move through the Knowlton Creek channel into St. Louis Bay.

Construction would occur along about 1.2 miles of channel. The total disturbance zone would be approximately 16 acres. The width of the floodplain disturbance zone ranges from 50 to 100 feet along the upper channel reaches and 100 to 200 feet along the lower reaches. Most of the disturbance area would be located on the lower flatter reaches where the channel would be realigned and/or reconnected to the floodplain.

All runoff control structures and devices would be installed before construction begins and would be maintained throughout the duration of the project. Construction activities would be completed in sectors and phased to reduce the size of the active disturbance area. Construction would occur during low flow periods. Erosion control treatments would include: silt fencing, fabric logs, mulching and/or hydromulch; seeding twelve acres; and live plantings of numerous shrubs and trees (680 per acre). As construction progresses, seeding/mulching and erosion control blanket cover would be installed immediately and phased as sectors of construction are completed. Native vegetation would be planted and mulched to encourage a more rapid recovery.

Erosion and sedimentation during project construction would be addressed with implementation of the National Pollution Discharge Elimination System/State Disposal System (NPDES/SDS) Construction Stormwater (MPCA CSW) General Permit and the associated Stormwater Pollution Prevention Plan (SWPPP) to comply with requirements per MPCA guidelines. The MNDNR would also adhere to guidelines associated with the City of Duluth Erosion Control permit. The project would not result in any measurable changes to the stormwater drainage patterns, discharge rates or locations because no structures or features (impervious surfaces) would be created. The project would temporarily have a higher risk of erosion if a high rainfall event occurs during construction when disturbed shorelands are not vegetated. After vegetation has recovered, erosion and sedimentation rates on the disturbed floodplain areas are anticipated to achieve pre-project levels. Over the long-term, channel bank erosion is anticipated to be reduced by eighty percent from pre-project rates.

Wetlands. A Phase I Wetland Scoping completed in April 2015, identified 11 acres of potential wetland within or near the construction zone of the project area. The potential wetland areas are tentatively identified as Type 1 seasonally flooded basins or flats located in depressions and in overflow bottomlands (7.3 ac), Type 2 or 3 fresh meadows or marshes on flooded or waterlogged soils (2.5 ac), and Type 3 or 5 shallow flooded marshes or open water wetlands (0.5 to 10 ft deep) (0.9 ac). The wetlands are not identified as public water wetlands and are not situated below OHWL of the Knowlton Creek channel. Therefore, the wetlands would be administered under the Wetland Conservation Act. About 0.5 ac of seasonally flooded wetlands would be created by filling of portions of old stream channels and retaining subtle basins.

Any development impacting wetlands requires coordination with the City's designated wetland representative. Avoidance, minimization, and mitigation protocol for wetlands is generally determined under consultation with the local Technical Evaluation Panel (TEP), which includes combination of representatives, such as the US Army Corps of Engineers, MNDNR, Board of Water and Soils Resources, St. Louis County Soil and Water Conservation District, City of Duluth, and possibly others.

According to *Minnesota Rules*, part 8420.0415, subpart D, and possibly other subparts related to restoration, the proposer would seek a "No Net Loss Determination" from wetland authorities based on the restoration objectives of the project, which include bank stabilization, aquatic habitat improvement, reestablishment of a hydraulic connection between the channel and floodplain, and

erosion control in general. Although existing wetlands would be impacted by construction, wetland features would likely be enhanced by reconnecting the stream channel to the floodplain where the wetlands are located and reducing amount of sedimentation affecting those areas. Disturbed wetland areas would be seeded or planted with native vegetation and mulched with straw or covered with erosion control blankets.

In-water Construction. Approximately three acres of stream channel (below the OHWL) would be affected by in-water construction. The OHWL is generally considered the bankfull level of the river, a stage that may be reached on an approximate annual or biennial frequency. The creek channel would be disturbed during the placement of boulder, cobble, and wood structures (cross vanes, oblique vanes, riffles, and toe wood) and where the channel would be realigned or regraded to establish better floodplain connectivity.

A variety of BMPs would be applied to minimize turbidity and sedimentation during the construction and re-vegetation phases: monitor river flow to avoid high water construction; schedule construction during low flow periods (mid-summer through fall) and dry conditions; stop work during high flow conditions; separate new channel excavation from active channel until channel would be stabilized; establish temporary dam, diversion or pump-around for new channel construction, as needed; riprap downstream end of new channel and ends of old channel to check channel movement and protect against possible new head cuts; insure that no more than 400 feet of channel length would be disturbed at one time; and import only rock and gravel that is free of fine soil and organic debris. Movement of equipment operating in-stream would be kept to a minimum. The construction would be scheduled to minimize the number of days of work in the creek channel. Work stoppage of in-water construction would be at the discretion of the contractor based on compliance with the MPCA CSW General Permit to maintain conditions that would not aggravate sedimentation from construction practices.

Best Management Practices would be incorporated into project designs and specified to the contractor in the engineering plans. In-water BMP control devices would be used, including turbidity curtains, silt fencing, fabric logs, and erosion control blankets and would be deployed prior to any in-water construction activities. Stockpiles of soil, rock, and/or toe wood would be stored away from the stream and surrounded by silt fence to prevent sedimentation. The size of disturbance areas would be kept to a minimum. Erosion control measures would include those mentioned above. Erosion control measures would be maintained until re-vegetation is complete. Generally, exposed banks would be seeded or planted with native vegetation and/or covered with biodegradable erosion control blanket that would be staked in place. The toe wood, rock vanes, and riffles that are installed would protect against stream bank erosion by deflecting higher velocities away from the stream bank. An emergency spill response protocol would be written into permit obligations.

By requiring the contractor to develop and use these and other in-water BMPs during construction, the project's short-term turbidity impacts would be mitigated to the extent practicable, cognizant of the applicable state water quality standards. The same BMPs would also serve to help avoid and/or minimize the project's potential to exacerbate the existing MPCA CWA 303(d) listed impairments that are identified for St. Louis Bay. The project would not include any application or release of compounds that would increase delivery of mercury, PCBs, phosphorous, nitrate/nitrite, or suspended solids to the water body. Also, controlling the project's short-term turbidity impacts using the instream BMPs identified above would help control the amount of total mercury attached to the sediment that may otherwise disperse into the water column and flow downstream during construction activities.

The project would be administered through the application of the US Army Corps of Engineers Section 404 Clean Water Act (CWA) permit and MNDNR Public Waters Work Permit obligations. The 404 permit defines restoration as the re-establishment or rehabilitation of sites that historically supported wetlands or streams and frequently retain some wetland components (e.g., hydric soils) or stream processes even after human-made disturbances such as drainage and urban development. A MNDNR Public Waters Work Permit application is in process.

The project has been designed to minimize sediment loss that may affect fish and wildlife resources in downstream areas and the St. Louis Bay. Previous modeled results project that the bank stabilization developments would significantly reduce sediment contributions from the project site. The newly constructed stream channel would be monitored for stability post-construction, including the reduction in erosion and sediment load to the St. Louis River. Modeling efforts employed would include the FLOWSED/POWERSED sediment transport model to analyze sediment transport for Knowlton Creek and the BANCS model to estimate the reduction in sediment contributions from bank erosion after development. These modeling efforts would not quantify sediment load from upstream reaches, which should remain consistent with pre-project levels.

Of the twenty reaches having modelling data, a comparison of existing bank erosion rates to those calculated from project design specifications indicated an 80 percent reduction in the overall bank erosion rate, although major flood events were not accounted for.

Erosion control would include all necessary measures to minimize the deposition of materials into Waters of the State and transport of sediment during in-water excavation. The proposed project would not result in any permanent degradation of the water quality of Knowlton Creek for which the MPCA designated uses (classifications above) and the referenced water quality standards apply.

A more stable channel would be more resilient to future rain and flood events. The project would improve the overall health of Knowlton Creek, improve the aquatic habitat in the stream, reduce the likelihood of future streambank erosion, and reduce the impact of sedimentation on the St. Louis River Estuary.

The environmental effects on surface waters from erosion and sedimentation, wetland disturbances, in-water construction, and other soil disturbances to the shoreland and floodplain would be local, minor, and temporary. Substantial long-term beneficial effects would result from the proposed enhancement of floodplain connectivity, shoreline stability, and cold water aquatic habitats.

e. **Invasive Species Management and Control (EAW Item No. 13d).**

No invasive species of concern other than purple loosestrife are expected to occur within the project site. Sediment that contains invasive species could be moved on equipment that is used in other water bodies. Invasive species could be introduced to the project area from materials brought on-site. Disturbed soils would be vulnerable to weedy growth if not properly seeded with desirable species.

MNDNR Operational Order 113, which describes the protocol to use in the inventory and management of invasive species, would be followed by staff and contractors. Machinery would be cleaned before entering the site and, consistent with the Operational Order, all rock, soil, organic materials, plants, and seeds would not contain invasive species. The requirement to use native species and monitor and control weedy and exotic species would be followed. Specific

protocols for habitat improvement and shoreland restoration projects on trout streams would be followed. Particularly, movement of earth and water has the potential to spread various invasive species and pathogens, such as the invasive New Zealand mud snail. Any new infestations would be treated promptly to prevent populations from spreading. A Prohibited Invasive Species Possession and Transport permit for Purple Loosestrife has been obtained from the Invasive Species Program, MNDNR.

The project would have temporary, minor, and local environmental effects on the presence of invasive species in the project area.

f. **Wildlife and Habitat (EAW Item Nos. 6b, 11, and 13).**

The project site is a deeply incised stream valley with clayey soils laid down in sediment beds of Glacial Lake Duluth. The mid-elevations of the watershed are dominated by steep slopes with the bedrock near ground surface and a surface layer of fine-textured till materials. The Duluth Complex subtype of gabbro to troctolite forms the bedrock geology of the area. Lower elevations are part of the clayey lake-modified, till plain surrounding St. Louis Bay. Mature hardwood and evergreen forest occupies the area. Bardon's Peak Forest Park, in which the project area is located, is conserved under the Duluth Natural Areas Program and the planned future land use in the City of Duluth's Comprehensive Plan is identified as 'Preservation.'

Short-term impacts to fish and wildlife in the project vicinity may be temporary displacement of fish, birds, mammals, reptiles and amphibians due to channel disturbances, increased activity in shorelands, and noise levels during construction. Lake sturgeon residing in St. Louis Bay waters would not be directly affected because no project activities are proposed to take place in the bay.

Knowlton Creek is a MNDNR Designated Trout Stream. The MNDNR's Knowlton Creek Stream Management Plan (2010) identifies the reestablishment of a self-sustaining brook trout population for Knowlton Creek and management as a cold-water fishery into the future. Though no adult trout have been sampled by MNDNR crews, the creek's water temperature is generally favorable to trout. The MNDNR stocked frylings in the upper reaches of Knowlton Creek in the early summer of 2014 and these fish were still present in the late summer of 2014. Typical resident wildlife species include mammals common to the north woods, a wide variety of birds, and a few reptiles and amphibians.

Exclusion windows for construction activity are routinely applied when working in trout waters. With brook trout present in 2014, the permitting process for the construction work would consider exclusion windows for work in state trout waters. However, because the trout stocked in 2014 would not be mature during the proposed 2015 work season, no natural reproduction is anticipated. Therefore no exclusion window would need to be applied in the Public Waters Work Permit this year. The trout population would be resurveyed in 2016 to determine the survival and age of stocked brook trout. The restoration site team would work with the MNDNR Duluth Area Fisheries Office to determine the correct application for the 2016 construction season based on sample results. The final determination would be made by the MNDNR Section of Fisheries.

The proposed project would be designed to benefit brook trout over the long-term. The increase in diversity of habitats by constructing the vane-, riffle- and toe wood-structures would improve biological diversity and species abundance. The structures would help stabilize flows throughout the year and improve foraging habitat for brook trout and the associated cold water community. The improved stream habitat and better connectivity might benefit predatory species that feed on fish such as mink and kingfisher, as well as insect-eating birds and amphibians. With the reduction of sediment reaching the bay and associated improvements of water quality from the

proposed development, an indirect beneficial effect on lake sturgeon is anticipated. Impacts to fish and wildlife resources and habitats in downstream areas would be minimized using BMPs that relate to erosion and sedimentation control, spill prevention measures, native vegetation plantings, invasive species management, and other measures.

The Quality Assurance Project Plan (QAPrP) for AOC projects indicates that successful BUI removal must be based on a premise that biological indicators would respond positively to aquatic habitat improvements completed at the restoration site. In order to evaluate progress and ultimately determine success, habitat improvement targets and appropriate biological response variables must be quantified. After project completion, the trout population in the project area would be monitored by the MNDNR Duluth Area Fisheries and the overall biological/ecological response would be evaluated by the MPCA against past surveys to determine if the goals of the project have been achieved and to address the elimination of BUIs 2 and 9, reducing the degradation of Fish and Wildlife Populations and Habitats in the St. Louis River AOC. The newly constructed stream channel would be monitored for stability post-construction, including an evaluation of the change in erosion and sediment load reaching the St. Louis River.

Wildlife impacts would be local, minor, and temporary, i.e. limited to construction and establishment phases of the project. Long-term beneficial effects on wildlife are anticipated.

g. **Rare Features & Native Plant Communities (EAW Item No. 13).**

In March 2015, the MNDNR Natural Heritage Information System (NHIS) 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 project. Lake Sturgeon (*Acipenser fulvescens*), a species of Special Concern, was the only rare species identified as potentially being adversely affected by the project activities. Hemlock *(Tsuga canadensis*) (State Endangered) is not known to occur within a mile of the project area but does occur in cool forested ravines that resemble habitats found in the project area. The Riverside to Grassy Point Site, a Minnesota Biological Survey Site of Biological Significance, is near the project area.

Effective May 4, 2015 the U.S. Fish and Wildlife Service listed the northern long-eared bat as threatened under the Endangered Species Act (ESA) and implemented an interim 4(d) rule. The ESA prohibits take of this species without a permit unless the take is exempt under the interim 4(d) rule. There are no known occurrences of northern long-eared bat roosts or hibernacula within an approximate one-mile radius of the proposed project.

Environmental effects to rare species are not anticipated, as there have been no known occurrences identified in the project area. With the proposed removal of a small number of live trees from the project area for use in constructing channel structures, the inadvertent removal of hemlock trees and potential hibernacula of the northern long eared bat would be a low risk.

Following the USFWS key to the Interim 4(d) Rule guidelines, the incidental take that may result from the minimal tree removal associated with this project would be exempt and no further action would be necessary to comply with the ESA prohibitions to protect northern long-eared bats. As an extra precaution, any trees proposed for removal would be inspected for cavities or loose bark which may serve as hibernacula for this species. Any suitable trees would be retained on-site. Trees chosen for harvesting would also be inspected to insure they are not hemlock trees. A potential 80 percent reduction of the in-project sediment contribution, as noted in Finding 20d, would lessen the amount of sediment reaching the St. Louis Bay estuary, improving habitat for lake sturgeon and other migratory fish in the estuary.

The environmental effects on rare features in the project area and vicinity would be temporary, local, and minor. Indirect beneficial effects on the lake sturgeon and other migratory fish in the estuary would contribute to the removal of BUIs 2 and 9 (Wildlife Habitat and Populations).

h. **Hazardous Materials Used (EAW Item No. 12c).**

Equipment fuels, oils, lubricants and other materials typically necessary for operating earthmoving equipment would be used during project construction. No other chemicals or hazardous materials would be needed for this project.

The Contractor would be required to prepare a Spill Prevention and Response Plan to address accidental spills or the release of any hazardous material or petroleum products. Measures to avoid or minimize spills during construction would include: storing fuels and refueling away from surface waters, maintaining a spill containment kit and trained personnel onsite, and following procedures for reporting spills. The contractor would also prepare and follow a Health and Safety Plan for use during construction. There would be a lower potential for movement of liquids or chemicals from a spill on fine texture soil, as found in the project area.

The environmental effects of the increase in hazardous material use onsite would be of low risk, temporary, local, and minor.

i. **Construction and Municipal Wastes (EAW Item No. 12c)**.

Minor amounts of construction related wastes, such as plastic and paper containers and packaging, would be generated. Plant and earthen materials, mostly harvested onsite, would be temporarily stockpiled until fully used. Excavation of soils could expose some hidden contamination. If unknown materials would be encountered, i.e. buried containers, unknown seepage, oils, etc., the proposer would evaluate the risk of contamination and remove the materials under guidance from local or MPCA hazardous material authorities.

The increases in solid wastes from construction would be temporary, local, and minor.

j. **Vehicle Emissions (EAW Item No. 16b).**

Equipment used would include: 330-class or smaller excavators, marookas (tracked dump trucks), a bulldozer, and a front-end loader. The gasoline and diesel powered vehicles would generate air emissions during the construction and operation of the aquatic habitat enhancement project. The exhaust emissions contain pollutants such as carbon monoxide, nitrogen oxides, reactive organic gasses, sulfur dioxide, and suspended particulate matter, all of which may carry associated health risks. Project construction activities would cause a temporarily increase in local airborne pollutant levels and would be limited in extent.

The increases in air emissions from construction would be temporary, local, and minor. Once project is complete, no further emissions would occur.

k. **Dust and Odors (EAW Item No. 16)**.

Construction would involve the movement and grading of soils and rock materials in dry or moist soil condition. The proposed project may create some temporary dust during construction. Fugitive dust could arise during hauling and stockpiling of earthen materials and large tree branches and trunks. The construction would generally range at least 600 to 1200 feet from the nearest residential areas, but portions of the work zone would be within 200 feet. Work would take place in a forested setting.

Most materials that would be handled are stone and wood, which do not cause fugitive dust generation or offensive odors. When conditions arise, BMPs would be employed on exposed soils and during transport to prevent dust and odors, including: covering loads during transport, watering access routes and exposed soil, placing mulch or temporary cover and/or erosion control mats on exposed areas and stockpiles.

The increases in odors and dust from construction would be temporary, local, and minor.

l. **Noise (EAW Item No. 17).**

The construction along Knowlton Creek would temporarily generate noise above current noise levels. Construction would use equipment classified as "mobile equipment." Equipment would operate in a cyclic fashion in which a period of full power is followed by a period of reduced power. Typical sounds would include engine noise, sounds of metal on rock, and safety back-up alarms. Once complete the project would not generate noise.

Minnesota Rules, part 7030.0040 establishes two noise levels, L_{10} and L_{50}, based on the percent of time noise levels exceed the standard over a one-hour time period. Daytime and nighttime noise level standards are based on Noise Activity Classification (NAC) levels. NAC levels 1, 2, 3, and 4 refer to land uses generally having similar noise tolerance levels. NAC Level 1 includes residential areas and has daytime standards of 65 dB (L_{10}) and 60 dB (L_{50}) and nighttime standards of 55 dB (L_{10}) and 50 dB (L_{50}). Also, the Occupational Safety and Health Administration (OSHA) rules protect against hearing loss in the workplace.

Generally, work in the main stem of Knowlton Creek would be from 600 to 1200 feet from the nearest sensitive receptors. However, work on approximately 900 feet of stream channel in the lower portion of the tributary would occur within 200 feet of a residential area. The average noise level at a distance of 50 feet from typical diesel-powered mobile construction equipment is 87 decibels (dB) and at 200 feet would be approximately 69 dB.

Work on the Knowlton Creek and lower reaches of the UT to Knowlton Creek would be occurring in the floodplain, where the surrounding higher slopes, forest cover and distance would help attenuate noise levels. The contractor would be required to minimize noise effects: by restricting equipment idling time to 15 minutes and equipment operations to daylight hours (7am – 10 pm), Monday-Saturday and by requiring all equipment to have operating muffler systems. No heavy construction work would be scheduled between the hours of 10:00 PM and 6:00 AM. The main access route for the main stem would be across SMRA property, which does not have permanent residents. Adjacent landowners and businesses would be notified of the project's intent, duration, expected noise levels and complaint procedures.

Noise from construction activities would be temporary, limited to daily work periods, and manageable.

m. **Archaeological, Historical, and Architectural Resources (EAW Item No. 14)**.

A Phase I archaeological survey of the Knowlton Creek Stream Restoration Project area was conducted under contract to the Detroit District of the USACE pursuant to Section 106 of the National Historic Preservation Act in support of the Remedial Action Plan for the St. Louis River AOC, which is being led by the MPCA. The Phase I report contained a review of archaeological investigations completed on-site and in the vicinity.

Only two artifacts--a small piece of metal slag and a fragment of clear bottle glass-- were uncovered during the shovel test sampling. Both were recovered from fluvial deposits near the

creek and appear to have been transported from upstream locations. The discoveries have not been designated as archaeological sites. The MNDNR field crews and environmental engineering contractors that completed stream evaluations and project designs have not encountered any historic structures or artifacts of interest. Cultural resource specialists with the Fond du Lac Band of Lake Superior Chippewa would be consulted regarding potential significant sites within the project area due to its proximity to Spirit Mountain.

If any artifacts of supposed significance are identified within the project footprint during construction, project management staff would mark them and prohibit any disturbance within that area until the features are fully appraised by authorities, including the State Historic Preservation Office.

Pursuant to Section 106A of the NHPA, a concurrence letter from the SHPO would be required prior to commencing construction. The MNDNR is coordinating the SHPO review with the SHPO, several federal agencies and the Fond du Lac Band of Lake Superior Chippewa. Concurrence is pending inspection of the project's historical review.

Negligible effects on archaeological, historical, and architectural properties are anticipated.

n. **Cumulative Potential Effects (EAW Item No. 19).**

Anticipated short-term negative effects of construction in the project area are noise, dust, traffic, and water quality/stormwater pollution during the late summer and fall of 2015 and the mid-summer to late fall of 2016. The area of potential effect (APE) for noise, dust, and traffic generally is an approximate 1000 foot zone surrounding construction. The APE of water quality/stormwater pollution includes the mid- and lower elevations of Knowlton Creek and tributaries and wetland bay behind Tallas Island and downstream aquatic habitats in St. Louis Bay.

Following construction, the project would have ongoing beneficial effects to aquatic habitat and water quality in Knowlton Creek and in the St. Louis River Estuary.

The MNDNR is aware of several projects that were recently completed, in process, or planned to be built in the foreseeable future within the same geographic area (upper reaches of the lower St. Louis River) and timeframe (within a six year period beginning in 2012). These projects were evaluated for cumulative environmental effects: 1) Spirit Mountain Water Control Project; 2) MnDOT Highway 23 pavement rehabilitation and replacement of the Grand Avenue bridges crossing Kingsbury and Knowlton Creek; 3) several other projects involving the construction, repair, or replacement of segments of roadways, treadways, and pipelines; and 4) sediment removal at the mouth of Knowlton Creek. Other work being completed to delist the St. Louis River Estuary as an AOC might also have relevant environmental effects. The AOC Remedial Action Plan Update identifies additional aquatic habitat restoration projects that cumulatively are anticipated to restore the ecological functions of the river and estuary: 21st Avenue W, 40th Avenue W, Grassy Point, Radio Tower Bay, Perch Lake, Spirit Lake, and Chambers' Grove.

The MNDNR has examined whether the proposed project could have a significant effect when considered along with other projects that: (1) are already in existence, are actually planned for, or for which a basis of expectation has been laid; (2) are located in the surrounding area; and/or (3) might reasonably be expected to affect the same natural resources.

As noted in the EAW, the project's environmental effects related to noise, odors, dust, and increases in traffic have been evaluated and were demonstrated to be minor in extent and duration. Project managers would need to ascertain activities and potential environmental effects

from projects of a similar nature to avoid unnecessary inconveniences or conflicts from arising within the vicinity of the project area. The MNDNR would notify adjacent landowners and businesses about the intent of the project, duration, expected noise levels, and complaint procedures. The MNDNR would coordinate with the MnDOT and other project managers to prevent environmental effects and associated inconveniences or conflicts, delays, or other inefficiencies from occurring during construction.

Noise, odors, dust, and increases in traffic would have limited potential for cumulative effects due to the minor incremental increases of these effects from project activities.

The number of construction projects including AOC restoration projects indicates an active period of development in and around the project area. Some projects would produce additional sedimentation into Knowlton Creek, most of which would be temporary in nature. All upland projects would be required to meet MPCA CSW permit provisions. With the project activities extended over the six year period, their generally small sizes, and likely beneficial aspects of reducing sedimentation for several of the projects, the cumulative potential environmental effects on water quality would likely be temporary and manageable.

The cumulative potential effects of this project include the beneficial effects of increased fish and wildlife habitat, increased fish and wildlife populations, and decreased sediment transport to the St. Louis River estuary. These cumulative potential effects would be beneficial to the St. Louis River estuary and support its delisting as an AOC by addressing BUIs 2, 6, and 9). Potential beneficial effects of AOC restoration projects include additional aquatic habitat restoration projects at locations throughout the estuary including 21st Ave West, 40th Ave West, Grassy Point, Radio Tower Bay, Perch Lake, Spirit Lake, Kingsbury Bay, and Knowlton Creek.

Approximately an 80 percent reduction in stream bank erosion would be anticipated after completion of the Knowlton Creek Stream Restoration Project. This project and others are focused on improved recreational opportunities and aquatic habitats along Knowlton Creek. Better stream connectivity, higher quality aquatic habitats, and improved stream stability would likely occur if BMPs and stormwater protection measures are properly employed. Monitoring would be conducted after project completion to evaluate whether project goals for reducing sedimentation into St. Louis Bay have been achieved.

The potential cumulative environmental effect on water quality due to sedimentation is considered to be minor. The cumulative potential effects on water quality of the St. Louis River due to sedimentation would be temporary and minor in comparison to other contributions in the watershed. The project's long-term reduction of sedimentation originating from Knowlton Creek would result in beneficial effects on wildlife populations and habitats along the shoreland and aquatic areas of Knowlton Creek and in the receiving waters of the St. Louis River.

21. The following permits and approvals are needed for the project:

Government	Type of Application	Status
City of Duluth	Special Use Permit	To be obtained
	Shoreland & Floodplain Worksheet	To be obtained
	Erosion & Sediment Control Permit	Might be required
	Grading Permit	To be obtained
	Temporary Access Agreement/License	To be obtained
	Wetland Conservation Act Permit	In process
City of Cloquet	Temporary access agreement/license	To be submitted
South St. Louis Soil & Water Conservation District	Erosion and Sediment Control Review	To be submitted
MNDNR	Public Waters Work (PWW)	To be obtained
	Prohibited Invasive Species Permit	Application obtained
	Lake Superior Coastal Zone Federal Consistency review	Application pending
MPCA	NPDES/SDS Construction Stormwater General Permit (MPCA CSW)	To be obtained
	Section 401 (§ 401) Water Quality Certification	To be obtained if needed
MHS/SHPO	Section 106 (§ 106) NHPA concurrence letter	Phase 1 Survey completed, Concurrence pending review
USACE	Section 404 (§ 404), Clean Water Act (CWA)	Application pending
	Section 10 (§ 10), Rivers and Harbors Act (RHA)	Application pending
NFWF-SOGL, EPA	Section 7 (§ 106) review/coordination Environmental Checklist for Project, SHPO concurrence	Under review

CONCLUSIONS

1. The Minnesota Environmental Review Program Rules, *Minnesota Rules*, chapter 4410.1700, subparts 6 and 7 set forth the following standards and criteria, to which the effects of a project are to be compared, to determine whether it has the potential for significant environmental effects.

   In deciding whether a project has the potential for significant environmental effects, the following factors shall be considered:

   a. *type, extent, and reversibility of environmental effects;*
   b. *cumulative potential effects of related or anticipated future projects;*
   c. *extent to which the environmental effects are subject to mitigation by on-going regulatory authority; and*
   d. *the extent to which environmental effects can be anticipated and controlled as a result of other environmental studies undertaken by agencies or the project proposer, including other EISs.*

2. *Type, extent, and reversibility of environmental effects*

Based on the Findings of Fact above, the MNDNR concludes that the following potential environmental effects, as described in Findings 20a through 20n, would be limited in extent, temporary, or reversible:

a. Project Magnitude, Scheduling, and Construction
b. Compatibility with Plans, Ordinances, and Land Uses
c. Compatibility with Transportation
d. Surface Waters
e. Invasive Species Management and Control
f. Wildlife and Habitat
g. Rare Features & Native Plant Communities
h. Hazardous Materials Used
i. Construction and Municipal Wastes
j. Vehicle Emissions
k. Dust and Odors
l. Noise
m. Archaeological, Historical, and Architectural Resources
n. Cumulative Potential Effects

Based on the Findings of Fact above, the MNDNR concludes the following topics of potential environmental effects of the project, as described in Findings No. 20a through 20n would be beneficial:

A Decrease in sedimentation originating in the mid- and lower reaches of Knowlton Creek and tributaries over the long term and a decrease in Knowlton Creek's contribution to sedimentation in St. Louis Bay (BUI 6);
Direct improvement in fish and wildlife populations in Knowlton Creek (BUI 2);
Direct improvement in fish and wildlife habitat in Knowlton Creek (BUI 9);
Indirect improvement in lake sturgeon habitat in the St. Louis River AOC (BUI 9).

The long term improvements associated to water quality, aquatic habitats, and biota would also produce less tangible, indirect benefits to the public in general and individuals that directly use and depend on the St. Louis River.

3. *Cumulative potential effects of related or anticipated future projects.*

The effects of all past projects comprise the existing conditions of the project area. The cumulative environmental effect of the proposed project and future projects add to existing conditions. Cumulative environmental effects for future projects are assessed by evaluating the effect on the environment resulting from the incremental effects of the project under review plus similar effects from certain future projects that overlap spatially or temporally with the proposed project.

Based on the Findings of Fact above, the MNDNR concludes that cumulative potential effects of increased noise, odors, dust, and traffic, as described in Finding 20n, would not be significant because:

Noise, odors, dust, and increases in traffic would have limited potential for cumulative effects due to the minor incremental increases to these effects from project activities.

Based on the Findings of Fact above, the MNDNR concludes that cumulative potential effects on

water quality due to sedimentation, as described in Finding 20n, would not be significant because:

The potential for sedimentation during project developments would be limited and minor compared to other projects affecting the vicinity of the project area and St. Louis River estuary in general.

Planned AOC restoration projects and other projects affecting the St. Louis River are anticipated to have negative effects that would be temporary and manageable, as well as long term beneficial effects contributing to the restoration of the St. Louis River and to delisting of the area from its AOC status.

4. *Extent to which environmental effects are subject to mitigation by on-going public regulatory authority.*

Based on the information in the EAW and Findings of Fact above, the MNDNR has determined that the following environmental effects, as described in Findings 20a through 20n, would be subject to mitigation by ongoing public regulatory authority:

The effects on Wildlife and Habitat: MNDNR PWW permit (plans need to show the nature and degree of habitat to be benefited; requires that the project not exceed more than the minimum damage to the environment; project must achieve beneficial purpose of restoring fish and wildlife habitat).

The physical effects on Water Resources (public waters): MNDNR PWW permit (plans must demonstrate project would: represent the minimal impact solution, contain feasible and practical measures to mitigate environmental effects, restore natural hydrologic conditions, etc.); USACE CWA § 404 permit (stream and wetland restoration provisions, standard conditions for mitigation/sequencing, equipment restrictions, preventative measures, spill contingency, etc.); USACE RHA § 10 (general conditions – equipment operation, mitigation, etc.).

The physical effects on Water Resources (wetlands): USACE Section 404 (federal wetland regulations); Wetland Conservation Act (WCA) and City of Duluth (LGU) ordinances (avoidance, minimization, and mitigation for wetland losses).

The effects on Water Surface Use: MNDNR PWW (purpose – show improvements, including recreational uses).

The effects of Erosion and Sedimentation on Water Quality: *In-water construction* - MNDNR PWW, USACE CWA §404 and USACE RHA § 10 permits (conditions - sediment controls, i.e., silt curtain, silt fence, and other measures); *Above OHWL* – USACE CWA § 404, MPCA CSW permit for work in shorelands, and City of Duluth Erosion Control permit (conditions and application of BMPs for soil erosion controls and preparation of SWPPP).

The effects of Hazardous Wastes on Water Quality: USACE CWA § 404 permit (conditions – preventative measures and spill contingency plan).

The effects of Noise: *Minnesota Rules,* part 7030.0030 Noise Control Requirement administered through MPCA (conditions – sets receiver-based standards); Occupational Safety and Health Administration (OSHA) (protects against hearing loss in the workplace).

The effects on Archaeological, Historical, or Architectural Resources: Minnesota Historic Sites Act and § 106 NHPA (projects funded by National Fish and Wildlife Foundation (NFWF) and the Environmental Protection Agency (USEPA) must comply with § 106 NHPA, through which the SHPO has review and concurrence responsibilities; USACE CWA § 404 and USACE RHA § 10 permits (conditions – requires compliance with § 106 NHPA).

5. *Extent to which environmental effects can be anticipated and controlled as a result of other environmental studies undertaken by public agencies or the project proposer, or other EISs.*

   MNDNR. Best Practices for Meeting MNDNR General Public Waters Work Permit (GP2004-0001).

   MNDNR. EAWs completed on stream restoration or enhancement projects in Minnesota: Lawndale Creek (2010); Gilmore Creek (2013); Whitewater Channel (2015); Solid Bottom Creek (2015, in process).

6. The MNDNR has fulfilled all the procedural requirements of law and rule applicable to determining the need for an environmental impact statement on the proposed Knowlton Creek Stream Restoration Project.

7. Based on considerations of the criteria and factors specified in the Minnesota Environmental Review Program Rules (*Minnesota Rules*, chapter 4410.1700, subpart 6 and 7) to determine whether a project has the potential for significant environmental effects, and on the Findings and Record in this matter, the MNDNR determines that the proposed Knowlton Creek Stream Restoration Project does not have the potential for significant environmental effects.

ORDER

Based on the above Findings of Fact and Conclusions:

The Minnesota Department of Natural Resources determines that an Environmental Impact Statement is not required for the Knowlton Creek Stream Restoration Project in St. Louis County, Minnesota.

Any Findings that might properly be termed Conclusions and any Conclusions that might properly be termed Findings are hereby adopted as such.

Dated this 9th day of September, 2015.

STATE OF MINNESOTA
DEPARTMENT OF NATURAL RESOURCES

Barb Naramore

Barb Naramore
Assistant Commissioner