

PROJECT PATH REPORT

For

Sturgeon Lake Road (MSAS 104)
Between CSAH 18 and Wakonade Drive

in the
City of Red Wing, Goodhue County, Minnesota

S.P. 156-104-05
Federal No. STP 2596(022)

MAY 1995

Prepared for

City of Red Wing

by

Toltz, King, Duvall, Anderson
and Associates, Incorporated

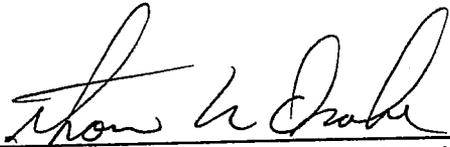
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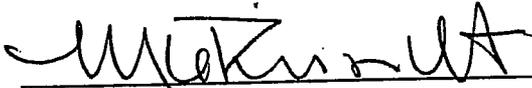
Proposed Improvement - Urban Construction: Roadway widening and grading, concrete curb and gutter, storm sewer system, and bituminous surfacing.



Red Wing Director of Public Works
Recommended

5-10-95

Date



District State Aid Engineer
Reviewed and Recommended

5.12.95

Date



For Director, Division of State Aid for Local Transportation
Approved

5/3/95

Date

PROJECT PATH REPORT
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City of Red Wing, Goodhue County, Minnesota

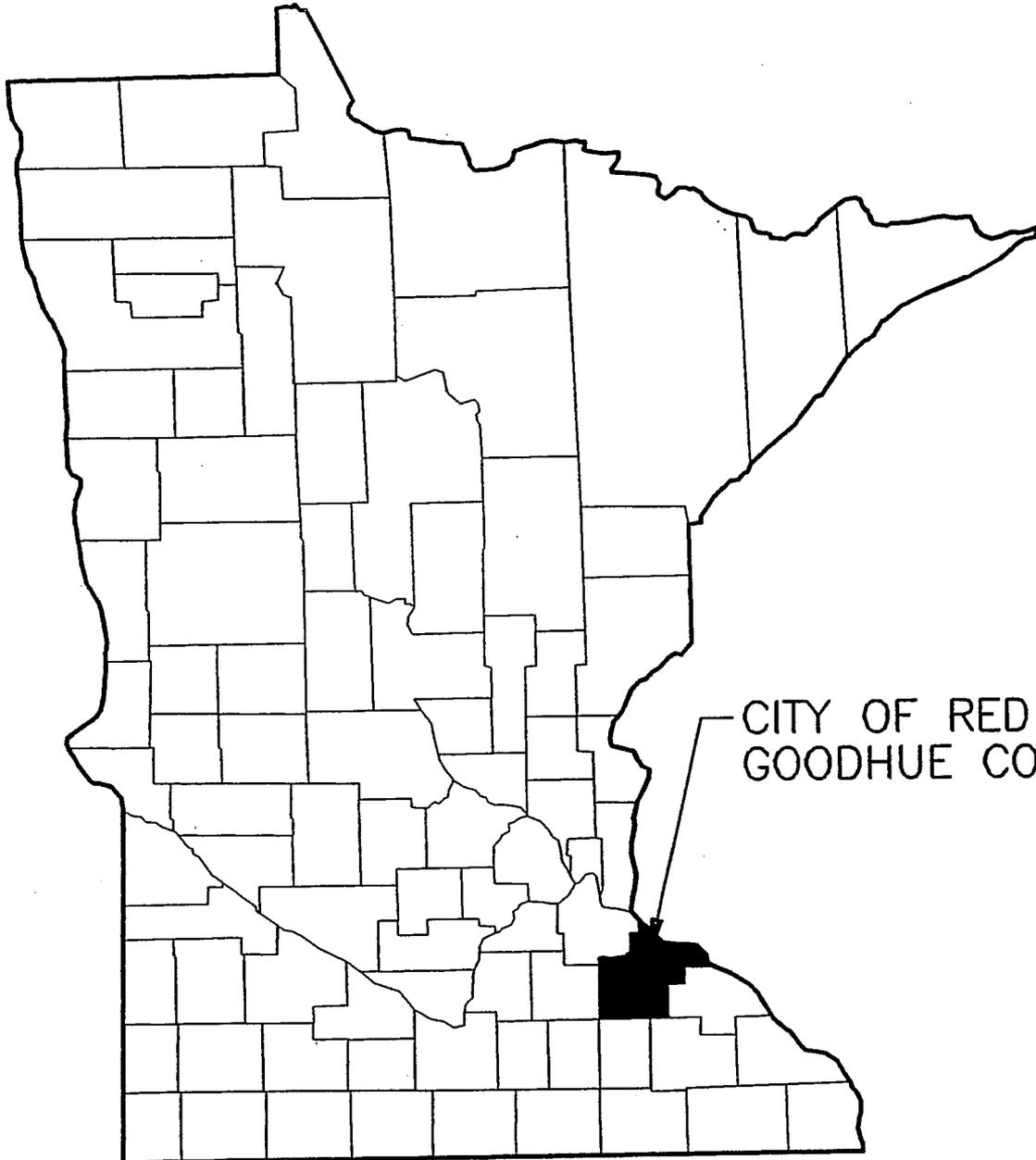
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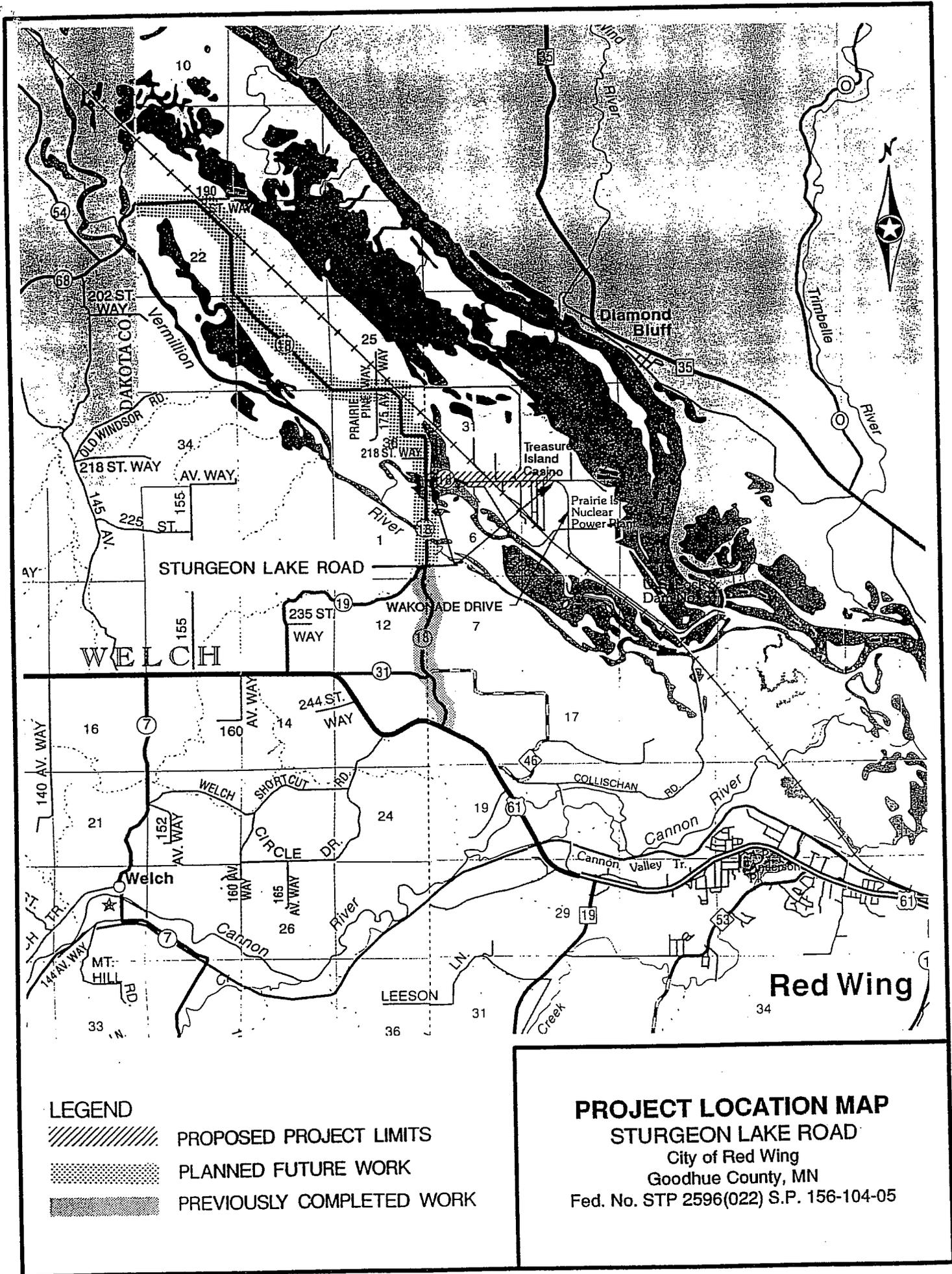
Existing and Proposed Typical Section
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Wetlands/Protected Waters Impact Map
Wetland Investigation Method with Appendices A and B

STATE OF MINNESOTA



CITY OF RED WING
GOODHUE COUNTY





LEGEND

-  PROPOSED PROJECT LIMITS
-  PLANNED FUTURE WORK
-  PREVIOUSLY COMPLETED WORK

PROJECT LOCATION MAP
STURGEON LAKE ROAD
 City of Red Wing
 Goodhue County, MN
 Fed. No. STP 2596(022) S.P. 156-104-05

PROJECT PATH REPORT

This Project Path Report has been prepared and submitted in accordance with the approved Highway Project Development Process.

I. HIGHWAY SECTION LOCATION AND DESCRIPTION

Project Location and Description

Sturgeon Lake Road is located in the City of Red Wing, Goodhue County, Minnesota. The highway section begins at CSAH 18 and extends east approximately 2.1 km (1.3 mi) to Wakonade Drive.

Sturgeon Lake Road - Existing Roadway

<u>Design Element</u>	<u>Description</u>
Roadway Design	Rural
Functional Classification	Minor Arterial
Typical Section	7.2 m (24 ft) section with variable shoulders (see Appendix)
Surface Type	Bituminous
Right-of-Way	20.1 m (66 ft)
ADT (Year 1992)	10,145
Design Load	6.4 t (7 T)
Posted Speed	48 km/h (30 mph)
Grade and Alignment	Flat and straight except for a curvilinear alignment between CSAH 18 and a point approximately 610 m (2000 ft) to the east
Land Use	Agricultural to the west with residential and commercial near east end of project
Typical Road Users	Over 80% of the current traffic, and up to 90% of the projected traffic volumes are related to Federal land use at the Prairie Island Indian Reservation or the Lock and Dam Visitor's Center

Sturgeon Lake Road was originally constructed in the early 1970s. It is the primary access road to Treasure Island Casino, Lock and Dam No. 3, and the NSP Prairie Island Nuclear Generating Plant from CSAH 18. Near the west end of the project, Sturgeon Lake Road passes between Nelson Lake (north side) and Larson Lake (south side). In addition, Sturgeon Lake Road crosses the main line track of the Canadian Pacific Rail System (CPRS) at grade approximately 0.6 km (0.4 miles) west of the Casino entrance and 1.1 km (0.7 miles) east of the junction with CSAH 18.

II. PROPOSED IMPROVEMENT

Design Standards

The project will be designed in accordance with the FHWA/MnDOT Minnesota Transportation Plan Agreement. Design standards for this project are the 1990 AASHTO Green Book Standards, and State-Aid Geometric Design Standards: Urban; Greater Than 35 MPH Design Speed; New or Reconstruction.

All work included in this project will conform to the current edition of the "Minnesota Department of Transportation's Standard Specifications for Construction", including all supplemental specifications.

Proposed Construction

The proposed project begins at CSAH 18 and extends east approximately 2.1 km (1.3 mi) to Wakonade Drive. CSAH 18 is the logical western termini since Sturgeon Lake Road terminates at this point. Wakonade Drive is the logical eastern termini since there is minimal development along Sturgeon Lake Road from Wakonade Drive to the east, approximately 0.72 km (0.45 mi) where it terminates at a public boat access to the Mississippi River. This section of Sturgeon Lake Road currently has a gravel surface.

The following are the design elements for the proposed project:

- Reconstruct Sturgeon Lake Road from a 2-lane rural section to a 4-lane urban section, 15.6 m (52 ft) face to face of curb, with a 1.5 m (5 ft) concrete sidewalk located on the north side. Roadway transition tapers (i.e., 4-lane to 2-lane and 2-lane to 4-lane), will be constructed west of Wakonade Drive. The concrete sidewalks will be constructed along the entire length of the project. The western termini of the sidewalk is supported by the fact that walking is a cherished part of Indian culture and that the convenience store, located at the intersection of Sturgeon Lake Road/CSAH 18, is a popular destination of the local Indian community.

- The roadway design will incorporate a 70 km/h (45 mph) design speed, B624 curb and gutter, 2% normal cross slope, 6% maximum superelevation, 3:1 (typical) inslope ratio, and a bituminous pavement section with a design load of 8.2 t (9 T) (see Appendix for typical section). A 70 km/h (45 mph) design speed was selected based on the assumption that the posted speed limit would be 70 km/h (45 mph) and 50 km/h (30 mph) west and east of the railroad tracks, respectively. Residential housing along Sturgeon Lake Road starts to occur east of the railroad tracks; therefore, a 50 km/h (30 mph) posted speed would be appropriate for this section of roadway.
- To provide access to Prairie Island during floods, the proposed profile of Sturgeon Lake Road will be raised to meet a minimum roadway elevation of 688 MSL, which is 0.30 m (1 ft) above the 100-year flood elevation of 687 MSL.
- Construct a drainage system which provides capacity up to the 10-year storm event. The drainage system will incorporate catch basins, concrete pipe (305 mm/12 inches minimum), 0.4% minimum pipe grade, and detention basins. The detention basins will be designed to remove the suspended solids prior to storm water discharge into Larson Lake.

Project Cost

The estimated construction cost of improvements along Sturgeon Lake Road is \$1,700,000. It is anticipated that 80% (\$1,360,800) of the project cost will come from Federal ISTEAF funds, and the remaining 20% (\$340,000) from local or Municipal State Aid funds.

Other project costs include preliminary and final design, preliminary survey, and construction engineering. The estimated cost of these tasks is \$374,000. The Tribal commitment will be \$23,300 with the remaining \$350,700 from local or Municipal State Aid funds.

Proposed Construction Year

Construction is planned for 1996.

III. ALTERNATES

Do Nothing Alternate

The existing 2-lane bituminous roadway, which has a design load of 6.4 t (7 T), is deteriorating and cracking. These deficiencies will worsen as roadway use continues and traffic volumes increase. Currently there is traffic congestion with the existing traffic volumes (10,000± ADT). The ADT is expected to increase to as high as 15,000 vehicles per day as the result of proposed future developments at the Treasure Island Casino.

The existing design of Sturgeon Lake Road does not meet current design standards where the road crosses between Larson and Nelson Lakes, a distance of approximately 610 m (2000 ft). MnDOT design guidelines recommend an inslope of 4H:1V for a rural design. In addition, a shoulder width of 2.4 m (8 ft) is recommended for the current traffic volumes (10,000± ADT). The segment of Sturgeon Lake Road between Larson and Nelson Lakes currently has side slopes of approximately 2V:1H, or steeper and shoulder widths averaging approximately 1.2 to 1.8 m (4 to 6 ft). The lack of adequate roadway shoulder width does not allow safe conditions for vehicles making emergency roadside stops.

Sturgeon Lake Road is at an elevation below the 100-year flood frequency event. A temporary lift was placed on the roadway in anticipation of potential flood conditions during the 1993 flooding of the Mississippi River. Roadway flood conditions were not reached during this flood frequency event.

For the reasons discussed above, this alternate is not practical.

Location Alternates

An alternate location is not feasible since Sturgeon Lake Road is part of an existing highway network. In addition, relocation would severely impact the surrounding wetlands, lakes and archeological sites. The Corps of Engineers (COE) and Minnesota Department of Natural Resources (DNR) eliminated the possibility of construction on Church Road and Buffalo Slough Trail as an acceptable alternate. The proposed improvements to Sturgeon Lake Road will follow the existing alignment except where the roadway is between Nelson and Larson Lakes. The alignment in this area will shift to the south in order to minimize wetland impacts along the north side of Sturgeon Lake Road.

Construction Alternates

- Roadway Repair

This alternate would be to overlay the existing pavement. An overlay is not practical since the existing roadway segment is inadequate in strength, capacity and safety. In addition, overlaying would not correct the problem of the roadway flooding and closure.

- Urban vs Rural

Both urban and rural designs were investigated and evaluated based on cost, potential impacts to sensitive areas, and control of surface runoff into sensitive areas.

The cost comparison of an urban design vs a rural design in the vicinity of Larson and Nelson Lakes indicates that the rural design (excluding additional right-of-way costs) would be approximately \$10,00-\$15,000 more than the urban design. The comparison included the cost of mitigating wetlands, i.e., additional 0.8 ha (2.0 ac), and paving two 2.4 m (8 ft) shoulders vs the cost of storm sewer and curb and gutter. The cost comparison did not include the addition of approximately 3 m (10 ft) of right-of-way, which would be required along the north side of the roadway section for a rural design.

Impacts to wetlands will be approximately three times greater with a rural design as compared to an urban design. In addition, control of surface runoff would not be satisfactory with a rural design since the inslope ratio is at a maximum (2:1) to minimize wetland impacts. An inslope ratio of 4:1 is a minimum to achieve removal of solids prior to water discharge into the lakes. The inslope should be grass covered and at least 15 m (50 ft) from shoulder to ordinary high water mark to adequately filter out suspended material. This, however, is not an acceptable solution to the COE, the DNR, or the Local Governmental Unit (LGU) from which wetland and protected waters permits are required. They require the design with the least amount of impact to wetlands.

For the reasons discussed above, the urban design was selected.

IV. PUBLIC AND AGENCY INVOLVEMENT

Public involvement included two public information meetings held jointly by the Red Wing City Council, the Goodhue County Board, and the Prairie Island Tribal Council, on September 8, 1993, and December 1, 1994. There was general consent for the upgrading of Sturgeon Lake Road and for CSAH 18 which will tie into the Sturgeon Lake Road project.

A third public informational meeting is scheduled for June 1, 1995.

U.S. Army Corps of Engineers (COE)

The regional office of the COE has been contacted with regard to potential wetland impacts.

Minnesota Historic Preservation Officer (SHPO)

A formal request was submitted on January 20, 1995, to SHPO for clearance to proceed. Additional information was submitted on March 2, 1995, along with a request for clearance to proceed. The additional information reduced the area of concern and is addressed in SHPO's response dated April 13, 1995 (see Appendix).

Department of Natural Resources (DNR)

Contact was made with the DNR in order to determine the ordinary high water level (OHWL) of Nelson and Larson Lakes. Bill Huber, DNR Area Hydrologist, supplied the necessary information and was involved in review of the wetland delineation for potential impacts and protected waters.

Contact was made with Jennifer Kamm of the DNR Natural Heritage and Nongame Research Program to request a search of endangered plant and animal species in the proposed project area.

Board of Water and Soil Resources (BWSR)

Peter Wallner reviewed the wetland in the field after delineation and agreed with the OHWL.

Minnesota Pollution Control Agency (MPCA)

Contact was made with Innocent Eyoh in the Noise Abatement Section and Linda Carrol in the Hazardous Waste/Spill Section of the MPCA.

Local Unit of Government (LGU)

Kevin Scheidecker and Myrna Halbach of the Goodhue County Soil and Water Conservation District (SWCD) reviewed the wetland delineation in the field and agreed with the OHWL.

V. ENVIRONMENTAL STUDY

This section encompasses a discussion of social, economic and environmental impacts, both beneficial and detrimental, as a result of the proposed improvement.

Section 4(f) Park and Recreational Property

There are no Section 4(f) lands: public parks, recreational areas, wildlife or waterfowl refuges directly impacted by the proposed roadway improvement. There is a Community Center facility adjacent to the proposed roadway improvement, but no additional right-of-way in this area will be required. The Tribal Council land which houses the Community Center is considered Federal land held in trust for the Tribal Council. For this reason, a letter documenting the existing conditions was submitted to the MnDOT State Aid Office for review with the FHWA, and they concurred with our finding of no impact on Section 4(f) or 6(f) lands as documented (see copy of letter in the Appendix). The proposed improvement includes a sidewalk which will improve current conditions which do not provide any sidewalk.

National Historic Preservation Act

The State Historic Preservation Officer (SHPO) of the Minnesota Historical Society, has reviewed this project with regard to its effects on sites of historic, architectural, cultural, or engineering significance. SHPO requested a Phase I inventory of the area east of Larson Lake where a shift in the alignment will occur. The field investigation is currently underway. Results of the investigation will be submitted to SHPO in compliance with the National Historic Preservation Act of 1966 and the procedures of the Advisory Council on Historic Preservation (36 CFR 800), and Minnesota Historical Sites Act.

Endangered Species

The following species are identified as threatened or endangered in the Highway Project Development Process Manual D-57 through D-64, for Goodhue County:

- American Peregrine Falcon (potential breeding range)
- Bald Eagle (wintering range)
- Higgins Eye Pearly Mussel
- Minnesota Trout Lily

The Minnesota Trout Lily is listed as an endangered species and has been identified in Goodhue County but only in the wooded valleys along the Cannon and Zumbro Rivers. Since the proposed project is not located near either of these rivers, there should be no threat to this plant species.

A response was received from Jennifer Kamm of the DNR Natural Heritage and Nongame Research Program, which indicated that no known endangered or threatened species would be impacted (see Appendix).

Right-of-Way

Based on the preliminary design of Sturgeon Lake Road, the proposed right-of-way width is 45.7 m (150 ft) between CSAH 18 and the property lines approximately 823 m (2700 ft) to the east. East of these property lines the project will be contained within the existing right-of-way width of 20.1 m (66 ft). The number of affected parcels is eight and the total area is approximately 2.4 ha (6.0 ac). The type of land acquired will include residential, agricultural and commercial. Acquisition of this land will not affect any person, dwelling or structure.

Temporary construction easements, 3.0 m (10 ft) to 7.6 m (25 ft) in width, will be required on both sides of Sturgeon Lake Road. These temporary easements are required due to roadway grading. The number of affected parcels is 26 and the total area is approximately 1.6 ha (4.0 ac).

Farmland Protection Policy Act (FPPA)

The proposed roadway improvement project will require additional right-of-way in order to improve the safety of the current alignment. Some of the additional right-of-way needed includes farmland on the northwest end of the project. The Goodhue County SWCD has prepared the farmland conversion impact rating form which identifies all prime or unique farmlands in the area (see Appendix).

Air Quality

The proposed roadway improvement will increase travel lanes from two to four, but is not expected to generate additional traffic. The increased travel lanes will help move the present traffic which is congested and generates more pollutants due to stop and go conditions. There will be no adverse effect on the air quality because the proposed roadway improvement project is outside the Standard Metropolitan Statistical Area (SMSA) and the 10-year projected traffic estimate is less than 20,000 ADT. A Memorandum of Understanding with the Minnesota Pollution Control Agency (MPCA) specifies that prior consultation with the MPCA is considered as accomplished for highway sections outside of a SMSA.

Noise

- Traffic Noise

The proposed roadway improvement project is not on a new location, and is not a significant change in horizontal or vertical alignment. The proposed project does increase the number of through lanes from two to four for 2.1 km (1.3 miles). For this reason contact was made with Innocent Eyoh, MPCA, to discuss the potential noise impacts of the proposed project. With the understanding of the existing conditions, including no noise sensitive facilities and that the existing traffic will not increase due to the increased number of travel lanes, Mr. Eyoh agreed that the proposed project would not require procedures for abatement of highway traffic noise and construction noise, as required in "Federal Aid Policy Guide, Section 772.7, Applicability".

Mr. Eyoh also agreed with potential benefits to air quality. The improved movement of traffic would reduce congestion and improve air quality. The only concern Mr. Eyoh expressed was, if the speed of traffic would increase significantly to warrant a concern of traffic noise which occurs at 90 km/h (55 mph). This will not be a concern for the proposed project with a proposed speed limit of 50 to 70 km/h (30-45 mph).

In addition to contacting Mr. Eyoh, the existing and future noise levels were predicted using the nomograph method in the FHWA Highway Traffic Noise Prediction Model. At a distance of 15 m (50 ft) from the edge of the existing roadway the Leq(h) is approximately 66 dBA. At this same point, which is 12 m (41 ft) from the edge of the proposed roadway, the Leq(h) is approximately 68 dBA (see Appendix for noise calculations). Noise level increases of less than 3 dBA are considered imperceptible to the human ear. Therefore, no significant noise impacts are anticipated.

Construction Noise

Construction noise has been considered and no impact is anticipated as no unique noise receptors have been identified in the area of the proposed project, and the construction activity is not expected to generate unusual or excessive noise.

Section 404 of the Clean Water Act of 1977; Corps of Engineers; Nationwide, General and Individual Permits

In compliance with Section 404 of the Clean Water Act of 1977 and the Minnesota Wetland Conservation Act of 1991, a Water Resource Notification Form will be sent to the COE and DNR. The proposed roadway improvement project will impact 0.21 ha (0.53 ac) of wetland, the majority being Type 7 wetland (see Wetland Impact Table on page 12).

A Nationwide Permit No. 26 from the COE will be required. A State Permit from the LGU in Goodhue County will also be required. Because the proposed project is located in Goodhue County, the Minnesota Wetland Conservation Act of 1991 requires 2:1 replacement of wetlands. This will comply with Federal Register Part 330.1(e).

Floodplain Impacts

The existing roadway is in the 100-year floodplain and current elevation of the roadway is below the 100-year flood elevation of 687. The proposed roadway improvement will raise the roadway profile to an elevation of 688 at it's lowest point. Emergency services will be maintained during construction by phasing two lanes open at all times while work is done on the other two lanes.

There will be no significant adverse impacts on natural floodplain values. The proposed roadway runs parallel to the flow of potential floodwaters. The proposed roadway improvement will not increase flood risk or change the existing flood stage, because the floodplain is fed from both sides of the project roadway (see Appendix for 100-year Flood Insurance Map). Nelson and Larson Lakes, which border the proposed road project, are off-channel storage for the Vermillion River.

There is a culvert under Sturgeon Lake Road connecting the two lakes. This culvert will remain after road construction is completed, which will maintain existing storage capacity movement. The existing road elevation has not been reached by past flood conditions in this area. It should also be noted that this parallel section of roadway is only 229 m (750 ft) in length, with higher elevations on both ends of the project.

Nelson and Larson Lakes are part of a complex floodplain which is affected by both the Mississippi and Vermillion Rivers in flood conditions. Every effort has been taken to minimize changes to the off-channel storage.

Based on the above data, there are no significant impacts to the surrounding floodplain or restrictions to the proposed project.

Coordination with Bill Huber, DNR Regional Hydrologist, from the inception of the proposed roadway improvement project will be maintained through the permit process as the project progresses.

Wetlands

The site was examined to evaluate for the possible presence of areas satisfying the technical definition of a wetland and to delineate any such areas found along the road corridors.

The proposed roadway improvement project looked at all practical alternates (see page 3). The location of fill and shift in alignment were discussed with the DNR Regional Hydrologist. The preferred alignment was shifted south of the existing alignment to minimize wetland impact on the north side of the existing road. The south side of the existing roadway consists of rip rap which was exempted by the COE and LGU from wetland status.

Both Nelson and Larson Lakes are protected waters, but the DNR indicated that Nelson Lake to the north is the more productive of the two lakes and less prone to flooding. This further supports a shift to the south. In addition, the geometrics of the road design throughout the area of potential wetland impacts incorporates a 2:1 inslope and an urban design section.

See Appendix for wetland investigation procedures used. The wetlands identified are adjacent to DNR protected waters (see Wetlands/Protected Waters Map in Appendix). The proposed project will impact 0.21 ha (0.53 ac) of wetlands.

- Presence of Hydric Soils

The Soil Survey of Goodhue County was consulted to determine the presence and location of hydric soils. Hydric soil types are listed in the publication, Hydric Soils of the United States (1991 revised edition), published by the USDA Soil Conservation Service.

The site is located in the Estherville-Waukegan-Alluvial land and Marsh-McPaul-Radford soil associations. The Estherville association is described as "Nearly level to sloping, somewhat excessively drained, well-drained, and poorly drained, medium textured and coarser textured soils."

The Marsh association is described as "Depressional, very poorly drained marshes; and nearly level, moderately well drained and somewhat poorly drained, medium textured soils." Slopes on the site range from 0% to 45%.

The soils on the site are mapped as Alluvial land, Burkhardt loam, Marsh, McPaul silt loam, Plainfield loamy sand, and Salida gravelly coarse sand. None of the soils on the site are on the hydric soils list; however, Alluvial land is frequently flooded and Marsh is composed of mainly peat, which is not on the soils list but is a histosol and therefore considered hydric.

- Edge 1 is within an area mapped as Plainfield loamy sand in the western portion, and a combination of Burkhardt loam and Salida gravelly coarse sand in the eastern portion. The portion of the south side of Sturgeon Lake Road that passes over soil mapped as Marsh was clearly rock rip rap with gravel and sand as roadway base along the edge of the water. All of these soils are not on the hydric soils list (except the filled Marsh soil).
- Edge 2 is the portion of the north side of Sturgeon Lake Road whose soils are mapped as Sparta loamy sand and Burkhardt loam in the eastern portion of this edge, Plainfield loamy sand in the western portion, and sandy fill over Marsh in the center. All of these soils are not on the hydric soils list (except the filled Marsh soil).

- Wetland Hydrology

Due to the heavy rainfalls experienced during June, July and August of 1993, that carried the above-normal precipitation totals through the end of the year, the wetlands were expected to have normal or above normal hydrology in the spring of 1994. These heavy rains also caused flooding of the Mississippi River throughout much of the summer of 1993.

The hydrology is driven by yearly spring flooding because this is in the floodplain of the Mississippi and Vermillion Rivers.

- Description of Areas Examined for Wetland Criteria

The site was reviewed in accordance with State and Federally required delineation procedures. Two wetland edges along the existing road corridors were delineated.

It was agreed by the Wetland Conservation Act (WCA) Technical Evaluation Panel (TEP) (made up of representatives from the LGU, SWCD, and BWSR) that the areas of rock rip rap are not jurisdictional wetland. The COE representative also concurred with this decision. The areas of rip rap are excluded from the wetland delineation. Since this delineation is along roadway corridors rather than around discrete basins, linear portions of roadway wetland edges are described separately.

- Edge 1 begins on the west side of CSAH 18 starting as far north as wetland conditions exist. The edge along the west side of the road, north of the bridge over Larson Lake, is dominated by silver maple, blue flag iris, willow, smartweed, sedge, cottonwood, and green ash on the low edge, and mullien, thicket creeper, smooth brome, yarrow, blackberry, green ash, prickly ash, honeysuckle, goldenrod, violet, red cedar, and common milkweed on the upland side of the edge.

Rock rip rap exists around the bridge. The east side of the road is a sandy slope that has some sedge plants present. The edge swings eastward and continues along the south side of Sturgeon Lake Road. There is a forested and emergent wetland portion from the east side of CSAH 18 to the south side of Sturgeon Lake Road that consists of trees such as silver maple.

The south side of Sturgeon Lake Road is rock rip rap along the main portion of Larson Lake. This area is not identified as wetland on the NWI map and was excluded from the wetland delineation. The wetland delineation of the south side of the road picks up again east of the rip rap area as a forested and emergent wetland becomes more evident as the edge moves to the east. This corresponds with the NWI mapped wetland. The wetland edge turns southward and was staked until it was more than 45.7 m (150 ft) south of the road.

- Edge 2 is the north side of Sturgeon Lake Road. Rock rip rap was not strongly evident on the north side of the road. This edge is dominated by silver maple, curly dock, spikerush, and sedge on the low edge, and thicket creeper, smooth brome, mullien, and green ash on the upland side of the edge. On the eastern side of the edge, a seasonally flooded portion of an agricultural field was included as wetland. This agricultural field appears to be cropped most years, so this may not be considered jurisdictional wetland.

WETLAND IMPACT TABLE

	Wetland Type	Wetland		Protected Waters	
		ha	(ac)	ha	(ac)
Edge 1	7	0.03	(0.07)		
	3, 6	0.03	(0.07)	0.67	(1.65)
	7	0.15	(0.39)		
Total Wetland Impacted		0.21	(0.53)		
Total Protected Waters Impacted				0.67	(1.65)

Activities which impact or potentially impact wetlands are currently regulated at several levels of government. Federal: Corps of Engineers (COE), State: Department of Natural Resources (DNR) and Minnesota Pollution Control Agency (MPCA), Watershed, and Local Governmental Unit (LGU) agencies may all be involved in reviewing a single project. To avoid project delays associated with wetland regulations, it is essential that applicants acquire necessary permits from all jurisdictional agencies before initiating activities.

Any grading or filling in wetland basins may not commence until all permits pertaining to wetlands have been obtained. Violation of wetland regulations has resulted in substantial civil and criminal penalties. Local ordinances may regulate wetland modifications such as brush and tree removal, and burning, in addition to grading and filling.

Permits granted may have special provisions and conditions which need to be followed. It is the responsibility of the applicant to be aware of and informed about all special conditions and provisions within the permit. These provisions and conditions may include construction monitoring, photo-documentation, plant community establishment, agency inspections, and extended post-construction monitoring. Failure to heed these conditions may be considered a violation of permit conditions subjecting the permittee to civil and criminal penalties. It is the responsibility of the permittee to comply with all permit conditions.

During construction it is recommended that proper erosion and sediment control measures be implemented to prevent excess sediment from entering wetlands.

Since Larson Lake and Nelson Lake are DNR protected waters, a DNR Work in Protected Waters Permit is required for any work done in these areas.

The above factors and considerations establish that there is no practical alternative to construction in the wetlands located along the this segment of Sturgeon Lake Road, and the proposed roadway improvement project includes all practical measures to minimize harm to the wetlands which may result from such use. The impacted waters are not public water supplies or any recreational, cultural, or scientific uses of the wetlands.

Water Pollution

The proposed roadway improvement project will increase impervious surface area by adding two new 3.6 m (12 ft) lanes and a 1.5 m (5 ft) sidewalk. The roadway widening will result in additional transportation generated pollutants such as oil, salt and sand. The proposed roadway improvements will include the construction of curb and gutter to collect storm water runoff that may transport those potential pollutants to settling basins which will retain runoff before it enters existing water bodies.

Since the proposed project will disturb more than 2.0 ha (5.0 ac) of land, a NPDES storm sewer construction permit application will be sent to the MPCA after the plans are complete and before the construction begins. The permit will become effective 48 hours after the postmarked date of the completed application.

Hazardous Waste Sites

There are no known hazardous waste sites adjacent to the proposed roadway improvement project where additional right-of-way will be required. Contact was made with Linda Carrol of the MPCA to confirm the absence of suspected contamination. If during construction the presence of contaminants is discovered, the MPCA will be contacted.

Mitigation of Damages

The impacted 0.21 ha (0.53 ac) of wetland will be mitigated on site at a rate of 2:1. The mitigation will consist of restoration of 0.42 ha (1.06 ac) of drained wetland to replace the three Type 7 wetlands impacted by the proposed project. Mitigation of wetland will be completed with the wetland mitigation for Dakota County's Etter Bridge Project (SP 19-668-02). This mitigation area is located along the north end of CSAH 18 in Goodhue County, which is in the same watershed. The proposed mitigation site has been approved by the County for joint development. The wetland mitigation will comply with the mitigation monitoring requirements of the Minnesota Wetland Conservation Act of 1991.

Special attention will be given in the contract specifications to assure that permanent and temporary erosion control methods will be used in the construction of Sturgeon Lake Road. Permanent control methods will include timely revegetation of disturbed areas with sod or a special native plant seed mix. Temporary controls of erosion include items such as straw bale structures, silt fences, and sediment traps. All temporary erosion control measures will be removed when vegetation is reestablished.

Controversial Issues

There are no known controversial issues connected with the proposed project.

Aesthetic Values

The proposed project is anticipated to have no impact on the aesthetic and related values, including visual quality.

Other Effects

During construction some disruption of vehicular traffic will result. No detours are anticipated to be required during construction.

State Environmental Review (M.E.Q.B.)

This project is being reviewed through the State Environmental Review Program of the Minnesota Environmental Quality Board. The proposed project has been determined to meet the Minnesota Rules of 1985 as amended October 20, 1986, Part 4410.4600 Exemptions Subp. 14C for highway project exemption category - modernization of an existing roadway by resurfacing, restoration, or rehabilitation which may involve the acquisition of minimal amounts of right-of-way.

Federal Action Determination Statement

Based on the Environmental Study in accordance with the Federal-Aid Policy Guide, Sec. 771.117 d(1), dated December 9, 1991, it is determined that the proposed improvement is a Class II Action (categorical exclusion) anticipated to have no foreseeable change on the quality of the human environment.

VI. PROJECT SCHEDULE AND PROJECT MANAGER

In accordance with the Minnesota State-Aid Project Development Manual, it is proposed that the development of this action will follow the path level shown below:

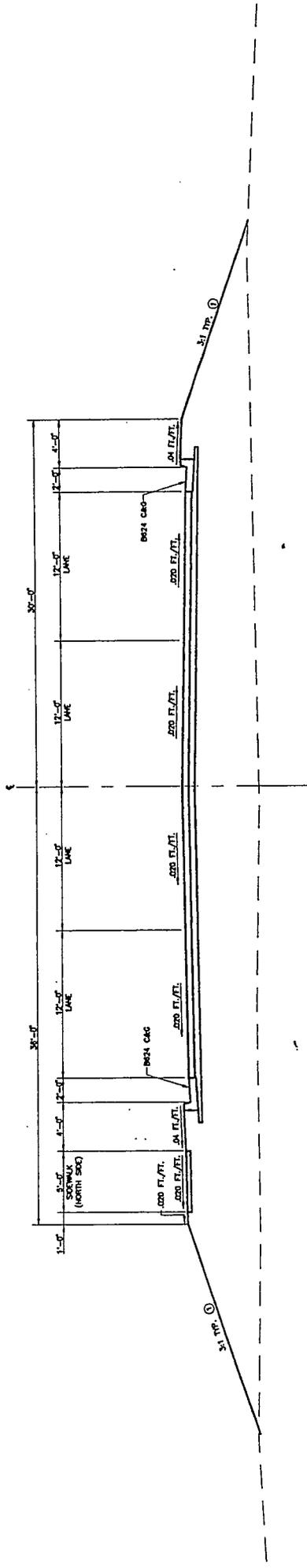
Submit Draft Project Path Report	February 27, 1995
Receive Comments on Draft Project Path Report	April 24, 1995
Submit Final Project Path Report	May 8, 1995
Categorical Exclusion Concurrence	May 29, 1995
Opportunity for a Public Hearing	June 5 - July 14, 1995
Submit Draft Study Report	June 20, 1995
Receive Comments on Draft Study Report	July 11, 1995
Submit Final Study Report	July 18, 1995
Approval of Study Report	August 1, 1995
Begin Purchase of Right-of-Way	August 1, 1995
Submit Plans, Specifications and Estimate	September 29, 1995
Approval of Plans, Specifications and Estimate	December 22, 1995
Award Contract	March 15, 1996
Project Completion	November 15, 1996

The Project Manager is:

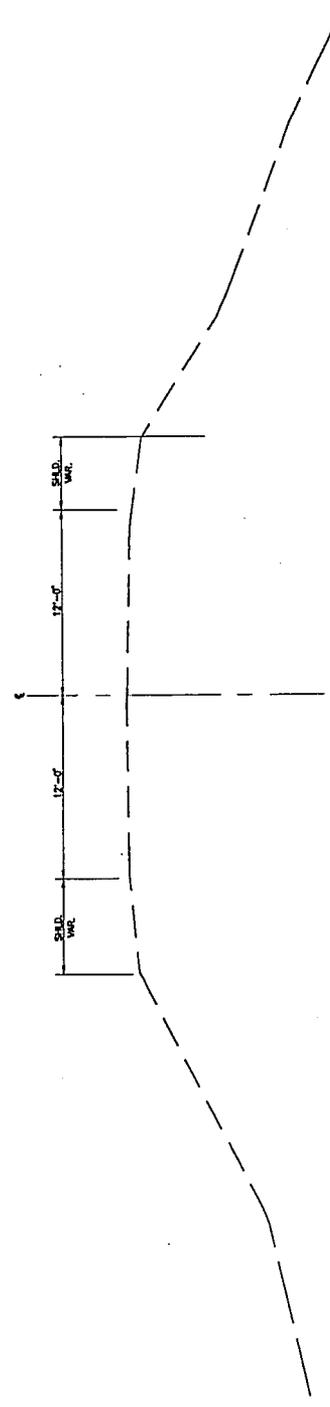
Mr. Thomas Drake, P.E.
Director of Public Works
City of Red Wing
315 West 4th Street
P.O. Box 34, City Hall
Red Wing, Minnesota 55066
612/227-6220

APPENDIX

STURGEON LAKE ROAD



PROPOSED TYPICAL SECTION



EXISTING SECTION



MINNESOTA HISTORICAL SOCIETY

1995
Received
TKDA

March 17, 1995

Mr. Darrel H. Berkowitz
TKDA and Associates, Inc.
1500 Piper Jaffray Plaza
444 Cedar Street
St. Paul, Minnesota 55101

<input type="checkbox"/> BREW	<input type="checkbox"/> ENGLEHORN
<input type="checkbox"/> HARTLEY	<input type="checkbox"/> HEDBERG
<input type="checkbox"/> ROYER	<input type="checkbox"/> HENDRICKSON
<input type="checkbox"/> BUDKE	<input type="checkbox"/> KIRK
<input type="checkbox"/> DAVIDSON	<input type="checkbox"/> KIRKWOLD
<input type="checkbox"/> DEJNER	<input type="checkbox"/> MOORE
<input type="checkbox"/> MORGAN	<input type="checkbox"/>
FILE:	<input type="checkbox"/>
<input type="checkbox"/> MAIN	<input type="checkbox"/> BUS. DEV.
<input type="checkbox"/> CONTRACT	<input type="checkbox"/> ACCTG

Dear Mr. Berkowitz:

Re: ISTEА; Reconstruct Sturgeon Lake Road from CSAH 18 to 1.25 miles east, S5 & 6, T113, R15, and S31 & 32, T114, R15, Red Wing, Goodhue Co. SHPO Number: 95-1280

Thank you for providing additional information on the above referenced project area.

Based on a review of this information, we believe that the only area of the project that needs an archaeological survey is the upland area in the west one half mile of the project.

Also note that our earlier letter requested information on buildings in the project area.

If you have any questions regarding our review, please contact our office at 612-296-5462.

Sincerely,

Dennis A. Gimmetstad
Government Programs and Compliance Officer

DAG:dmb

cc: Andy Golfis, System G
Dick McAtee, MnDOT

TKDA

ENGINEERS • ARCHITECTS • PLANNERS

TOLTZ, KING, DUVALL, ANDERSON
AND ASSOCIATES, INCORPORATED

1500 PIPER JAFFRAY PLAZA
444 CEDAR STREET
SAINT PAUL, MINNESOTA 55101-2140
PHONE: 612/292-4400 FAX: 612/292-0083

February 2, 1995

Mr. Paul Stine
MnDOT State Aid Division
Transportation Building, Room 500
St. Paul, Minnesota 55155

Re: Sturgeon Lake Road Reconstruction
Section 4(f)/6(f) Lands
City of Red Wing, Minnesota
TKDA Commission No. 10667-01

Dear Mr. Stine:

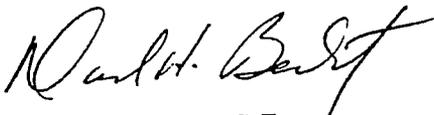
In follow-up to discussions with MnDOT's State Aid office regarding potential impacts to lands adjacent to the Sturgeon Lake Road Reconstruction project, the following information is presented for your review and determination of impact:

- The proposed road improvements will be constructed within the existing 66-foot right-of-way, but will require 20-foot temporary easements during construction.
- A temporary construction easement will be needed on lands that are currently identified as Tribal Council land which houses the Community Center. Some recreation activities take place on the surrounding grounds, however none of these activities will be adversely affected by the construction easement. After construction is complete, the land will be returned to its current use.
- The Tribal Council land is identified as Principal (PRI) U.S.A. land. James Northbird, Coordinator of Right-of-Way for the Bureau of Indian Affairs, indicated that PRI U.S.A. land is considered Federal land held in trust for the Tribal Council. Our concern is whether obtaining a construction easement across this land, as discussed herein, constitutes Section 4(f)/6(f) involvement.

It is our feeling that the easement does not constitute permanent impacts to adjacent land that may be considered recreational, and that the Section 4(f)/6(f) requirements do not apply.

We would appreciate your concurrence or comments in order to complete the Project Path Report for this reconstruction project. If you have any questions, please call me at 292-4445.

Sincerely,



Darrel H. Berkowitz, P.E.

DHB:adh

cc: Tom Drake, City Engineer
Kathy Sellers, Tribal Council
Andy Golfis, System G
Greg Paulson, Goodhue County
Kevin Cullen, TKDA

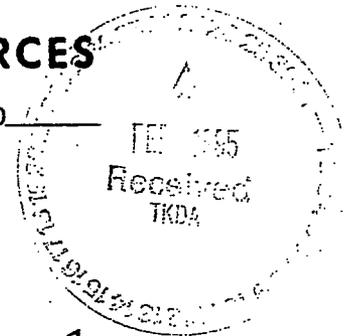


STATE OF
MINNESOTA
DEPARTMENT OF NATURAL RESOURCES

500 LAFAYETTE ROAD • ST. PAUL, MINNESOTA • 55155-40

DNR INFORMATION
(612) 296-6157

February 23, 1995



Kevin Cullen
TKDA and Assoc., Inc.
1500 Piper Jaffray Plaza
444 Cedar Street
Saint Paul, MN 55101-2140

<input checked="" type="checkbox"/> FREW	<input type="checkbox"/> ENGLEHORN
<input checked="" type="checkbox"/> NYBYEN	<input type="checkbox"/> HARTLEY
<input checked="" type="checkbox"/> BERKOWITZ	<input type="checkbox"/> A. HEDBERG
<input type="checkbox"/> BOYER	<input type="checkbox"/> HENDRICKSON
<input type="checkbox"/> BUDKE	<input type="checkbox"/> KIRK
<input type="checkbox"/> DAVIDSON	<input type="checkbox"/> KIRKWOLD
<input type="checkbox"/> DEITNER	<input type="checkbox"/> MOORE
<input type="checkbox"/>	<input type="checkbox"/> MORGAN
FILE:	CULLEN
<input type="checkbox"/> MAIN	<input type="checkbox"/> BUS. DEV.
<input type="checkbox"/> CONTRACT	<input type="checkbox"/> ACCTG

Re: Sturgeon Lake Road upgrade, T114N R15W sections 31 & 32,
T113N R15W sections 5 & 6, Goodhue County

Dear Mr. Cullen:

The Minnesota Natural Heritage database has been reviewed to determine if any rare plant or animal species or other significant natural features are known to occur within an approximate one-mile radius of the above referenced project. A print-out with the results of this search is enclosed, both in full record and indexed format, an explanation to the format of the print-out is enclosed.

Should you have specific questions about the enclosed material, I recommend that Hannah Dunevitz, the Plant Ecologist who surveyed Goodhue county as part of the Minnesota County Biological Survey, be contacted. Ms. Dunevitz may be reached at 612/282-2510.

The Natural Heritage database is maintained by the Natural Heritage Program and the Nongame Wildlife Program, units within the Section of Wildlife, Department of Natural Resources. It is the most complete source of data on Minnesota's rare, endangered, or otherwise significant plant and animal species, plant communities, and other natural features, and is used in fostering better understanding and protection of these rare features.

The information in the database is drawn from many parts of Minnesota, and is constantly being updated, but it is not based on a comprehensive survey of the state. Therefore, there are currently many significant natural features present in the state which are not represented by the database. We are in the process of addressing this via the Minnesota County Biological Survey (MCBS), a county-by-county inventory of rare natural features, which is now underway. Because survey work has been completed for Washington county, our information about natural communities judged to be significant by our program is quite good for that county. The MCBS survey work for rare and endangered animals and plants is less comprehensive; it is therefore possible that occurrences of these features exist in the project area for which we have no records. Because there has not been an on-site survey of the biological resources of the project area, it is possible that ecologically significant features exist for which we have no record.

Kevin Cullen
February 23, 1995
Page 2

Thank you for consulting us on this matter, and for your interest in minimizing impacts on Minnesota's rare resources. Please be aware that review by the Natural Heritage and Nongame Research Program focuses only on rare natural features. It does not constitute review or approval by the Department of Natural Resources as a whole. An invoice for the work completed will be forthcoming. You are being billed for map and computer search and staff scientist review.

Cordially,



Jennifer Kamm
Endangered Species Environmental Review Assistant
Natural Heritage and Nongame Research Program
612/296-8279, FAX 612/297-4961

nhp #950263

cc. Hannah Dunevitz, Mike Davis

TWP	RNG	SECTION	FED	MN	STATUS	S	RANK	CLASS	ELEMENT and OCCURRENCE NUMBER	MANAGED AREA
T113N	R15W	NE06SW05				S2	NC	NC	DRY OAK SAVANNA (SOUTHEAST) SAND-GRAVEL SUBTYPE #9	R..J..DORER STATE FOREST (STATUTORY BNDRY)
T113N	R15W	NESH06		NON		S2	SP	SP	ARISAEMA DRACONTIUM (GREEN DRAGON) #17	R..J..DORER STATE FOREST (STATUTORY BNDRY)
T113N	R15W	08SW0506		NON		S4S5	NC	NC	FLOODPLAIN FOREST #57	R..J..DORER STATE FOREST (STATUTORY BNDRY)
T113N	R15W	NESH06				S4S5	SP	SP	LYCOPUS VIRGINICUS (VIRGINIA WATER HOREHOUND) #11	R..J..DORER STATE FOREST (STATUTORY BNDRY)
T113N	R15W	06		SPC		S2S3	SA	SA	MIXED EMERGENT MARSH (FOREST) #19	R..J..DORER STATE FOREST (STATUTORY BNDRY)
T113N	R15W	1706070S08				S2S3	NC	NC	PITUOPHIS MELANOLEUCUS (GOPHER SNAKE) #6	R..J..DORER STATE FOREST (STATUTORY BNDRY)
T113N	R16W	01		SPC		S2S3	NC	NC	MAPLE-BASSWOOD FOREST (SOUTHEAST) #55	R..J..DORER STATE FOREST (STATUTORY BNDRY)
T113N	R16W	0402				S2S3	NC	NC	MAPLE-BASSWOOD FOREST (SOUTHEAST) #28	R..J..DORER STATE FOREST (STATUTORY BNDRY)
T113N	R16W	01112				S2S3	SP	SP	PANAX QUINQUEFOLIUM (GINSENG) #83	R..J..DORER STATE FOREST (STATUTORY BNDRY)
T113N	R15W	SEW29		THR		S2	NC	NC	OAK FOREST (SOUTHEAST) MESIC SUBTYPE #51	R..J..DORER STATE FOREST (STATUTORY BNDRY)
T114N	R15W	290E3330	LT			S2	SA	SA	OAK FOREST (SOUTHEAST) MESIC SUBTYPE #36	R..J..DORER STATE FOREST (STATUTORY BNDRY)
T114N	R15W	NEW51		SPC		S2	NC	NC	HALIAETUS LEUCOCEPHALUS (BALD EAGLE) #1305	R..J..DORER STATE FOREST (STATUTORY BNDRY)
T114N	R15W	SESE31	C2	THR			SA	SA	FLOODPLAIN FOREST #54	PRAIRIE ISLAND RESERVATION
T114N	R15W	303231				S2	SA	SA	ELAPHE VULPINA (FOX SNAKE) #83	PRAIRIE ISLAND RESERVATION
T114N	R15W	303231				S4S5	NC	NC	EMYDOIDEA BLANDINGII (BLANDING'S TURTLE) #718	GOSES WMA
T114N	R15W	303231				S2	NC	NC	FLOODPLAIN FOREST #53	PRAIRIE ISLAND RESERVATION
T114N	R16W	22273536				S2	NC	NC	MIXED EMERGENT MARSH (FOREST) #13	R..J..DORER STATE FOREST (STATUTORY BNDRY)
T114N	R16W	36				S2	NC	NC	FLOODPLAIN FOREST #56	R..J..DORER STATE FOREST (STATUTORY BNDRY)
									DRY OAK SAVANNA (SOUTHEAST) SAND-GRAVEL SUBTYPE #2	

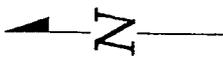
Goodhue County Habitat Inventory Map



WISCONSIN

DAKOTA COUNTY

T114N



Memorial Hardwood State Forest (Statutory Boundary)

6

9

T113N

OW
DB

DB
DO
DB
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DB
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U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I (To be completed by Federal Agency)

Date Of Land Evaluation Request	
Name Of Project	Federal Agency Involved
Proposed Land Use <i>Transportation - Hwy Right of way</i>	County And State <i>Goodhue MN</i>
Date Request Received By SCS	

PART II (To be completed by SCS)

Does the site contain prime, unique, statewide or local important farmland? <i>(If no, the FPPA does not apply - do not complete additional parts of this form).</i>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Acres Irrigated	Average Farm Size <i>242</i>
Major Crops <i>Corn, Sb., Alfalfa</i>	Farmable Land In Govt. Jurisdiction Acres: %	Amount Of Farmland As Defined In FPPA Acres: %	
Name Of Land Evaluation System Used	Name Of Local Site Assessment System	Date Land Evaluation Returned By SCS <i>1-11-95</i>	

PART III (To be completed by Federal Agency)

	Alternative Site Rating			
	Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly				
B. Total Acres To Be Converted Indirectly				
C. Total Acres In Site				

PART IV (To be completed by SCS) Land Evaluation Information

A. Total Acres Prime And Unique Farmland	<i>0.5</i>			
B. Total Acres Statewide And Local Important Farmland	<i>0.7</i>			
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted				
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value				

PART V (To be completed by SCS) Land Evaluation Criterion
Relative Value Of Farmland To Be Converted (Scale of 0 to 100 Points)

PART VI (To be completed by Federal Agency)
Assessment Criteria (These criteria are explained in 7 CFR 658.5(b))

Assessment Criteria	Maximum Points	Site A	Site B	Site C	Site D
1. Area In Nonurban Use					
2. Perimeter In Nonurban Use					
3. Percent Of Site Being Farmed					
4. Protection Provided By State And Local Government					
5. Distance From Urban Builtup Area					
6. Distance To Urban Support Services					
7. Size Of Present Farm Unit Compared To Average					
8. Creation Of Nonfarmable Farmland					
9. Availability Of Farm Support Services					
10. On-Farm Investments					
11. Effects Of Conversion On Farm Support Services					
12. Compatibility With Existing Agricultural Use					
TOTAL SITE ASSESSMENT POINTS	160				

PART VII (To be completed by Federal Agency)

Relative Value Of Farmland (From Part V)	100				
Total Site Assessment (From Part VI above or a local site assessment)	160				
TOTAL POINTS (Total of above 2 lines)	260				

Site Selected: _____ Date Of Selection: _____

Reason For Selection: _____

Was A Local Site Assessment Used? Yes No

Notes: The acreages identified above include the portions of prime + statewide important land previously converted to transportation use. Additional conversions of land are negligible. *Thomas J. [Signature]*
District Conservationist
1-11-95

ENGINEERS • ARCHITECTS • PLANNERS

Project STURGEON LAKE ROAD Comm.No. 10667-01 Sheet _____ of _____
Computations for NOISE LEVEL PREDICTIONS By KRC Date 4/25/95
Chkd _____ Date _____

ASSUMPTIONS :

$$\text{PEAK HOUR VOLUME} = 9\% \text{ OF ADT} = 0.09 \times 10,145 = 913 \text{ VPH}$$

$$2\% \text{ MEDIUM TRUCKS} = 0.02 \times 913 = 18 \text{ VPH}$$

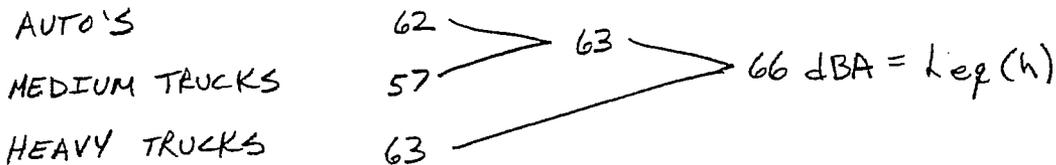
$$2\% \text{ HEAVY TRUCKS} = 0.02 \times 913 = 18 \text{ VPH}$$

$$\left. \begin{array}{l} 2\% \text{ MEDIUM TRUCKS} \\ 2\% \text{ HEAVY TRUCKS} \end{array} \right\} \Rightarrow \text{AUTO'S} = 913 - 18 - 18 = 877 \text{ VPH}$$

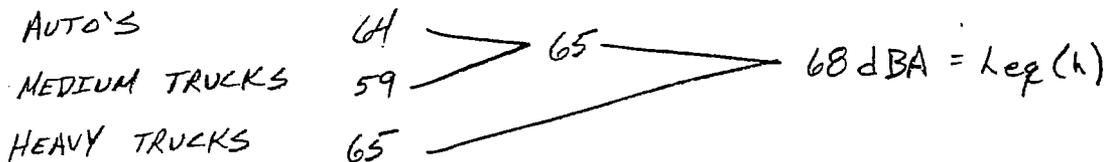
$$\text{SPEED} = 35 \text{ MPH} = 56 \text{ Km/h}$$

COMPUTE TOTAL $L_{eq}(h)$:

EXISTING

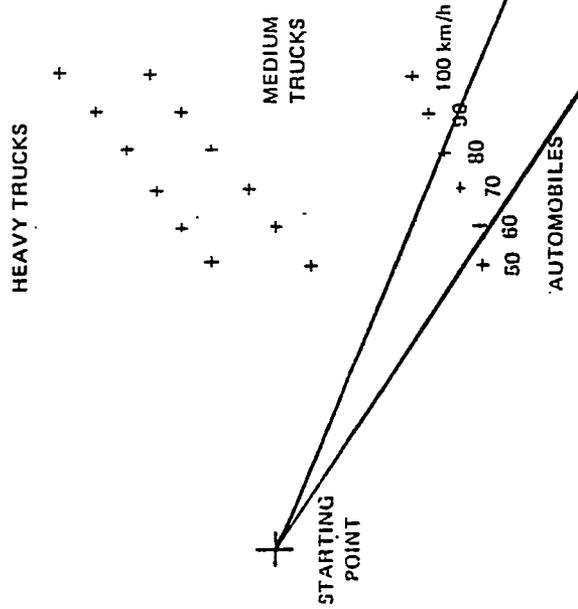


FUTURE

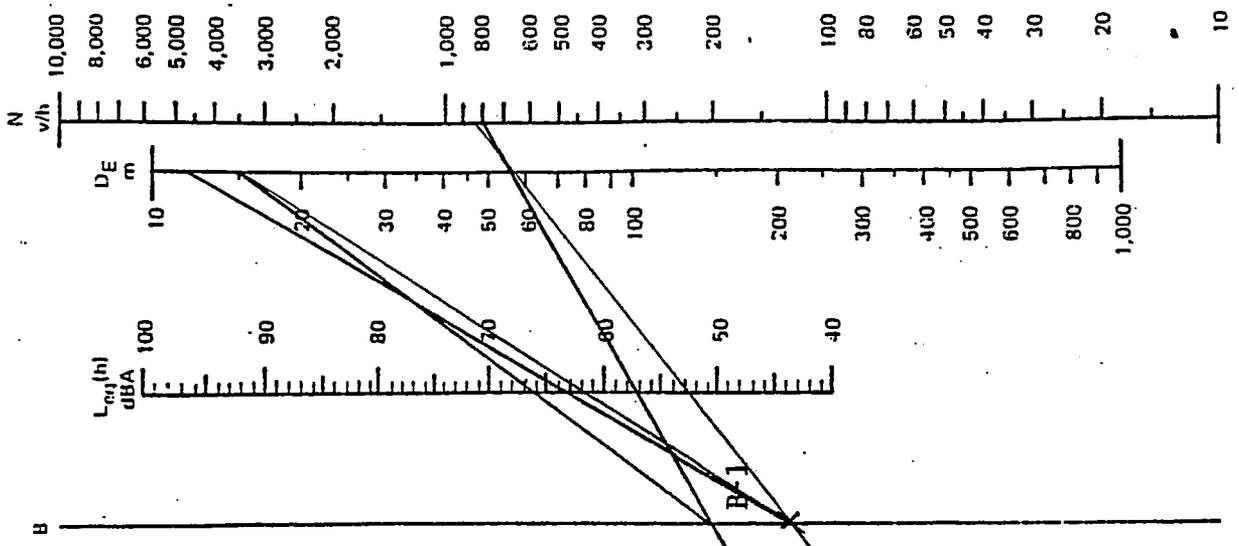


Automobiles $L_{eq}(h) = 66$ dBA A-1/B-1 EXAMPLE

EXISTING $L_{eq}(h) = 62$ dBA
 FUTURE $L_{eq}(h) = 64$ dBA



- ASSUMPTIONS:
- (1) SOFT SITE ($\alpha = 1/2$)
 - (2) INFINITE ROADWAY ($\phi_1 = -90^\circ, \phi_2 = +90^\circ$)
 - (3) CONSTANT SPEED
 - (4) NO SHIELDING
 - (5) $(L_{d,EA}) = 38.1 \text{ LOG}(S) - 2.4$
 - (6) $(L_{d,MT}) = 33.9 \text{ LOG}(S) + 16.4$
 - (7) $(L_{d,HT}) = 24.6 \text{ LOG}(S) + 38.5$

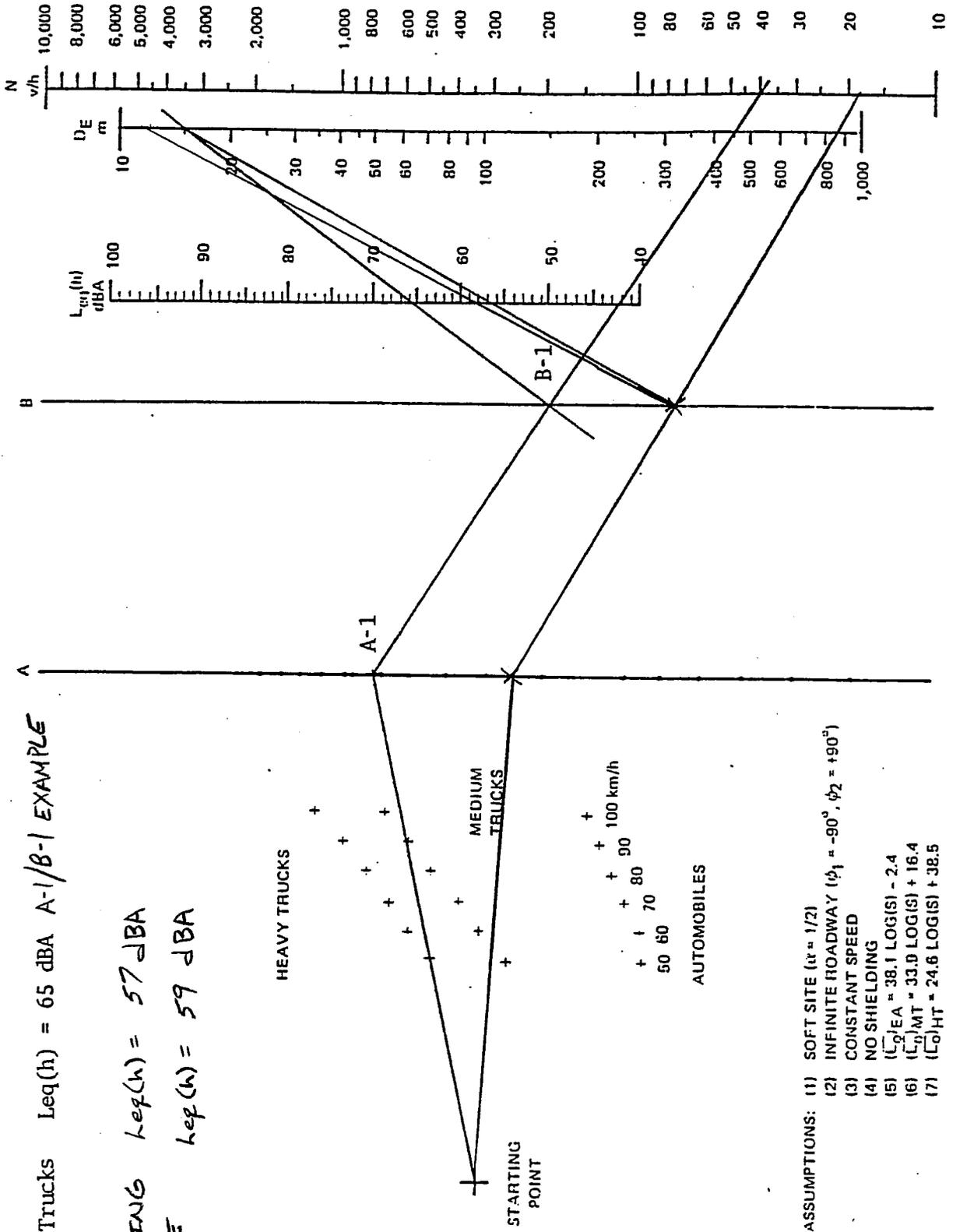


FHWA Highway Traffic Noise Prediction Nomograph (Soft Site)

Medium Trucks $Leq(h) = 65$ dBA A-1/B-1 EXAMPLE

EXISTING $Leq(h) = 57$ dBA

FUTURE $Leq(h) = 59$ dBA



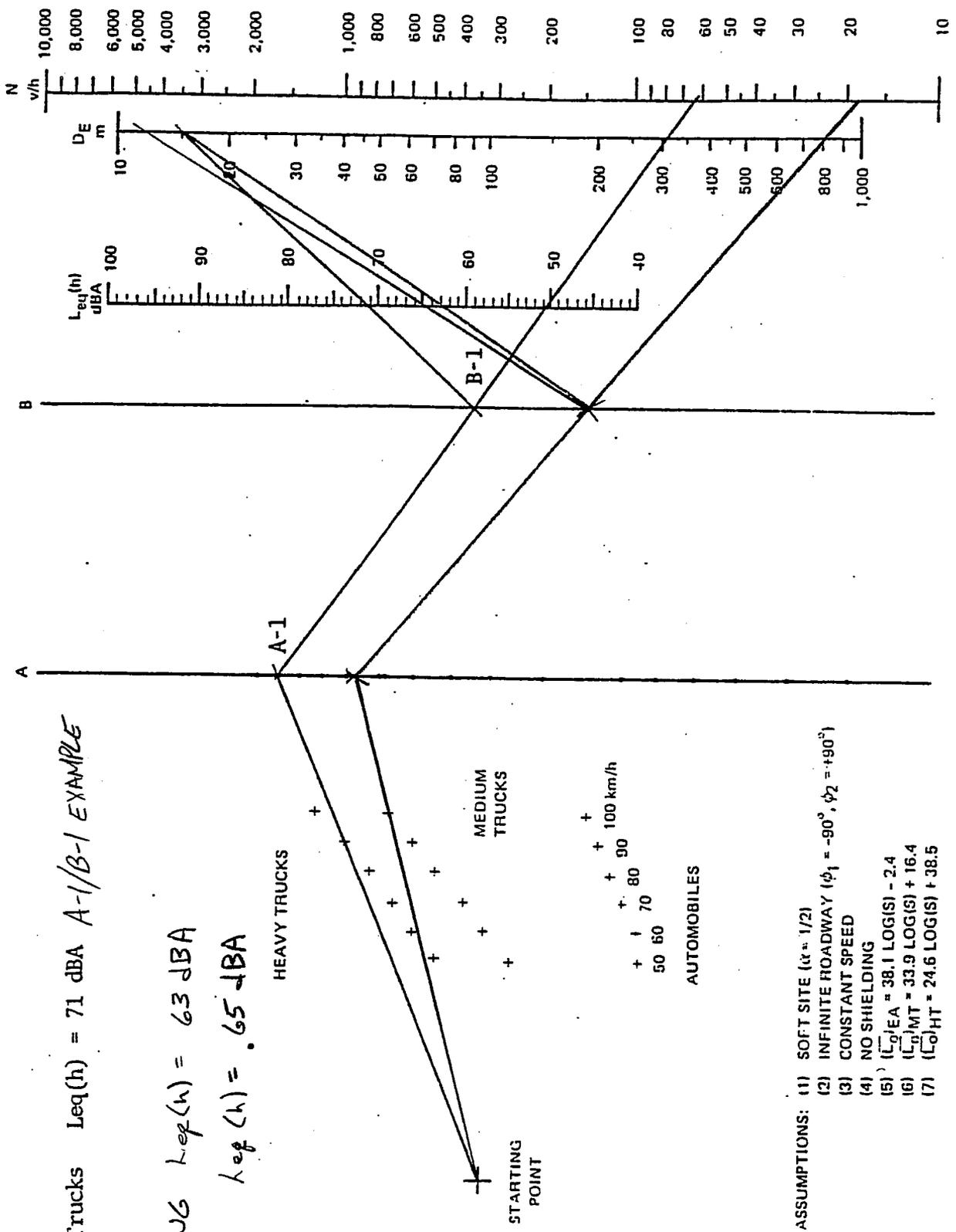
- ASSUMPTIONS:
- (1) SOFT SITE ($\alpha = 1/2$)
 - (2) INFINITE ROADWAY ($\phi_1 = -90^\circ, \phi_2 = +90^\circ$)
 - (3) CONSTANT SPEED
 - (4) NO SHIELDING
 - (5) $(L_{eq})_{EA} = 38.1 \text{ LOG(S)} - 2.4$
 - (6) $(L_{eq})_{MT} = 33.9 \text{ LOG(S)} + 16.4$
 - (7) $(L_{eq})_{HT} = 24.6 \text{ LOG(S)} + 38.5$

FHWA Highway Traffic Noise Prediction Nomograph (Soft Site)

Heavy Trucks $L_{eq}(h) = 71$ dBA A-1/B-1 EXAMPLE

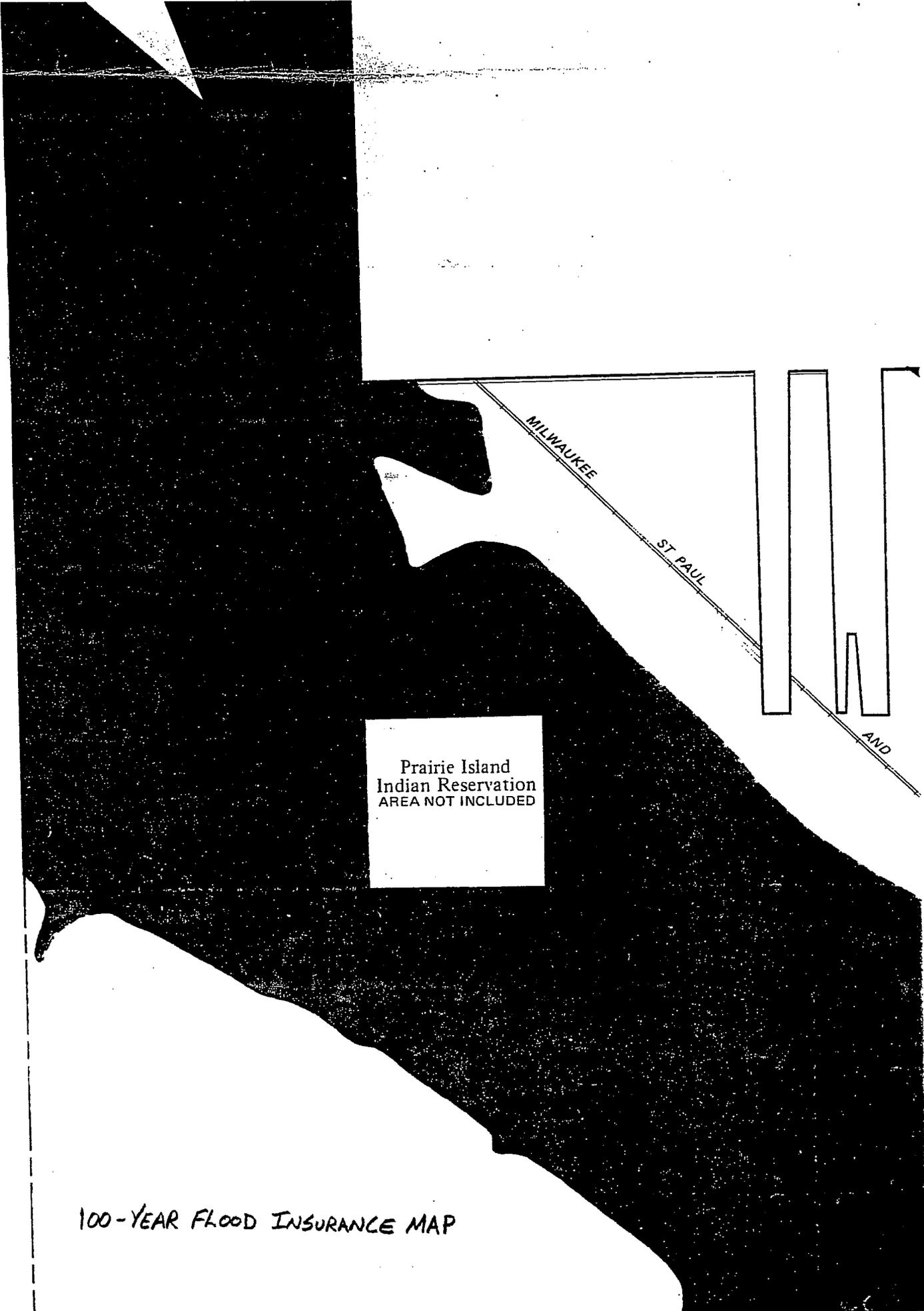
EXISTING $L_{eq}(h) = 63$ dBA

FUTURE $L_{eq}(h) = 65$ dBA



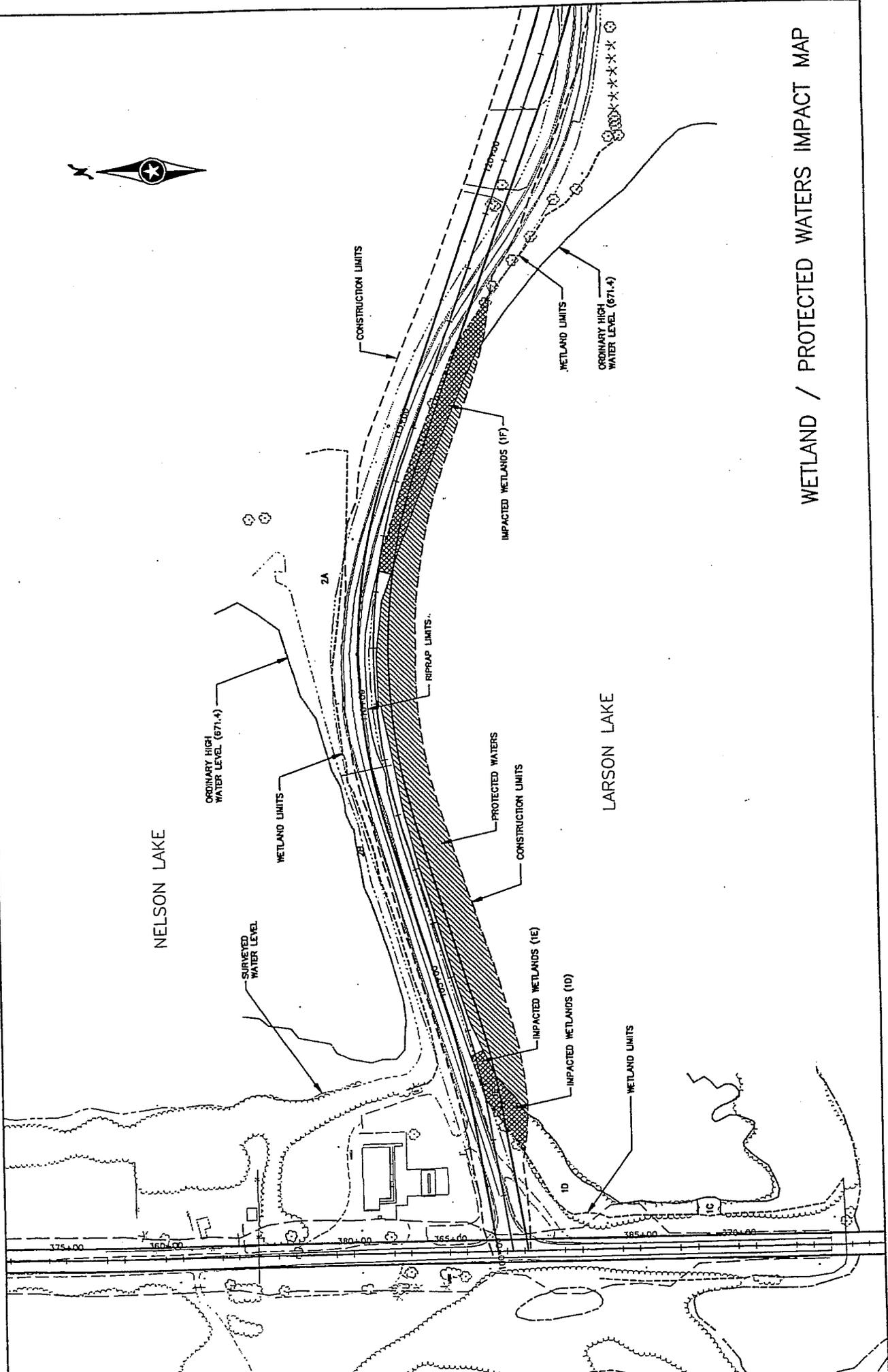
- ASSUMPTIONS:
- (1) SOFT SITE ($\alpha = 1/2$)
 - (2) INFINITE ROADWAY ($\phi_1 = -90^\circ, \phi_2 = +90^\circ$)
 - (3) CONSTANT SPEED
 - (4) NO SHIELDING
 - (5) $(L_{0})_{EA} = 38.1 \text{ LOG(S)} - 2.4$
 - (6) $(L_{0})_{MT} = 33.9 \text{ LOG(S)} + 16.4$
 - (7) $(L_{0})_{HT} = 24.6 \text{ LOG(S)} + 38.5$

FHWA Highway Traffic Noise Prediction Nomograph (Soft Site)



Prairie Island
Indian Reservation
AREA NOT INCLUDED

100-YEAR FLOOD INSURANCE MAP



WETLAND / PROTECTED WATERS IMPACT MAP

WETLAND INVESTIGATION METHOD

Data Sources

Data sources consulted included:

- DNR Protected Waters Inventory, 1983 - Goodhue County, Minnesota.
- U.S. Fish and Wildlife Service National Wetland Inventory (NWI) Map, 1"=2000' scale; Diamond Bluff West, Wis.-Minn. Quadrangle; 1991. Date of aerial photos - May, 1981.
- U.S. Fish and Wildlife Service National Wetland Inventory (NWI) Map, 1"=2000' scale; Welch, Minn. Quadrangle; 1991. Date of aerial photos - May, 1981.
- Soil Survey of Goodhue County, U.S. Department of Agriculture, 1974.
- Hydric Soils of the United States, USDA Soil Conservation Service, 1991.

Topographic maps, NWI maps, DNR maps, soils maps, and aerial photographs were reviewed prior to visiting the site to identify probable wetland habitats. All potential wetland areas were then ground checked during the field survey.

Basis of Determination

In order for an area to be classified as a wetland it must possess three determining characteristics - hydric soils, hydrophytic vegetation and hydrology in accordance with the two delineation methods presently in use. Prevailing practice by the regulatory agencies has been to determine the presence of hydric soils and hydrophytic vegetation. If one or both of those indicators are present, the presence of suitable hydrology is assumed. The presumption is that the hydrology characteristic is more difficult to determine by casual visual observation and therefore is not used routinely. The project site was searched for areas satisfying the three indicator characteristics of wetlands. Areas possessing these characteristics were more closely examined to determine the approximate edge of the jurisdictional wetland.

Field Procedures

Wetland classification follows the methods described in Cowardin et.al. (Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Fish and Wildlife Service, Office of Biological Services, Washington D.C. Publ. No. FWS/OBS-79/31. 107 pp.) and as used in the National Wetland Inventory being completed by the U.S. Fish and Wildlife Service.

The site was examined on May 16, 1994, for areas that meet wetland criteria in accordance with the Federal Manual for Identifying and Delineating Jurisdictional Wetlands (Federal Interagency Committee for Wetland Delineation. 1989. Federal Manual for Identifying and Delineating Jurisdictional Wetlands. U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, and USDA Soil Conservation Service, Washington D.C. Cooperative technical publication. 76 pp. plus appendices.) and the Corps of Engineers Wetlands Delineation Manual (Technical Rept. Y-87-1, January, 1987). Procedurally, both methods are generally similar, except that the COE method requires that soil inundation or saturation occur within the root zone (generally within 12 inches of the surface) during the growing season and that all three wetland parameters are required to be present.

Wetland edges were delineated in accordance with the foregoing procedures. The edge of each wetland was marked with 4-foot lath sequentially numbered and flagged with orange "wetland boundary" tape.

Vegetation was identified using appropriate field guides. Hydrophytic status was determined using the Minnesota list of wetland plants (Reed 1988). Plant species observed on the site are listed in Appendix A attached hereto. Species found primarily on the "dry" side of the wetland edge are on the "Upland Vegetation" list and species found primarily on the "wet" side of the edge are on the "Lowland Vegetation" list. Species observed to overlap the edge are on the "Vegetation Found on Both Sides" list. Scientific names and indicator status are included on these lists in Appendix A attached hereto.

Soil types on the site were determined using the Soil Survey of Goodhue County (USDA SCS 1974). The hydric status of soils was determined from the list of hydric soils titled: Hydric Soils of the United States (National Technical Committee on Hydric Soils 1991). Where necessary, soils were examined on the site using a Dutch auger, soil probe, or a tiling spade.

Wetland hydrology was determined by direct observation of inundation and saturation, oxidized root channels, water stains on fixed objects in the basin, plant characteristics, hydric soils, and other indicators given in the Federal Manual for Identifying and Delineating Jurisdictional Wetlands (Federal Interagency Committee for Wetland Delineation 1989). In the absence of "significant hydrologic modification", hydrophytic vegetation and hydric soils are considered evidence of wetland hydrology.

Basin-specific information on vegetation, soils and hydrology are detailed on the "Routine Onsite Determination Method" data forms in Appendix B attached hereto.

Wetland Indicators

During documented site visits to more than 2,400 wetlands during the past 24 months, we have observed some very strong correlations between certain plant species and their relationship to the wetland edge.

Some plant species like reed canary grass (*Phalaris arundinacea*) have a broad tolerance to moisture and soil conditions. This species has been observed in conditions from saturated soils with standing water to clearly upland areas such as: 1) creeping up the slope of hills that have no groundwater discharge; 2) in basins and areas possessing definite non-hydric soil conditions; and 3) at the top of spoil pile hills. This plant species is considered Facultative Wetland (FACW+) according to the National List of Plant Species That Occur in Wetlands: Minnesota, published by the U.S. Fish and Wildlife Service.

Facultative Wetland (FACW) species "Usually occur in wetlands (estimated probability 67%-99%), but occasionally found in nonwetlands." A plus sign (+) after the abbreviation "... indicates a frequency toward the wetter end of the category (more frequently found in wetlands)..." While this is true, the definition does not take into account how broadly tolerant the species is to moisture, soil type, or local adaptability.

Another FACW plant species makes this point clear. Jewelweed, sometimes called Touch-me-not (*Impatiens capensis*) is in the same category as reed canary grass; however, the two are vastly different in their tolerance to moisture and soils. Jewelweed is consistently observed to be narrowly tolerant to moisture and soils.

If a cross-section line were drawn perpendicular to the wetland edge between the definitive wetland and definitive upland areas, reed canary grass occupies a relatively large portion of that transitional zone because of its broadly tolerant nature. Jewelweed, on the other hand, occupies a small portion of that same zone due to its narrowly tolerant nature. Even though this is true, both area called Facultative Wetland (FACW).

What we have discovered during extensive wetland field visits is that certain plant species are better indicators of the wetland edge than others. Plant species observed to be narrowly tolerant are far better indicators of the wetland edge location than broad tolerant plant species. Certain narrowly tolerant wetland plant species consistently occur on the "wet" side of the wetland margin, while other narrowly tolerant upland species consistently occur on the "dry" side of the wetland margin. Jewelweed is one example of a narrowly tolerant "wet" side indicator species.

On the "dry" side, an example of a commonly observed narrowly tolerant species is thicket creeper (*Parthinocissus vitacea*). This Facultative Upland (FACU) species (estimated wetland probability of 1%-33%) is consistently found immediately upland of the delineated edge and extends upland.

Obligate Upland (UPL) species "occur in wetlands in another region, but occur almost always (estimated probability >99%) under normal conditions in nonwetlands in the region specified. If a species does not occur in wetlands in any region, it is not on the National List." In other words, species designated as UPL, or not on the National List, are in this category.

Neither Prickly ash (*Xanthoxylum americanum*) nor smooth brome grass (*Bromus inermis*) (even though they are common to the region) are found on the National List, so they are considered Obligate Upland species. Because these species cannot tolerate wetland conditions, they are indicators of nonwetland areas.

The delineation the CSAH 18 site was done using indicator plant species methods described above. As previously mentioned, plant species observed on the site are listed in Appendix A.

Field Conditions

The site examination took place on May 16, 1994. The general upland conditions were "moderately dry". In the 10 days preceding the site visit there was a total of 0.65 inches of precipitation.

Even though the yearly precipitation at the site visit was 1.10 inches below normal for the year (1994), the total at the end of the calendar year 1993 was 3.89 inches above normal. (This total was not carried into the 1994 yearly totals.) The above normal precipitation from the fall of 1993 would likely cause surface and subsurface water levels to be abnormally high well into the spring of 1994. Considering the wetter than normal condition of 1993, the hydrologic conditions would be expected to be somewhere between wetter than normal to normal.

Since water levels in the Mississippi River are regulated at the dams, river levels may not entirely coincide with groundwater levels. These areas are directly adjacent to the river and its backwaters, so the river levels are likely a greater determinant of hydrology than groundwater levels along the road corridors examined.

Comparison with NWI and DNR Protected Waters Maps

According to the Minnesota DNR Protected Waters and Wetlands Maps of Goodhue County, the following protected waters exist in the study area:

25-16W (Larson Lake) is the water body that is below the northern bridge on CSAH 18 and is along the south side of Sturgeon Lake Road.

17P (Nelson Lake) is the water body that is north of Sturgeon Lake Road.

Appendix A

Plant Species List

LOWLAND VEGETATION

<u>Common Name</u>	<u>Scientific Name</u>	<u>Indicator Status</u>
Box Elder	<i>Acer negundo</i>	FACW-
Curly Dock	<i>Rumex crispus</i>	FAC+
Cattail, Broad Leaved	<i>Typha latifolia</i>	OBL
Jewelweed	<i>Impatiens capensis</i>	FACW
Iris, Blueflag	<i>Iris versicolor</i>	OBL
Maple, Silver	<i>Acer saccharinum</i>	FACW
Sedge	<i>Carex spp.</i>	*OBL
Smartweed	<i>Polygonum persicaria</i>	FACW
Spikerush	<i>Eleocharis spp.</i>	*OBL
Spikerush,(short)	<i>Eleocharis spp.</i>	*OBL
Willow	<i>Salix spp.</i>	*FACW

VEGETATION FOUND ON BOTH SIDES

<u>Common Name</u>	<u>Scientific Name</u>	<u>Indicator Status</u>
Ash, Green	<i>Fraxinus pennsylvanica</i>	FACW
Cottonwood	<i>Populus deltoides</i>	FAC+
Elder, Box	<i>Acer negundo</i>	FACW-
Elm, American	<i>Ulmus americana</i>	FACW-
Maple, Silver	<i>Acer saccharinum</i>	FACW

UPLAND VEGETATION

<u>Common Name</u>	<u>Scientific Name</u>	<u>Indicator Status</u>
Ash, Green	<i>Fraxinus pennsylvanica</i>	FACW
Ash, Prickly	<i>Xanthoxylum americanum</i>	UPL
Blackberry	<i>Rubus occidentalis</i>	UPL
Bluegrass, Kentucky	<i>Poa pratensis</i>	FAC
Brome Grass, Smooth	<i>Bromus inermis</i>	UPL
Cedar, Eastern Red	<i>Juniperus virginiana</i>	FACU

Clover	<i>Trifolium spp.</i>	FACU+
Creeper, Thicket	<i>Parthenocissus vitacea</i>	FACU
Dandelion	<i>Taraxacum officinale</i>	FACU
Goldenrod	<i>Solidago spp.</i>	*FACU
Honeysuckle, Japanese	<i>Lonicera japonica</i>	UPL
Mullien, Moth	<i>Verbascum blattaria</i>	UPL
Sumac	<i>Rhus spp.</i>	*UPL
Violet	<i>Viola spp.</i>	*FAC-
Yarrow, Common	<i>Achillea millefolium</i>	FACU

* - Estimate of Indicator Status

Appendix B

Routines On-Site Determination Forms



FRANKLIN J. SVOBODA & ASSOCIATES

Wetland Services • Wildlife/Vegetation Studies

Edge 1 Low

DATA FORM ROUTINE ONSITE DETERMINATION METHOD

Field Investigator(s): Robert JF MCRILK / Rowold B. Wollweber Date: 5/16/94
 Project/Site: Red Wing State: MN County: Goodhue Type: 2, 6, 7
 Applicant/Owner: _____ Plant Community #/Name: PEM1/SSI/PO1C
 Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

Do normal environmental conditions exist at the plant community?
 Yes No _____ (If no, explain on back)
 Has the vegetation, soils, and/or hydrology been significantly disturbed?
 Yes _____ No (If yes, explain on back)

VEGETATION

Rel. Abund.	Dominant Plant Species	Indicator Status	Stratum	Dominant Plant Species	Indicator Status	Stratum	Rel. Abund.
*1.	SILVER MAPLE	_____	_____	11.	_____	_____	_____
*2.	Blue FLAG IRIS	_____	_____	12.	_____	_____	_____
3.	WILLOW SHRUBS	_____	_____	13.	_____	_____	_____
4.	Smartweed	_____	_____	14.	_____	_____	_____
*5.	Sedge	_____	_____	15.	_____	_____	_____
*6.	COTTONGRASS	_____	_____	16.	_____	_____	_____
*7.	GREEN PEA	_____	_____	17.	_____	_____	_____
8.	_____	_____	_____	18.	_____	_____	_____
9.	_____	_____	_____	19.	_____	_____	_____
10.	_____	_____	_____	20.	_____	_____	_____

Percent of dominant species that are OBL, FACW, and/or FAC 75%
 Is the hydrophytic vegetation criterion met? Yes No _____
 Rationale: _____

SOILS

Series/phase: _____ Subgroup: _____
 Is the soil on the hydric soils list? Yes _____ No _____ Undetermined _____
 Is the soil a Histosol? Yes _____ No _____ Histic epipedon present? Yes _____ No _____
 Is the soil: Mottled? Yes _____ No _____ Gleyed? Yes _____ No _____
 Matrix Color: 0-4" A1 2/0 Mottle Colors: _____
 Other hydric soil indicators: 4-16" 10 YR 3/1 16" → 28" 10 YR 4/2
 Is the hydric soil criterion met? Yes _____ No _____
 Rationale: _____

* PLANT SPECIES OBSERVED AT SAME POINT HYDROLOGY

Is the ground surface inundated? Yes _____ No Surface water depth: _____
 Is the soil saturated? Yes No _____
 Depth to free-standing water in pit/soil probe hole: 8"
 List other field evidence of surface inundation or soil saturation: _____
 Is the wetland hydrology criterion met? Yes No _____
 Rationale: _____

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes No _____
 Rationale for jurisdictional decision: low side of Edge 1



FRANKLIN J. SVOBODA & ASSOCIATES

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EDGE 1 - UP

DATA FORM ROUTINE ONSITE DETERMINATION METHOD

Field Investigator(s): ROBERT J.F. MEANA / RON A. WOLFFERT Date: 5/16/94
Project/Site: RED WING State: MA County: GOODHUE
Applicant/Owner: _____ Plant Community #/Name: _____
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

Do normal environmental conditions exist at the plant community?
Yes No _____ (If no, explain on back)
Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes _____ No (If yes, explain on back)

Rel. Abund.	VEGETATION						Rel. Abund.
	Dominant Plant Species	Indicator Status	Stratum	Dominant Plant Species	Indicator Status	Stratum	
	1. <u>MULLIEN</u>			*11. <u>RED CEDAR</u>			
*	2. <u>THICKET CREEPER</u>			*12. <u>COMMON MILKWEED</u>			
*	3. <u>SMOOTH BENT</u>			13. _____			
	4. <u>SPARROW</u>			14. _____			
	5. <u>BLACKBERRY</u>			15. _____			
	6. <u>GREEN ASH</u>			16. _____			
	7. <u>PRICKLY ASH</u>			17. _____			
	8. <u>HOPE-SUCKLE</u>			18. _____			
	9. <u>GOLDEN ROD spp.</u>			19. _____			
	10. <u>VIOLET spp.</u>			20. _____			

Percent of dominant species that are OBL, FACW, and/or FAC < 50%
Is the hydrophytic vegetation criterion met? Yes _____ No
Rationale: _____

* PLANT SPECIES OBSERVED AT SAMPLE POINT

SOILS

Series/phase: _____ Subgroup: _____
Is the soil on the hydric soils list? Yes _____ No _____ Undetermined _____
Is the soil a Histosol? Yes _____ No Histic epipedon present? Yes _____ No
Is the soil: Mottled? Yes _____ No Gleyed? Yes _____ No
Matrix Color: 0-3" 10YR 2/1 Mottle Colors: _____
Other hydric soil indicators: 3" - 7.5" 10YR 2/2
Is the hydric soil criterion met? Yes _____ No
Rationale: _____

HYDROLOGY

Is the ground surface inundated? Yes _____ No Surface water depth: _____
Is the soil saturated? Yes _____ No
Depth to free-standing water in pit/soil probe hole: _____
List other field evidence of surface inundation or soil saturation. _____
Is the wetland hydrology criterion met? Yes _____ No
Rationale: _____

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes _____ No
Rationale for jurisdictional decision: up side of edge 1



FRANKLIN J. SVOBODA & ASSOCIATES

Wetland Services • Wildlife/Vegetation Studies

Edge 2 low

DATA FORM

ROUTINE ONSITE DETERMINATION METHOD

Field Investigator(s): Robert J.F. Merila / Ronald B. Willwest Date: 5/16/94
Project/Site: Red Wing State: MN County: Goodhue

Applicant/Owner: _____ Plant Community #/Name: Pem/SS1C Type 2,6

Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

Do normal environmental conditions exist at the plant community?

Yes No _____ (If no, explain on back)

Has the vegetation, soils, and/or hydrology been significantly disturbed?

Yes _____ No (If yes, explain on back)

VEGETATION

Rel. Abund.	Dominant Plant Species	Indicator Status	Stratum	Dominant Plant Species	Indicator Status	Stratum	Rel. Abund.
	1. <u>SILVER MAPLE</u>	_____	_____	11. _____	_____	_____	
	2. <u>Curly dock</u>	_____	_____	12. _____	_____	_____	
	3. <u>SPIKE RUSH</u>	_____	_____	13. _____	_____	_____	
	4. <u>Sedge spp</u>	_____	_____	14. _____	_____	_____	
	5. _____	_____	_____	15. _____	_____	_____	
	6. _____	_____	_____	16. _____	_____	_____	
	7. _____	_____	_____	17. _____	_____	_____	
	8. _____	_____	_____	18. _____	_____	_____	
	9. _____	_____	_____	19. _____	_____	_____	
	10. _____	_____	_____	20. _____	_____	_____	

Percent of dominant species that are OBL, FACW, and/or FAC > 50%

Is the hydrophytic vegetation criterion met? Yes No _____

Rationale: _____

SOILS

Series/phase: _____ Subgroup: _____

Is the soil on the hydric soils list? Yes _____ No _____ Undetermined _____

Is the soil a Histosol? Yes _____ No Histic epipedon present? Yes _____ No

Is the soil: Mottled? Yes _____ No Gleyed? Yes _____ No

Matrix Color: 0-10" 7.5 YR 2.5/1 Mottle Colors: _____

Other hydric soil indicators: 10"-715" 7.5 YR 3/2

Is the hydric soil criterion met? Yes _____ No _____

Rationale: marginally met

HYDROLOGY

Is the ground surface inundated? Yes _____ No Surface water depth: _____

Is the soil saturated? Yes _____ No _____

Depth to free-standing water in pit/soil probe hole: none

List other field evidence of surface inundation or soil saturation.

Is the wetland hydrology criterion met? Yes _____ No _____

Rationale: _____

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes No _____

Rationale for jurisdictional decision: low side of Edge 2



FRANKLIN J. SVOBODA & ASSOCIATES

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EDGE 2 UP

DATA FORM ROUTINE ONSITE DETERMINATION METHOD

Field Investigator(s): ROBERT J.F. MERRILL / RONALD B. WILBERT Date: 5/16/94
Project/Site: RED WIND State: MN County: ROOSEVELT
Applicant/Owner: _____ Plant Community #/Name: _____
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

Do normal environmental conditions exist at the plant community?
Yes No _____ (If no, explain on back)
Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes _____ No (If yes, explain on back)

Rel. Abund.	VEGETATION						Rel. Abund.
	Dominant Plant Species	Indicator Status	Stratum	Dominant Plant Species	Indicator Status	Stratum	
	1. <u>THICKET CREEPER</u>			11. _____			
	2. <u>Smooth brome</u>			12. _____			
	3. <u>mullies</u>			13. _____			
	4. <u>green ash</u>			14. _____			
	5. _____			15. _____			
	6. _____			16. _____			
	7. _____			17. _____			
	8. _____			18. _____			
	9. _____			19. _____			
	10. _____			20. _____			

Percent of dominant species that are OBL, FACW, and/or FAC < 50%
Is the hydrophytic vegetation criterion met? Yes _____ No
Rationale: _____

SOILS

Series/phase: _____ Subgroup: _____
Is the soil on the hydric soils list? Yes _____ No _____ Undetermined _____
Is the soil a Histosol? Yes _____ No Histic epipedon present? Yes _____ No
Is the soil: Mottled? Yes _____ No Gleyed? Yes _____ No
Matrix Color: 0-4" 7.5YR 2.5/1 Mottle Colors: _____
Other hydric soil indicators: 4"-7 1/2" 7.5YR 2/2
Is the hydric soil criterion met? Yes _____ No
Rationale: _____

HYDROLOGY

Is the ground surface inundated? Yes _____ No Surface water depth: _____
Is the soil saturated? Yes _____ No
Depth to free-standing water in pit/soil probe hole: _____
List other field evidence of surface inundation or soil saturation. _____
Is the wetland hydrology criterion met? Yes _____ No
Rationale: _____

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes _____ No
Rationale for jurisdictional decision: up side of Edge 2