APPENDIX A

Joint Powers Agreements
and
Intergovernmental Agreements

JOINT POWERS AGREEMENT

CITY OF BLOOMINGTON, MINNESOTA

CITY OF RICHFIELD, MINNESOTA

ESTABLISHING AND EMPOWERING

THE

RICHFIELD-BLOOMINGTON WATERSHED MANAGEMENT ORGANIZATION

THIS AGREEMENT is made and entered into this 19th day of December 1983 by and between the CITY OF BLOOMINGTON ("Bloomington"), a municipal corporation and political subdivision of the State of Minnesota, and the CITY OF RICHFIELD ("Richfield"), a municipal corporation and political subdivision of the State of Minnesota.

WHEREAS, a portion of each City lies within the geographical area hereinafter referred to as the "Richfield-Bloomington Watershed", which watershed is illustrated and described on "EXHIBIT A", attached hereto; and

WHEREAS, Minnesota Statutes § 473.875 to 473.883, inclusive, require that there exist a watershed management organization which will perform some or all of the functions of a watershed district for the Richfield-Bloomington Watershed; and

WHEREAS, each City has the authority to manage surface waters within its boundaries pursuant to Minnesota Statutes § 447.075, and § 462.357, Subd. 1; and

WHEREAS, each City may jointly exercise common authority by adopting a joint powers agreement pursuant to Minnesota Statute § 471.59; and

WHEREAS, by means of a joint powers agreement, the cities may establish a water management organization pursuant to M.S.A. 473.875 to 473.883, inclusive; and

WHEREAS, each City is desirous of jointly creating a watershed management organization which would fulfill the mandates of Minnesota Statutes § 473.875 to 473.883, inclusive, with respect to the Richfield-Bloomington Watershed and which would otherwise manage the surface water within said watershed in order to achieve various goals with respect to natural water runoff and retention.

NOW, THEREFORE, in consideration of the mutual undertakings herein expressed, the City of Bloomington and the City of Richfield agree as follows:

SECTION I

ESTABLISHMENT OF WATER MANAGEMENT ORGANIZATION

The Richfield-Bloomington Watershed Management Organization is hereby established; the operation of the Organization shall be subject to the terms and conditions of this Agreement.

SECTION II

PURPOSE

The purpose of this Agreement is to create a Watershed Management Organization which would fulfill the mandates of Minnesota Statutes § 473.875 to 473.883, inclusive, with respect to the Richfield-Bloomington Watershed and which would otherwise manage natural water runoff and retention in order to achieve the following goals:

(a) Reduce to the greatest practical extent the public capital expenditures necessary to control excessive volumes and rates of runoff;

(b) improve water quality;

(c) prevent flooding and erosion from surface flows;

(d) promote groundwater recharge;

(e) protect and enhance fish and wildlife habitat and water recreational facilities; and

(f) secure the other benefits associated with the proper management of surface water within the Richfield-Bloomington Watershed.

SECTION III

DEFINITIONS

For purposes of this Agreement, the terms used herein shall have the meanings as defined in this section.

Subdivision 1. The "Organization" means the Richfield-Bloomington Watershed Management Organization established by this Agreement.

Subdivision 2. The "Board" or "Board of Commissioners" means the governing body of the Organization.

Subdivision 3. "Council" means the governing body of the City of Bloomington or the governing body of the City of Richfield.

Subdivision 4. "Richfield-Bloomington Watershed" or "Watershed" means the geographical area described and/or illustrated on Exhibit "A" attached and made a part of this Agreement.

Subdivision 5. "Commissioner" means a member of the Board of Commissioners.

Subdivision 6. "Cities" means the cities of Richfield and Bloomington.

SECTION IV

BOARD OF COMMISSIONERS

Subdivision 1. The Organization shall be governed by a Board of Commissioners composed of all the members of the City Councils of Richfield and Bloomington.

Subdivision 2. Each Commissioner shall have one vote with respect to Board actions.

Subdivision 3. Unless otherwise specified by this Agreement, substantive Board action shall be by a majority vote of the entire Board.

Subdivision 4. At its first organizational meeting, or within a reasonable time thereafter, the Board shall adopt bylaws not inconsistent with this Agreement concerning its procedures, meetings, and other appropriate matters affecting the operation of the Organization. Such bylaws may be amended from time to time in either a regular or special meeting of the Board provided that notice of such proposed amendment has been given to each Commissioner at least ten (10) days prior to the meeting at which the proposed amendment will be considered. A two-thirds (2/3) majority vote of the entire Board shall be necessary to adopt or amend such bylaws.

Subdivision 5. All meetings of the Board shall be subject to the provisions of the Minnesota Open Meeting Law.

Subdivision 6. At the organizational meeting of the Board and in January of each year thereafter the Board shall elect from its Commissioners a chairman, a secretary, a treasurer and such other officers as it deems necessary to conduct its meetings and affairs.

Subdivision 7. A majority of the entire Board shall constitute a quorum, but less than a quorum may adjourn a scheduled meeting.

Subdivision 8. Each City may compensate the Commissioners it appoints, but the Commissioners shall not be compensated by the Organization or have expenses reimbursed by the Organization.

Subdivision 9. Board recommendations regarding operating budgets and capital improvement projects shall require a two-thirds (2/3) majority vote of the entire Board.

Subdivision 10. The Board shall maintain a business office at 2215 West Old Shakopee Road, Bloomington, Minnesota 55431. All notices to the Board shall be delivered or served to such office.

SECTION V

POWERS AND DUTIES

Subdivision 1. Except as otherwise qualified or modified by this Agreement, the Organization, acting by its Board of Commissioners, shall have and perform all the powers and duties expressly set forth in and reasonably implied from Minnesota Statutes § 473.875 to § 473.883, inclusive.

Subdivision 2. The Organization may, within the scope of this Agreement, accept gifts, apply for and use grants or loans of money or other property from the United States, the State of Minnesota, any unit of government or other governmental organizaton, or from any person or entity for the purposes described herein and may enter into any reasonable agreement required in connection therewith; it may comply with any laws or regulations applicable thereto; and it may hold, use and dispose of such money or property in accordance with the terms of the gift, grant, loan or agreement relating thereto.

Subdivision 3. To the extent of funds acquired by grant, donation, or otherwise, the Organization may adopt an operating budget, enter into contracts and expend such funds. Any disbursements shall be made in accordance with the principles of Minnesota Statutes § 471.38 et seq.

To the extent that the Organization lacks funds, however, the Cities shall directly bear the expenses of the Organization and/or shall provide in-kind assistance (e.g. personnel, office or meeting space) to the Organization. Except for such capital improvements as are to be paid with Organization funds or via certification to the County pursuant to Minnesota Statutes § 473.883, the Cities shall also be responsible for the cost of any capital improvements.

The Board shall determine how specific costs,personnel requirements, contracting and bid responsibilities, and other

expenses and requirements shall be shared by the Cities. However, to the extent possible, costs and responsibilities which canbe split geographically in a sensible manner shall be divided between the Cities on that basis.

Whenever personnel of the Cities is utilized by the Organization, such personnel shall remain the employees of their respective Cities for all purposes, including salaries, benefits insurance, and workmen's compensation. No charges for the services of employees of the Cities shall be paid by the Organization unless expressly agreed upon by the Cities.

SECTION VI

DURATION

Subdivision 1. The Organization shall continue in existence until the termination of this Agreement. This Agreement may be terminated by either party, upon one year's written notice to the other party, or at any time upon agreement of both parties.

Subdivision 2. In the event of the termination of this Agreement and the dissolution of the Organization, all improvements constructed pursuant to this Agreement shall become the property of the party within whose boundaries the improvement is located. Any unencumbered funds or other assets possessed by the Organization shall be distributed equally to the parties.

Subdivision 3. Termination of the Agreement and dissolution of the Organization shall in no way affect or terminate Richfield's present rights to dispose of its storm water through connectors to Smith Pond in Bloomington.

SECTION VII

EFFECTIVE DATE

This Agreement shall be in full force and effect on the date by which both Cities have adopted resolutions approving said agreement.

SECTION VIII

ORGANIZATIONAL MEETING

The Board's first meeting shall take place at Bloomington City Hall, 2215 West Old Shakopee Road, Bloomington, Minnesota on the third Thursday of the month that occurs following a lapse of thirty (30) days after the effective date of the Agreement.

SECTION IX

MISCELLANEOUS

Subdivision 1. Each party agrees to indemnify and hold harmless the other party for liability for damages for personal injury, death, or property damages occurring as a result of improvements or systems which are constructed solely within the boundaries of the indemnifying party.

Subdivision 2. Unless specifically provided by this Agreement, nothing herein is intended to alter or amend any existing agreement between the parties.

IN WITNESS WHEREAS, the Cities have hereunto set their hands the day and year first above written.

Upon proper execution, this Agreement shall be a legal and binding obligation upon the City of Bloomington.

CITY OF BLOOMINGTON

By _____
Mayor

_____
City Attorney

By: _____
City Manager

[SEAL]

Upon proper execution, this Agreement shall be a legal and binding obligation upon the City of Richfield.

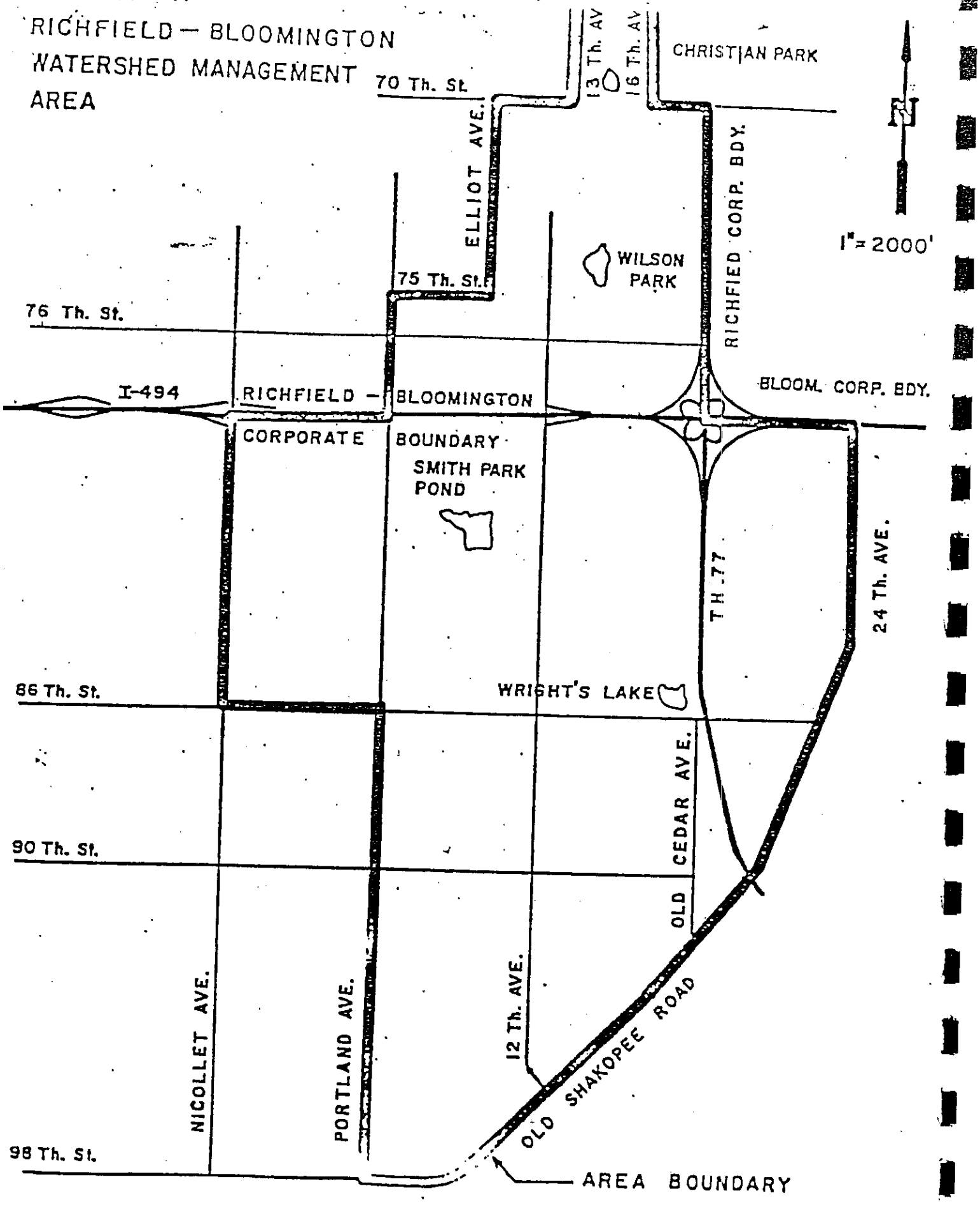
CITY OF RICHFIELD

By: _____
Mayor

_____
City Attorney

By: _____
City Manager

[SEAL]


RICHFIELD — BLOOMINGTON
WATERSHED MANAGEMENT
AREA
70 Th. St.
13 Th. AV
16 Th. AV
CHRISTIAN PARK
ELLIOT AVE.
RICHFIED CORP. BDY.
1"= 2000'
WILSON
PARK
75 Th. St.
76 Th. St.
I-494
RICHFIELD — BLOOMINGTON
CORPORATE BOUNDARY
BLOOM. CORP. BDY.
SMITH PARK
POND
TH. 77
24 Th. AVE.
86 Th. St.
WRIGHT'S LAKE
CEDAR AVE.
90 Th. St.
OLD
12 Th. AVE.
NICOLLET AVE.
PORTLAND AVE.
OLD SHAKOPEE ROAD
98 Th. St.
AREA BOUNDARY

A M E N D M E N T
to the
JOINT POWERS AGREEMENT
of
CITY OF BLOOMINGTON, MINNESOTA
and
CITY OF RICHFIELD, MINNESOTA
ESTABLISHING AND EMPOWERING
the
RICHFIELD-BLOOMINGTON WATERSHED MANAGEMENT ORGANIZATION

The following is an amendment to the Joint Powers Agreement dated December 19, 1983, between the City of Bloomington and the City of Richfield.

WHEREAS, Section VIII of the Agreement specified that the Board of Commissioners of the Richfield-Bloomington Watershed Management Organization should have its first organizational meeting on the third Thursday of February, 1984; and

WHEREAS, it would be more convenient and efficient to hold the meeting on the same evening that both City Councils meet;

NOW, THEREFORE, in consideration of the mutual understandings herein expressed, the City of Bloomington and the City of Richfield agree as follows:

That Section VIII of the Agreement between the two Cities is hereby amended to read as follows:

"SECTION VIII

ORGANIZATIONAL MEETING

The Board's first meeting shall take place at Bloomington City Hall, 2215 West Old Shakopee Road,

Bloomington, Minnesota, on Monday, February 13, 1984, at 6:00 P.M."

IN WITNESS WHEREOF, the Cities named hereunto set their hands on the 23rd day of January 1984.

CITY OF BLOOMINGTON

Upon proper execution this Agreement shall be a legal and binding obligation upon the City of Bloomington.

City Attorney

By _____
Its Mayor

By _____
Its City Manager

CITY OF RICHFIELD

Upon proper execution this Agreement shall be a legal and binding obligation upon the City of Richfield.

City Attorney

By _____
Its Mayor

By _____
Its City Manager

1966 - Agreement City of Bloom.

(6)

BLOOMINGTON-RICHFIELD AGREEMENT FOR STORM SEWER

This agreement made and entered into this 14th day of November, 1966, by and between the City of Bloomington, a Minnesota Municipal Corporation, hereinafter called Bloomington, and the City of Richfield, a Minnesota Municipal Corporation, hereinafter called Richfield.

WITNESSETH

The purpose of this agreement is to provide for the construction of a storm sewer by Richfield from a point where a storm sewer from Richfield ends at a point which is at or about the intersection of Bloomington Avenue and the south frontage road to U.S. Highway Intersection 494 in Bloomington and which will extend westerly along the frontage road to its intersection with 13th Avenue and thence southerly along 13th Avenue to a point on the line on 80th Street extended and thence westerly along said line to a ponding area on the south side of 80th Street at or about 10th Avenue. It is the further purpose of this agreement to resolve any dispute that may exist between the parties as to the meaning and effect of a prior agreement between the parties dated December 27, 1955, insofar as such agreement refers to and authorizes the discharge of storm water by Richfield at or about the intersection of 11th Avenue and 79th Street in Bloomington at the rate of 90 cubic feet per second.

NOW, THEREFORE, IT IS MUTUALLY AGREED TO AS FOLLOWS:

1. That Richfield is hereby authorized to construct the storm sewer along said line above described, such construction to be in accordance with plans and specifications prepared by Orr-Schelen-Mayeron and Associates, Inc. and approved by the City Engineer of Bloomington.

2. Richfield agrees to pay Bloomington a sum of $16,900 for the improvement of streets along the route of the storm sewer installation in Bloomington. Richfield, in its contract with the contractor who constructs

the storm sewer, will cause and provide that the streets be repaired and restored to their existing quality.

Bloomington agrees to pay Richfield 50% of the cost of a theoretical storm sewer from 79th Street and 11th Avenue to 80th Street and 10th Avenue. The cost shall be determined by the Bloomington City Engineer and the Richfield City Engineer in consultation with a representative of Orr-Schelen-Mayeron and Associates, Inc. They shall make such determination by multiplying the appropriate unit cost bids of the contractor who is awarded the contract for the storm sewer construction provided for in this agreement by appropriate quantities.

3. The remaining provisions of the prior agreement, dated December 27, 1955, except as modified herein are confirmed.

4. It is the intention of the parties to limit the amount of inconvenience to the occupants of the property in Bloomington abutting the sewer upon the construction. Richfield, therefore, agrees that in substantially completing the construction of the storm sewer, it will not obstruct access of any property for more than seven successive calendar days. No more than one block shall be rendered unfit for automotive travel at any one time. In the event that Richfield shall block access for more than seven calendar days or shall cause more than one block unfit for use at any one time, Richfield shall pay to Bloomington liquidated damages in the amount of $200.00 per day.

5. The storm sewer shall be so located that it will avoid present and future underground installations such as Bloomington sewer, water and storm sewer installations. If at any time, for sound construction engineering reasons, it is necessary to relocate any part of the storm sewer so as to accomodate any Bloomington installation, the expense of such moving shall be paid by Richfield. Similarly, if at any time the

presence of the storm sewer in the authorized construction area increases the expense of constructing, reconstructing, maintaining or repairing any installation made by Bloomington, such expense shall be paid by Richfield.

6. The storm sewer shall be and remain the property of Richfield, and at all times shall be maintained and repaired by Richfield, unless the parties hereto shall hereafter agree in writing that such maintenance and repair shall be done by Bloomington.

7. The sequence or order in which the storm sewer will be installed shall be determined by Bloomington, it being contemplated that such installation will commence during the month of May, 1967, and will proceed as rapidly as possible to completion in no event later than September 1, 1967.

8. During the course of construction of such storm sewer, and upon completion thereof, Richfield agrees that it will comply with the following requirements:

A. Any excavation shall be backfilled with mechanical tamping as provided in the specifications for the project. Excess materials shall be placed on the streets to conform with the grade and cross-section area approved by Bloomington. Other excess materials not needed for such purpose shall be deposited by Richfield on Bloomington property in the Girard Lake area at points designated by the City Engineer.

B. Precautions against damages to any existing Bloomington surface and underground improvements shall be taken by Richfield where such improvements are in or near construction.

C. Service of all utility and public service installations shall be maintained during construction.

D. Damage to any utility and service installations or other improvements in Bloomington shall be repaired immediately.

E. During construction Richfield shall use calcium chloride and water on excavated materials so as to minimize as much as possible the blowing of any dirt in the construction area.

F. In the event that the backfilling of the storm sewer excavation is insufficiently compacted by Richfield so that the street surfacing subsequently placed must be replaced, the cost of such replacement shall be borne by Richfield.

G. Immediately after the completion of each block of storm sewer installation, Richfield shall clean up and restore any driveways, boulevards, trees, shrubs, lawns, or other properties in any manner adversely affected by such installation.

H. If it is necessary for Bloomington to restore any street surface in the authorized construction area by reason of the failure of Richfield to provide proper compaction, or by reason of any other defect in the construction of the work, Bloomington shall notify Richfield of such claimed defect before undertaking such restoration work, so as to give Richfield an opportunity to see the restoration work claimed to be necessary.

I. Construction shall be conducted only between the hours of 7:00 A.M. and 7:00 P.M. unless it is necessary to make emergency repairs or emergency safeguard against storm damage or emergency provisions for

maintaining street access; any work outside of the hours mentioned above shall be done only with the prior approval of the Bloomington City Engineer.

J. Access to properties shall be maintained, insofar as it is reasonably possible to do, during construction and thereafter. If access is temporarily obstructed, it shall be restored as soon as it is possible to do so.

K. During any work Bloomington may have an inspector present at all times, and the cost to Bloomington of such inspection shall be paid by Richfield.

9. Whenever any maintenance or repair of such storm sewer shall be necessary, Richfield shall do such work immediately, so as to eliminate, or minimize as far as possible, any damage to properties of any kind in Bloomington.

10. In the event that Richfield shall fail to do promptly any work required to be done pursuant to this agreement, Bloomington may, at its discretion, proceed to do this work at Richfield's expense, and payment for any such work shall be made by Richfield.

11. Richfield agrees that it will save Bloomington, and all of its officers, agents and employees, against any claim, demand, action or cause of action arising out of or by reason of the construction, reconstruction, operation, maintenance or repair of the storm sewer in the authorized construction area, and against any and all judgments, awards, costs or expenses of defending the same. In the event of any such claim, demand, action or cause of action, Richfield agrees that upon being notified of the same it will promptly intervene and defend the same and will indemnify Bloomington and its said officers, agents and employees against the same.

12. Richfield further agrees that it will save any owner of property in Bloomington or other persons, including the City, harmless against any injury or damage sustained as a result of the construction, operation, reconstruction, maintenance or repair of such storm sewer, it being the intention of the parties that neither the City of Bloomington nor anyone owning property or being within Bloomington shall in any manner sustain any loss or damage which would not have resulted had such storm sewer not been located in the authorized construction area.

13. This permission shall be for the duration of the usefulness of the storm sewer which is the subject of this agreement, provided that Richfield shall observe its obligations under this agreement. In the event that Richfield should fail to observe its obligations and agreements hereunder, after reasonable notice and opportunity to do so, this agreement may be terminated by Bloomington upon six months' notice. Richfield may terminate this agreement upon six months' notice and upon terminating the use of said storm sewer. In the event of termination of this agreement, such storm sewer shall become the property of Bloomington. No obligation which Richfield has incurred prior to termination shall in any way be abrogated by reason of termination.

14. Payment of any sum due the respective parties shall be made within 45 days after the amount due has been ascertained.

IN WITNESS WHEREOF, The parties have caused this agreement to be executed by their appropriate officers and their seals affixed hereto as of the day and year first above written.

WITNESS:

CITY OF RICHFIELD

Clara W. Ratliff

Mayor

Jean M. Pederson

Manager

Dated this 14th day of November, 1966.

WITNESS:

CITY OF BLOOMINGTON

Mayor

Manager

Dated this 16th day of November, 1966.

Attest:

City Clerk

Dated this 16th day of November, 1966.

APPENDIX B

Water Quality Data

Minnesota Pollution Control Agency

Secchi Disk data is available for this lake.

Visit MPCA's Environmental Data Access system to download data for this lake.

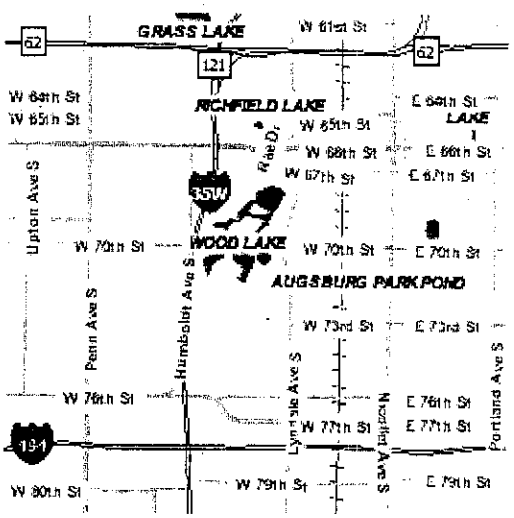
Exit the MPCA web site and search the DNR Lake finder for information on this lake.

Need Help?
Full Supporting Documentation is available for this data or click on the specific links. You can also contact steven.heiskary for further information.

Lake Water Quality Summary Information

Physical Information

Name: Wood
DNR Lake ID number: 27-0026
County: HENNEPIN
Location from nearest town: IN RICHFIELD
Latitude/Longitude: 44.875/-93.29194444
Ecoregion: NCHF
Basin: UM
Hydrologic Unit Code: 7010206
Surface Area: 165 (acres)
Water Body Type: P



	degrees minutes seconds	decimal degrees
	X	Y
UTM	476944	4969102

● Purple dot represents lake location.

Lake Water Quality Assessment

Monitored or Evaluated: Evaluated **Data Quality**: Good
Aquatic Recreation Use Support: NS

Lake Water Quality Data Summary

Total Phosphorus Mean: 144 ppb (parts per billion)
Total Phosphorus Standard Error: 28 ppb
Total Phosphorus # of Observations: 11
Total Phosphorus Minimum: 35 ppb and **Maximum**: 315 ppb

Chlorophyll-a Mean: ppb
Chlorophyll-a Standard Error: 0 ppb

Chlorophyll-a # of Observations:
Chlorophyll-a Minimum: 0 ppb and **Maximum**: 0 ppb

Secchi Disk Mean: 1.3 meters
Secchi Disk Standard Error: 0 meters
Secchi Disk # of Observations: 95
Secchi Disk Minimum: 0 meters and **Maximum**: 2 meters

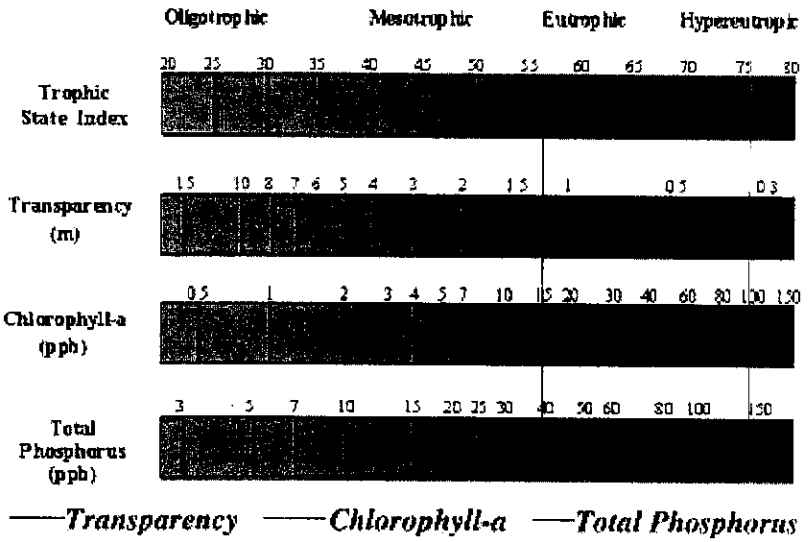
Alkalinity Mean: ppm (parts per million)
Alkalinity # of Observations: 0

Color Mean: 32 Platinum-cobalt Units
Color # of Observations: 11

Carlson Trophic Status for Total Phosphorus: 76
Carlson Trophic Status for Chlorophyll-a:
Carlson Trophic Status for Secchi Disk: 56
Overall Trophic Status: H
(O=oligotrophic, M=mesotrophic, E=eutrophic, H=hypereutrophic)

See the Difference! **Oligotrophic** vs. **Hypereutrophic**

Compare this lake to reference lakes or all assessed lakes.



This page was last updated September 22, 2004

If you have suggestions on how we can improve this site, or if you have questions or problems, please contact us.
If you have technical questions or problems with this site, contact webmaster@pca.state.mn.us
Minnesota Pollution Control Agency, 520 Lafayette Road, St. Paul, MN 55155-4194
Phone: 651-296-6300, 800-657-3864; 24-hour emergency number: 651-649-5451 or 800-422-0798; TTY: 651-282-5332, TTY 24-hour emergency number: 651-297-5353 or 800-627-3529

triton

Minnesota Pollution Control Agency

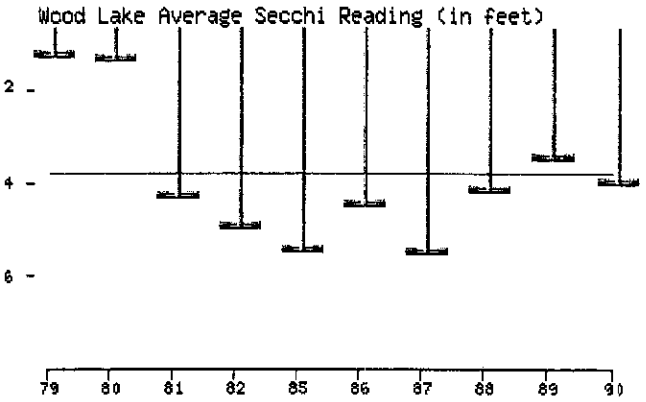
Additional Search

Lake water quality data

might also be available for this lake

Citizen Lake Monitoring Program

Below is the Secchi data from the Citizen Lake Monitoring Program for lake WOOD (27-0026). This following graph represents Secchi transparency data collected by volunteers in the Citizen Lake-Monitoring Program. All values are expressed in units of feet. Data which has not been QA/QC (qualilty control) checked will appear as a red verticle line representing a Secchi rope. The long-term mean for this lake is represented by a horizontal line on the graph.



Years for which data has been collected

Year	Average Secchi Reading (feet)
1979	1.7
1980	1.8
1981	4.8
1982	5.3
1985	5.8
1986	4.8
1987	5.9

Click on the year at the left to get full information about the data samples for that year.

Average is computed by the months June-Sept.

1988	4.5
1989	3.8
1990	4.3

This page was last updated December 19, 2006

If you have suggestions on how we can improve this site, or if you have questions or problems, please contact us.
If you have technical questions or problems with this site, contact webmaster@pca.state.mn.us
Minnesota Pollution Control Agency, 520 Lafayette Road, St. Paul, MN 55155-4194
Phone: 651-296-6300, 800-657-3864; 24-hour emergency number: 651-649-5451 or 800-422-0798; TTY: 651-282-5332, TTY 24-hour emergency number: 651-297-5353 or 800-627-3529

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APPENDIX C

Member Community Stormwater System Maintenance Plan

STORM WATER POND
MAINTENANCE ENHANCEMENTS
TABLE 1
RICHFIELD, MINNESOTA

WSB Project: Storm Water Pond Maintenance Enhancements
Project Location: Richfield Minn.
WSB Project No: 1000-96

Design By: TAW
Checked By:
Date: 12/5/2005

Opinion of Estimated Costs for Enhancement Alternatives

Pond Identification	Minimal Maintenance (MM)		Expanded Maintenance No Enhancements (EMNE)		Full Restoration & Enhancement (FR&E)		Recommended Alternative		
							Enhancement Alternative	Estimated Cost	
Adam's Hill Pond	$ 56,000	$ 70,000	$ 130,000	$ 150,000	$ 180,000	$ 200,000	MM	$ 56,000	$ 70,000
Augsburg Pond	$ 69,000	$ 75,000	$ 140,000	$ 160,000	$ 190,000	$ 210,000	MM	$ 69,000	$ 75,000
Christian Park Pond	$ 45,000	$ 55,000	$ 77,000	$ 90,000	$ 110,000	$ 120,000	EMNE	$ 77,000	$ 90,000
Milner's Pond	$ 200,000	$ 220,000	$ 640,000	$ 660,000	$ 700,000	$ 725,000	EMNE	$ 640,000	$ 660,000
Norby's Pond	$ 145,000	$ 165,000	$ 560,000	$ 575,000	$ 610,000	$ 625,000	EMNE	$ 560,000	$ 575,000
Sheridan Pond	$ 75,000	$ 95,000	$ 95,000	$ 110,000	$ 125,000	$ 150,000	FR&E	$ 125,000	$ 150,000
Wilson Pond	$ 150,000	$ 170,000	$ 530,000	$ 550,000	$ 580,000	$ 590,000	EMNE	$ 530,000	$ 550,000
Washington Park Dep. *	$ 5,000	$ 7,500					MM	$ 5,000	$ 7,500
Total Cost Range	$ 745,000	$ 857,500	$ 2,172,000	$ 2,295,000	$ 2,495,000	$ 2,620,000		$ 2,062,000	$ 2,177,500

* Washington Park minimal maintenance cost identified based on field inspection and anticipated overlapping land use needs.

I. INTRODUCTION / PURPOSE

This Feasibility Report has been prepared to define the scope of work needed to maintain and/or enhance the storm water retention and treatment basins that are present within the City of Richfield.

By way of background, the City of Richfield currently has approximately eight designated storm water retention and treatment areas. (See ***Figure 1***) These retention and treatment areas fulfill a wide range of purposes including flood control, storm water treatment, wildlife habitat, aesthetic benefits, wetland habitat, infiltration, and other general benefits.

The storm water retention and treatment ponds have gradually been filling up with sediment, have been over-grown with vegetation in some areas, and in general may not be fully providing the wide range of functions and values that they have the potential to support.

It is the purpose of this study to evaluate their existing condition, and outline potential improvements that could be implemented within each of the basins to maximize their functions and values.

II. PROCEDURES AND METHODS FOLLOWED

As part of the preparation for this report, an inspection of each of the designated ponds was undertaken. As part of this inspection, a general description of the pond was developed in an effort to generally determine its current functions and values. The area of the pond was defined from aerial mapping, and the depth of water in various areas of the pond was measured. In addition, general information on the storm sewer outfalls entering into the pond as well as pond outlet information was noted.

Information gathered as part of the field inspection was utilized to estimate the amount of sediment that would need to be removed from the basin for various design options, and the need and extent for shaping or grading the shoreline in order to stabilize eroding areas was also considered. This information is provided in detail in the Appendix of this report.

III. ALTERNATIVES CONSIDERED

In order to develop a defined scope of work and estimate costs associated with the maintenance and potential enhancement of storm water ponds within the City of Richfield, three approaches to maintenance and/or enhancements were considered. A description of each of the approaches is provided in the following paragraphs:

Minimal maintenance

This activity would include removing sediment deltas in the vicinity of storm sewer pipe outfalls and complete only other obvious work that would allow the basin to continue to function in a manner generally consistent with its present function. The work would not expand its ability to furnish other functions and values.

Expanded maintenance, but no enhancement

This approach would generally remove sediment deltas, and generally deepen the pond throughout its footprint to bring it back to a condition that was present when it was originally constructed. Some bank shaping and vegetation establishment work may also be incorporated into this design.

Undertake full basin restoration and enhancement

This approach would allow the designer to look at the basin footprint and undertake actions identified that could improve the basin's functions and values to a maximum reasonable extent.

This may include significantly deepening the storm water pond, providing grading near the shoreline to enhance a wide variety of aquatic and upland vegetation, defining buffer areas in the upland sections of the pond in selected areas, and creating areas that would allow any future sediment to be easily trapped and removed in the future. In addition, a landscaping/vegetation management plan would be developed around the perimeter of the pond to provide for enhanced habitat and aesthetic benefits.

IV. RECOMMENDED DESIGN ALTERNATIVE

Based on our field inspections of the storm water basins within the City of Richfield, a review of the results of the City's water quantity and quality modeling, a review of water quality information was developed by the City in past years, and a review of current and pending legislation that will dictate future storm water management requirements within the City of Richfield, we recommend that the City proceed with pond maintenance and enhancement work that would allow the basins to equal or exceed the expanded pond maintenance classification. This recommendation is made based on the following considerations:

1. Many of the basins within the City of Richfield have water depths of one to two feet or less, have eroding side slopes near the shoreline, and have limited ponding facilities upstream of these areas. In these cases, the functions and values of the basin can be significantly enhanced for the purposes of treating storm water, providing better wildlife habitat, and expanding the aesthetic benefits of the basin.

2. Future NPDES Regulations may require cities to demonstrate they meet a non-degradation standard for water quality. As part of this standard, it will need to be demonstrated that the quality of water leaving the City will not be degraded in the future compared to a standard that was defined in 1988. Over-excavation of some of these basins to enhance their ability to provide treatment may allow the City to address the standard as part of this project.

3. Pond maintenance activities will generally require pumping water from the pond, excavating material, and hauling it to a disposal location. Any work that would deepen the basins at this time would provide room for future sedimentation and would expand the life expectancy of this maintenance project.

4. Storm water management ponds within the City of Richfield provide more than flood control and storm water treatment. They are increasingly viewed as an aesthetic resource to residents within the community. For this reason, the City may wish to consider the installation of various trees, shrubs, or other vegetation to enhance the overall aesthetic and wildlife benefits of the pond.

V. SUMMARY AND RECOMMENDATIONS

Table 1 provides a listing of the estimated cost associated with undertaking a range of improvement options within each of the ponds identified as part of this report. A more detailed description of the work and a breakdown of the cost for full restoration and enhancement is provided in the Appendix of this report for each of the ponds.

Table 1 also identifies the enhancement alternative recommended for each basin. Please note that the alternative selected may include minimal maintenance for ponding areas that are already generally meeting the expanded maintenance criteria under existing conditions.

It is further recommended that if the City were to proceed with undertaking this work in select basins, they should consider selecting one or two of the basins, and follow through a process of neighborhood and design meetings to best determine the most cost effective reasonable approach to maintaining each of these ponds as the pond improvement plan is developed.

Adam's Hill Pond

Pond Name:

Adam's Hill Pond

Location:

North of 74th Street and west of Upton Avenue

General Description of Pond:

Adam's Hill is an open water pond with an island growing in the middle. The northeast bank is currently the only bank without vegetation growing at the time of the field survey. The pond supports ducks and a couple of turtles were observed on the island. There is playground equipment on the west bank along with some homes approximately 100 feet away from the shoreline.

Surface Area (acres):

Approximately 2.76 acres (120,338 sq. ft.)

Depth of Water:

The field data obtained for Adam's Hill Pond indicates the deepest point is located on the south end at approximately 7.2 feet based on the field survey. The average depth around the pond is estimated 5.9 feet. The field survey measurements are attached.

Access to Pond:

The entire northwest side of the pond is accessible from street for maintenance. The shoreline is approximately 84 feet from the street.

Additional Comments:

The field inspection and data indicate that the sediment removal at the storm sewer outfall on the south end from Washburn Avenue could be undertaken to increase the water depth and restore the basin depth in this area. The storm sewer outfalls on the northwest and northeast appear to have water depths of 5.6' and 6.7' respectively. These areas do not indicate sediment removal is necessary at this time.

Maintenace Plan:

The maintenance plan for Adam's Hill pond is to remove sediment in the vicinity of the Washburn Avenue storm sewer outfall and install riprap for erosion control at all of the storm sewer outfall. The estimated cost to implement the maintenance plan is approximately $70,000.

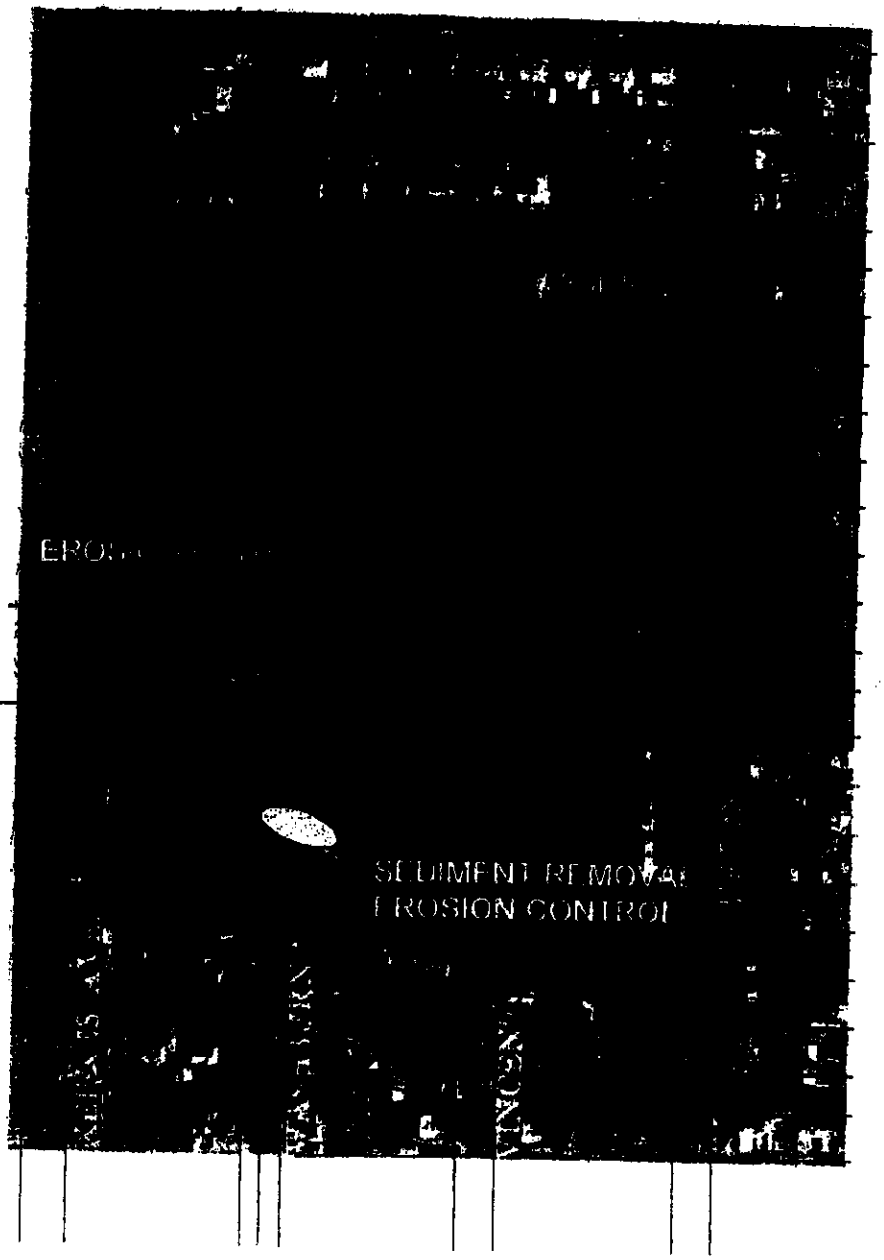
OPINION OF COST
ADAM'S HILL POND MAINTENANCE PLAN
& APPURTENANT WORK
RICHFIELD, MINNESOTA

WSB Project: Adam's Hill Pond Maintenance Plan
Project Location: Richfield Minn.
WSB Project No: 1000-96

Design By: TAW
Checked By:
Date: 9/28/2005

Line No.	MN/DOT Specification No.	Description	Unit	Unit Price	Estimated Total Quantity	Estimated Total Cost
1	2021.501	MOBILIZATION	LS	$ 3,500.00	1	$3,500
2	2051.501	MAINTENANCE AND RESTORATION OF THE HAUL ROAD	LS	$ 4,000.00	1	$4,000
3	2101.501	CLEARING	AC	$ 2,500.00	0.8	$1,875
4	2101.506	GRUBBING	AC	$ 2,500.00	0.8	$1,875
5	2105.505	DREDGING/SEDIMENT/REMOVAL/MUCK EXCAVATION/DISPOSAL	CY	$ 20.00	300	$6,000
6	2105.601	DEWATERING	LS	$ 5,000.00	1	$5,000
7	2511.501	RANDOM RIPRAP CL III	CY	$ 75.00	45	$3,375
8	2511.515	GEOTEXTILE FABRIC, TYPE IV	SY	$ 3.00	90	$270
9	2563.601	TRAFFIC CONTROL	LS	$ 3,500.00	1	$3,500
10	2573.502	SILT FENCE	LF	$ 3.00	250	$750
11	2573.602	TEMPORARY ROCK CONST. ENTRANCE	EA	$ 3,500.00	1	$3,500
12	2575.501	SEEDING	AC	$ 2,000.00	0.8	$1,500
13	2575.502	SEEDING, MIXTURE 250	POUND	$ 20.00	55	$1,100
14	2575.511	MULCH MATERIAL, TYPE I	TON	$ 200.00	1.5	$300
15	2575.523	EROSION CONTROL BLANKETS, TYPE 2	SY	$ 3.00	2,225.0	$6,675
					Subtotal	$43,220
					30% Engineering, Legal, Admin., Contingency	$12,966
					Total	$56,000

NOTE: The estimated cost for dewatering may be reduced if the existing Lift Station will facilitate the drawdown of the pond to allow for the proposed excavation.
The cost estimate does not include any temporary easements across private property to perform the work.
The muck excavation quantity should be considered approximate based on the level of accuracy of the field data obtained for the bathometric elevations.
The muck excavation assumes that all of the material will be removed from the site. The material could be deposited on site which would reduce the excavation cost and incre
The preliminary cost estimate does not include tree replacement.



CITY OF RICHFIELD

Note: Storm Sewer location is approximate.

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Minneapolis, MN 55416
www.wsbeng.com
INFRASTRUCTURE ENGINEERING PLANNING CONSTRUCTION

Adam's Hill Pond Maintenance Plan

Richfield, Minnesota

WSB Project No. 1000-96 Date: October, 2005

Figure 1

Adam's Hill Pond

Full view of Adam's Hill from Northeast side

Augsburg Pond

Pond Name:

Augsburg Pond

Location:

North of 72nd Street and west of Nicollet Avenue

General Description of Pond:

The Augsburg Pond shoreline contains trees, shrubs, and grass to the top of banks adjacent to the pond. There is playground equipment and picnic areas present near the east edge and a park on the south edge. Some erosion has occurred along the east bank slopes. The trees and plants growing along the west and south edge appear to be dense with some deadfall present. The pond contained a few ducks along the banks and a couple turtles in the water at the time of the field survey.

Surface Area (acres):

Approximately 2.90 acres (126,390 sq. ft.)

Depth of Water:

The Augsburg Pond low point is toward the middle of the basin at a depth of approximately 12.4 feet. The average depth around the pond is estimated at 8.6 feet. The field measurements are included with this information.

Access to Pond:

The trees require removal to access the pond for maintenance.
The access route is approximately 200 feet in length from the street

Additional Comments:

The site has low power lines on north and south side of the pond.
The pond has erosion occurring along banks in several areas which require restoration.
The flattening of the side slopes may be possible to control erosion and install plantings.

Maintenance Plan:

The field inspection indicates that some deadfall in the vicinity of the storm serer outfalls from 72nd Street is required to access the pond and perform the erosion control installation. The removal of sediment is primarily at the storm sewer outfalls along with installation of riprap. The primary bank stabilization and erosion control installation will be performed at the northwest storm sewer outfall from the School site. (see photo) The estimated cost for the maintenance plan is $69,000.

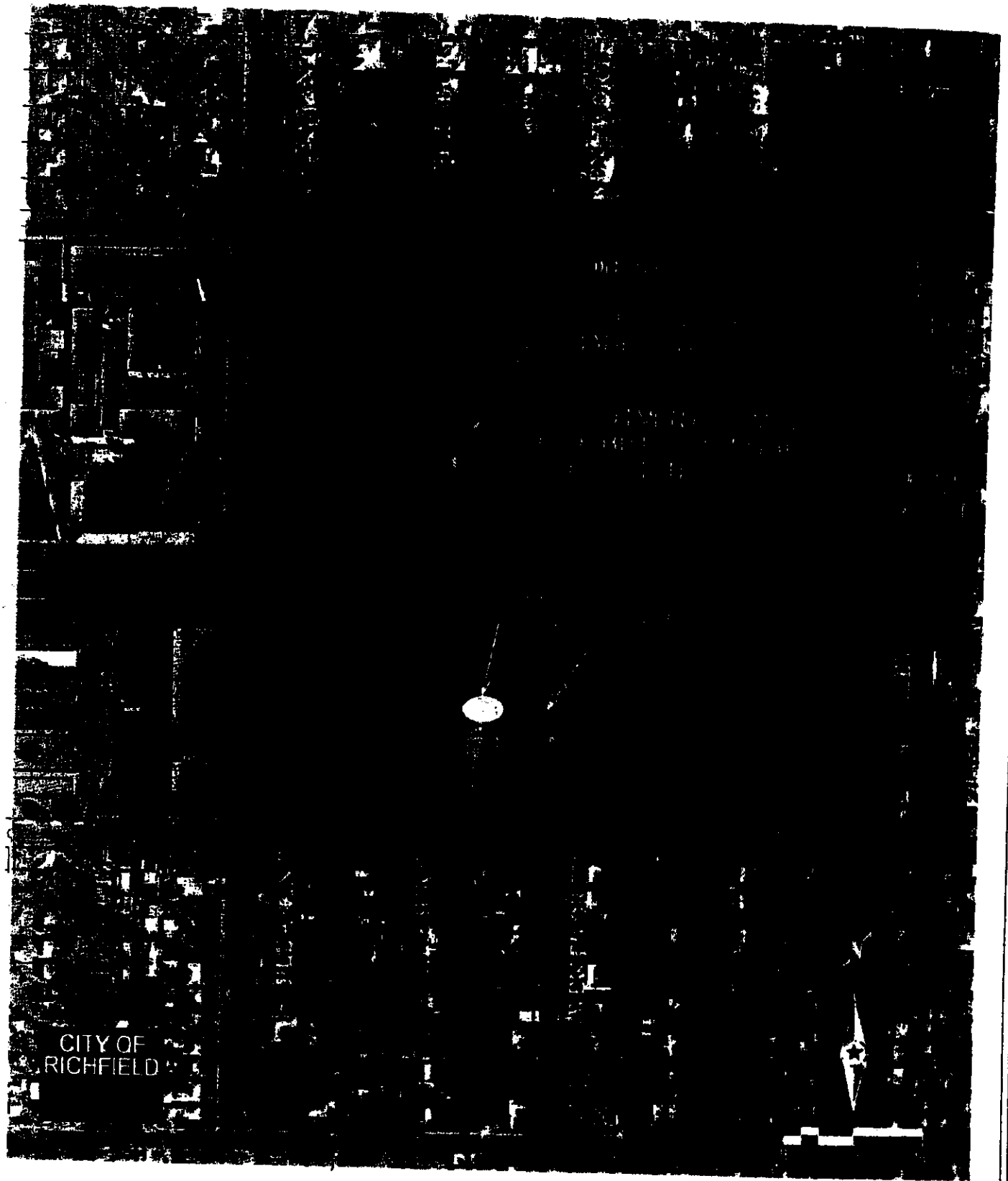
OPINION OF COST
AUGSBURG POND MAINTENANCE PLAN
& APPURTENANT WORK
RICHFIELD, MINNESOTA

WSB Project: Augsburg Pond Maintenance Plan
Project Location: Richfield Minn.
WSB Project No: 1000-96

Design By: TAW
Checked By:
Date: 9/28/2005

Line No.	MN/DOT Specification No.	Description	Unit	Unit Price	Estimated Total Quantity	Estimated Total Cost
1	2021.501	MOBILIZATION	LS	$ 3,500.00	1	$3,500
2	2051.501	MAINTENANCE AND RESTORATION OF THE HAUL ROAD	LS	$ 3,500.00	1	$3,500
3	2101.501	CLEARING	AC	$ 2,500.00	0.5	$1,250
4	2101.506	GRUBBING	AC	$ 2,500.00	0.5	$1,250
5	2105.505	DREDGING/SEDIMENT/REMOVAL/MUCK EXCAVATION/DISPOSAL	CY	$ 20.00	600	$12,000
6	2105.525	TOPSOIL BORROW (LV)	CY	$ 18.00	100	$1,800
7	2105.601	DEWATERING	LS	$ 7,500.00	1	$7,500
8	2511.501	RANDOM RIPRAP CL III	CY	$ 75.00	85	$6,375
9	2511.515	GEOTEXTILE FABRIC, TYPE IV	SY	$ 3.00	170	$510
10	2563.601	TRAFFIC CONTROL	LS	$ 2,000.00	1	$2,000
11	2573.502	SILT FENCE	LF	$ 3.00	500	$1,500
12	2573.602	TEMPORARY ROCK CONST. ENTRANCE	EA	$ 3,500.00	1	$3,500
13	2575.501	SEEDING	AC	$ 2,000.00	1.0	$2,000
14	2575.502	SEEDING, MIXTURE 250	POUND	$ 20.00	70	$1,400
15	2575.511	MULCH MATERIAL, TYPE I	TON	$ 200.00	2.0	$400
16	2575.523	EROSION CONTROL BLANKETS, TYPE 2	SY	$ 3.00	1,600.0	$4,800
					Subtotal	$53,285
					30% Engineering, Legal, Admin., Contingency	$15,986
					Total	$69,000

NOTE: The estimated cost includes Wood Fiber Blankets to stabilize the north slope to treatment basin in addtion to the mulch material for the project.
The cost estimate does not include any temporary easements across private property to perform the work.
The muck excavation quantity should be considered approximate based on the level of accuracy of the field data obtained for the bathometric elevations.
The muck excavation assumes that all of the material will be removed from the site. The material could be deposited on site if the material is not contaminated which would rec
The preliminary cost estimate does not include tree replacement.



Note: Storm sewer locations are approximate.

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701 Xenia Avenue South, Suite 300
Minneapolis, MN 55416
www.wsbeng.com
INFRASTRUCTURE ENGINEERING PLANNING CONSTRUCTION

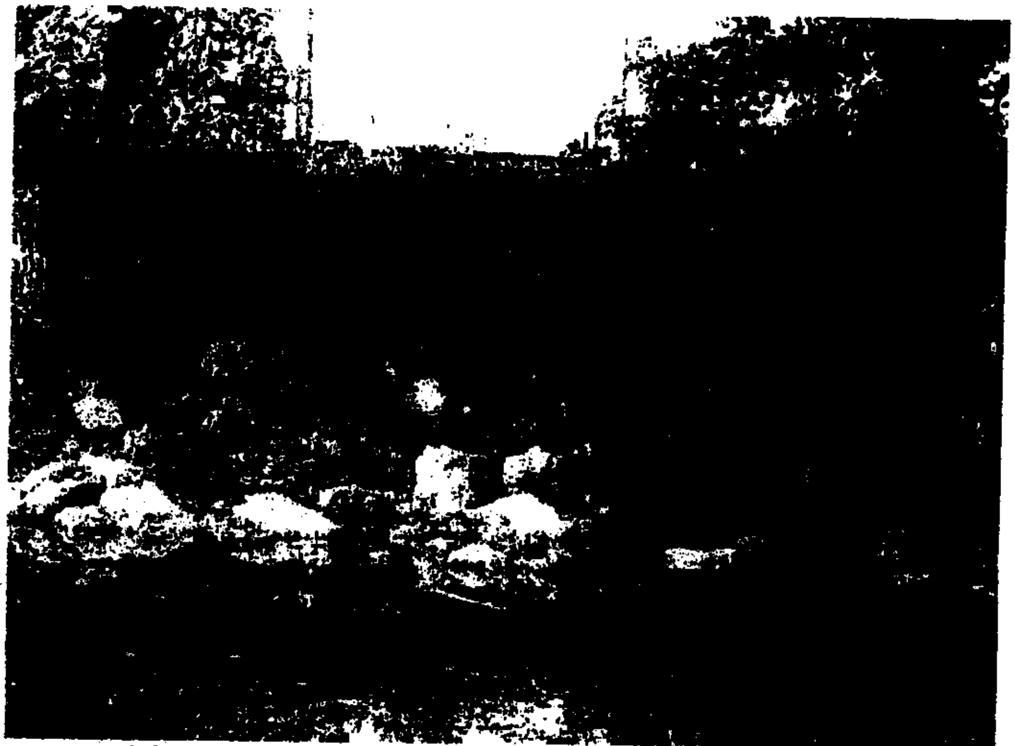
Augsburg Pond Maintenance Plan

Richfield, Minnesota

WSB Project No. 1000-96 Date: October, 2005

Figure 1

Augsburg Pond



Inlet on northwest side (needs maintenance riprap gone)

Full view of pond from the east side

Augsburg Pond

Side view of south inlet

Landscape from street to pond

Christian Park Pond

Pond Name:

Christian Park Pond

Location:

North of 70th Street and west of Bloomington Avenue

General Description of Pond:

Christian Park Pond is located in the southeast corner of the park with the majority of the pond being surrounded by open space. The access routes to the pond are available without removing vegetation. The north and south edges on the pond contain some plants and trees. The southeast bank exhibits erosion at the time of the field survey. Ducks were present during the basin inspection and the surface of the pond was covered with duckweed. (see photos)

Surface Area (acres):

Approximately 0.50 acres (21,700 sq. ft.)

Depth of Water:

The field survey of Christian Park Pond indicated the deepest point was located on the east edge at approximately 5.4 feet. The average depth around the pond is estimated at 4.6 feet. The field survey is included with this information.

Access to Pond:

The recommended access route is from 70th Street and Bloomington Avenue to the pond. The construction entrance should be located to minimize the need for traffic control and minimize disturbance of the park.

Additional Comments:

The water elevation was above the shoreline by approximately 1' at the time of the field survey.

Maintenance Plan:

The maintenance plan includes removing 3' of sediment from the pond bottom, installing riprap and geotextile fabric at the storm sewer inlets and outlet, repairing the bank erosion on the southeast shoreline, and turf establishment over the disturbed areas. The estimated cost for the maintenance plan is $77,000.

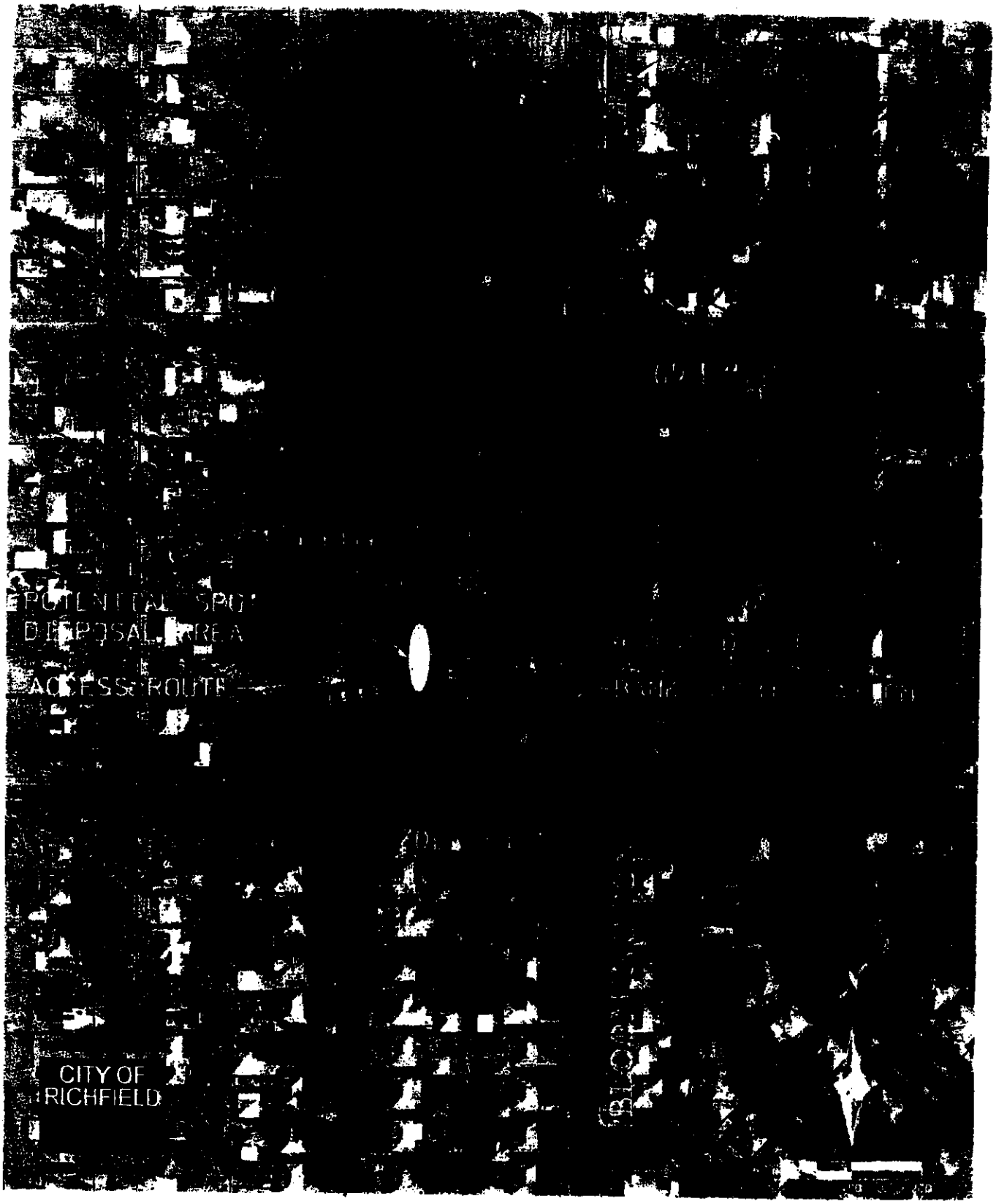
OPINION OF COST
CHRISTIAN PARK POND MAINTENANCE PLAN
& APPURTENANT WORK
RICHFIELD, MINNESOTA

WSB Project: Christian Park Pond Maintenance Plan
Project Location: Richfield Minn.
WSB Project No: 1000-96

Design By: TAW
Checked By:
Date: 9/28/2005

Line No.	MN/DOT Specification No.	Description	Unit	Unit Price	Estimated Total Quantity	Estimated Total Cost
1	2021.501	MOBILIZATION	LS	$ 2,500.00	1	$2,500
2	2051.501	MAINTENANCE AND RESTORATION OF THE HAUL ROAD	LS	$ 1,500.00	1	$1,500
3	2104.601	REMOVE DEADFALL & DEBRIS AT STORM SEWER OUTLETS	LS	$ 1,500.00	1	$1,500
4	2105.505	DREDGING/SEDIMENT/REMOVAL/MUCK EXCAVATION/DISPOSAL	CY	$ 20.00	1,560	$31,200
5	2105.525	TOPSOIL BORROW (LV)	CY	$ 18.00	100	$1,800
6	2105.601	DEWATERING	LS	$ 5,000.00	1	$5,000
7	2511.501	RANDOM RIPRAP CL III	CY	$ 75.00	35	$2,625
8	2511.515	GEOTEXTILE FABRIC, TYPE IV	SY	$ 3.00	70	$210
9	2563.601	TRAFFIC CONTROL	LS	$ 2,000.00	1	$2,000
10	2573.502	SILT FENCE	LF	$ 3.00	250	$750
11	2573.602	TEMPORARY ROCK CONST. ENTRANCE	EA	$ 3,500.00	1	$3,500
12	2575.501	SEEDING	AC	$ 2,000.00	1.5	$3,000
13	2575.502	SEEDING, MIXTURE 250	POUND	$ 20.00	105	$2,100
14	2575.511	MULCH MATERIAL, TYPE I	TON	$ 200.00	2.0	$400
15	2575.523	EROSION CONTROL BLANKETS, TYPE 2	SY	$ 3.00	300.0	$900
					Subtotal	$58,985
					30% Engineering, Legal, Admin., Contingency	$17,696
					Total	$77,000

NOTE: The estimated cost for Wood Fiber Blankets is stabilize the repair of the erosion on the southeast side of the pond.
The cost estimate does not include any temporary easements across private property to perform the work.
The muck excavation quantity should be considered approximate based on the level of accuracy of the field data obtained for the bathometric elevations.
The muck excavation assumes that all of the material will be removed from the site. The material could be deposited on site which would reduce the project cost.
The cost estimate includes seeding of an on-site disposal area.
The cost estimate does not include additional landscaping of the shoreline or tree installation.
The cost estimate assumes that clearing and grubbing will not be requried.



Note: Storm sewer locations are approximate.

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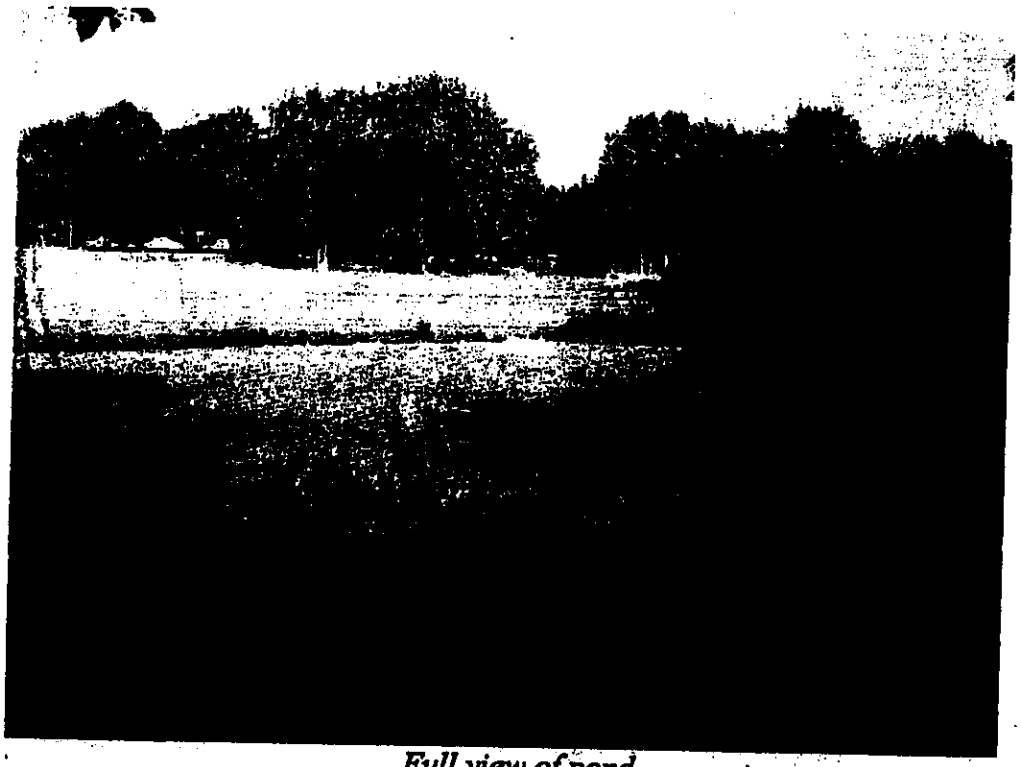
Christian Park Pond Maintenance Plan

Richfield, Minnesota

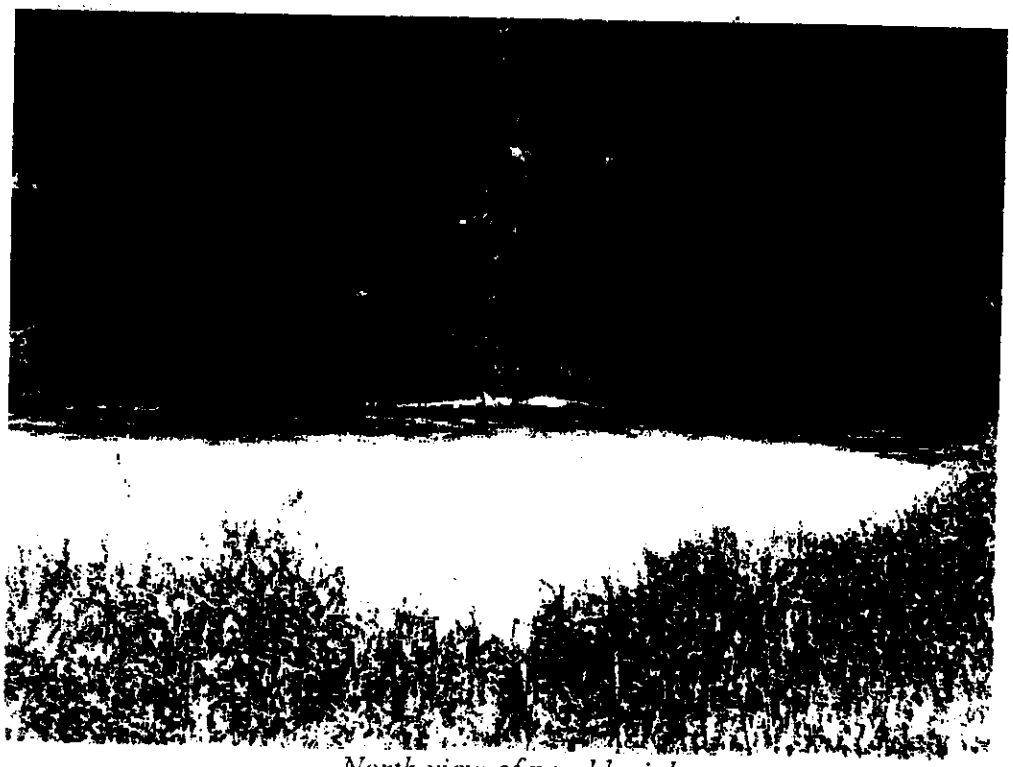
WSB Project No. 1000-96 Date: October, 2005

Figure 1

Christian Park Pond



Full view of pond



North view of pond by inlets

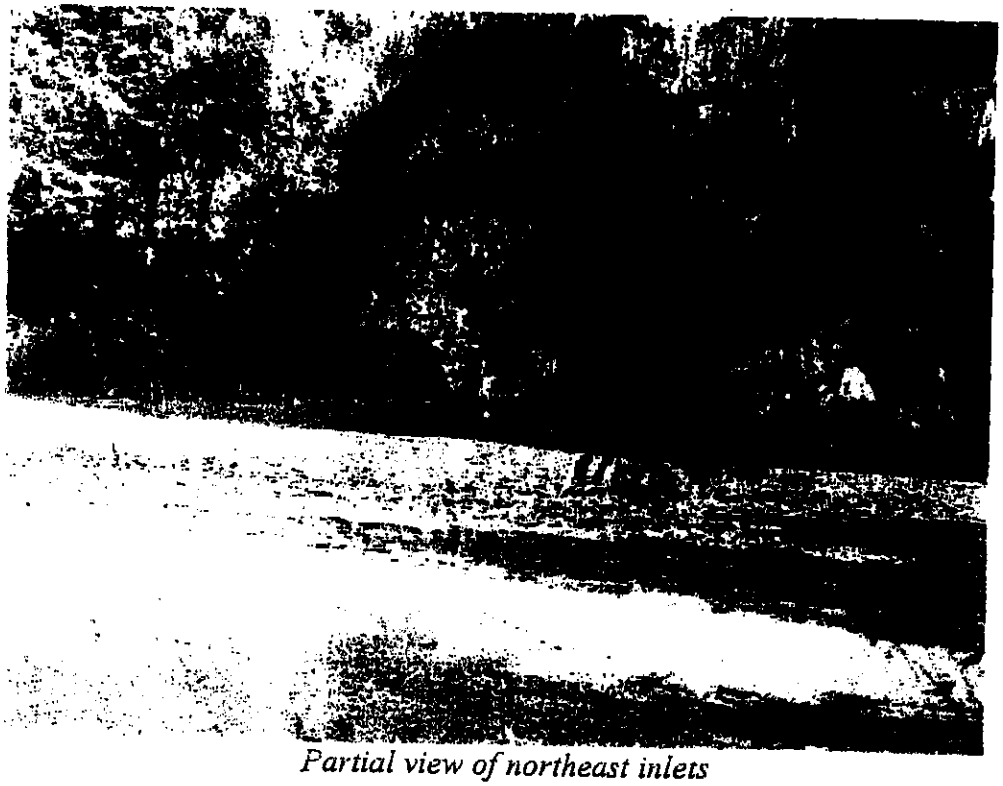
Christian Park Pond

Erosion on southeast bank into pond

Northeast outfall

Christian Park Pond

Southeast outfall (needs some maintenance)



Partial view of northeast inlets

Milner's Pond

Pond Name:

Milner's Pond

Location:

North of 66th Street and West of 5th Avenue

General Description of Pond:

The Milner's Pond is located within a residential area and is encompassed by homes on the south, west, and east sides. The water is open with backyards extending to the pond edge on the west, south and east sides. The north end of the pond is vegetated with plants and shrubs. The pond was populated with ducks on the northeast side at the time of the field survey. The slopes on the north bank are steep from 64th Street.

Surface Area (acres):

Approximately 6.85 acres (298,297 sq. ft.)

Depth of Water:

The Milner's Pond low point is located in the southeast edge at a depth of approximately 6.0 feet. The average depth around the pond is estimated at 3.1 feet. The field measurements are included with this document.

Access to Pond:

The access route to the pond is proposed to be constructed from 64th Street. The clearing and grubbing of this area along with installing an entrance and exit road for hauling is required. The pond may be accessed from 65th Street and Clinton Avenue if the existing easement width is adequate and vegetation in the area is removed.

Additional Comments:

The pond perimeter has low power lines on the south, east and west.

Maintenance Plan:

The maintenance plan includes removal of approximately 5' of sediment and muck from the pond bottom, clearing and grubbing at 64th Street for the haul roads, and erosion control measures at the storm sewer outfalls and inlets. The estimated cost for the maintenance plan is $650,000.

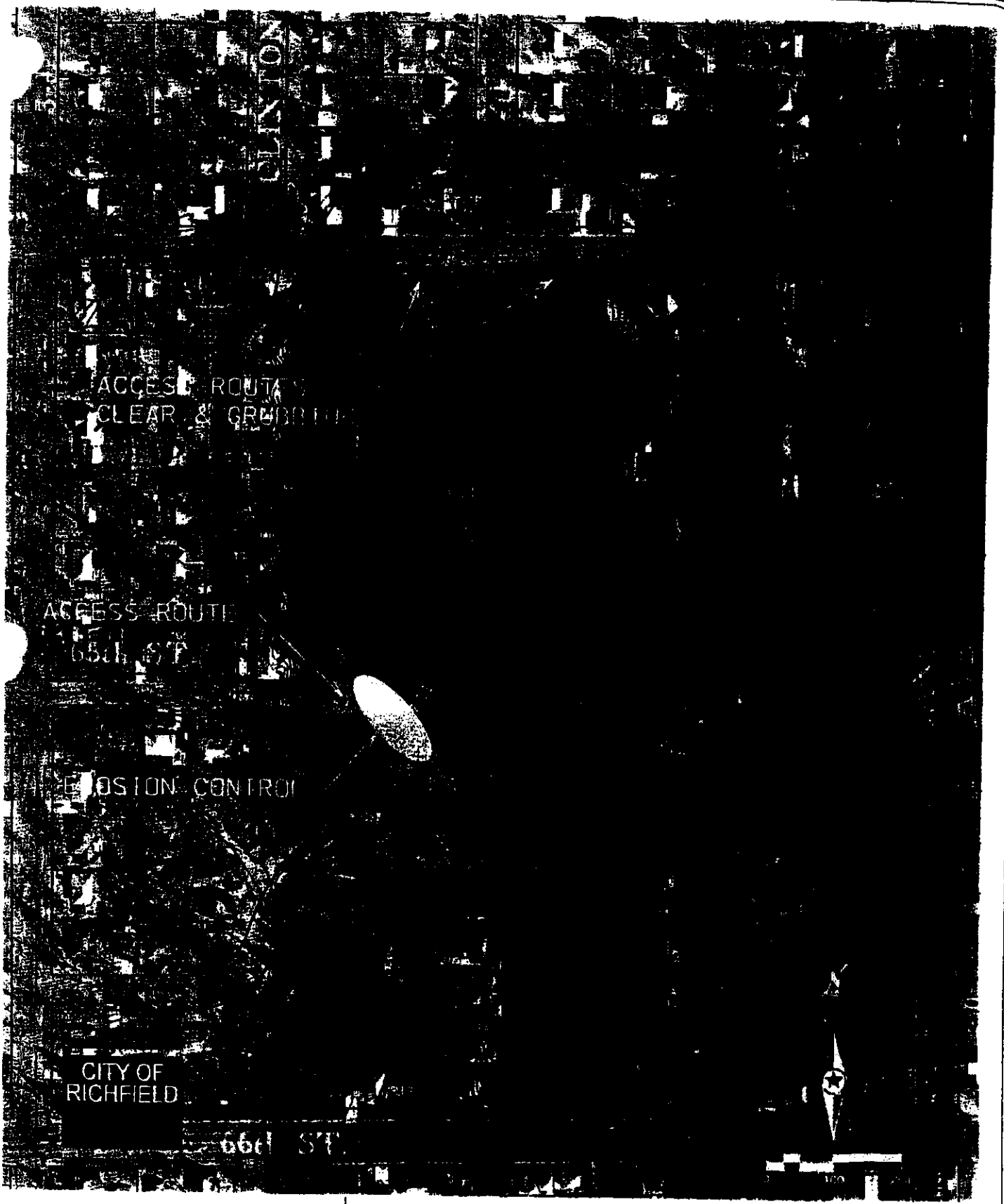
OPINION OF COST
MILNER'S POND MAINTENANCE PLAN
& APPURTENANT WORK
RICHFIELD, MINNESOTA

WSB Project: Milner's Pond Maintenance Plan
Project Location: Richfield Minn.
WSB Project No: 1000-96

Design By: TAW
Checked By:
Date: 9/28/2005

Line No.	MN/DOT Specification No.	Description	Unit	Unit Price	Estimated Total Quantity	Estimated Total Cost
1	2021.501	MOBILIZATION	LS	$ 10,000.00	1	$10,000
2	2051.501	MAINTENANCE AND RESTORATION OF THE HAUL ROAD	LS	$ 10,000.00	1	$10,000
3	2101.501	CLEARING	AC	$ 2,500.00	1.0	$2,500
4	2101.506	GRUBBING	AC	$ 2,500.00	1.0	$2,500
5	2104.601	REMOVE DEADFALL & DEBRIS AT STORM SEWER OUTLETS	LS	$ 1,500.00	1	$1,500
6	2105.505	DREDGING/SEDIMENT/REMOVAL/MUCK EXCAVATION/DISPOSAL	CY	$ 10.00	42,500	$425,000
7	2105.525	TOPSOIL BORROW (LV)	CY	$ 18.00	200	$3,600
8	2105.601	DEWATERING	LS	$ 10,000.00	1	$10,000
9	2511.501	RANDOM RIPRAP CL III	CY	$ 75.00	55	$4,125
10	2511.515	GEOTEXTILE FABRIC, TYPE IV	SY	$ 3.00	110	$330
11	2563.601	TRAFFIC CONTROL	LS	$ 7,500.00	1	$7,500
12	2573.502	SILT FENCE	LF	$ 3.00	250	$750
13	2573.602	TEMPORARY ROCK CONST. ENTRANCE	EA	$ 3,500.00	3	$10,500
14	2575.501	SEEDING	AC	$ 2,000.00	2.0	$4,000
15	2575.502	SEEDING, MIXTURE 250	POUND	$ 20.00	140	$2,800
16	2575.511	MULCH MATERIAL, TYPE I	TON	$ 200.00	4.0	$800
17	2575.523	EROSION CONTROL BLANKETS, TYPE 2	SY	$ 3.00	1,500.0	$4,500
					Subtotal	$500,405
					30% Engineering, Legal, Admin., Contingency	$150,122
					Total	$651,000

NOTE: The estimated cost for Wood Fiber Blankets is to stabilize the area on the north end of the basin once the entrance and exit ramps are removed.
The cost estimate does not include any temporary easements across private property to perform the work.
It is assumed that the easement width over the storm sewer from 65th Street and Clinton Ave. to the pond is wide enough for truck traffic.
The muck excavation quantity should be considered approximate based on the level of accuracy of the field data obtained for the bathometric elevations.
The muck excavation assumes that all of the material will be removed from the site.
The cost estimate does not include disposal of deliterious or contaminated spoil material.
The cost estimate does not include additional landscaping of the shoreline or tree installation.
The cost estimate assumes that clearing and grubbing will be limited to the north end on the pond, storm sewer outfalls, and the potential access route from 65th and Clinton Av



Note: Storm sewer locations are approximate.

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INFRASTRUCTURE ENGINEERING PLANNING CONSTRUCTION

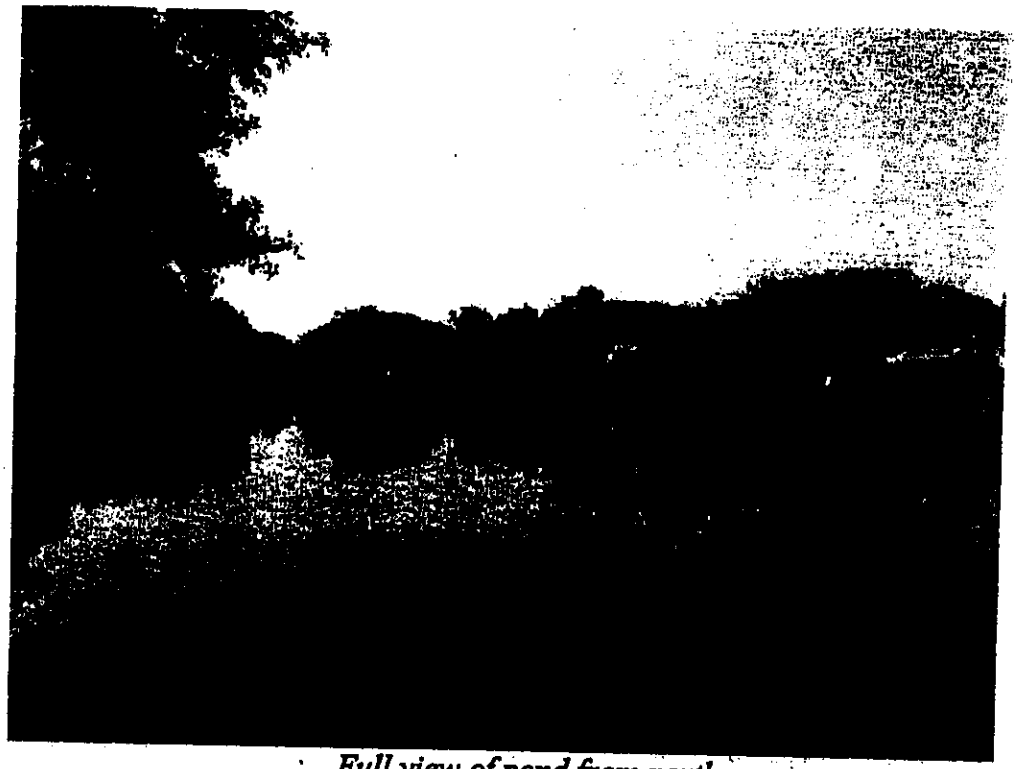
Milner's Pond Maintenance Plan

Richfield, Minnesota

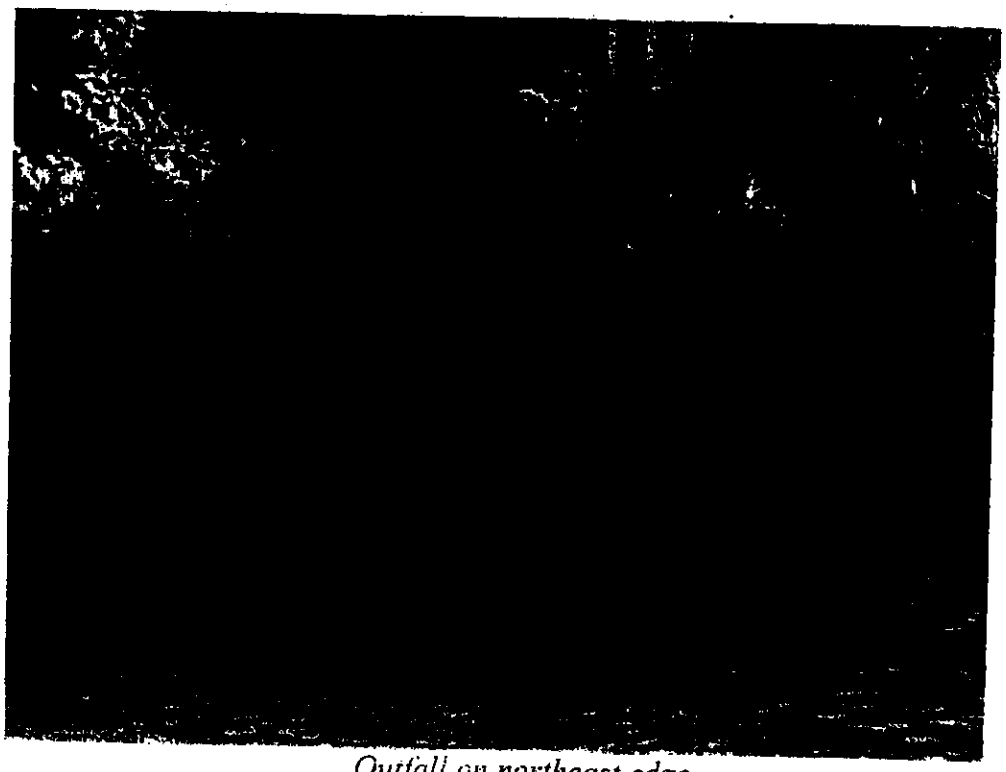
WSB Project No. 1000-98 Date: October 2005

Figure 1

Milner's Pond



Full view of pond from north



Outfall on northeast edge

Milner's Pond

Outfall in back northwest corner

Outfall in the northwest corner

Norby's Pond

Pond Name:

Norby's Pond

Location:

North of 70th Street and west of 3rd Avenue

General Description of Pond:

Norby's Pond is located in a residential area with homes located on the east and west sides with the rear yards extending to the ponds' shoreline. The pond consists of open water with no islands or plants growing in it. The banks are lines with plants and trees on the north and south ends. The pond has low power lines on both the east and west shorelines.

Surface Area (acres):

Approximately 4.58 acres (199,596 sq. ft.)

Depth of Water:

The Norby's Pond low point is located towards the north end and is approximately 5.0 feet deep. The estimated average depth of the pond is 3.2 feet based on the field survey data. The field survey data is included with this information.

Access to Pond:

The proposed access routes are from south at 70th Street and from the north at 2nd Avenue and 69th Street.
The access routes are approximately 20 feet from the street locations and may require clearing/grubbing and haul road construction to perform the work.

Additional Comments:

The power line locations on the east and west side of the pond are not anticipated to require relocation to implement the restoration plan.

Maintenance Plan:

The excavation of 5' of material from the pond bottom to remove accumulated sediment, install erosion control measures at the storm sewer outfalls, clear and grub access routes, install and remove haul roads, dewater the pond, and restore the disturbed areas is required. The maintenance plan is estimated at $559,000.

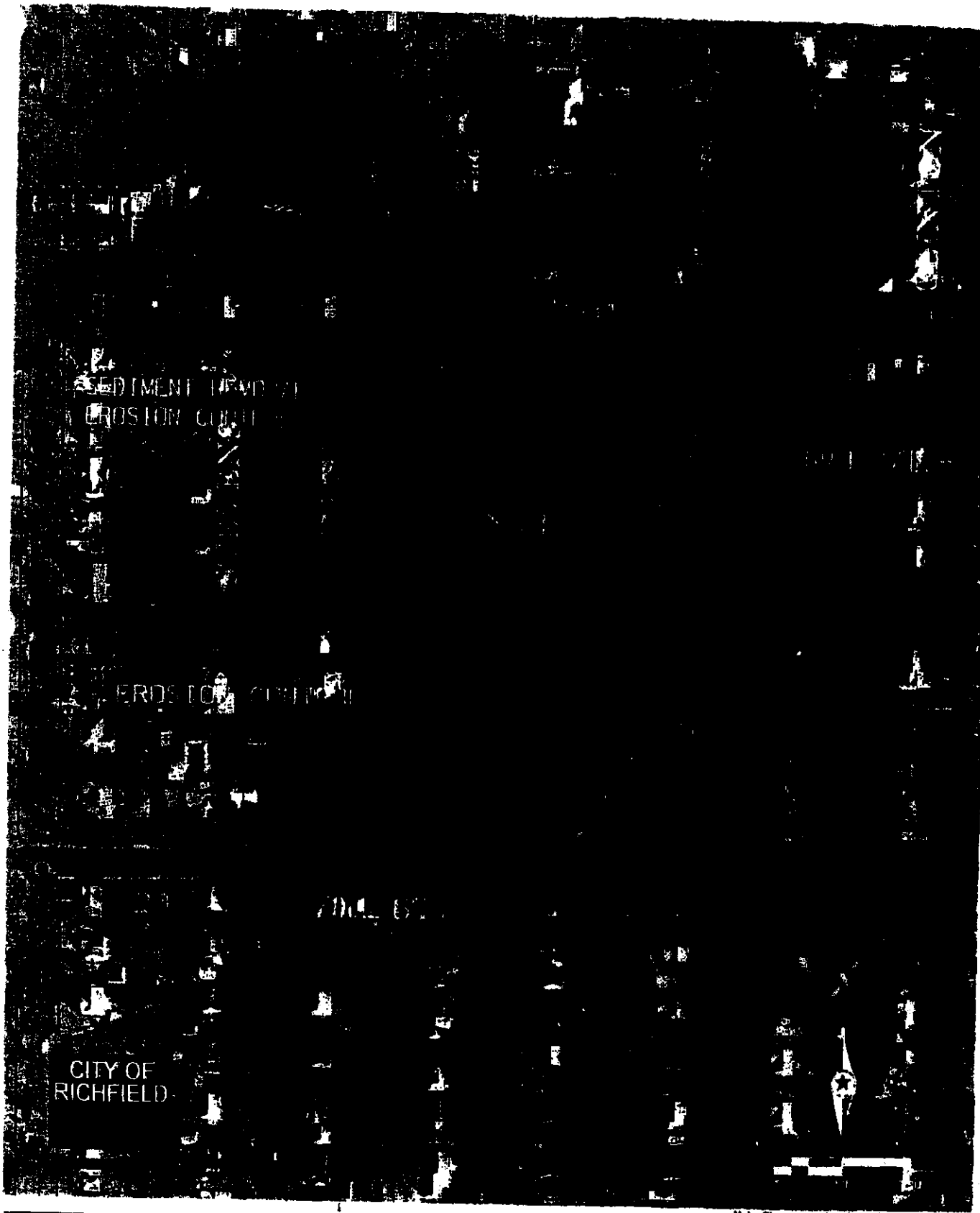
OPINION OF COST
NORBY'S POND MAINTENANCE PLAN
& APPURTENANT WORK
RICHFIELD, MINNESOTA

WSB Project: Norby's Pond Maintenance Plan
Project Location: Richfield Minn.
WSB Project No: 1000-96

Design By: TAW
Checked By:
Date: 9/28/2005

Line No.	MN/DOT Specification No.	Description	Unit	Unit Price	Estimated Total Quantity	Estimated Total Cost
1	2021.501	MOBILIZATION	LS	$ 5,000.00	1	$5,000
2	2051.501	MAINTENANCE AND RESTORATION OF THE HAUL ROAD	LS	$ 10,000.00	1	$10,000
3	2101.501	CLEARING	AC	$ 2,500.00	0.8	$1,875
4	2101.506	GRUBBING	AC	$ 2,500.00	0.8	$1,875
5	2101.509	REMOVE APRON	EA	$ 500.00	1.0	$500
6	2104.601	REMOVE DEADFALL & DEBRIS AT STORM SEWER OUTLETS	LS	$ 1,000.00	1	$1,000
7	2105.505	DREDGING/SEDIMENT/REMOVAL/MUCK EXCAVATION/DISPOSAL	CY	$ 12.00	30,000	$360,000
8	2150-521	SALVAGE TOPSOIL (LV)	CY	$ 6.00	600	$3,600
9	2105.525	TOPSOIL BORROW (LV)	CY	$ 18.00	100	$1,800
10	2105.601	DEWATERING	LS	$ 7,500.00	1	$7,500
11	2501.515	42" RC PIPE APRON	EA	$ 1,500.00	1.0	$1,500
12	2511.501	RANDOM RIPRAP CL III	CY	$ 75.00	60	$4,500
13	2511.515	GEOTEXTILE FABRIC, TYPE IV	SY	$ 3.00	90	$270
14	2563.601	TRAFFIC CONTROL	LS	$ 5,000.00	1	$5,000
15	2573.502	SILT FENCE	LF	$ 3.00	300	$900
16	2573.602	TEMPORARY ROCK CONST. ENTRANCE	EA	$ 3,500.00	4	$14,000
17	2575.501	SEEDING	AC	$ 2,000.00	2.0	$4,000
18	2575.502	SEEDING, MIXTURE 250	POUND	$ 20.00	110	$2,200
19	2575.511	MULCH MATERIAL, TYPE I	TON	$ 200.00	3.2	$640
20	2575.523	EROSION CONTROL BLANKETS, TYPE 2	SY	$ 3.00	1,200.0	$3,600
					Subtotal	$429,760
					30% Engineering, Legal, Admin., Contingency	$128,928
					Total	$559,000

NOTE: The estimated cost for Erosion Control Blankets is to stabilize the area on the north and south end of the basin once the entrance and exit ramps are removed.
The cost estimate does not include any temporary easements across private property to perform the work.
The muck excavation quantity should be considered approximate based on the level of accuracy of the field data obtained for the bathometric elevations.
The muck excavation assumes that all of the material will be removed from the site.
The cost estimate does not include disposal of deliterious or contaminated spoil material.
The cost estimate does not include additional landscaping of the shoreline or tree installation.
The cost estimate assumes that clearing and grubbing will be limited to the north and south end on the pond,
storm sewer outfalls, and the potential access route from 70th Street and 2nd Avenue, and 69th Street.
The cost estimate assumes that no street repair will be required and snow removal will be included in the excavation cost.



Note: Storm sewer locations are approximate.

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Norby's Pond Maintenance Plan

Richfield, Minnesota

WSB Project No. 1000-96 Date: October, 2005

Figure
1

Norby's Pond

Outfall on north edge

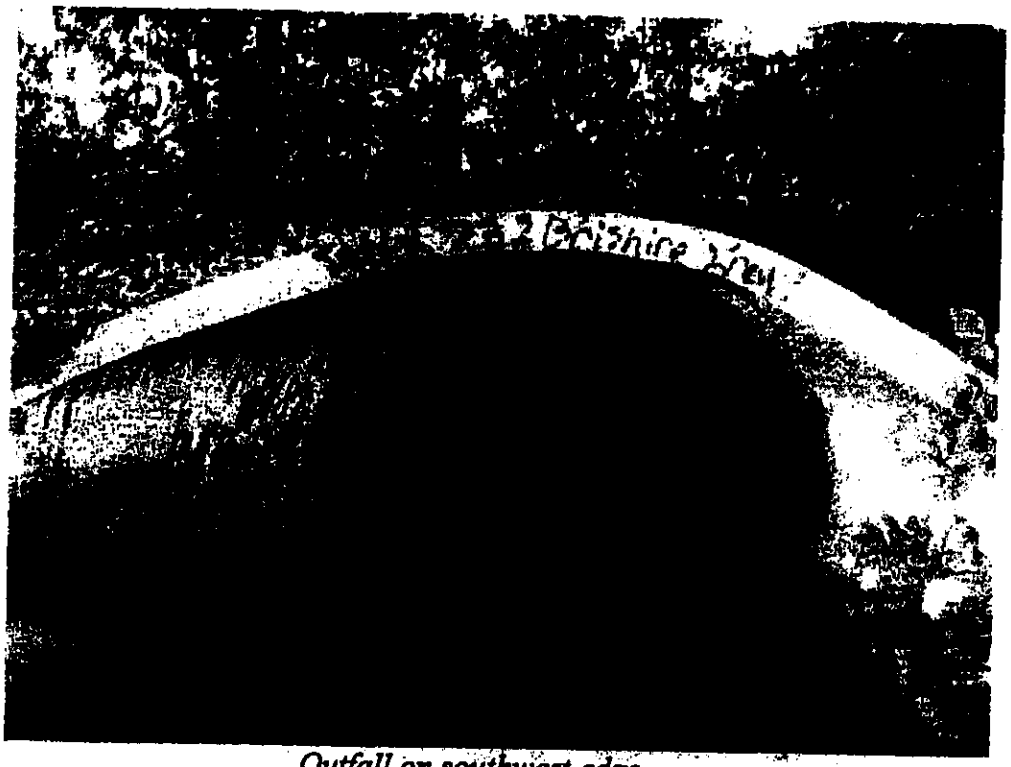
Outfall on northwest edge

Norby's Pond

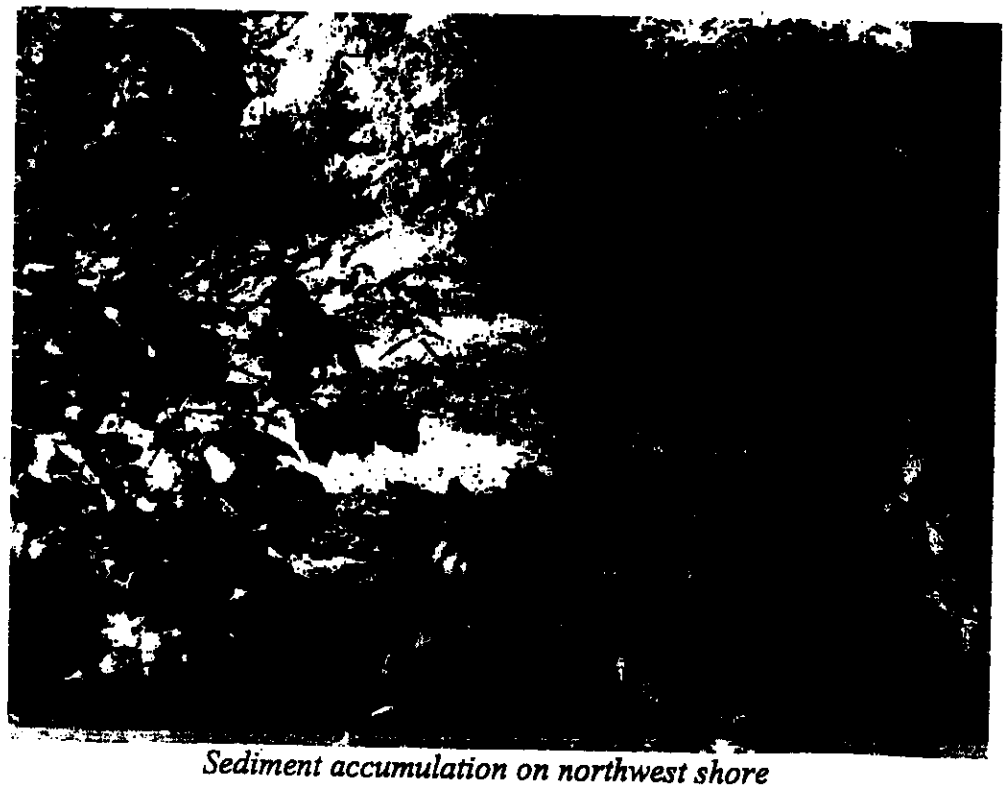
Outfall on southwest edge

Outfall on southwest edge (needs maintenance)

Norby's Pond



Outfall on southwest edge



Sediment accumulation on northwest shore

Sheridan Pond

Pond Name:

Sheridan Pond

Location:

North of 66th Street and east of Vincent Avenue

General Description of Pond:

The Sheridan pond is located with in the park on the northeast immediately south of 65th Street. The pond did not appear to exhibit erosion on the bank due to the mild slopes and vegetation cover. The middle of the pond is open water with approximately 30 foot wide cattails growing out of the water on the perimeter. The park has a playground and picnic area on the northwest side of the pond. The field inspection survey indicated that turtles are presenting the pond. The pond has residential property located on the east and south side.

Surface Area (acres):

Approximately 1.39 acres (60,651 sq. ft.)

Depth of Water:

The Sheridan Pond low point is located towards the middle and is approximately 4.7 feet deep. The average depth within the pond is estimated at 3.8 feet based on the field survey data. The field survey measurements are included with this information.

Access to Pond:

The access route for maintenance is proposed to enter the pond from the north at 65th Street and Sheridan Avenue.
The access route is estimated to be approximately 50 to 60 feet in length from the street to the shoreline.
The removal of trees and vegetation may be required to access the pond from 65th Street between Thomas and Sheridan Avenues based on the field inspection.

Additional Comments:

It is proposed that the cattails be cleared to permit the excavation of material from the pond.

Sheridan Pond

Maintenance Plan:

The maintenance plan for Sheridan pond is to excavate 2' to 3' of material from the pond bottom, reduce the cattails on the perimeter of the pond, install erosion control measures at the storm sewer outfalls, and restore vegetation over the disturbed areas and at the pond. The installation of trees and shrubs for landscaping on the west side of the pond is proposed. The estimated cost for the maintenance plan is $125,000.

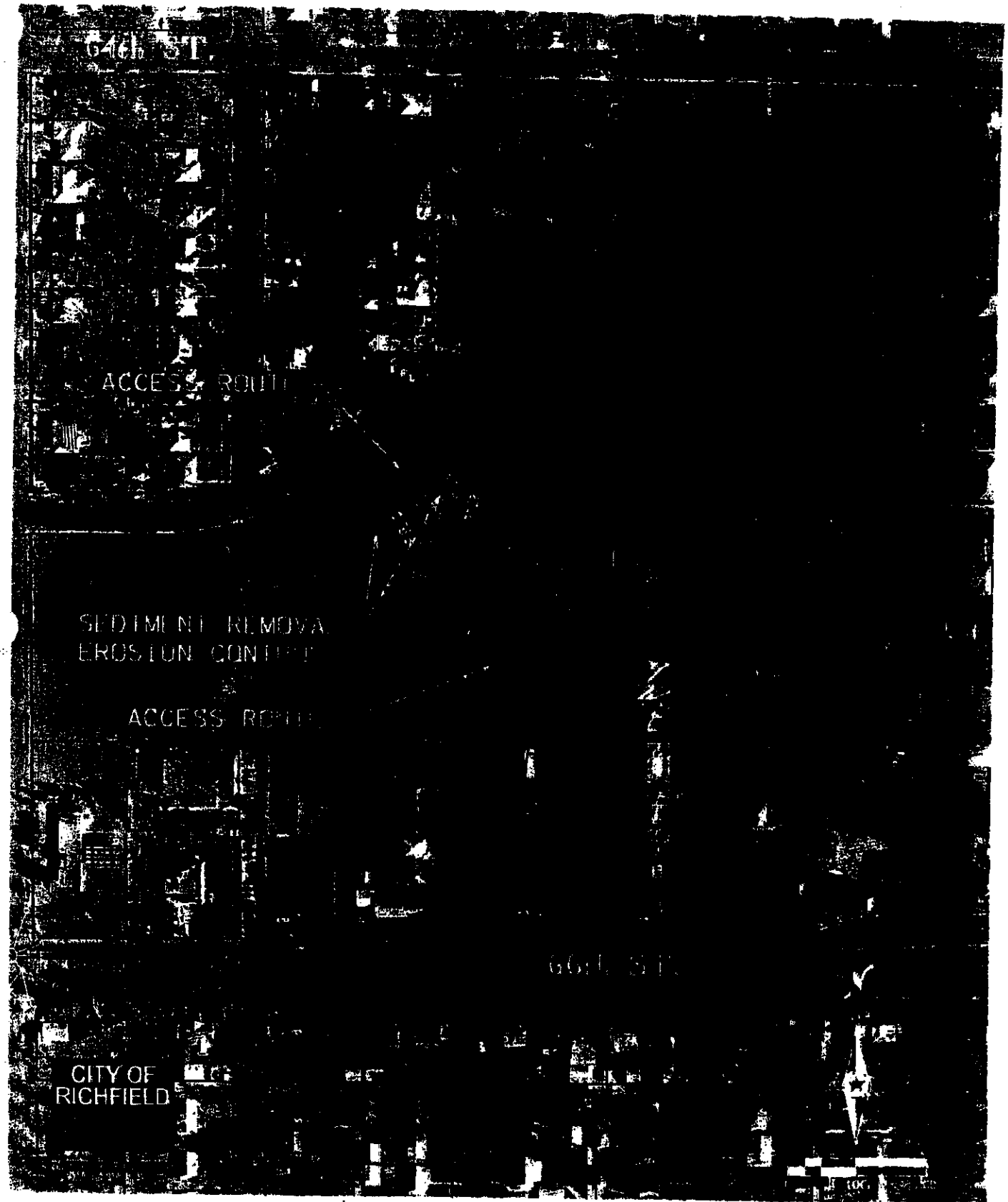
OPINION OF COST
SHERIDAN POND MAINTENANCE PLAN
& APPURTENANT WORK
RICHFIELD, MINNESOTA

WSB Project: Sheridan Pond Maintenance Plan
Project Location: Richfield Minn.
WSB Project No: 1000-96

Design By: TAW
Checked By:
Date: 10/3/2005

Line No.	MN/DOT Specification No.	Description	Unit	Unit Price	Estimated Total Quantity	Estimated Total Cost
1	2021.501	MOBILIZATION	LS	$ 3,500.00	1	$3,500
2	2051.501	MAINTENANCE AND RESTORATION OF THE HAUL ROAD	LS	$ 5,000.00	1	$5,000
3	2101.501	CLEARING	AC	$ 2,500.00	0.5	$1,250
4	2101.506	GRUBBING	AC	$ 2,500.00	0.5	$1,250
5	2104.601	REMOVE DEADFALL & DEBRIS AT STORM SEWER OUTLETS	LS	$ 2,500.00	1	$2,500
6	2105.505	DREDGING/SEDIMENT/REMOVAL/MUCK EXCAVATION/DISPOSAL	CY	$ 18.00	20,500	$369,000
7	2150-521	SALVAGE TOPSOIL (LV)	CY	$ 6.00	400	$2,400
8	2105.525	TOPSOIL BORROW (LV)	CY	$ 18.00	50	$900
9	2105.601	DEWATERING	LS	$ 7,500.00	1	$7,500
10	2511.501	RANDOM RIPRAP CL III	CY	$ 75.00	65	$4,875
11	2511.515	GEOTEXTILE FABRIC, TYPE IV	SY	$ 3.00	130	$390
12	2563.601	TRAFFIC CONTROL	LS	$ 2,500.00	1	$2,500
13	2571.501	CONIFEROUS TREE	TREE	$ 250.00	20	$5,000
14	2571.501	CONIFEROUS SHRUB	SHRUB	$ 100.00	20	$2,000
15	2571.501	DECIDUOUS TREE	TREE	$ 250.00	20	$5,000
16	2571.501	DECIDUOUS SHRUB	SHRUB	$ 100.00	20	$2,000
17	2573.502	SILT FENCE	LF	$ 3.00	200	$600
18	2573.602	TEMPORARY ROCK CONST. ENTRANCE	EA	$ 3,500.00	2	$7,000
19	2575.501	SEEDING	AC	$ 2,000.00	1.0	$2,000
20	2575.502	SEEDING, MIXTURE 250	POUND	$ 20.00	85	$1,700
21	2575.511	MULCH MATERIAL, TYPE I	TON	$ 200.00	2.0	$400
22	2575.523	EROSION CONTROL BLANKETS, TYPE 2	SY	$ 3.00	800.0	$2,400
					Subtotal	$429,165
					30% Engineering, Legal, Admin., Contingency	$128,750
					Total	$558,000

NOTE: The estimated cost for Erosion Control Blankets is to stabilize south bank erosion repair and the turf establishment over the haul roads.
The cost estimate does not include any temporary easements across private property to perform the work.
The muck excavation quantity should be considered approximate based on the level of accuracy of the field data obtained for the bathometric elevations.
The muck excavation assumes that all of the material will be removed from the site.
The cost estimate does not include disposal of deliterious or contaminated spoil material.
The cost estimate includes additional landscaping and tree installation.
The cost estimate assumes that clearing and grubbing will be limited to the access routes and areas in the vicinity of storm sewer outfalls.
The cost estimate assumes that no street repair will be required and snow removal will be included in the excavation cost.



Note: Storm sewer locations are approximate.

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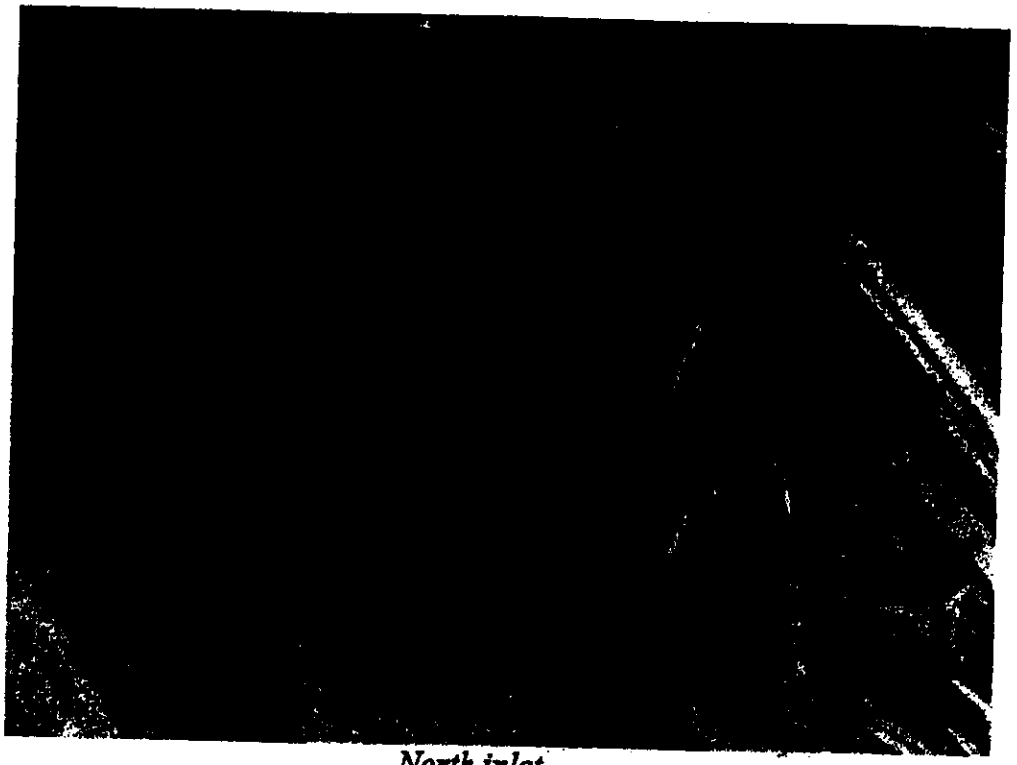
Sheridan Pond Maintenance Plan

Richfield, Minnesota

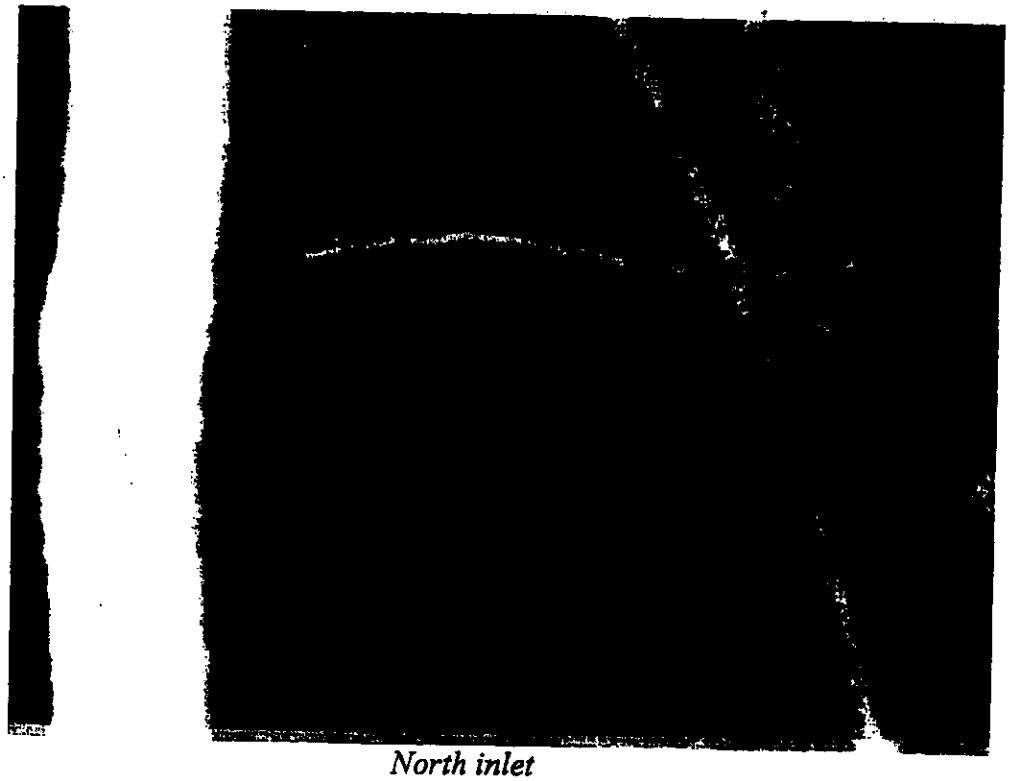
WSB Project No. 1000-96 Date: October, 2005

Figure 1

Sheridan Pond

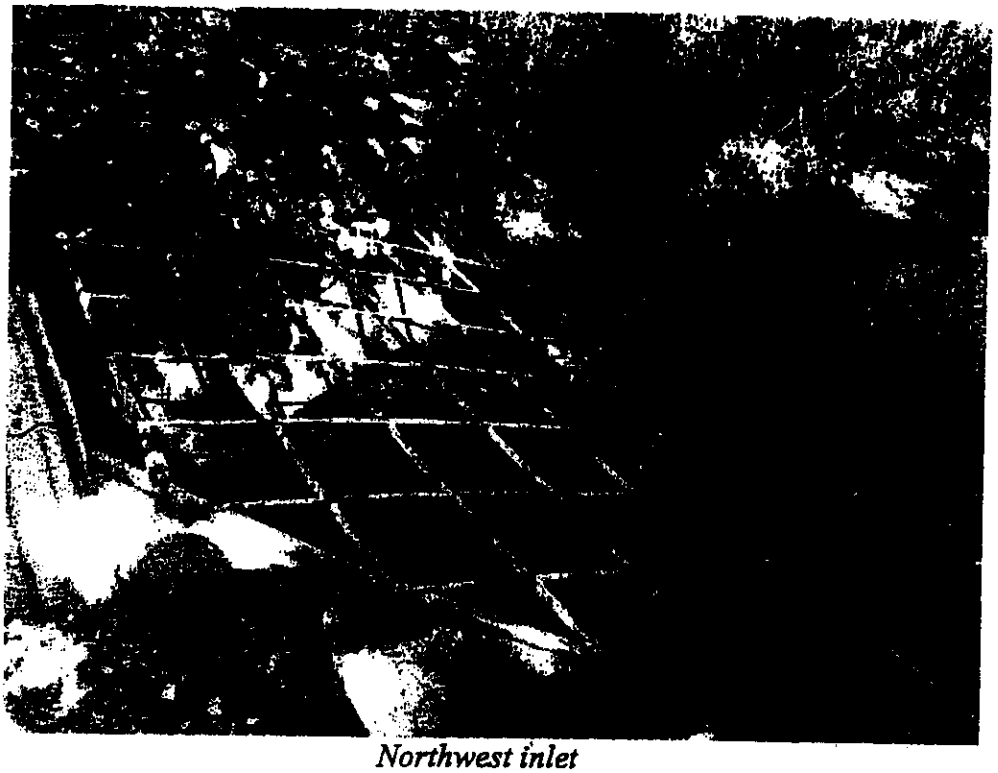


North inlet



North inlet

Sheridan Pond



Northwest inlet

Northwest inlet-sediment buildup

Sheridan Pond

Southeast inlet

Northeast outlet to pond

Sheridan Pond

Outlet from pond

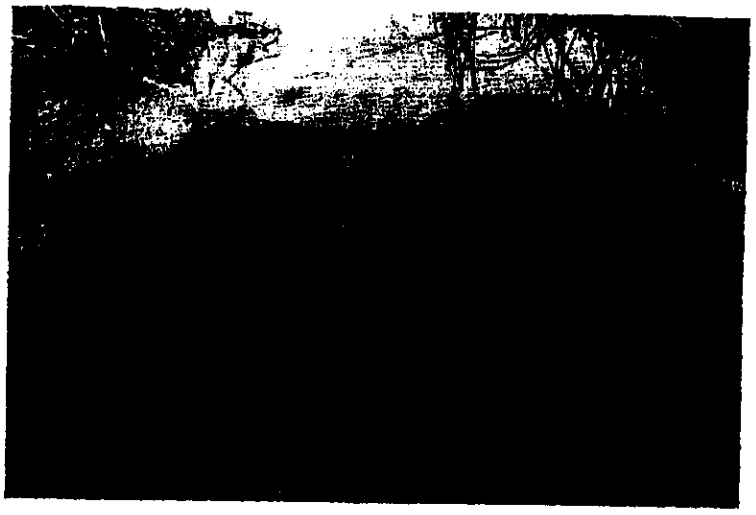
Sheridan Pond
City of Richfield

View east from above the northwest culvert. Sediment accumulation visible at discharge location into pond.

View west from above the northeast culvert. Sediment accumulation visible at discharge location into pond.

View north from the south culvert.

Sheridan Pond
City of Richfield



Water discoloration visible at the south culvert discharging to the pond.

View from the east side of the pond facing west. Vegetation consist of monotype cattail (*Typha sp.*). Sediment accumulation around perimeter of the pond, specifically at the outlets has reduced open water areas within pond.

Wilson Pond

Pond Name:

Wilson Pond

Location:

North of 75th Street and west of 15th Avenue

General Description of Pond:

The Wilson pond layout consists of primarily open water with residential property located on the north and south ends. The east and west sides are bounded by City property or right of way. The perimeter of the pond has a fairly steep slope to the shoreline with approximately 7 feet of vertical fall. The perimeter vegetation of the pond consists of plants approximately one foot thick, mowed grass, and concentrations of trees in various areas.

Surface Area (acres):

Approximately 4.06 acres (176,827 sq. ft.)

Depth of Water:

The Wilson Pond low point is located in the middle of the eastern half of the pond with an approximate depth of 5.0 feet. The average depth is estimated at 4.0 feet based on the field survey. The water depth data obtained at the pond is included with this information.

Access to Pond:

The maintenance access is proposed from 74th Street and 14th Avenue on the southwest end. The access route is not anticipated to require significant clearing and grubbing to perform the proposed maintenance. The entrance and exit locations are proposed to be on the west side of the basin and are estimated at 40 to 50 feet in length to the city streets. Approximately 40 to 50 feet from street

Additional Comments:

The pond has low power lines in the vicinity of 74th Street with limited access from northwest.
The south bank appeared to have minimal erosion during the field inspection.

Maintenance Plan:

The maintenance plan consists of excavation of 2' to 3' of sediment from the pond bottom for disposal, installation of erosion control measures at the storm sewer outfalls,

Wilson Pond

constructing entrance and exit points, clearing and grubbing, and restoration of disturbed areas. The estimated cost of the maintenance plan is $536,000.

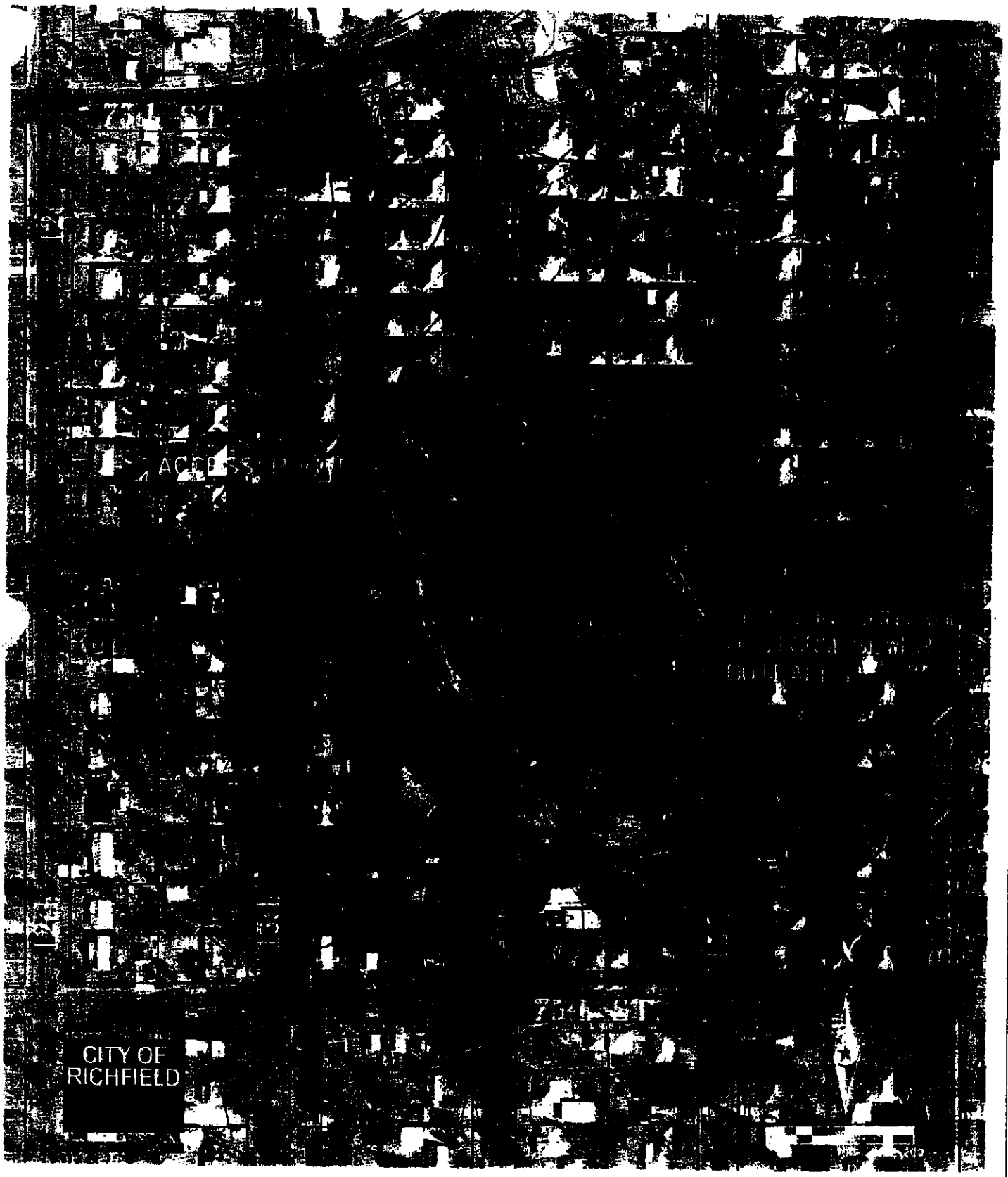
OPINION OF COST
WILSON POND MAINTENANCE PLAN
& APPURTENANT WORK
RICHFIELD, MINNESOTA

WSB Project: Wilson Pond Maintenance Plan
Project Location: Richfield Minn.
WSB Project No: 1000-96

Design By: TAW
Checked By:
Date: 10/4/2005

Line No.	MN/DOT Specification No.	Description	Unit	Unit Price	Estimated Total Quantity	Estimated Total Cost
1	2021.501	MOBILIZATION	LS	$ 5,000.00	1	$5,000
2	2051.501	MAINTENANCE AND RESTORATION OF THE HAUL ROAD	LS	$ 5,000.00	1	$5,000
3	2101.501	CLEARING	AC	$ 2,500.00	0.4	$1,000
4	2101.506	GRUBBING	AC	$ 2,500.00	0.4	$1,000
5	2104.601	REMOVE DEADFALL & DEBRIS AT STORM SEWER OUTLETS	LS	$ 1,500.00	1	$1,500
6	2105.505	DREDGING/SEDIMENT/REMOVAL/MUCK EXCAVATION/DISPOSAL	CY	$ 18.00	20,500	$369,000
7	2150-521	SALVAGE TOPSOIL (LV)	CY	$ 6.00	350	$2,100
8	2105.525	TOPSOIL BORROW (LV)	CY	$ 18.00	75	$1,350
9	2105.601	DEWATERING	LS	$ 5,000.00	1	$5,000
10	2511.501	RANDOM RIPRAP CL III	CY	$ 75.00	60	$4,500
11	2511.515	GEOTEXTILE FABRIC, TYPE IV	SY	$ 3.00	120	$360
12	2563.601	TRAFFIC CONTROL	LS	$ 2,500.00	1	$2,500
17	2573.502	SILT FENCE	LF	$ 3.00	250	$750
18	2573.602	TEMPORARY ROCK CONST. ENTRANCE	EA	$ 3,500.00	2	$7,000
19	2575.501	SEEDING	AC	$ 2,000.00	1.0	$2,000
20	2575.502	SEEDING, MIXTURE 250	POUND	$ 20.00	85	$1,700
21	2575.511	MULCH MATERIAL, TYPE I	TON	$ 200.00	2.0	$400
22	2575.523	EROSION CONTROL BLANKETS, TYPE 2	SY	$ 3.00	800.0	$2,400
					Subtotal	$412,560
					30% Engineering, Legal, Admin., Contingency	$123,768
					Total	$536,000

NOTE: The estimated cost for Erosion Control Blankets is to stabilize the planting restored turf areas.
The cost estimate does not include any temporary easements across private property to perform the work.
The muck excavation quantity should be considered approximate based on the level of accuracy of the field data obtained for the bathometric elevations.
The muck excavation assumes that all of the material will be removed from the site.
The cost estimate does not include disposal of deliterious or contaminated spoil material.
The cost estimate does not include additional landscaping and tree installation.
The cost estimate assumes that clearing and gurbbing will be limited to the access routes and areas in the vicinity of storm sewer outfalls.
The cost estimate assumes that no street repair will be required and snow removal will be included in the excavation cost.



Note: Storm sewer locations are approximate.

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Wilson Pond Maintenance Plan

Richfield, Minnesota

WSB Project No. 1000-96 Date: October, 2005

Figure 1

Wilson Pond

East inlet

Northeast inlet

Photo 26: full view of SW depression

Photo 28: full view depression under sledding hill

Photo 29: full view of SW depression

Photo 30: View of Depression from N

Photo 31: View from the NW side

Photo 32: Washington Park inlet into Depression

Photo 33: Full view of Depression from NE side

APPENDIX E

STORM WATER SYSTEM MAINTENANCE PLAN

The Storm Water System Maintenance Plan has been developed to assure that the City's system of storm water retention/treatment basins and storm water conveyance systems are adequately inspected and maintained to assure that they meet their design functions. Outlined below please find a description of the various inspection and maintenance activities the City intends to undertake in regard to achieving these goals:

1. Storm water retention and treatment basins and outlets shall be inspected every 5 years to determine if the basin's retention and treatment characteristics are adequate in conjunction with outfall inspections as outlined in the SWPPP. Based on this inspection, retention basins that are identified for maintenance will be prioritized and maintenance will be performed as funds become available.

2. Portions of the City's storm sewer system will be inspected on a rotating basis. During these inspections, debris present in pipes, at trash grates, and catch basin grates will be removed so as to provide reasonable assurances that the system will operate in an unobstructed manner during rainfall events.

3. The City will perform street sweeping in accordance with the approved Wetland Protection and Management Plan and the water quality management provisions outlined within the Surface Water Management Plan. Priority street sweeping areas are focused around areas draining to water bodies of higher priority. These priority areas are shown on **Figure H-1**. It is anticipated that spring sweeping will be completed no later than May 10 in these priority areas.

4. Outfalls from MS4 storm sewer will be inspected on a rotating basis every 5 years. Inspection shall include evidence of scouring or the presence of significant deposition of silt at the storm sewer outfall. Scouring problem areas will be noted and stabilized. In areas where silt deposition is evident which is indicative of significant erosion upstream, an inspection will be made of the upstream watershed to identify the source of erosion. Suitable corrective measures will then be undertaken to correct the erosion problem.

5. Manholes and catch basins shall be inspected every 10 years on a rotating basis.

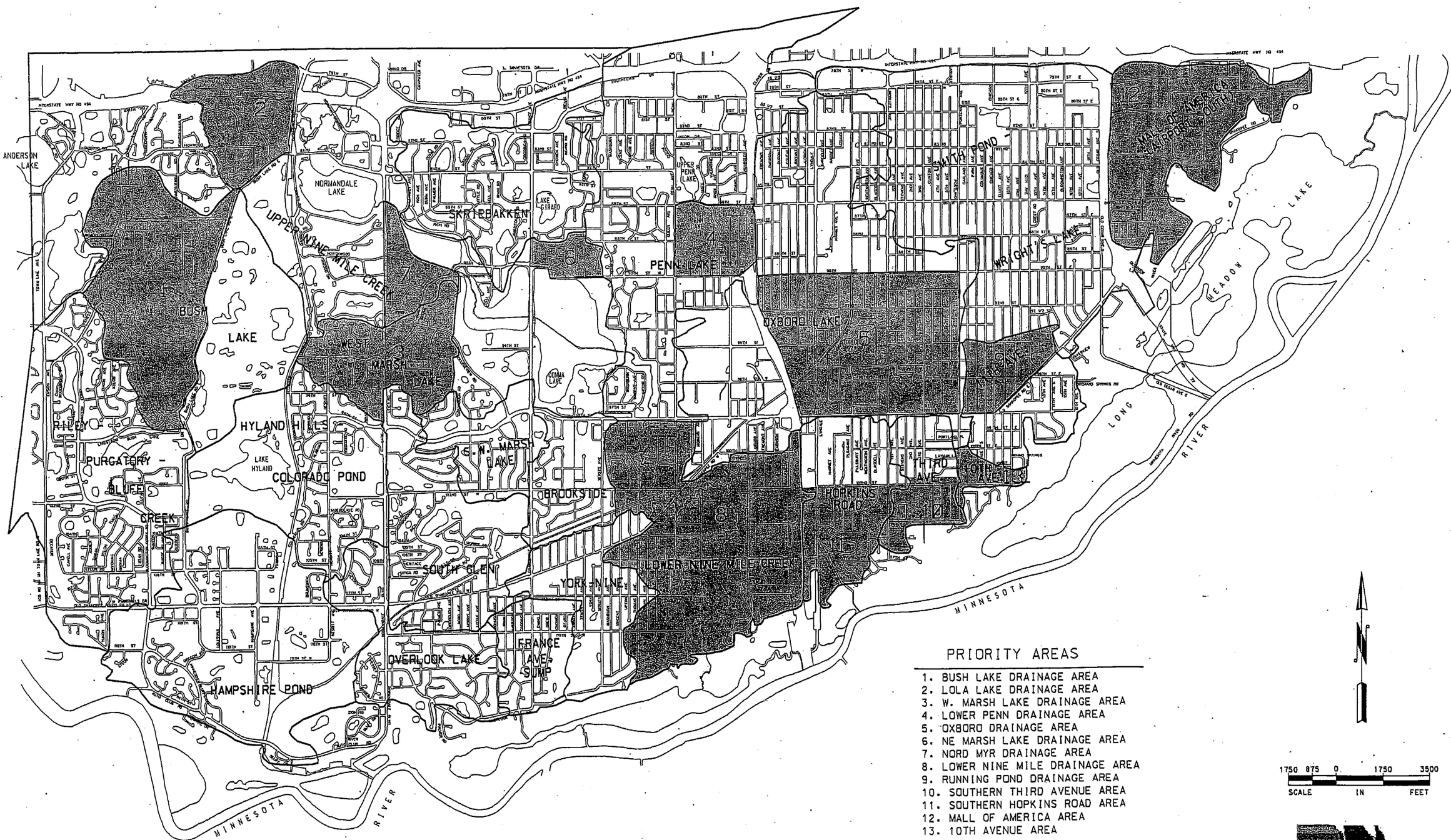
6. Trap manholes and other water quality treatment structures will be inspected every year. Any regular maintenance that is required will be performed at the time of inspection or as soon as necessary resources can be reasonably coordinated.

7. The City will maintain inspection records that indicate the areas inspected and the maintenance activities completed on the storm water system.

8. Other inspection and maintenance activities required under the City's NPDES general permit will be performed as required. Refer to the SWPPP for more information.

SURFACE WATER MANAGEMENT PLAN
BLOOMINGTON, MINNESOTA
2000

STREET SWEEPING PRIORITY AREAS MAP
FIGURE H-1



PRIORITY AREAS

1. BUSH LAKE DRAINAGE AREA
2. LOLA LAKE DRAINAGE AREA
3. W. MARSH LAKE DRAINAGE AREA
4. LOWER PENN DRAINAGE AREA
5. OXBORO DRAINAGE AREA
6. NE MARSH LAKE DRAINAGE AREA
7. NORD MYR DRAINAGE AREA
8. LOWER NINE MILE DRAINAGE AREA
9. RUNNING POND DRAINAGE AREA
10. SOUTHERN THIRD AVENUE AREA
11. SOUTHERN HOPKINS ROAD AREA
12. MALL OF AMERICA AREA
13. 10TH AVENUE AREA

1750 875 0 1750 3500
SCALE IN FEET

SOURCE: BLOOMINGTON WETLAND PROTECTION & MANAGEMENT PLAN ITEMS 1-9

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8441 Wayzata Boulevard
Minneapolis, MN 55426
612-541-4800
FAX 541-1700
WSB & Associates, Inc.
INFRASTRUCTURE - ENGINEERS - PLANNERS

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APPENDIX D

Summary of Bloomington and Richfield Wetland Management Plans

1.00 INTRODUCTION

Wetlands were a part of the landscape in Bloomington long before the first human being arrived in the area. They are part of a dynamic natural system that changes constantly. This system has changed much more rapidly due to human influences. Society has been slow to recognize the benefits that wetlands offer and the impact that centuries of human disturbance have had on wetlands and the larger ecosystem. This plan has been prepared as a means of slowing or halting the wetland disturbances caused by human activity.

One must understand why it is important to preserve wetlands before one can see the need for the recommendations presented in this plan. A healthy wetland can perform many beneficial functions. It can serve as a filter to absorb polluted surface water runoff before it enters lakes or creeks. A wetland can store water; thus providing flood protection in times of heavy rainfall and a source of groundwater recharge. It provides a home and a source of food for many types of native and migratory birds and wildlife. Numerous recreational and educational opportunities are provided. In some cases, commercial benefits, such as wild rice production, can be recognized. The ability of a wetland to perform particular functions is often directly related to the degree of human influence on the tributary drainage area of a wetland.

This wetland protection and management plan acknowledges that human influence. The plan recommends realistic changes that can be made to address wetland management. The plan looks at each wetland as an individual physical feature and as a component of the larger landscape. The plan has been developed with the goal of providing clear guidance for future decisions concerning wetlands in the City of Bloomington.

In preparing this plan, City staff and the Wetland Advisory Committee members considered the historical uses of wetlands and how perceptions of the value of a wetland have changed through time. Initially, open water wetlands were used as a source of water for livestock. As agriculture, and later, urbanization grew, wetlands were often viewed as useless land unless they could be drained or filled to convert them to farm land or developable land. Those wetlands that remained were typically wetlands with some open water areas. These were perceived as desirable for their aesthetic value and were often encircled by residential development. The value that people place on open water wetlands can be seen in the fact that homes built on wetlands typically sell for five to ten percent more than identical homes located across the street.

The group weighed the numerous, sometimes conflicting, desires for how the City's wetlands should be managed. An example of this is the issue of managing a wetland to provide habitat for fish and wildlife. A portion of the general public recognizes the value of providing a natural vegetative buffer around a wetland and allowing emergent vegetation to flourish in the shallow water areas closer to shore. Others see a wetland as a smaller version of a lake and place value on being able to maintain a lawn to the shoreline and as much open water area as possible.

The plan meets the statutory and regulatory requirements for the use of wetlands while balancing the demands and desires of various constituencies -- property owners who live, or operate businesses, adjacent to the wetlands; residents who use the public parks; any property owners who have land that generates storm water runoff that eventually reaches a wetland; City maintenance personnel and City policy makers.

The plan presents recommendations for changes to, or additions of, City policies, ordinances and programs that will be used as management tools to insure that the desired protection outcomes are achieved. It also provides recommendations for capital improvements to the existing storm sewer system that will improve the quality of water discharged to wetlands. The plan includes an implementation schedule, lists the department that is best equipped to lead the implementation of each of the plan components and offers a list of possible funding sources.

1.10 History of Bloomington Wetlands

Prior to the arrival of Native Americans and European settlers, climatic changes were the driving force behind the evolution of the landscape in the area that would eventually become Bloomington. Changes in flora and fauna occurred either slowly, through the process of succession, or very quickly, due to fires, floods, windstorms or disease. The influx of European settlers began in the mid-1800's. This began a period of dramatic changes in the landscape as a result of human activities.

The Comprehensive Plan for the City of Bloomington includes a map of presettlement vegetation that was developed from the original government survey records for the territory. The Presettlement Vegetation Map (Figure 2) shows that the land located east of what is now Lyndale Avenue South was primarily prairie, with a few depressional wetlands. Much of the rest of Bloomington was vegetated with oak openings and barrens. Exceptions to this pattern were found in the upper portion of the Nine Mile Creek corridor, which was a combination of wet prairie and Big Woods association; two outcroppings of prairie in the southwestern part of Bloomington; and an area of wet prairie located in the west central portion of the City.

Another source of historic data is the 1901 USGS Minneapolis 15 minute quadrangle map, (Figure 3). This map provides greater detail, showing the ground contours and better definition of wetland, or marsh, areas. The map shows few wetlands in the area that was originally vegetated with prairie. Information is not available to allow one to discern the types of wetlands that were in existence during that time period. It is likely that seasonally flooded basins or meadows (type 1 and 2 wetlands, respectively) that existed were not considered to be marsh and would not have been mapped.

The conversion of land from its native vegetative cover to agricultural use began as soon as the area was opened to settlement. The eastern portion of the City was converted first because of the relative ease of clearing the prairie area and because of the relatively flat topography. As more settlers arrived, the clearing extended west through those areas covered with forest and having greater topographic relief. The impacts of the conversion process on the wetlands were twofold. The type 1 and 2 wetlands were put into agricultural production with minimal effort. Those wetlands that were not converted had their tributary drainage areas stripped of vegetation; increasing the amount of soil erosion and slowly filling the receiving wetlands. As farming practices changed, and chemical fertilizers and pesticides were used, the wetlands were degraded further as these chemicals were carried to them via storm water runoff.

The primary land use from the 1850's to the 1940's was agriculture. The development of the township and county road system, and private driveways to farmsteads, would add some additional wetland impact by changing drainage patterns within the watershed of a wetland.

Another dramatic change in land use occurred after World War II. Rapid urbanization brought conversion of agricultural land to more intense uses. Land that was not suitable for farming due to its relief was, in many cases, developable. Large areas of native forest were once again lost. Wetlands were filled and the amount of impervious surface increased substantially with the construction of homes, businesses, schools, churches and paved streets and sidewalks.

FIGURE 2
Presettlement Vegetation Map

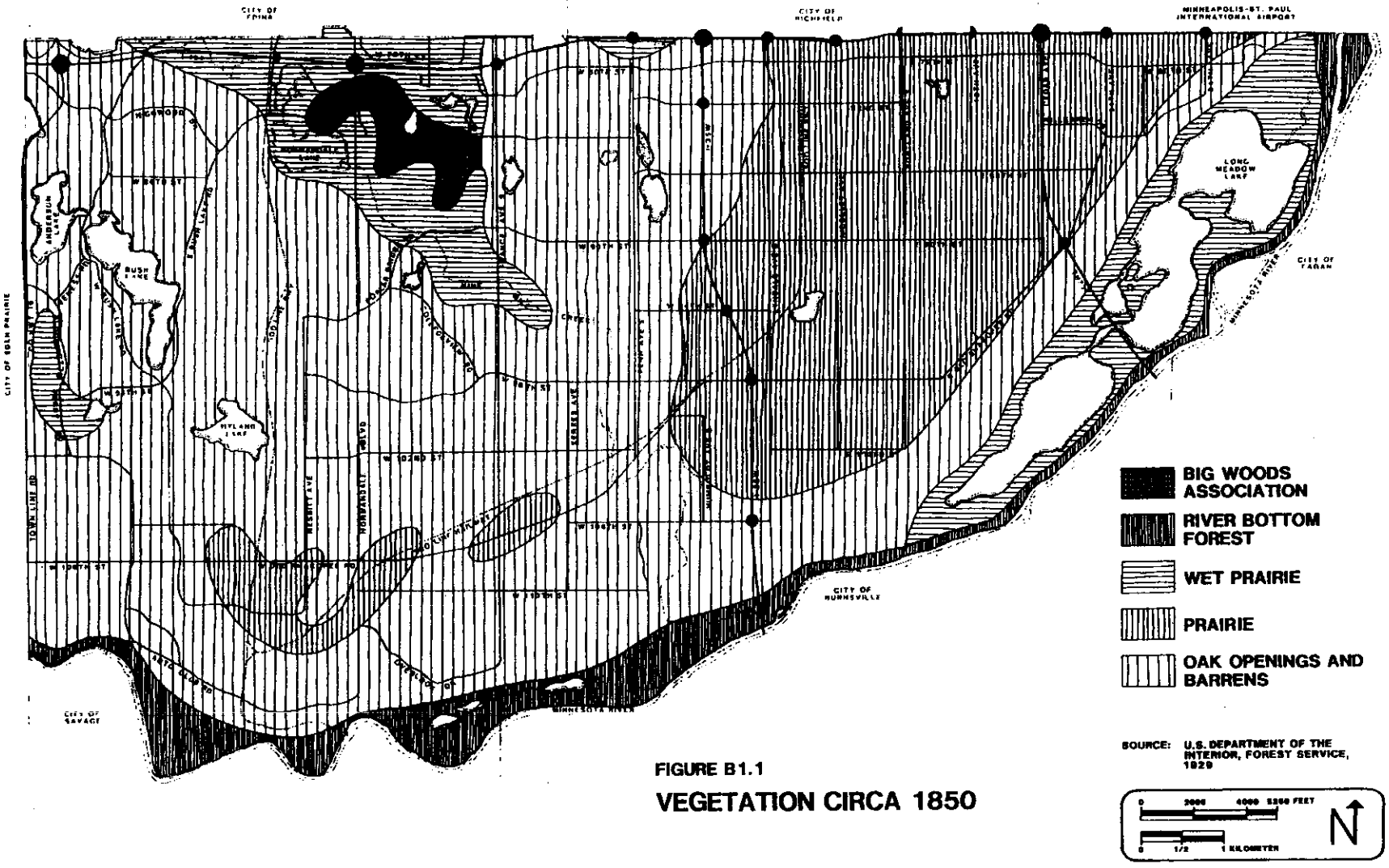


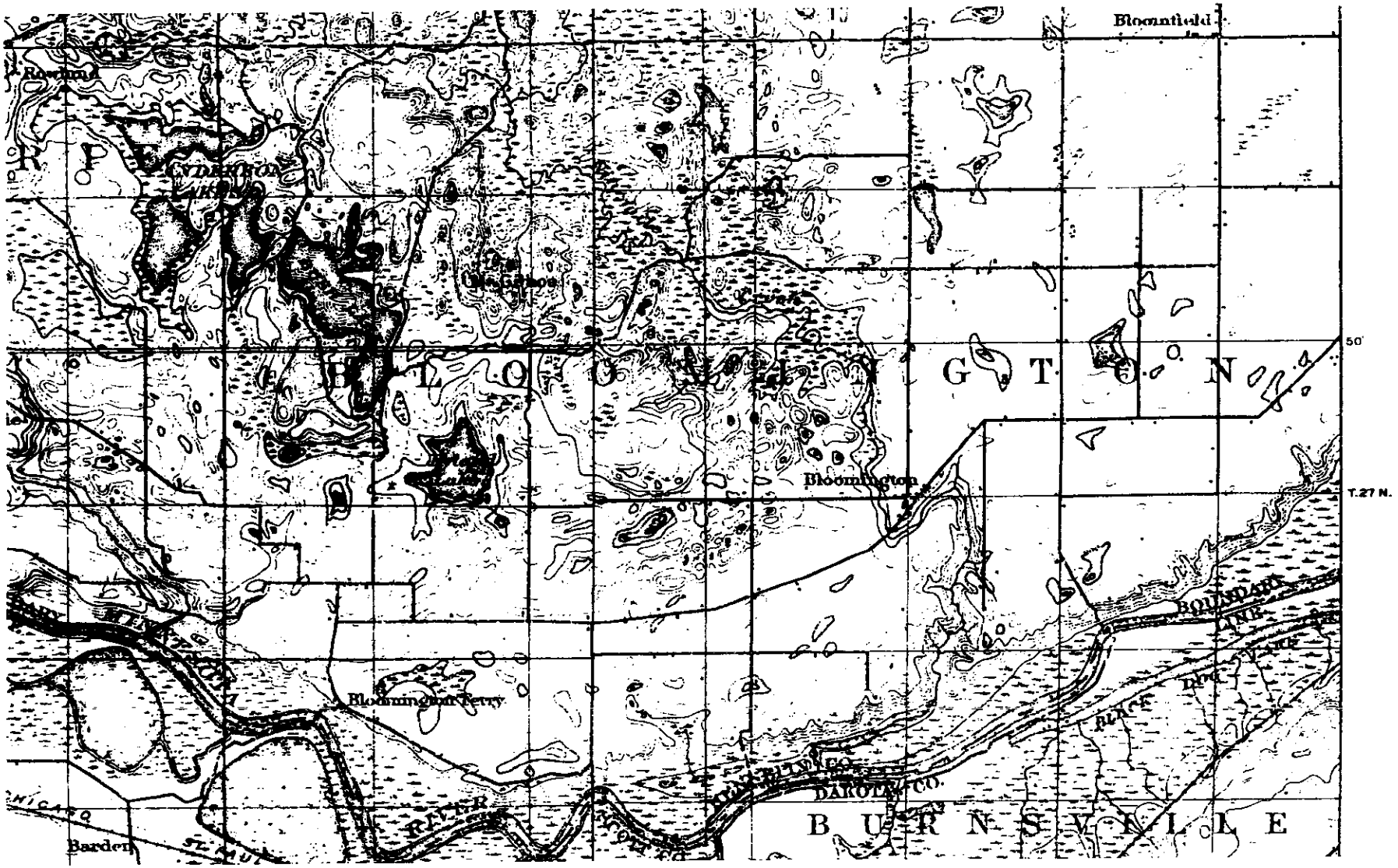
FIGURE B1.1

VEGETATION CIRCA 1850

City of Bloomington, Minnesota
Department of Community Development
October 1982

FIGURE 3

USGS Minneapolis 15 Minute Quadrangle Map (Circa 1901)



Department of the Interior
U.S. Geological Survey
Edition of October 1901, reprinted 1928

Development of the City modified the drainage patterns in the watersheds which, in turn, changed the wetlands. There was less land area with vegetative cover to permit storm water infiltration into the soil. Instead, storm water was conveyed overland, or via storm sewer, to wetlands. The loss of infiltration ability resulted in a reduction in the water table. The increased runoff to the remaining wetlands brought greater levels and, in some cases, duration of inundation and increased frequency of flooding. In many instances this was done by design to provide flood protection and to allow the storm sewer system to be constructed more economically. Storm water runoff from disturbed construction sites carried sediment to the wetlands. The storm water runoff also carried debris and pollutants from lawns, streets surfaces, parking lots and roofs. If a wetland's tributary drainage area was disturbed by either agriculture or urbanization, it can be assumed that the wetland experienced some degradation.

1.20 Legal and Regulatory Framework for Plan

This wetland management plan was prepared to meet the requirements of Minnesota Rules, Chapter 8410, part 8410.0170, subpart 4., which stipulates that the content of the local (i.e., city) comprehensive surface water management plan must contain a water resource inventory similar to that required of watershed management organizations under part 8410.0060. Subpart 4.C. of part 8410.0060 states that a city must provide, "either an inventory of the functional values of the wetlands present, a provision for a phased project to create the inventory within a given time frame, or the adoption of a specific process to identify the functional values on a case-by-case basis for the review of individual project proposals, all of which must be consistent with Minnesota Statutes, section 103B.3355."

Subparts 5 through 10 of part 8410.0170 require that a city's comprehensive surface water management plan establish policies and goals concerning water resources, assess existing or potential problems, provide solutions to those problems, prioritize the implementation of the solutions, and provide an implementation program for the overall plan. The plan must be consistent with the organization plans (county, watershed districts, and watershed management organizations) having jurisdiction in the city.

The primary requirements to be met for the watershed districts having approved water management plans are found in Section 2.4 of the Nine Mile Creek Watershed District's plan, in Section 5.2 of the Riley-Purgatory-Bluff Creek Watershed District's plan, and in Section 4.60 of the Lower Minnesota River Watershed District's plan (see Figure 4 for the watershed boundaries). The first generation plan for the Richfield-Bloomington Watershed Management Organization does not present specific management requirements for wetlands. The second generation plan will utilize the recommendations from this document and the City of Richfield's Comprehensive Surface Water Management Plan.

The City's intent at the beginning of its wetland planning process, in 1995, was to conduct a field inventory of those wetlands located above the Minnesota River valley to determine the functions and values of each wetland. The wetlands would be classified based on their current functions and values, how they are currently managed and their susceptibility to storm water runoff impacts. Recommendations would be provided concerning future management strategies.

A number of changes were made to the Wetland Conservation Act during the 1996 legislative session. One of the changes gave local units of government the option to prepare a comprehensive wetland protection and management plan. The plan would be approved by the Board of Water and

Soil Resources. Local units of government with approved plans could vary sequencing and replacement standards. The specific requirements are presented in Minnesota Rules, Chapter 8420, part 8420.0650. The City decided to take advantage of this opportunity and adjusted its planning process to meet the requirements of the Rules revisions.

The recommendations provided in this plan may require permits or review by various state (WCA exemptions or mitigation plans, MDNR Protected Waters permits) and federal agencies. The agency jurisdiction for water body wetlands and watercourse wetlands is shown in Figures 5 and 6 respectively.

1.30 Planning Process

The basic format used to prepare the plan was that required for comprehensive surface water management plans. The process involved:

- determining the condition of the existing wetland resources,
- reviewing how the wetlands are currently managed,
- establishing goals and policies for management of the wetlands,
- assessing existing or potential problems,
- providing solutions to those problems,
- prioritizing the implementation of those solutions,
- preparing an implementation program for the entire plan, and
- preparing a monitoring and evaluation program

In the summer of 1995, the City used specially-trained interns to conduct a field inventory of all of the wetlands in the City that were located outside of the Minnesota River valley. City staff then classified the wetlands based on their functions and values, how each was being managed, and its susceptibility to storm water runoff.

The City Council appointed seven citizens to serve on an ad hoc wetland advisory committee in December of 1995. City staff reviewed the results of the inventory and the classification procedure with the committee. The committee reviewed the work of the staff throughout the remainder of the process.

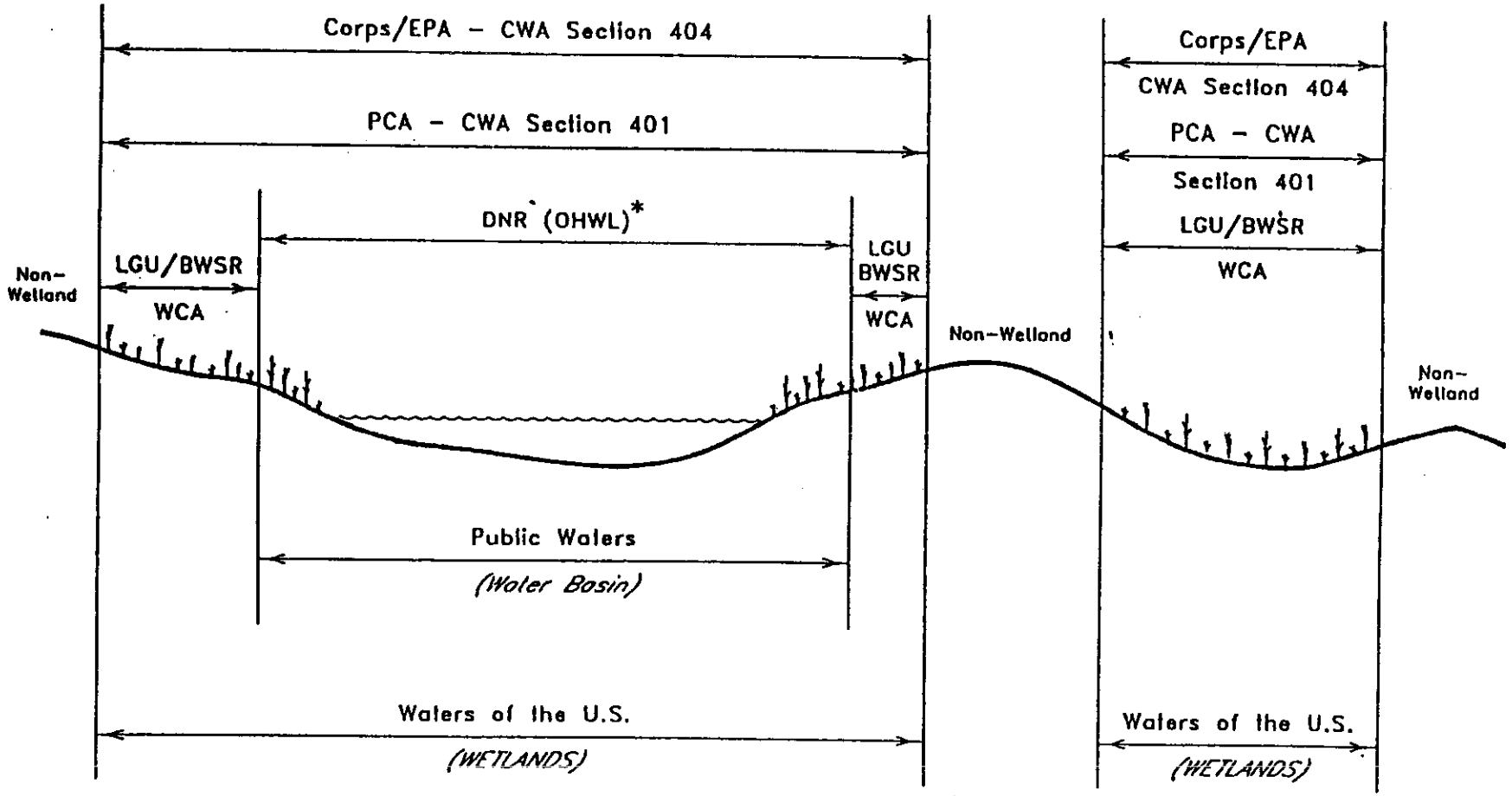
The City formally notified the Board of Water and Soil Resources, the Minnesota Department of Natural Resources and the Minnesota Pollution Control Agency, in August, 1996, of its intent to prepare a comprehensive wetland protection and management plan in accordance with the Chapter 8420 requirements. Numerous meetings were held with representatives of these agencies and they were invited to the committee meetings.

1.40 Wetland Advisory Committee

The City Council approved the establishment of an ad hoc wetland advisory committee in April, 1995; at the same time that it approved the preparation of the wetland inventory. The committee was charged with preparing a report for the City Council concerning a wetland management plan. The report was to include a wetland classification system and a prioritization of wetlands using that system. It was anticipated that the committee's report would also provide recommendations concerning other aspects of wetland management such as, storm water management, water quality

FIGURE 5

Agency Jurisdiction for Water Body Wetlands



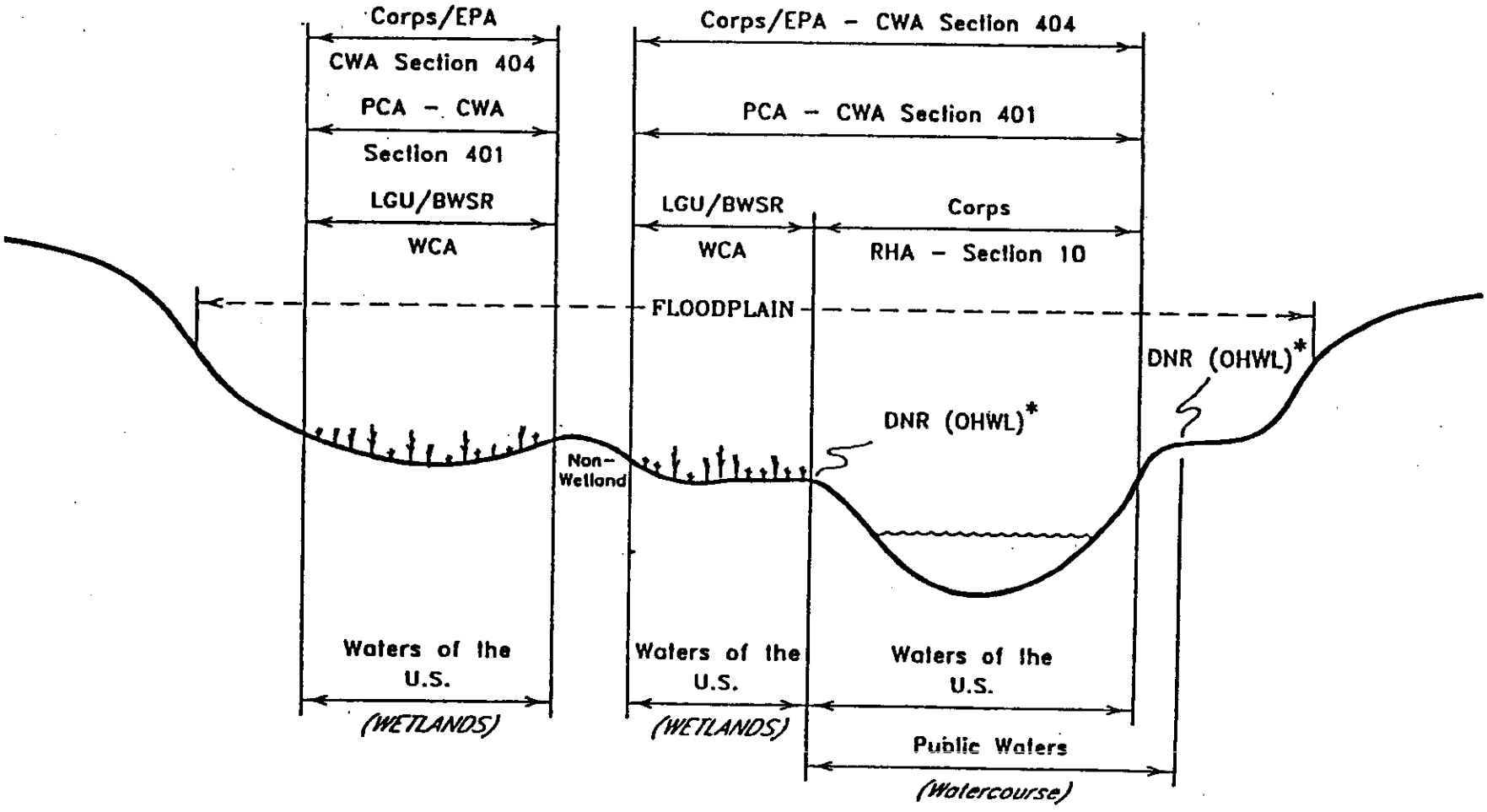
* Ordinary High Water Level
The OHWL is an elevation delineating the highest water level that has been maintained for a sufficient period of time to leave evidence upon the landscape, commonly the point where the natural vegetation changes from predominantly aquatic to predominantly terrestrial.

Note:
Most local government units (LGUS) have adopted state shoreland and floodplain zoning requirements into their zoning ordinances. Check with your local zoning office for requirements related to building sites, sewage treatment, grading and filling and vegetative removal.

Minnesota State and Federal Jurisdiction over "Waters"

FIGURE 6

Agency Jurisdiction for Watercourse Wetlands



* Ordinary High Water Level
The OHWL (for water courses) is the elevation of the top of the bank of the channel.

Note:
Most local government units (LGUS) have adopted state shoreland and floodplain zoning requirements into their zoning ordinances. Check with your local zoning office for requirements related to building sites, sewage treatment, grading and filling and native removal.

Minnesota State and Federal Jurisdiction over "Waters"

protection, enhancement of fish and wildlife habitat and recreational facilities, capital improvements and public education.

The City Council appointed seven citizens to the committee in December, 1995. The committee was made up of:

- a City Council member, who would serve as the chairperson,
- a Planning Commission member,
- a Parks and Recreation Commission member,
- a Natural and Historic Resources Commission member, and
- three citizens-at-large, one of whom would serve as the vice-chairperson.

The committee began meeting in January, 1996. The Wetland Advisory Committee Work Plan is included in Appendix B. The initial meetings were used to present educational information to the committee. The subsequent meetings included a field trip to look at the different wetland types and water quality treatment facilities, two input sessions for the general public, review of the results of the wetland inventory and classification, determination of existing and potential problems, review of existing and proposed policies, ordinances, and programs that would address the problems, review of possible capital improvements to address the problems, and review of an overall implementation plan.

2.0 Inventory and Classification of Wetlands

2.10 Wetland Inventory

The wetland inventory was completed using a slightly modified version of the Minnesota Routine Assessment Methodology for Evaluating Wetland Functions (MNRAM) as approved in the Wetland Conservation Act Rules, Chapter 8420. MNRAM was developed by the Minnesota Interagency Wetland Group comprised of BWSR, MDNR, Mn/DOT, MPCA, USCOE, USDA and USF&WS to be used as a field evaluation tool to assess wetland functions on a qualitative basis. MNRAM was being developed during the period of time that the inventory was being conducted. Bloomington was using an adaptation of the Wisconsin Rapid Assessment Method. Staff from Bloomington attended the interagency group meetings and adapted the Bloomington methodology to meet MNRAM requirements.

The functions for which values were assessed using MNRAM are listed in Table 2.10, found on the following page. The Groundwater Interaction and Commercial Uses functions were not evaluated during the 1995 wetland inventory. Groundwater Interaction was not evaluated due to the complexity and cost of such an undertaking. Commercial Uses were not evaluated because none of Bloomington's wetlands are currently being used for commercial purposes. Sample MNRAM inventory data forms and appendixes can be found in Appendix C.

Interns were used to conduct the field evaluations using MNRAM. Four interns, two graduates and two undergraduates, from the University of Minnesota's College of Natural Resources, were hired. Each intern had experience or course work in the areas of wetland soils, vegetation, and/or hydrology.

From June to September, 1995, interns completed field visits and assessment forms for approximately 300 wetlands located above the Minnesota River bluff line in Bloomington. Interns received MNRAM training from City staff with the assistance of MDNR representatives (listed below). The qualifications of the interns and the MNRAM training can be found in Appendix C.

The inventory information is compiled in a computer database. Individual wetland inventory data summary sheets can be found in Appendix A.

Representatives from the MDNR

John Parker	*Area Wildlife Manager*
Joan Galli	*Non-game Wildlife Specialist*
Larry Westerburg	*Forester*
Molly Schodeen	*Area Hydrologist*
Ceil Strauss	*Area Hydrologist*

Table 2.10

Minnesota Routine Assessment Method Functions

Floral Diversity/ Integrity	Floral diversity/integrity is evaluated based on the number of plant communities and the variety of species within each community.
Wildlife Habitat	Wildlife habitat is evaluated based upon the quality of the habitat provided by a wetland related primarily to the level of disturbance or degradation compared to an undisturbed or least disturbed reference wetland of the same type
Fishery Habitat	Fishery habitat is evaluated based on the wetland's connection with deep water habitat.
Flood/Storm Water	Flood/storm water detention is evaluated based upon a wetland's ability to detain floodwater, the level of potential flood damage it prevents due to the attenuation of floodwater, the degree to which the wetland's tributary watershed is developed (i.e., the need for stormwater detention), and the infiltration characteristics of the soils in the tributary drainage area.
Water Quality Protection	Water quality protection is evaluated according to a wetland's ability to treat stormwater runoff. The value of this function increases with the importance of the downstream receiving water.
Shoreline Protection	Shoreline protection is evaluated based on the wetland's proximity to lakes, streams or open water basins and whether the wetland is positioned to absorb erosive forces (i.e. wave action, land uses, unstable soils).
Aesthetics/Recreation/ Education	Aesthetics, recreation, and education are evaluated based on the wetland's visibility, accessibility, evidence of recreational uses, evidence of human influences (e.g. noise and air pollution) and any known educational purposes.
Groundwater Interaction*	Groundwater interaction is evaluated based on the wetland's connection to ground water recharge and discharge and surface water flow-through.
Commercial Uses*	Commercial uses are evaluated based on the wetland's ability to provide a commercial product or agricultural commodity without hydrologic or vegetative modification.

*Functions not assessed in Bloomington wetland inventory.

2.20 Classification System

City staff selected a water body/wetland classification system for Bloomington after reviewing the classification systems from four other cities, two watershed districts, and two watershed management organizations. Each wetland was classified using the five classification systems shown in the table below.

Table 2.20

Wetland Classification Table

Minnesota 7050 Rule Classification	Bloomington Primary Use Classification	Sensitivity to Storm Water	Wetland Quality	Management Classification
Class 2B	Direct Contact	Highly Sensitive	Excellent	Preserve
Class 2C	Indirect Contact	Moderately Sensitive	Moderate	Apply Best Management Practices
Class 4B	Scenic Habitat	Slightly Sensitive	Highly Impacted	Utilize
Class 5	Detention	Least Sensitive		
Class 6	Nutrient/Sediment (Quality)			

2.21 Minnesota Rules - Chapter 7050 Water Quality Classifications

The Minnesota Rules, Chapter 7050, parts 7050.0130 through 7050.0220 apply to all waters of the state, both surface and underground. This portion of the Rules includes general provisions applicable to the maintenance of water quality and aquatic habitats; definitions of water use classes; standards for discharges of sewage, industrial, and other wastes; and standards of quality and purity for specific water use classes. The Rules also designate seven classes of Waters of the State.

The Nine Mile Creek and Riley-Purgurtory-Bluff Creek Watershed Districts have adopted, and will implement, the water quality standards of the Chapter 7050 Rules. These two watershed districts cover 55 percent of the City of Bloomington (see Figure 4).

Classes of the Waters of the State

1	Domestic consumption
2	Fisheries and recreation
3	Industrial consumption
4	Agriculture and wildlife
5	Aesthetic enjoyment and navigation
6	Other uses
7	Limited resource value waters

Refer to excerpts from the Minnesota Rules, Chapter 7050, located in Appendix D, for the full definition of the classifications that apply to the wetlands in this plan.

2.22 Bloomington Primary Use Classification

Each of the City's wetlands was reviewed to determine if one of its functions (as defined in MNRAM) had a much higher value than the others, or if one of its functions was more important than the others to the City because of the way the wetland was being managed. A classification scheme was developed based on the results of this review. This primary use classification system consists of two categories with multiple sub-categories and is presented below. It is intended to be used as a quick reference for individuals who are considering an activity that might affect a wetland.

Bloomington Primary Use Classifications

Recreation

- Direct contact (swimming)
- Indirect contact (boating, fishing)
- Scenic/habitat (education/interpretive study/preservation of wildlife)

Treatment

- Detention (storm water storage)
- Nutrient/sediment (removal of nutrient/pollutant loading, sediment)

2.23 Wetland Sensitivity to Storm Water

The wetland sensitivity to storm water was evaluated using the Guidance for Evaluating Urban Storm Water and Snowmelt Runoff Impacts to Wetlands (May 1995 draft) by the State of Minnesota Storm Water Advisory Group. Sensitivity is discussed and evaluated in Section IV of that document: Wetland Susceptibility (see Appendix D).

Wetland type is determined by hydrology, vegetation and soils. Table 2.23, which follows this section, is a figure taken from the guidance document found in Appendix D. It lists wetland types according to their susceptibility to degradation by storm water input. It is important to note that there can be exceptions to the general categories listed. There is a broad range of tolerance among wetlands to urban storm water input.

As noted in the guidance document, "Diverse, sensitive native plant communities can be readily degraded by storm water impacts resulting in monotypes of sediment- and nutrient-tolerant species such as reed canary grass and/or cattails. Greater frequency and duration of inundation can destroy native plant communities as can depriving them of their water supply. Each wetland should be carefully evaluated to determine potential impacts from a proposed urban storm water project."

Wetland sensitivity is broken into 4 categories **highly, moderately, slightly** and **least sensitive/susceptible.** Wetlands were evaluated using the criteria in Table 2.23. For the expanded definitions of the 4 categories, see Appendix D.

It was necessary to estimate the amount of bounce and period of inundation occurring in each wetland for the rainfall events referenced in the guidance document. The flood level for a 1 percent chance rainfall of 24 hour duration has been computed for the majority of water bodies in Bloomington. This has not been done for more frequent rainfall events. The City is in the process of updating its storm water model. More frequent rainfalls will be considered in this round of modeling. If the results of the modeling show an impact to a wetland that affects its intended management function(s), City staff will determine what changes are needed to address the situation.

SUSCEPTIBILITY (SENSITIVITY) OF WETLANDS TO DEGRADATION BY STORM WATER IMPACTS*

Highly Susceptible Wetland Types[1]:	Moderately Susceptible Wetland Types[2]:	Slightly Susceptible Wetland Types[3]:	Least Susceptible Wetland Types[4]:
Sedge Meadows	Shrub-carrs[a.]	Floodplain Forests[a.]	- Gravel Pits
Open Bogs	Alder Thickets[b.]	Fresh (Wet) Meadows[b.]	- Cultivated Hydric Soils
Coniferous Bogs	Fresh (Wet) Meadows[c.,e.]	Shallow Marshes[c.]	- Dredged Material/Fill Material Disposal Sites
Low Prairies	Deep Marshes[d.,e.]	Deep Marshes[c.]	
Coniferous Swamps			
Lowland Hardwood Swamps			
Seasonally Flooded Basins			
1. Special consideration must be given to avoid altering these wetland types, Inundation must be avoided. Water chemistry changes due to alteration by storm water impacts can also cause adverse impacts. **Note:** All scientific and natural areas and pristine wetlands should be considered in this category regardless of wetland type.	2. **a,b,c)** Can tolerate inundation from 6 inches to 12 inches for short periods of time. May be completely dry in drought or late summer conditions. **d)** Can tolerate +12" inundation, but adversely impacted by sediment and/or nutrient loading and prolonged high water levels **e)** Some exceptions	3. **a)** Can tolerate annual inundation of 1 to 6 feet or more, possibly more than once/year. **b)** Fresh meadows which are dominated by reed canary grass. **c)** Shallow marshes dominated by reed canary grass, cattail, giant reed or purple loosestrife.	4. These wetlands are usually so degraded that input of urban storm water may not have adverse impacts.

NOTES: There will always be exceptions to the general categories listed above. Use best professional judgment. Pristine wetlands are those that show little disturbance from human activity.

*This is an excerpt from the Guidance for Evaluating Urban Storm Water and Snowmelt Runoff Impacts to Wetlands, Section IV, Figure IV-1.

2.24 Wetland Quality

Wetland quality was also evaluated using the Guidance for Evaluating Urban Storm Water and Snowmelt Runoff Impacts to Wetlands (May 1995 draft) by the State of Minnesota Storm Water Advisory Group. Wetland quality is discussed and evaluated in Section I of that document: Comprehensive Storm Water Management (see Appendix D).

Wetland quality and condition can be assessed one of two ways. An intensive, quantitative analysis may be used. This method would be appropriate to assess wetlands identified as high priority. A rapid or practical qualitative analysis based on best professional judgment would be appropriate for the evaluation of each wetland or complex in a watershed.

MNRAM, considered to be a rapid/practical strategy, was applied to all the wetlands above the Minnesota River bluff line. The MNRAM field data was compiled and used to determine wetland quality.

As noted in the guidance document "Wetland quality can be assessed as **excellent, moderate, or highly impacted** depending on the extent to which human activities have affected the wetland. Wetlands were evaluated using the following criteria.

Excellent Quality Wetlands: These wetlands remain in a least impacted condition and, as such, typically possess very diverse vegetative assemblages. Strata are well developed and composed of native species. Non-native species, if present, are infrequent and do not comprise significant relative cover percentiles. Wetlands which support rare, threatened, or endangered species are likely to be included as excellent quality wetlands.

Moderate Quality Wetlands: Areas that have been subject to varying degrees of human disturbances, but still provide important ecological wetland functions and values, are considered to be of moderate quality. An example would be a partially drained wetland complex composed of 60 percent cover of reed canary grass, and 40 percent cover of native species such as sedges. These wetlands often provide important wildlife habitat and water quality benefits.

Highly Impacted Wetlands: Areas that have been severely degraded such that they have little vegetation or the vegetation is dominated by non-native species or by monotypic stands of species such as cattails. Hydrologic and/or biological processes have been greatly altered and inputs of urban storm water will have minimal impacts. Example wetlands include abandoned gravel pits, nutrient loaded wetlands, storm water detention basins and dredged areas within wetlands that result in extreme hydrologic modifications.

2.25 Bloomington Management Classification

The management classification was developed to assist in the process of determining recommendations for actions to be taken for future management of the wetlands. The primary use classification of a wetland, its sensitivity to storm water runoff and the current wetland quality were considered in assigning a wetland to a management classification. The classification categories and an explanation of each follow.

Utilize: This category of wetlands includes those that are currently, or planned to be[1], used in a manner that will likely result in a reduction in the value of certain functions in order to increase the value of other functions of that wetland or another located downstream in the watershed. These wetlands are managed to insure that they perform their primary function. Manmade ponds and highly degraded wetlands would fall into this category. Other examples would be wetlands being used for storm water detention that experience a large bounce in water surface elevation or an extended period of inundation following a runoff event, and wetlands that provide significant treatment of storm water prior to conveying it to a higher quality wetland.

Apply Best Management Practices: Wetlands in this category have typically been impacted to some degree by development in their tributary watershed. However, the current functions and values are considered acceptable. Best management practices (BMP's) will be used in an effort to maintain these functions and values. Some examples of BMP's that will be utilized are: public education to increase the residents' knowledge and awareness of how fertilizers, pesticides and lawn maintenance can affect wetlands, implementation of programs to control invasive or exotic vegetation, providing sufficient vegetative buffer areas around wetlands, reviewing turf maintenance practices on city land and minimizing the amount of connected impervious surface in new development or redevelopment.

Preserve: Wetlands that are either of high quality, rare, or not connected to storm sewer and having a relatively undisturbed tributary drainage area would typically be placed in this category. In addition to BMP's, other measures would be taken to protect these wetlands. These would include requiring any future development to maintain predevelopment wetland hydrology and an adequate vegetative buffer. In cases where the wetlands are connected to the storm sewer system, infrastructure changes such as sedimentation basins, forebays, and trap manholes would be recommended.

[1] Any changes that would affect a MDNR Protected Waters wetland would have to be approved via MDNR permit.

Summary of Wetland Type and Classification

Wetland Number	Wetland Name	DNR Protected Waters #	Wetland Type	Management Classification
1	Legion Lake	24P	Type 4	1
2	Christian Park Pond		Type 4	2
3	Wilson Pond		Type 4	2
4	Norby's Pond	685W	Type 5	2
5	Milner's Pond	684W	Type 5	2
6	Nicollet Park Pond		Type 3	2
7	Richfield Lake	21P	Type 4	1
8	Wood Lake	26P	Type 5	1
9	Galyan's Pond		Type 4	2
10	Adam's Hill Pond	107P	Type 5	2
11	Augsburg Pond		Type 5	2
12	Sheridan Park Pond		Type 3	2

Wetland #1

Wetland Name	Legion Lake
Management Classification	Manage 1
[illegible]	Type 4
[illegible]	PEMF, PEMC, PFO1C
[illegible]	24P
[illegible]	NW 1/4, Section 26, T28N, R24W
[illegible]	Legion Lake
[illegible]	Purple loosestrife beetle site

Functions	N/A	Low	Medium	High	Exceptional	Comments
Vegetative Diversity/Integrity						
Plant Comm. #1			X			Shallow marsh
Plant Comm. #2			X			Deep marsh
Plant Comm. #3		X				Seasonally flooded basin
Maintenance of Hydrologic Regime			X			
Flood/Stormwater Attenuation				X		
Water Quality Protection			X			
Shoreline Protection	X					
Wildlife Habitat			X			
Fishery Habitat			X			
Aesthetics/Recreation/Educ/Cultural				X		

Wetland # 2

Wetland Name	Christian Park Pond
Management Classification	Manage 2
Circular 39	Type 4
Cowardin	PUBGx
DNR Protected Wetland #	N/A
Location	SE1/4, Section 26, T28, R24W
Sub-watershed	Christian Park Pond
Comments	

Functions	N/A	Low	Medium	High	Exceptional	Comments
Vegetative Diversity/Integrity						
Plant Comm. #1			X			Wet Meadow
Plant Comm. #2		X				Seasonally Floodplain Basin
Plant Comm. #3		X				Deep Marsh
Maintenance of Hydrologic Regime			X			
Flood/Stormwater Attenuation				X		
Water Quality Protection			X			
Shoreline Protection	X					
Wildlife Habitat			X			
Fishery Habitat		X				
Aesthetics/Recreation/Educ/Cultural			X			

Wetland # 3

Wetland Name	Wilson Pond
Management Classification	Manage 2
Circular 39	Type 4
Cowardin	PUBG
DNR Protected Waters #	N/A
Location	SE1/4, Section 35, T 28, R24W
Subwatershed	Wilson Pond
Comments	

Functions	N/A	Low	Medium	High	Exceptional	Comments
Vegetative Diversity/Integrity						
Plant Comm. #1		X				Deep Marsh
Plant Comm. #2		X				Wet Meadow
Plant Comm. #3						
Maintenance of Hydrologic Regime			X			
Flood/Stormwater Attenuation				X		
Water Quality Protection			X			
Shoreline Protection	X					
Wildlife Habitat			X			
Fishery Habitat		X				
Aesthetics/Recreation/Educ/Cultural			X			

Wetland # 4

Wetland Name	Norby's Pond
Management Classification	Manage 2
Circular 39	Type 5
Cowardin	PUBG
DNR Protected Waters #	685W
Location	SW 1/4, Section 27, T28N, R24N
Subwatershed	Norby's Pond
Comments	

Functions	N/A	Low	Medium	High	Exceptional	Comments
Vegetative Diversity/Integrity						
Plant Comm. #1		X				Shallow open water
Plant Comm. #2		X				Seasonally flooded basin
Plant Comm. #3						
Maintenance of Hydrologic Regime			X			
Flood/Stormwater Attenuation				X		
Water Quality Protection			X			
Shoreline Protection	X					
Wildlife Habitat			X			
Fishery Habitat		X				
Aesthetics/Recreation/Educ/Cultural			X			

Wetland # 5

Wetland Name	Milner's Pond
Management Classification	Manage 2
Cowardin Class	Type 5
DNR Protected Waters #	PUBGx
Location	684W
Subwatershed	NE1/4, Section 27, T28N, R24W
Comments	Milner's Pond

Functions	N/A	Low	Medium	High	Exceptional	Comments
Vegetative Diversity/Integrity						
Plant Comm. #1		X				Shallow open water
Plant Comm. #2		X				Seasonally flooded basin
Plant Comm. #3						
Maintenance of Hydrologic Regime			X			
Flood/Stormwater Attenuation				X		
Water Quality Protection			X			
Shoreline Protection	X					
Wildlife Habitat			X			
Fishery Habitat		X				
Aesthetics/Recreation/Educ/Cultural			X			

Wetland # 6

Wetland Name	Nicollet Park Pond
Management Classification	Manage 2
Circular 39	Type 3
Cowardin	PUBF
DNR Protected Waters	N/A
Location	NE1/4, Section 27, T28N, R24N
Unit/Watershed	Nicollet Park Pond
Comments	Purple loosetrife beetle site

Functions	N/A	Low	Medium	High	Exceptional	Comments
Vegetative Diversity/Integrity						
Plant Comm. #1		X				Deep Marsh
Plant Comm. #2		X				Shallow Marsh
Plant Comm. #3						
Maintenance of Hydrologic Regime			X			
Flood/Stormwater Attenuation				X		
Water Quality Protection			X			
Shoreline Protection	X					
Wildlife Habitat			X			
Fishery Habitat		X				
Aesthetics/Recreation/Educ/Cultural			X			

Wetland # 7

Wetland Name	Richfield Lake
Management Classification	Manage 1
Circular 39	Type 4
Cowardin	PEMF, PEMC, PFO1C
DNR Protected Waters #	N/A
Location	NE1/4, Section 28, T28N, R24N
Subwatershed	Richfield Lake
Comments	

Functions	N/A	Low	Medium	High	Exceptional	Comments
Vegetative Diversity/Integrity						
Plant Comm. #1			X			Shallow Marsh
Plant Comm. #2			X			Deep Marsh
Plant Comm. #3			X			Floodplain forest
Maintenance of Hydrologic Regime			X	X		
Flood/Stormwater Attenuation				X		
Water Quality Protection			X			
Shoreline Protection	X					
Wildlife Habitat					X	
Fishery Habitat			X			
Aesthetics/Recreation/Educ/Cultural				X		

Wetland # 8

Wetland Name	Wood Lake
Management Classification	Manage 1
Circular 39	Type 5
Cowardin	PUBF, PEMC, PFO1C
DNR Protected Waters #	26P
Location	NE1/4, Section 33; SE1/4 Section 28, T28N, R24W
Subwatershed	Wood Lake
Comments	Purple loosestrife beetle site

Functions	N/A	Low	Medium	High	Exceptional	Comments
Vegetative Diversity/Integrity						
Plant Comm. #1			X			Deep Marsh
Plant Comm. #2			X			Shallow Marsh
Plant Comm. #3			X			Floodplain forest
Plant Comm. #4			X			Wet meadow
Maintenance of Hydrologic Regime			X	X		
Flood/Stormwater Attenuation				X		
Water Quality Protection			X			
Shoreline Protection	X					
Wildlife Habitat					X	
Fishery Habitat			X			
Aesthetics/Recreation/Educ/Cultural					X	

Wetland # 9

Location	Galyan's Pond
Management Classification	Manage 2
Circular 39	Type 4
Cowardin	PUBG
DNR Protected Waters #	N/A
Location	SW1/4, Section 33. T28N, R24W
Subwatershed	Southwest Area
Comments	

Functions	N/A	Low	Medium	High	Exceptional	Comments
Vegetative Diversity/Integrity						
Plant Comm. #1				X		Shallow Marsh
Plant Comm. #2				X		Deep Marsh
Plant Comm. #3						
Maintenance of Hydrologic Regime			X			
Flood/Stormwater Attenuation				X		
Water Quality Protection			X			
Shoreline Protection	X					
Wildlife Habitat			X			
Fishery Habitat		X				
Aesthetics/Recreation/Educ/Cultural			X			

Wetland # 10

Wetland Name	Adam's Hill Pond
Management Classification	Manage 2
[illegible]	Type 5
[illegible]	PUB/EMF, PEMC, PFO1C
DNR Protected Waters #	107P
[illegible]	NE1/4, Section 32, T28N, R24W
[illegible]	Adam's Hill Pond
Comments	

Functions	N/A	Low	Medium	High	Exceptional	Comments
Vegetative Diversity/Integrity						
Plant Comm. #1		X				Shallow open water
Plant Comm. #2			X			Seasonally flooded basin
Plant Comm. #3						
Maintenance of Hydrologic Regime			X			
Flood/Stormwater Attenuation				X		
Water Quality Protection			X			
Shoreline Protection	X					
Wildlife Habitat			X			
Fishery Habitat		X				
Aesthetics/Recreation/Educ/Cultural				X		

Wetland # 11

Wetland Name	Augsburg Pond
Management Classification	Manage 2
Circular 39	Type 5
Cowardin	PUBGx
DNR Protected Waters #	N/A
Location	NW1/4, Section 34, T28N, R24W
Subwatershed	Augsburg Pond
Comments	

Functions	N/A	Low	Medium	High	Exceptional	Comments
Vegetative Diversity/Integrity						
Plant Comm. #1		X				Shallow Open Water
Plant Comm. #2		X				Seasonally flooded basin
Plant Comm. #3						
Maintenance of Hydrologic Regime			X			
Flood/Stormwater Attenuation				X		
Water Quality Protection			X			
Shoreline Protection	X					
Wildlife Habitat			X			
Fishery Habitat		X				
Aesthetics/Recreation/Educ/Cultural				X		

Wetland # 12

Wetland Name	Sheridan Pond
Management Classification	Manage 2
Circular 39	Type 3
Cowardin	PUBG
DNR Protected Waters #	N/A
Location	SE1/4, Section 29, T28N, R24W
Subwatershed	Sheridan Pond
Comments	

Functions	N/A	Low	Medium	High	Exceptional	Comments
Vegetative Diversity/Integrity						
Plant Comm. #1			X			Shallow marsh
Plant Comm. #2		X				Seasonally flooded basin
Plant Comm. #3						
Maintenance of Hydrologic Regime			X			
Flood/Stormwater Attenuation				X		
Water Quality Protection			X			
Shoreline Protection	X					
Wildlife Habitat			X			
Fishery Habitat		X				
Aesthetics/Recreation/Educ/Cultural				X		

APPENDIX E

DNR Natural Heritage Database

1164-00

Minnesota Department of Natural Resources

Natural Heritage and Nongame Research Program, Box 25
500 Lafayette Road
St. Paul, Minnesota 55155-40__

Phone: (651) 296-8279 Fax: (651) 296-1811 E-mail: jan.steier@dnr.state.mn.us

May 7, 1999

RECEIVED
MAY 11 1999
WSB & ASSOCIATES

Andrea Moffat
WSB & Assoc., Inc.
350 Westwood Lake Office
8441 Wayzata Blvd.
Minneapolis, MN 55426

Re: Request for Natural Heritage information for vicinity of proposed City of Bloomington Comprehensive Surface Water Management Plan; Hennepin County; within T116N R21W, T115N R21W, T27N R24W, T27N R23W.

Dear Ms. Moffat,

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 area indicated on the map enclosed with your information request. Based on this review, there are 160 known occurrences of rare species or natural communities in the area searched (for details, see enclosed database printout and explanation of selected fields).

The Natural Heritage database is maintained by the Natural Heritage and Nongame Research Program, a unit within the Section of Ecological Services, Department of Natural Resources. It is continually updated as new information becomes available, and is the most complete source of data on Minnesota's rare or otherwise significant species, natural communities, and other natural features. Its purpose is to foster better understanding and protection of these features.

Because our information is not based on a comprehensive inventory, there may be rare or otherwise significant natural features in the state that are not represented in the database. A county-by-county survey of rare natural features is now underway, and has been completed for Hennepin County. Our information about natural communities is, therefore, quite thorough for that county. However, because survey work for rare plants and animals is less exhaustive, and because there has not been an on-site survey of all areas of the county, ecologically significant features for which we have no records may exist on the project area.

The enclosed results of the database search are provided in two formats: index and full record. To control the release of locational information which might result in the damage or destruction of a rare element, both printout formats are copyrighted.

The index provides rare feature locations only to the nearest section, and may be reprinted, unaltered, in an Environmental Assessment Worksheet, municipal natural resource plan, or internal report compiled by your company for the project listed above. If you wish to reproduce the index for any other purpose, please contact me to request written permission. Copyright notice for the index should include the following disclaimer:

> "Copyright (year) State of Minnesota, Department of Natural Resources. This index may be reprinted, unaltered, in Environmental Assessment Worksheets, municipal natural resource plans, and internal reports. For any other use, written permission is required."

The full-record printout includes more detailed locational information, and is for your personal use only. If you wish to reprint the full-record printouts for any purpose, please contact me to request written permission.

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 is enclosed. You are being billed for map and database search and staff scientist review. Please forward this invoice to your Accounts Payable Department. Thank you for consulting us on this matter, and for your interest in preserving Minnesota's rare natural resources.

Sincerely,

Jan Steier
Environmental Review Assistant

encl: Database search results
Rare Feature Database Print-Outs: An Explanation of Fields
Invoice

ES# 990648

Rare Features Database Print-outs: An Explanation of Fields

The Rare Features database is part of the Natural Heritage Information System,
and is maintained by the Natural Heritage and Nongame Research Program,
a unit within the Section of Ecological Services,
Minnesota Department of Natural Resources (DNR).

Field Name: [Full (non-abreviated) field name, if different]. Further explanation of field.

-C-

CBS Site: [County Biological Survey site number]. In each county, the numbering system begins with 1.

CLASS: A code which classifies features by broad taxonomic group: NC = natural community; SA = special animal; SP = special plant; GP = geologic process; GT = geologic time; OT = other (e.g. colonial waterbird colonies, bat hibernacula).

Cty: [County]. Minnesota counties (ordered alphabetically) are numbered from 1 (Aitkin) to 87 (Yellow Medicine).

CURRENT STATUS: Present protection status, from 0 (owner is not aware of record) to 9 (dedicated as a Scientific and Natural Area).

-D-

DNR Region: 1=NW, 2=NE, 3=E Central, 4=SW, 5=SE, 6= Minneapolis/St. Paul Metro.

DNR Quad: [DNR Quadrangle code]. DNR-assigned code of the U.S. Geologic Survey topographic map on which the rare feature occurs.

-E-

ELEMENT or Element: See "Element Name (Common Name)"

Element Name (Common Name): The name of the rare feature. For plant and animal species records, this field holds the scientific name, followed by the common name in parentheses; for all other elements (such as plant communities, which have no scientific name) it is solely the element name.

EO RANK: [Element Occurrence Rank]. An evaluation of the quality and condition of natural communities from A (highest) to D (lowest).

EO Size: [Element Occurrence Size]. The size in acres (often estimated) of natural communities.

-F-

FED STATUS: [Federal Status]. Status of species under the Federal Endangered Species Law: LE=endangered, LT=threatened, C=species which have been proposed for federal listing.

Federal Status: See "FED STATUS"

Forestry District: The Minnesota DNR's Division of Forestry district number.

-G-

GLOBAL RANK: The abundance of an element globally, from G1 (critically imperiled due to extreme rarity on a world-wide basis) to G5 (demonstrably secure, though perhaps rare in parts of its range). Global ranks are determined by the Conservation Science Division of The Nature Conservancy.

-I-

INTENDED STATUS: Desired protection status. See also "CURRENT STATUS." If a complete list of protection status codes is needed, please contact the Natural Heritage Program.

-L-

LAST OBSERVED or Last Observed Date or Last Observation: Date of the most recent record of the element at the location.

Latitude: The location at which the occurrence is mapped on Natural Heritage Program maps. NOTE: There are various levels of precision in the original information, but this is not reflected in the latitude/longitude data. For some of the data, particularly historical records, it was not possible to determine exactly where the original observation was made (e.g. "Fort Snelling", or "the south shore of Lake Owasso"). Thus the latitude/longitude reflect the mapped location, and not necessarily the observation location.

Legal: Township, range and section numbers.

Long: [Longitude]. See NOTE under "Latitude"

-M-

MANAGED AREA or Managed Area(s): Name of the federally, state, locally, or privately managed park, forest, preserve, etc., containing the occurrence, if any. If this field is blank, the element probably occurs on private land. If "(STATUTORY BOUNDARY)" occurs after the name of a managed area, the location may be a private inholding within the statutory boundary of a state forest or park.

Map Sym: [Map Symbol].

MN STATUS: [Minnesota Status]. Legal status of plant and animal species under the Minnesota endangered species law: END=endangered, THR=threatened, SPC=special concern, NON= no legal status, but rare and may become listed if declines continue. This field is blank for natural communities and colonial waterbird nesting sites, which have no legal status in Minnesota, but are tracked by the database.

-N-

NC Rank: [Natural Community Rank].

-O-

Occ #: [Occurrence Number]. The occurrence number, in combination with the element name, uniquely identifies each record.

OCCURRENCE NUMBER: See "Occ #"

OF OCCURS: The number of records existent in the database for each element within the area searched.

Ownership: Indicates whether the site is publicly or privately owned; for publicly owned land, the agency with management responsibility is listed.

-P-

Precision: Precision of locational information of occurrence: C (confirmed) = known within 1/4 mile radius, U (unconfirmed) = known within 1/2 mile, N (non-specific) = known within 1 mile, G (general) = occurs within the general region, X (unmappable)=location is unmappable on USGS topographic quadrangles (often known only to the nearest county), O (obscure/gone)=element no longer exists at the location.

PS: [Primary Section]. The section containing all or the greatest part of the occurrence.

-Q-

Quad Map: See "DNR Quad"

-R-

Rec #: [Record number].

RNG or Rng: [Range number].

-S-

SECTION or Section: [Section number(s)]. Some records are given only to the nearest section (s), but most are given to the nearest quarter-section or quarter-quarter-section (e.g., SWNW32 denotes the SW1/4 of the NW1/4 of section 32). A "0" is used as a place holder when a half-section is specified (e.g., 0N03 refers to the north 1/2 of section 3). When a occurrence crosses section boundaries, both sections are listed, without punctuation (e.g., the NE1/4 of section 19 and NW1/4 of section 20 is displayed as "NE19NW20").

Site: A name which refers to the geographic area within which the occurrence lies. If no name for the area exists (a locally used name, for example), one is assigned by the County Biological Survey or the Natural Heritage Program.

Source: The collector or observer of the rare feature occurrence.

S RANK: [State Rank]. A rank assigned to the natural community type which reflects the known extent and condition of that community in Minnesota. Ranks range from 1 (in greatest need of conservation action in the state) to 5 (secure under present conditions). A "?" following a rank indicates little information is available to rank the community. Communities for which information is especially scarce are given a "U", for "rank undetermined". The ranks do not represent a legal status. They are used by the Minnesota Department of Natural Resources to set priorities for research, inventory and conservation planning. The state ranks are updated as inventory information becomes available.

State Status: See "MN STATUS"

-T-

TWP or Twp: [Township number].

-V-

Verification: A reflection of the reliability of the information on which the record is based. The highest level of reliability is "verified," which usually indicates a collection was made or, in the case of bird records, nesting was observed. Plant records based on collections made before 1970 are unverified.

Voucher: The museum or herbarium where specimens are maintained, and the accession number assigned by the repository. In the case of bald eagles, this is the breeding area number.

-W-

Wildlife Area: The Minnesota DNR's Section of Wildlife administrative number.

Data Security

Locations of some rare features must be treated as sensitive information because widespread knowledge of these locations could result in harm to the rare features. For example, wildflowers such as orchids and economically valuable plants such as ginseng are vulnerable to exploitation by collectors; other species, such as bald eagles, are sensitive to disturbance by observers. For this reason, we prefer that publications not identify the precise locations of vulnerable species. We suggest describing the location only to the nearest section. If this is not acceptable for your purposes, please call and discuss this issue with the Environmental Review Specialist for the Heritage and Nongame Research Program at 651/296-8319.

Minnesota Natural Heritage Database
Element Occurrence Records

TWP	RNG	PRIMARY SECTION	FED STATUS	MN STATUS	S RANK	ELEMENT and OCCURRENCE NUMBER	MANAGED AREA
T027N	R23W	04			S1	CALCAREOUS SEEPAGE FEN (SOUTHEAST) PRAIRIE SUBTYPE #11	
T027N	R23W	04		THR		CAREX STERILIS (STERILE SEDGE) #3	FORT SNELLING STATE PARK
T027N	R23W	04		SPC		CYPRIPEDIUM CANDIDUM (SMALL WHITE LADY'S-SLIPPER) #22	FORT SNELLING STATE PARK
T027N	R23W	04		NON		OXYPOLIS RIGIDIOR (COWBANE) #21	FORT SNELLING STATE PARK
T027N	R23W	04		THR		VALERIANA EDULIS VAR. CILIATA (VALERIAN) #13	FORT SNELLING STATE PARK
T027N	R23W	04		NON		VIREO BELLII (BELL'S VIREO) #11	FORT SNELLING STATE PARK
T027N	R23W	05		END		ARCIDENS CONFRAGOSUS (ROCK POCKETBOOK MUSSEL) #11	FORT SNELLING STATE PARK
T027N	R23W	05		NON		ECHINOCHLOA WALTERI (WALTER'S BARNYARD GRASS) #21	FORT SNELLING STATE PARK
T027N	R23W	05		END		LAMPSILIS TERES (YELLOW SANDSHELL MUSSEL) #12	FORT SNELLING STATE PARK
T027N	R23W	05			S2	MIXED EMERGENT MARSH (PRAIRIE) #24	FORT SNELLING STATE PARK
T027N	R23W	05				MUSSEL SAMPLING SITE #142	FORT SNELLING STATE PARK
T027N	R23W	06	LE	THR		FALCO PEREGRINUS (PEREGRINE FALCON) #46	
T027N	R23W	07	LT	SPC		HALIAEETUS LEUCOCEPHALUS (BALD EAGLE) #311	
T027N	R23W	18			S1	CALCAREOUS SEEPAGE FEN (SOUTHEAST) PRAIRIE SUBTYPE #10	FORT SNELLING STATE PARK
T027N	R23W	18			S1	CALCAREOUS SEEPAGE FEN (SOUTHEAST) PRAIRIE SUBTYPE #29	
T027N	R23W	18			S1	CALCAREOUS SEEPAGE FEN (SOUTHEAST) PRAIRIE SUBTYPE #30	
T027N	R23W	18		THR		CAREX STERILIS (STERILE SEDGE) #7	
T027N	R23W	18		THR		CAREX STERILIS (STERILE SEDGE) #58	FORT SNELLING STATE PARK
T027N	R23W	18		THR		CAREX STERILIS (STERILE SEDGE) #102	FORT SNELLING STATE PARK
T027N	R23W	18		THR		CAREX STERILIS (STERILE SEDGE) #103	
T027N	R23W	18		SPC		CYPRIPEDIUM CANDIDUM (SMALL WHITE LADY'S-SLIPPER) #24	
T027N	R23W	18		SPC		CYPRIPEDIUM CANDIDUM (SMALL WHITE LADY'S-SLIPPER) #260	FORT SNELLING STATE PARK
T027N	R23W	18		NON		OXYPOLIS RIGIDIOR (COWBANE) #1	
T027N	R23W	18		NON		OXYPOLIS RIGIDIOR (COWBANE) #40	FORT SNELLING STATE PARK
T027N	R23W	18		THR		RHYNCHOSPORA CAPILLACEA (HAIR-LIKE BEAK-RUSH) #1	
T027N	R23W	18		THR		SCLERIA VERTICILLATA (WHORLED NUT-RUSH) #1	
T027N	R23W	18		SPC		SPEYERIA IDALIA (REGAL FRITTILARY) #43	
T027N	R23W	18		THR		VALERIANA EDULIS VAR. CILIATA (VALERIAN) #9	
T027N	R24W	05		SPC		GALLINULA CHLOROPUS (COMMON MOORHEN) #2	FORT SNELLING STATE PARK
T027N	R24W	07		THR		EMYDOIDEA BLANDINGII (BLANDING'S TURTLE) #558	GIRARD LAKE MUNICIPAL PARK
T027N	R24W	08		THR		EMYDOIDEA BLANDINGII (BLANDING'S TURTLE) #557	
T027N	R24W	13		THR		ACTINONAIAS LIGAMENTINA (MUCKET MUSSEL) #95	
T027N	R24W	13		END		ELLIPTIO CRASSIDENS (ELEPHANT-EAR MUSSEL) #2	MINNESOTA VALLEY NWR
T027N	R24W	13		END		FUSCONAIA EBENA (EBONYSHELL MUSSEL) #8	MINNESOTA VALLEY NWR
T027N	R24W	13		END		LAMPSILIS TERES (YELLOW SANDSHELL MUSSEL) #11	MINNESOTA VALLEY NWR
T027N	R24W	13		SPC		LIGUMIA RECTA (BLACK SANDSHELL MUSSEL) #94	MINNESOTA VALLEY NWR
T027N	R24W	13				MUSSEL SAMPLING SITE #141	MINNESOTA VALLEY NWR
T027N	R24W	13		END		QUADRULA NODULATA (WARTYBACK MUSSEL) #12	MINNESOTA VALLEY NWR
T027N	R24W	13		THR		TRITOGONIA VERRUCOSA (PISTOLGRIP MUSSEL) #29	MINNESOTA VALLEY NWR
T027N	R24W	14			S3	BLACK ASH SWAMP SEEPAGE SUBTYPE #13	MINNESOTA VALLEY NWR
T027N	R24W	14		SPC		TRILLIUM NIVALE (SNOW TRILLIUM) #29	MOUND SPRINGS PARK
T027N	R24W	17		THR		EMYDOIDEA BLANDINGII (BLANDING'S TURTLE) #556	
T027N	R24W	21		THR		BESSEYA BULLII (KITTEN-TAILS) #4	CENTRAL PARK
T027N	R24W	21			S2	DRY PRAIRIE (CENTRAL) SAND-GRAVEL SUBTYPE #87	
T027N	R24W	21			S2	DRY PRAIRIE (CENTRAL) SAND-GRAVEL SUBTYPE #89	CENTRAL PARK
T027N	R24W	21		THR		EMYDOIDEA BLANDINGII (BLANDING'S TURTLE) #612	
T027N	R24W	22			S2	MIXED EMERGENT MARSH (PRAIRIE) #29	MINNESOTA VALLEY NWR
T027N	R24W	23			S3	BLACK ASH SWAMP SEEPAGE SUBTYPE #11	MOUND SPRINGS PARK

Minnesota Natural Heritage Database
Element Occurrence Records

TWP	RNG	PRIMARY SECTION	FED STATUS	MN STATUS	S RANK	ELEMENT and OCCURRENCE NUMBER	MANAGED AREA
T027N	R24W	23	LE	THR		FALCO PEREGRINUS (PEREGRINE FALCON) #56	
T027N	R24W	23		THR		POLYODON SPATHULA (PADDLEFISH) #4	
T027N	R24W	24			S1	CALCAREOUS SEEPAGE FEN (SOUTHEAST) PRAIRIE SUBTYPE #25	
T027N	R24W	24		THR		CAREX STERILIS (STERILE SEDGE) #70	
T027N	R24W	24		NON		OXYPOLIS RIGIDIOR (COWBANE) #39	
T027N	R24W	24		NON		OXYPOLIS RIGIDIOR (COWBANE) #41	
T027N	R24W	24		THR		VALERIANA EDULIS VAR. CILIATA (VALERIAN) #50	MINNESOTA VALLEY NWR
T027N	R24W	24			S3	WET MEADOW #85	
T027N	R24W	26		THR		ARNOGLOSSUM PLANTAGINEUM (TUBEROUS INDIAN-PLANTAIN) #35	MINNESOTA VALLEY NWR
T027N	R24W	26		SPC		CYPRIPEDIUM CANDIDUM (SMALL WHITE LADY'S-SLIPPER) #218	MINNESOTA VALLEY NWR
T027N	R24W	26		NON		OXYPOLIS RIGIDIOR (COWBANE) #38	MINNESOTA VALLEY NWR
T027N	R24W	26		THR		VALERIANA EDULIS VAR. CILIATA (VALERIAN) #51	MINNESOTA VALLEY NWR
T027N	R24W	27		END		ARCIDENS CONFRAGOSUS (ROCK POCKETBOOK MUSSEL) #10	MINNESOTA VALLEY NWR
T027N	R24W	27		SPC		CYPRIPEDIUM CANDIDUM (SMALL WHITE LADY'S-SLIPPER) #23	
T027N	R24W	27		END		LAMPSILIS TERES (YELLOW SANDSHELL MUSSEL) #10	MINNESOTA VALLEY NWR
T027N	R24W	27			S1	MESIC PRAIRIE (SOUTHEAST) #2	BLACK DOG PRESERVE SNA
T027N	R24W	27				MUSSEL SAMPLING SITE #140	MINNESOTA VALLEY NWR
T027N	R24W	27		END		QUADRULA NODULATA (WARTYBACK MUSSEL) #11	MINNESOTA VALLEY NWR
T027N	R24W	27		THR		TRITOGONIA VERRUCOSA (PISTOLGRIP MUSSEL) #28	MINNESOTA VALLEY NWR
T027N	R24W	27		NON		VIREO BELLII (BELL'S VIREO) #2	MINNESOTA VALLEY NWR
T027N	R24W	27			S3	WET MEADOW #84	BLACK DOG PRESERVE SNA
T027N	R24W	28		SPC		ALOSA CHRYSOCHLORIS (SKIPJACK HERRING) #2	
T027N	R24W	29			S3	BLACK ASH SWAMP SEEPAGE SUBTYPE #12	MINNESOTA VALLEY NWR
T027N	R24W	30			S2	MIXED EMERGENT MARSH (PRAIRIE) #30	MINNESOTA VALLEY NWR
T027N	R24W	31		NON		LAMPETRA APPENDIX (AMERICAN BROOK LAMPREY) #80	
T027N	R24W	32		END		AGALINIS AURICULATA (EARED FALSE FOXGLOVE) #1	
T027N	R24W	32		THR		ARNOGLOSSUM PLANTAGINEUM (TUBEROUS INDIAN-PLANTAIN) #8	
T027N	R24W	32		THR		ASCLEPIAS SULLIVANTII (SULLIVANT'S MILKWEED) #4	
T027N	R24W	32		SPC		CYPRIPEDIUM CANDIDUM (SMALL WHITE LADY'S-SLIPPER) #179	
T027N	R24W	32			S1	MESIC PRAIRIE (SOUTHEAST) #18	
T027N	R24W	32		THR		VALERIANA EDULIS VAR. CILIATA (VALERIAN) #39	
T027N	R24W	33		SPC		CIRSIUM HILLII (HILL'S THISTLE) #3	
T027N	R24W	34			S1	CALCAREOUS SEEPAGE FEN (SOUTHEAST) PRAIRIE SUBTYPE #9	BLACK DOG PRESERVE SNA
T027N	R24W	34			S1	CALCAREOUS SEEPAGE FEN (SOUTHEAST) PRAIRIE SUBTYPE #18	MINNESOTA VALLEY NWR
T027N	R24W	34		THR		CAREX STERILIS (STERILE SEDGE) #11	BLACK DOG PRESERVE SNA
T027N	R24W	34		SPC		CLADIUM MARISCOIDES (TWIG-RUSH) #5	BLACK DOG PRESERVE SNA
T027N	R24W	34		SPC		CYPRIPEDIUM CANDIDUM (SMALL WHITE LADY'S-SLIPPER) #20	MINNESOTA VALLEY NWR
T027N	R24W	34		SPC		CYPRIPEDIUM CANDIDUM (SMALL WHITE LADY'S-SLIPPER) #21	BLACK DOG PRESERVE SNA
T027N	R24W	34		NON		OXYPOLIS RIGIDIOR (COWBANE) #20	BLACK DOG PRESERVE SNA
T027N	R24W	34		THR		RHYNCHOSPORA CAPILLACEA (HAIR-LIKE BEAK-RUSH) #7	
T027N	R24W	34		THR		SCLERIA VERTICILLATA (WHORLED NUT-RUSH) #7	BLACK DOG PRESERVE SNA
T027N	R24W	34		NON		TRIGLOCHIN PALUSTRIS (MARSH ARROW-GRASS) #17	BLACK DOG PRESERVE SNA
T027N	R24W	34		THR		VALERIANA EDULIS VAR. CILIATA (VALERIAN) #10	BLACK DOG PRESERVE SNA
T028N	R23W	28		NON		LAMPROPELTIS TRIANGULUM (MILK SNAKE) #22	FORT SNELLING STATE PARK
T028N	R23W	32		THR		BESSEYA BULLII (KITTEN-TAILS) #18	FORT SNELLING MILITARY RESERVATION
T028N	R23W	33			S1	CALCAREOUS SEEPAGE FEN (SOUTHEAST) PRAIRIE SUBTYPE #28	FORT SNELLING STATE PARK
T028N	R23W	33		SPC		CYPRIPEDIUM CANDIDUM (SMALL WHITE LADY'S-SLIPPER) #217	FORT SNELLING STATE PARK
T028N	R23W	33			S2	MIXED EMERGENT MARSH (PRAIRIE) #23	FORT SNELLING STATE PARK

TWP	RNG	PRIMARY SECTION	FED STATUS	MN STATUS	S RANK	ELEMENT and OCCURRENCE NUMBER	MANAGED AREA
T028N	R24W	31		THR		EMYDOIDEA BLANDINGII (BLANDING'S TURTLE) #479	
T028N	R24W	33		THR		EMYDOIDEA BLANDINGII (BLANDING'S TURTLE) #679	
T028N	R24W	36		NON		BARTRAMIA LONGICAUDA (UPLAND SANDPIPER) #53	WOOD LAKE NATURE CENTER
T115N	R21W	05			S2	MIXED EMERGENT MARSH (PRAIRIE) #31	
T115N	R21W	05			S2	MIXED EMERGENT MARSH (PRAIRIE) #32	
T115N	R21W	06		THR		ACTINONAIAS LIGAMENTINA (MUCKET MUSSEL) #94	MINNESOTA VALLEY NWR
T115N	R21W	06				COLONIAL WATERBIRD NESTING SITE #249	MINNESOTA VALLEY NWR
T115N	R21W	06			S2	MIXED EMERGENT MARSH (PRAIRIE) #28	MINNESOTA VALLEY NWR
T115N	R21W	06				MUSSEL SAMPLING SITE #138	MINNESOTA VALLEY NWR
T115N	R21W	06		END		QUADRULA NODULATA (WARTYBACK MUSSEL) #10	
T115N	R21W	06		THR		TRITOGONIA VERRUCOSA (PISTOLGRIP MUSSEL) #27	MINNESOTA VALLEY NWR
T115N	R21W	07			S2	DRY OAK SAVANNA (SOUTHEAST) SAND-GRAVEL SUBTYPE #4	MINNESOTA VALLEY NWR
T115N	R21W	07		NON		LAMPETRA APPENDIX (AMERICAN BROOK LAMPREY) #101	MINNESOTA VALLEY NWR
T115N	R21W	07				MUSSEL SAMPLING SITE #139	
T115N	R21W	07		SPC		PITUOPHIS CATENIFER (GOPHER SNAKE) #98	
T115N	R21W	07		NON		REITHRODONTOMYS MEGALOTIS (WESTERN HARVEST MOUSE) #30	MINNESOTA VALLEY NWR
T115N	R21W	15		THR		EMYDOIDEA BLANDINGII (BLANDING'S TURTLE) #228	MINNESOTA VALLEY NWR
T115N	R21W	15		THR		VALERIANA EDULIS VAR. CILIATA (VALERIAN) #77	
T115N	R21W	16		THR		BESSEYA BULLII (KITTEN-TAILS) #96	
T115N	R21W	16			S1	CALCAREOUS SEEPAGE FEN (SOUTHEAST) PRAIRIE SUBTYPE #19	HIDDEN VALLEY PARK
T115N	R21W	16		THR		CAREX STERILIS (STERILE SEDGE) #114	MINNESOTA VALLEY NWR
T115N	R21W	16		SPC		CIRSIUM HILLII (HILL'S THISTLE) #58	
T115N	R21W	16		SPC		CYPRIPEDIUM CANDIDUM (SMALL WHITE LADY'S-SLIPPER) #133	HIDDEN VALLEY PARK
T115N	R21W	16			S2	DRY PRAIRIE (SOUTHEAST) SAND-GRAVEL SUBTYPE #39	
T115N	R21W	16		THR		VALERIANA EDULIS VAR: CILIATA (VALERIAN) #81	HIDDEN VALLEY PARK
T115N	R21W	17			S1	CALCAREOUS SEEPAGE FEN (SOUTHEAST) PRAIRIE SUBTYPE #8	
T115N	R21W	17			S1	CALCAREOUS SEEPAGE FEN (SOUTHEAST) PRAIRIE SUBTYPE #20	
T115N	R21W	17		THR		CAREX STERILIS (STERILE SEDGE) #4	SAVAGE FEN SNA
T115N	R21W	17		THR		CAREX STERILIS (STERILE SEDGE) #115	
T115N	R21W	17		SPC		CLADIUM MARISCOIDES (TWIG-RUSH) #9	SAVAGE FEN SNA
T115N	R21W	17		SPC		CLADIUM MARISCOIDES (TWIG-RUSH) #50	
T115N	R21W	17		SPC		CYPRIPEDIUM CANDIDUM (SMALL WHITE LADY'S-SLIPPER) #101	SAVAGE FEN SNA
T115N	R21W	17		SPC		CYPRIPEDIUM CANDIDUM (SMALL WHITE LADY'S-SLIPPER) #102	
T115N	R21W	17		THR		ELEOCHARIS ROSTELLATA (BEAKED SPIKE-RUSH) #9	
T115N	R21W	17			S2	MAPLE-BASSWOOD FOREST (BIG WOODS) #39	SAVAGE FEN SNA
T115N	R21W	17			S1	MESIC PRAIRIE (SOUTHEAST) #17	
T115N	R21W	17		NON		OXYPOLIS RIGIDIOR (COWBANE) #22	
T115N	R21W	17		THR		RHYNCHOSPORA CAPILLACEA (HAIR-LIKE BEAK-RUSH) #2	
T115N	R21W	17		THR		RHYNCHOSPORA CAPILLACEA (HAIR-LIKE BEAK-RUSH) #66	
T115N	R21W	17		THR		SCLERIA VERTICILLATA (WHORLED NUT-RUSH) #6	SAVAGE FEN SNA
T115N	R21W	17		THR		SCLERIA VERTICILLATA (WHORLED NUT-RUSH) #25	
T115N	R21W	17		THR		VALERIANA EDULIS VAR. CILIATA (VALERIAN) #14	SAVAGE FEN SNA
T115N	R21W	17		THR		VALERIANA EDULIS VAR. CILIATA (VALERIAN) #80	
T115N	R21W	17		THR		VALERIANA EDULIS VAR. CILIATA (VALERIAN) #82	
T115N	R21W	18				GROUNDWATER PROCESS (HOLOCENE) #2	SAVAGE FEN SNA
T115N	R21W	18		SPC		PEROGNATHUS FLAVESCENS (PLAINS POCKET MOUSE) #20	
T115N	R21W	18		SPC		PITUOPHIS CATENIFER (GOPHER SNAKE) #10	
T115N	R21W	18			S3	WET MEADOW #78	

Minnesota Natural Heritage Database
Element Occurrence Records

TWP	RNG	PRIMARY SECTION	FED STATUS	MN STATUS	S RANK	ELEMENT and OCCURRENCE NUMBER	MANAGED AREA
T115N	R22W	01				COLONIAL WATERBIRD NESTING SITE #250	
T115N	R22W	01				COLONIAL WATERBIRD NESTING SITE #561	MINNESOTA VALLEY NWR
T115N	R22W	06		NON		LAMPROPELTIS TRIANGULUM (MILK SNAKE) #18	MINNESOTA VALLEY NWR
T115N	R22W	06		SPC		PITUOPHIS CATENIFER (GOPHER SNAKE) #13	
T115N	R22W	12		SPC		SPEYERIA IDALIA (REGAL FRITTILARY) #40	
T116N	R21W	18		NON		LYCOPUS VIRGINICUS (VIRGINIA WATER HOREHOUND) #21	
T116N	R21W	18			S3	OAK FOREST (BIG WOODS) DRY SUBTYPE #4	TIERNEY'S WOODS?
T116N	R21W	18			S3	POOR FEN SEDGE SUBTYPE #21	TIERNEY'S WOODS?
T116N	R21W	19		THR		BESSEYA BULLII (KITTEN-TAILS) #68	TIERNEY'S WOODS?
T116N	R21W	19		SPC		PITUOPHIS CATENIFER (GOPHER SNAKE) #15	HYLAND,BUSH,ANDERSON LAKES REGIONAL PARK
T116N	R21W	19			S3	POOR FEN SEDGE SUBTYPE #23	HYLAND,BUSH,ANDERSON LAKES REGIONAL PARK
T116N	R21W	31		THR		EMYDOIDEA BLANDINGII (BLANDING'S TURTLE) #480	
T116N	R21W	32		END		AMMODRAMUS HENSLOWII (HENSLOW'S SPARROW) #6	
T116N	R22W	13		SPC		GALLINULA CHLOROPUS (COMMON MOORHEN) #10	HYLAND,BUSH,ANDERSON LAKES REGIONAL PARK
T116N	R22W	27				KETTLE (QUATERNARY) #1	HYLAND,BUSH,ANDERSON LAKES REGIONAL PARK
T116N	R22W	36			S2	DRY PRAIRIE (CENTRAL) SAND-GRAVEL SUBTYPE #115	

RECORDS PRINTED = 160

APPENDIX F

Example Member Community Education Program

SECTION VI
EDUCATION PROGRAM

EDUCATION PROGRAM

This narrative, relevant BMP pages, and Education Activity Implementation Plan represent the City of Bloomington's Education Program to distribute educational materials to the community and/or conduct outreach activities about the impacts of storm water discharges on water bodies and steps that the public can take to reduce pollutants in storm water runoff.

This program is led by the Public Works Project Coordinator and implemented as outlined in the Education Activity Implementation Plan and BMP pages.

The target audiences and educational goals for each audience as outlined for each of the six minimum control measures represents the focus of the City of Bloomington's education program. Actual education BMPs are listed below and in the BMP Summary Sheets, as well as described in the BMP pages. Measurable goals for the education program can be the same as the educational goals when they are practical to measure. However, for this permit, measurable goals for each BMP or educational activity are specifically listed in the BMP pages.

This education program individually addresses each minimum control measure as outlined in Permit No: MN R 040000:

1. Public Education and Outreach
2. Public Participation
3. Illicit Discharge Detection and Elimination
4. Construction Site Storm Water Runoff Control
5. Post-Construction Storm Water Management in New Development and Redevelopment
6. Pollution Prevention/Good Housekeeping for Municipal Operations

I. PUBLIC EDUCATION AND OUTREACH

BMPs for this minimum control measure are listed in the Education Activity Implementation Plan as well as on the BMP pages and BMP Summary Sheets. The target audience for this minimum control measure includes the general public, K-12 students, homeowners, business owners, property managers, and government officials. The educational goals for each audience are listed below. In addition, activities used to reach educational goals are found on the following BMP pages and in the minimum control measure summary. Each goal below is linked to an activity by the BMP number as shown. Activity implementation plans and available performance measures or measurable goals that can be used to determine success in reaching educational goals are listed in the following BMP pages and minimum control measure summary.

I.1a Target audience:

- General public
- K-12 students

I.1b Goals for audience:

- Become aware of the operation of the storm sewer system and conveyances to local waterbodies.
- Be able to identify hazardous wastes and recognize how wastes are transported to waterbodies and why they are harmful.
- Understand proper disposal methods and locations for hazardous wastes
- Understand the benefits of proper yard care and home maintenance to minimize impacts to water resources
- Utilize a hotline or other methods to report concerns or ask questions relating to water resources and the storm water conveyance system.

I.1c BMPs:

- 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,33,34,44

I.2a Target audience:

- Homeowners
- Business owners
- Property managers

I.2b Goals for audience:

- Become aware of the operation of the storm sewer system and conveyances to local waterbodies.
- Understand methods for maintaining landscape to minimize sources of runoff pollution.
- Become aware of the connectivity of impervious surfaces to the storm water conveyance system and local waterbodies.
- Utilize a hotline or other methods to report concerns or ask questions relating to water resources and the storm water conveyance system.

I.2c BMPs:

- 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,33,34,44

I.3a Target audience:

- Government officials

I.3b Goals for audience:

- Understand the connection between land use practices and surface water quality.
- Be aware of available best management practice techniques use to preserve or improve surface water quality.
- Understand and support regulations aimed at controlling runoff rate and volume and improving runoff quality.
- Communicate to citizens the importance of water resources management.

I.3c BMPs:

- 2,3,4,8,11,15,33,34

SECTION VI
EDUCATION PROGRAM

II. PUBLIC PARTICIPATION / INVOLVEMENT

BMPs for this minimum control measure are listed in the Education Activity Implementation Plan as well as on the BMP pages and BMP Summary Sheets. The target audience for this minimum control measure includes: the general public, K-12 students, homeowners, business owners, MS4 staff, and government officials. Activities used to reach educational goals, activity implementation plans, and available performance measures or measurable goals that can be used to determine success in reaching educational goals are listed in the following BMP pages. Each goal below is linked to an activity by the BMP number as shown.

II.1a Target audience:

- General public
- K-12 students
- Homeowners
- Business owners

II.1b Goals for audience:

- Be aware that the City of Bloomington has a Storm Water Pollution Prevention Program (SWPPP).
- Be informed of the annual public meeting concerning the SWPPP.
- Be aware that input into the SWPPP in encouraged and understand the process for providing input.
- Have opportunities to take positive actions to prevent runoff pollution.

II.1c BMPs:

- 1,2,3,9,10,11,12,13,14,15,16,44

II.2a Target audience:

- MS4 staff
- Government officials

II.2b Goals for audience:

- Be aware that the City of Bloomington has a Storm Water Pollution Prevention Program (SWPPP).
- Be informed of the annual public meeting concerning the SWPPP.
- Be aware that input into the SWPPP in encouraged and understand the process for providing input.
- Have opportunities to take positive actions to prevent runoff pollution.
- Facilitate interested members of the public to provide input into the SWPPP.
- Facilitate interested members of the public to take positive actions to prevent runoff pollution.

II.2c BMPs:

- 2,3,4,11,15

SECTION VI
EDUCATION PROGRAM

III. ILLICIT DISCHARGE DETECTION AND ELIMINATION

BMPs for this minimum control measure are listed in the Education Activity Implementation Plan as well as on the BMP pages and BMP Summary Sheets. The target audience for this minimum control measure includes: the general public, homeowners, business owners, property managers, MS4 staff, government officials, and other commercial/industrial operations. Activities used to reach educational goals, activity implementation plans, and available performance measures or measurable goals that can be used to determine success in reaching educational goals are listed in the following BMP pages. Each goal below is linked to an activity by the BMP number as shown.

III.1a Target audience:

- General public
- Homeowners
- Business owners
- Property managers
- Other commercial/industrial operations

III.1b Goals for audience:

- Be aware that the City of Bloomington has a Storm Water Pollution Prevention Program (SWPPP).
- Become aware of the operation of the storm sewer system and conveyances to local waterbodies.
- Become aware of what an illicit discharge is.
- Understand the impacts of illicit discharges to local waterbodies.
- Understand proper landscape maintenance to prevent illicit discharges.
- Understand proper system or operations maintenance to prevent illicit discharges.
- Perform regular maintenance of landscape, facilities, equipment, and especially privately owned pollution control devices to ensure proper operation and prevent illicit discharges.
- Utilize a hotline or other methods to report possible illicit discharges to the proper authority.
- Cease disposal of non-storm water wastes in the storm sewer system.
- Understand proper disposal methods and locations for hazardous wastes.
- Understand proper storage methods of materials that may contribute to an illicit discharge.

III.1c BMPs:

- 1,2,3,4,6,8,9,10,11,14,15,16

III.2a Target audience:

- MS4 staff
- Government officials

III.2b Goals for audience

- Be aware that the City of Bloomington has a Storm Water Pollution Prevention Program (SWPPP).
- Become aware of the operation of the storm sewer system and conveyances to local waterbodies.
- Become aware of what an illicit discharge is.
- Understand the impacts of illicit discharges to local waterbodies.
- Understand proper system or operations maintenance to prevent illicit discharges.
- Provide appropriate education material to businesses or homeowners about the problems associated with improper disposal of wastes, improper connections to the storm sewer system, and illegal dumping.

III.2c BMPs:
- 2,3,4,8,11,15

IV. CONSTRUCTION SITE STORM WATER RUNOFF CONTROL

BMPs for this minimum control measure are listed in the Education Activity Implementation Plan as well as on the BMP pages and BMP Summary Sheets. The target audience for this minimum control measure include: the general public, business owners, property managers, engineers and architects, property developers, construction industry, MS4 staff, and government officials. Activities used to reach educational goals, activity implementation plans, and available performance measures or measurable goals that can be used to determine success in reaching educational goals are listed in the following BMP pages. Each goal below is linked to an activity by the BMP number as shown.

IV.1a Target Audience:
- General public
- Business owners
- Property managers

IV.1b Goals for audience:
- Understand that soil erosion is a source of surface water pollution
- Understand the impacts of sediment loading to a waterbody as a result of soil erosion
- Be aware that construction sites of all sizes need to minimize the potential for erosion and methods to keep soil on site.
- Utilize a hotline or other methods to contact the proper authority to report erosion control concerns or ask technical questions.
- Know how to prevent erosion on their property.

IV.1c BMPs:
- 1,2,3,4,11,13,15

IV.2a Target Audience:
- Engineers and architects
- Property developers

- Construction industry

IV.2b Goals for audience:

- Understand that soil erosion is a source of surface water pollution
- Understand the impacts of sediment loading to a waterbody as a result of soil erosion
- Be aware that construction sites of all sizes need to minimize the potential for erosion and methods to keep soil on site.
- Understand the erosion control requirements of the City of Bloomington.
- Be aware of all construction activities on their site and understand how erosion control is incorporated.
- Develop comprehensive erosion control plans that are effective and practical.
- Understand how to effectively maintain erosion control best management practices to insure proper operation.
- Understand how to properly select and install erosion control devices.
- Be aware of the importance of post-storm event inspections to insure proper operation of all erosion control devices.

IV.2c BMPs:

- 2,4,11,15,36

IV.3a Target audience:

- MS4 staff
- Government officials

IV.3b Goals for audience:

- Understand that soil erosion is a source of surface water pollution.
- Understand the impacts of sediment loading to a waterbody as a result of soil erosion.
- Be aware that construction sites of all sizes need to minimize the potential for erosion and methods to keep soil on site.
- Understand the erosion control requirements of the City of Bloomington.
- Be aware of the City's erosion control ordinance and inspection procedures.
- Understand how to effectively maintain erosion control best management practices to insure proper operation.
- Understand how to properly select and install erosion control devices.

IV.3c BMPs:

- 2,4,11,15,31,32,36

V. POST CONSTRUCTION STORM WATER MANAGEMENT

BMPs for this minimum control measure are listed in the Education Activity Implementation Plan as well as on the BMP pages and BMP Summary Sheets. The target audience for this minimum control measure include: the general public, business owners, property managers, engineers and architects, property developers, construction industry, MS4 staff, and government officials. Activities used to reach educational goals,

activity implementation plans, and available performance measures or measurable goals that can be used to determine success in reaching educational goals are listed in the following BMP pages. Each goal below is linked to an activity by the BMP number as shown.

V.1a Target audience:

- General public
- Business owners
- Property managers

V.1bGoals for audience:

- Be aware of practices they can implement to minimize erosion and storm water runoff from their property.
- Be aware resources available to assist in installing or implementing best management practices.

V.1c BMPs:

- 1,2,3,4,8,11,15,33,34

V.2a Target audience:

- Engineers and architects
- Property developers
- Construction industry

V.2b Goals for audience:

- Understand the impacts of urban development on storm water runoff volumes, rates, and quality.
- Understand site design and on-going maintenance of storm water best management practices.
- Be aware of site maintenance practices that will minimize the potential for erosion and other storm water impacts.
- Be aware of conditions that lead to poor or inadequate drainage.
- Include innovative storm water best management practices into site design.

V.2c BMPs:

- 2,4,11,15,33,34,36,41,42

V.3a Target audience:

- MS4 staff
- Government officials

V.3b Goals for audience:

- Understand the impacts of urban development on storm water runoff volumes, rates, and quality.
- Understand the City of Bloomington's development plan review process.
- Understand City ordinances pertaining to storm water management in conjunction with new development and redevelopment.

- Promote post-construction storm water management techniques.

V.3c BMPs:
- 2,3,4,8,11,15,33,34,36,48

VI. POLLUTION PREVENTION / GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS

BMPs for this minimum control measure are listed in the Education Activity Implementation Plan as well as on the BMP pages and BMP Summary Sheets. The target audience for this minimum control measure includes: MS4 staff and government officials. Activities used to reach educational goals, activity implementation plans, and available performance measures or measurable goals that can be used to determine success in reaching educational goals are listed in the following BMP pages. Each goal below is linked to an activity by the BMP number as shown.

VI.1a Target audience:
- MS4 staff
- Government officials

VI.1b Goals for audience:
- Understand proper erosion control techniques and best management practices to minimize storm water impacts
- Become aware of the operation of the storm sewer system and conveyances to local waterbodies.
- Perform regular maintenance of landscape, facilities, equipment, and pollution control devices to ensure proper operation to minimize storm water impacts.
- Be aware of landscape maintenance techniques and procedures used to minimize storm water impacts and improve surface water quality.
- Recognize proper methods for storage of materials and equipment that avoid runoff pollution.
- Understand proper application procedures of fertilizers, pesticides, and other chemicals.
- Understand proper operation of maintenance equipment and procedures.
- Be aware of methods for proper application of salt/sand mix.

VI.1c BMPs:
- 1,2,4,15,19,31,32,33,34,38,46

COORDINATION

This education program is intended to be coordinated with and effectively utilize other storm water education programs conducted in the metropolitan area as appropriate. BMP #4 (Education Activity Implementation Plan) was developed in 2003. This plan identifies the components of the City of Bloomington's education plan for the duration of the permit. It is anticipated that this plan will include programs and resources being conducted by other entities, including, but not limited to; community groups, organizations, watershed districts, conservation districts, watershed management

organizations, school districts, University of Minnesota Extension, Center for Global Environmental Education, and county, regional, state, and federal government. More specifically, the City will work with University of Minnesota Extension to implement the Metro Storm Water Education "Let's Keep It Clean" Campaign that will utilize existing programs and pool resources to develop area-wide public education programs.

EDUCATION ACTIVITY IMPLEMENTATION PLAN

The Education Activity Implementation Plan is comprised of all BMPs designed to distribute educational materials to the community and conduct outreach activities about the impacts of storm water discharges on water bodies and what the public can do to reduce pollutants in storm water runoff.

This Education Activity Implementation Plan is based entirely from the Education Program outlined in this Section of the Storm Water Pollution Prevention Program. This Education Activity Implementation Plan is led by the Public Works Project/Education Coordinator and implemented as outlined in this section and Section VII of this SWPPP. In addition to the BMPs listed here, the City of Bloomington will continue to work cooperatively with the Metro Watershed Partners, Watershed Districts, University of Minnesota, Center for Global Environmental Education, and others who have an interest in providing educational opportunities on storm water.

SECTION VI
EDUCATION ACTIVITY IMPLEMENTATION PLAN

Education Activity: Education Coordinator
BMP Number: 1
Description: The City of Bloomington designated an education coordinator to oversee and direct the education program outlined in this Storm Water Pollution Prevention Program. The education coordinator serves as a liaison with area water resources educators, schools, the general public, and other local and state agencies and education institutions. The education coordinator may implement additional resources to execute the BMPs listed in this program.

Minimum Control Measures Addressed:

Public Education & Outreach	Public Particpation/ Involvement	Illicit Discharge Detection & Elimination	Construction Site Runoff Control	Post-construction Runoff Control	Pollution Prevention/Good Housekeeping for Municipal Operations
X	X	X	X	X	X

Target Audiences:

General Public	K-12 Students	Home owners	Business owners	Property Managers	Government Officials	MS4 Staff	Other Commercial/ Industrial Operations	Engineers & Architects	Property Developers	Construction Industry
X	X	X	X	X	X	X	X			

Educational Goals: The Education Coordinator oversees the education program outlined in the SWPPP and ensure that the education activities and associated BMPs are implemented as outlined.

Implementation: The Education Coordinator was identified in 2003.

Measurable Goals: The Education Coordinator duties were assumed by the Public Works Project Coordinator, 952-563-8751.

SECTION VI
EDUCATION ACTIVITY IMPLEMENTATION PLAN

Education Activity: Annual Public Meeting on Storm Water Pollution Prevention Program & Annual Report
BMP Number: 2
Description: The City of Bloomington will hold one annual public meeting each year to inform the public and others on the status of the city's Storm Water Pollution Prevention Program and annual report. In addition, the public meeting will provide the public and interested persons the opportunity to comment and provide input on the program. The meeting will be held prior to submittal of the annual report to the Commissioner and relevant comments and input as well as responses will be included in the annual report.

The annual public meeting will be held within the city limits of Bloomington at a time generally convenient for persons expected to attend. Notice will be published in the local newspaper and appear on the City's web site at least 30 days prior to the meeting. The notice will contain reference to the Storm Water Pollution Prevention Program, meeting date, time, and location. It will also contain a manner in which the meeting will be conducted and indicate where copies of the Storm Water Pollution Prevention Program are available for review.

Minimum Control Measures Addressed:

Public Education & Outreach	Public Particpation/ Involvement	Illicit Discharge Detection & Elimination	Construction Site Runoff Control	Post-construction Runoff Control	Pollution Prevention/Good Housekeeping for Municipal Operations
X	X	X	X	X	X

Target Audiences:

General Public	K-12 Students	Home owners	Business owners	Property Managers	Government Officials	MS4 Staff	Other Commercial/ Industrial Operations	Engineers & Architects	Property Developers	Construction Industry
X	X	X	X	X	X	X	X	X	X	X

Educational Goals: The goal of the annual meeting is to inform the public on the status of the City's Storm Water Pollution Prevention Program and provide interested members of the public an opportunity to comment and provide input on the SWPPP. Relevant input will be incorporated in the annual report and the SWPPP will be modified accordingly.

Implementation: The Engineering Division will coordinate and hold one annual public meeting. Notice will be published in the local paper at least 30 days prior to the meeting.

Measurable Goals: Report of meeting results and summary of public comment taken.

SECTION VI
EDUCATION ACTIVITY IMPLEMENTATION PLAN

Education Activity: Environmental Fair
BMP Number: 3
Description: In 1998, the City of Bloomington began sponsoring a one-half day educational festival to promote clean water and surface water quality. The Clean Water Festival is intended to be an annual event aimed at providing school age children as well as adults educational opportunities as well as opportunities to interact with water resources displays, environmental representatives, and local government representatives.

The Environmental Fair is typically held in the spring of each year and calls on volunteers from local schools and the public works sector to ensure a successful program. The logistics of the Environmental Fair may be altered from year to year based on past year's success and anticipated participation to optimize the educational opportunity.

Minimum Control Measures Addressed:

Public Education & Outreach	Public Particpation/ Involvement	Illicit Discharge Detection & Elimination	Construction Site Runoff Control	Post-construction Runoff Control	Pollution Prevention/Good Housekeeping for Municipal Operations
X	X	X		X	

Target Audiences:

General Public	K-12 Students	Home owners	Business owners	Property Managers	Government Officials	MS 4 Staff	Other Commercial/ Industrial Operations	Engineers & Architects	Property Developers	Construction Industry
X	X	X	X	X	X	X	X			

Educational Goals: An event aimed at providing school age children as well as adults educational opportunities on storm water pollution prevention.

Implementation: The Education Coordinator will implement the Environmental Fair or similar education event designed to meet the above educational goals.

Measurable Goals: Event attendance and volunteers.

SECTION VI
EDUCATION ACTIVITY IMPLEMENTATION PLAN

Education Activity: Education Activity Implementation Plan
BMP Number: 4
Description: This document serves as the education activity implementation plan to go into effect in 2004 of the NPDES Phase II Permit. The education activity implementation plan is made up of components already implemented and includes new programs and partnerships as identified.

The education activity implementation plan has components to distribute educational materials to the community and conduct outreach activities about the impacts of storm water discharges on water bodies and what the public can do to reduce pollutants in storm water runoff.

Minimum Control Measures Addressed:

Public Education & Outreach	Public Particpation/ Involvement	Illicit Discharge Detection & Elimination	Construction Site Runoff Control	Post-construction Runoff Control	Pollution Prevention/Good Housekeeping for Municipal Operations
X	X	X	X	X	X

Target Audiences:

General Public	K-12 Students	Home owners	Business owners	Property Managers	Government Officials	MS4 Staff	Other Commercial/ Industrial Operations	Engineers & Architects	Property Developers	Construction Industry
X	X	X	X	X	X	X	X	X	X	X

Educational Goals: The Goal of the Education Activity Implementation Plan is to provide a framework or guidance on the implementation of educational activities.

Implementation: The Education Activity Implementation Plan was completed in conjunction with submission of the first annual report.

Measurable Goals: The Education Activity Implementation Plan.

SECTION VI
EDUCATION ACTIVITY IMPLEMENTATION PLAN

Education Activity: Phosphorus Free Fertilizer Law and Ordinance Information
BMP Number: 5
Description: The City of Bloomington distributed information to the public regarding the City's phosphorus free fertilizer ordinance and State of Minnesota phosphorus fertilizer law.

The City provided brochures and copies of the City ordinance to retailers to be available to customers.

The ordinance is posted on the City's web site with a link to the State law to be added.

Minimum Control Measures Addressed:

Public Education & Outreach	Public Particpation/ Involvement	Illicit Discharge Detection & Elimination	Construction Site Runoff Control	Post-construction Runoff Control	Pollution Prevention/Good Housekeeping for Municipal Operations
X					

Target Audiences:

General Public	K-12 Students	Home owners	Business owners	Property Managers	Government Officials	MS4 Staff	Other Commercial/ Industrial Operations	Engineers & Architects	Property Developers	Construction Industry
X	X	X	X	X						

Educational Goals: The overall goal of this education activity is for the target audiences to understand the benefits of proper yard care and home maintenance to minimize impacts to water resources.

Implementation: Information was distributed in 2003. Additional information will be maintained on the City's website or be distributed as appropriate.

Measurable Goals: Number of brochures distributed, number of retail outlets originally supplied with information, existence of the city ordinance on the city's website.

SECTION VI
EDUCATION ACTIVITY IMPLEMENTATION PLAN

Education Activity: Illicit Discharge Detection/Elimination Information
BMP Number: 6
Description: The City of Bloomington will publish and distribute brochures or post information on the City's web site to inform employees, businesses, and the general public of the hazards associated with illegal discharges and improper disposal of wastes.

Minimum Control Measures Addressed:

Public Education & Outreach	Public Particpation/ Involvement	Illicit Discharge Detection & Elimination	Construction Site Runoff Control	Post-construction Runoff Control	Pollution Prevention/Good Housekeeping for Municipal Operations
X		X			

Target Audiences:

General Public	K-12 Students	Home owners	Business owners	Property Managers	Governement Officials	MS4 Staff	Other Commercial/ Industrial Operations	Engineers & Architects	Property Developers	Construction Industry
X	X	X	X	X			X			

Educational Goals: The overall goal of this BMP is for the target audiences to understand proper disposal methods for hazardous wastes and understand the impacts of illicit discharges to local waterbodies.

Implementation: This BMP is scheduled to be implemented in 2006 and 2007.

Measurable Goals: Number of publications or web site postings concerning illicit discharge detection/elimination.

SECTION VI
EDUCATION ACTIVITY IMPLEMENTATION PLAN

Education Activity: Fall Yard Care Information
BMP Number: 7
Description: The City of Bloomington will make available information describing fall yard care techniques appropriate for minimizing pollutants in runoff. The Public Works Department may mail brochures to residential households of publish the brochure in a local newpaper.

Minimum Control Measures Addressed:

Public Education & Outreach	Public Particpation/ Involvement	Illicit Discharge Detection & Elimination	Construction Site Runoff Control	Post-construction Runoff Control	Pollution Prevention/Good Housekeeping for Municipal Operations
X					

Target Audiences:

General Public	K-12 Students	Home owners	Business owners	Property Managers	Governement Officials	MS 4 Staff	Other Commercial/ Industrial Operations	Engineers & Architects	Property Developers	Construction Industry
X	X	X	X	X						

Educational Goals: The overall goal of this BMP is for the target audience to become aware of the connectivity of impervious surfaces to the storm water conveyance system and local waterbodies as well as understand the connection between land use practices and surface water quality.

Implementation: 2003.

Measurable Goals: Number of brochures distributed or articles published/posted.

SECTION VI
EDUCATION ACTIVITY IMPLEMENTATION PLAN

Education Activity: Water Resources Articles in the Bloomington Briefing
BMP Number: 8
Description: The City of Bloomington will continue to publish water resources related articles in the local newspaper. Regular publications on topics such as yard care techniques are currently published in the *Bloomington Briefing* approximately quarterly.

Minimum Control Measures Addressed:

Public Education & Outreach	Public Particpation/ Involvement	Illicit Discharge Detection & Elimination	Construction Site Runoff Control	Post-construction Runoff Control	Pollution Prevention/Good Housekeeping for Municipal Operations
X		X		X	

Target Audiences:

General Public	K-12 Students	Home owners	Business owners	Property Managers	Government Officials	MS4 Staff	Other Commercial/ Industrial Operations	Engineers & Architects	Property Developers	Construction Industry
X	X	X	X	X	X	X	X			

Educational Goals: The goal of this BMP is to provide information to allow the target audiences to be aware of available best management practice techniques used to preserve or improve surface water quality.

Implementation: On-going

Measurable Goals: Number/dates of publications.

SECTION VI
EDUCATION ACTIVITY IMPLEMENTATION PLAN

Education Activity: Curbside Cleanup Program
BMP Number: 9
Description: The City of Bloomington administers an annual curbside cleanup program that involves residents and households in cleaning up and properly disposing of wastes. The curbside cleanup program provides residents an opportunity to dispose of unwanted items as well as large and problem waste items.

Minimum Control Measures Addressed:

Public Education & Outreach	Public Particpation/ Involvement	Illicit Discharge Detection & Elimination	Construction Site Runoff Control	Post-construction Runoff Control	Pollution Prevention/Good Housekeeping for Municipal Operations
X	X	X			

Target Audiences:

General Public	K-12 Students	Home owners	Business owners	Property Managers	Government Officials	MS4 Staff	Other Commercial/ Industrial Operations	Engineers & Architects	Property Developers	Construction Industry
X	X	X	X	X			X			

Educational Goals: The goal of this BMP is to provide a means to understand proper disposal methods and locations for hazardous wastes.

Implementation: Annually contingent upon funding sources.

Measurable Goals: Number of participating households or amount of waste collected.

SECTION VI
EDUCATION ACTIVITY IMPLEMENTATION PLAN

Education Activity: Storm Sewer Inlet Markers
BMP Number: 10
Description: The City of Bloomington cooperated in 2002 with the Nine Mile Creek Watershed District on a storm water inlet marker project. The City may work with the District or other Watershed Districts or education partners to implement future storm sewer inlet marker projects.

New city construction projects include a standard catch basin casting that has "DUMP NO WASTE DRAINS TO RIVER" cast into each curb inlet.

Minimum Control Measures Addressed:

Public Education & Outreach	Public Particpation/ Involvement	Illicit Discharge Detection & Elimination	Construction Site Runoff Control	Post-construction Runoff Control	Pollution Prevention/Good Housekeeping for Municipal Operations
X	X	X			

Target Audiences:

General Public	K-12 Students	Home owners	Business owners	Property Managers	Government Officials	MS 4 Staff	Other Commercial/ Industrial Operations	Engineers & Architects	Property Developers	Construction Industry
X	X	X	X	X			X			

Educational Goals: The overall goal of this BMP to provide information to the target audiences to allow them to become aware of the operation of the storm sewer system and conveyances to local waterbodies.

Implementation: Pilot project completed in 2002. Inspection and review to be completed throughout the duration of this permit.

Measurable Goals: Number of storm sewer inlets marked. Number of new stamped catch basin castings installed.

SECTION VI
EDUCATION ACTIVITY IMPLEMENTATION PLAN

Education Activity: Water Resources Web Site
BMP Number: 11
Description: The City of Bloomington maintains a web site and links to other existing sites to provide citizens a resource to research water resources related topics.

Minimum Control Measures Addressed:

Public Education & Outreach	Public Particpation/ Involvement	Illicit Discharge Detection & Elimination	Construction Site Runoff Control	Post-construction Runoff Control	Pollution Prevention/Good Housekeeping for Municipal Operations
X	X		X	X	

Target Audiences:

General Public	K-12 Students	Home owners	Business owners	Property Managers	Government Officials	MS4 Staff	Other Commercial/ Industrial Operations	Engineers & Architects	Property Developers	Construction Industry
X	X	X	X	X	X	X	X	X	X	X

Educational Goals: The overall goal of this education activity is to communicate the importance of water resources management and for the target audiences to understand and support water resources regulations.

Implementation: 2004

Measurable Goals: Web site address, number of external links, erosion control details available to download.

SECTION VI
EDUCATION ACTIVITY IMPLEMENTATION PLAN

Education Activity: Adopt-A-Wetland Program
BMP Number: 12
Description: The City of Bloomington administers the Adopt-A-Wetland Program within the City. This program allows citizens the opportunity to undertake activities to improve the quality and appearance of local wetlands.

Minimum Control Measures Addressed:

Public Education & Outreach	Public Particpation/ Involvement	Illicit Discharge Detection & Elimination	Construction Site Runoff Control	Post-construction Runoff Control	Pollution Prevention/Good Housekeeping for Municipal Operations
X	X				

Target Audiences:

General Public	K-12 Students	Home owners	Business owners	Property Managers	Governement Officials	MS4 Staff	Other Commercial/ Industrial Operations	Engineers & Architects	Property Developers	Construction Industry
X	X	X	X	X						

Educational Goals: The overall goal of this BMP is for the target audiences to become aware of the operation of the storm sewer system and conveyances to local waterbodies as well as understand the connectivity of impervious surfaces to the storm water conveyance systems and local waterbodies.

Implementation: On-going

Measurable Goals: Number of adopted wetlands.

SECTION VI
EDUCATION ACTIVITY IMPLEMENTATION PLAN

Education Activity: Erosion Control Hotline
BMP Number: 13
Description: The City of Bloomington Engineering Division has established a phone number for receiving erosion control related complaints/concerns. Calls received will be incorporated into the existing inspections program to include corrective measures and follow-up activities as directed by City Code or other regulation.

Minimum Control Measures Addressed:

Public Education & Outreach	Public Particpation/ Involvement	Illicit Discharge Detection & Elimination	Construction Site Runoff Control	Post-construction Runoff Control	Pollution Prevention/Good Housekeeping for Municipal Operations
	X		X		

Target Audiences:

General Public	K-12 Students	Home owners	Business owners	Property Managers	Governement Officials	MS4 Staff	Other Commercial/ Industrial Operations	Engineers & Architects	Property Developers	Construction Industry
X	X	X	X	X						

Educational Goals: The overall goal of this BMP is for the target audience to be able to utilize this hotline or other methods to contact the proper authority to report erosion control concerns or ask technical questions.

Implementation: 2004

Measurable Goals: Number of contacts.

SECTION VI
EDUCATION ACTIVITY IMPLEMENTATION PLAN

Education Activity: Hennepin County Hazardous Waste Disposal Center
BMP Number: 14
Description: The City of Bloomington continues to promote the use of the Hennepin County Hazardous Waste Disposal Center located at 1800 West 96th Street.

Minimum Control Measures Addressed:

Public Education & Outreach	Public Particpation/ Involvement	Illicit Discharge Detection & Elimination	Construction Site Runoff Control	Post-construction Runoff Control	Pollution Prevention/Good Housekeeping for Municipal Operations
X	X	X			

Target Audiences:

General Public	K-12 Students	Home owners	Business owners	Property Managers	Government Officials	MS4 Staff	Other Commercial/ Industrial Operations	Engineers & Architects	Property Developers	Construction Industry
X	X	X	X	X			X			

Educational Goals: The overall goal of this BMP is for the target audience to understand and utilize proper disposal methods and locations for hazardous wastes.

Implementation: On-going

Measurable Goals: Number of publications or notifications promoting the hazardous waste disposal center.

SECTION VI
EDUCATION ACTIVITY IMPLEMENTATION PLAN

Education Activity: Public Notice of Annual Meeting
BMP Number: 15
Description: The City of Bloomington publishes public notice regarding the Storm Water Pollution Prevention Program Annual Meeting at least 30 days prior to the actual meeting.

Minimum Control Measures Addressed:

Public Education & Outreach	Public Particpation/ Involvement	Illicit Discharge Detection & Elimination	Construction Site Runoff Control	Post-construction Runoff Control	Pollution Prevention/Good Housekeeping for Municipal Operations
X	X	X	X	X	X

Target Audiences:

General Public	K-12 Students	Home owners	Business owners	Property Managers	Government Officials	MS4 Staff	Other Commercial/ Industrial Operations	Engineers & Architects	Property Developers	Construction Industry
X	X	X	X	X	X	X	X	X	X	X

Educational Goals: The goal of this BMP is to allow the target audience the ability to be aware that the City of Bloomington has a Storm Water Pollution Prevention Program, be informed of the annual public meeting concerning the SWPPP. An additional goal is to have the target audience understand the process for providing input to the SWPPP and be aware that input into the SWPPP is encouraged.

Implementation: At least 30 days prior to Annual Meeting.

Measurable Goals: Public Notice - Annual meeting attendance - Comments received

SECTION VI
EDUCATION ACTIVITY IMPLEMENTATION PLAN

Education Activity: Illicit Discharge/Spill Complaint Line
BMP Number: 16
Description: The City of Bloomington will establish a complaint mechanism for the general public to contact City officials to report suspected illicit discharges, spills, or illegal dumping.

Minimum Control Measures Addressed:

Public Education & Outreach	Public Participation/ Involvement	Illicit Discharge Detection & Elimination	Construction Site Runoff Control	Post-construction Runoff Control	Pollution Prevention/Good Housekeeping for Municipal Operations
X	X	X			

Target Audiences:

General Public	K-12 Students	Home owners	Business owners	Property Managers	Government Officials	MS4 Staff	Other Commercial/ Industrial Operations	Engineers & Architects	Property Developers	Construction Industry
X		X	X	X			X			

Educational Goals: The goal of this BMP is for citizens to utilize a mechanism for reporting potential illicit discharges and to understand proper disposal methods of materials that may contribute to an illicit discharge.

Implementation: 2007

Measurable Goals: Complaint line, web address, number of complaints.

SECTION VI
EDUCATION ACTIVITY IMPLEMENTATION PLAN

Education Activity: Operation and Maintenance Program for Municipal Operations
BMP Number: 31
Description: The City of Bloomington plans to develop and implement an operations and maintenance program including a training component to reduce the pollutant loading from municipal operations.

Minimum Control Measures Addressed:

Public Education & Outreach	Public Particpation/ Involvement	Illicit Discharge Detection & Elimination	Construction Site Runoff Control	Post-construction Runoff Control	Pollution Prevention/Good Housekeeping for Municipal Operations
		X			X

Target Audiences:

General Public	K-12 Students	Home owners	Business owners	Property Managers	Government Officials	MS4 Staff	Other Commercial/ Industrial Operations	Engineers & Architects	Property Developers	Construction Industry
					X	X				

Educational Goals: The overall goal of this BMP for the target audience to understand proper operation of maintenance equipment and procedures, recognize proper methods for storage of materials and equipment to avoid runoff pollution, and become aware of the operation of the storm sewer system and conveyances to local waterbodies.

Implementation: On-going

Measurable Goals: Inspections Programs - Training Program.

SECTION VI
EDUCATION ACTIVITY IMPLEMENTATION PLAN

Education Activity: Erosion Control Training
BMP Number: 32
Description: The City of Bloomington is requiring advanced training of Engineering Division personnel that are responsible for inspecting erosion control on city and private construction projects.

Minimum Control Measures Addressed:

Public Education & Outreach	Public Particpation/ Involvement	Illicit Discharge Detection & Elimination	Construction Site Runoff Control	Post-construction Runoff Control	Pollution Prevention/Good Housekeeping for Municipal Operations
			X	X	X

Target Audiences:

General Public	K-12 Students	Home owners	Business owners	Property Managers	Government Officials	MS4 Staff	Other Commercial/ Industrial Operations	Engineers & Architects	Property Developers	Construction Industry
					X	X				

Educational Goals: The overall goal of this education activity is for the target audience to understand the impacts of sediment loading to a waterbody as a result of soil erosion and to understand how to effectively maintain erosion control best management practices to insure proper operation.

Implementation: 2003

Measurable Goals: Number of certified inspectors.

SECTION VI
EDUCATION ACTIVITY IMPLEMENTATION PLAN

Education Activity: Comprehensive Surface Water Management Plan
BMP Number: 33
Description: The City of Bloomington has a Comprehensive Surface Water Management Plan that provides direction concerning the administration and implementation of water resources and water-resources related activities within the City.

Minimum Control Measures Addressed:

Public Education & Outreach	Public Particpation/ Involvement	Illicit Discharge Detection & Elimination	Construction Site Runoff Control	Post-construction Runoff Control	Pollution Prevention/Good Housekeeping for Municipal Operations
X		X	X	X	X

Target Audiences:

General Public	K-12 Students	Home owners	Business owners	Property Managers	Government Officials	MS 4 Staff	Other Commercial/ Industrial Operations	Engineers & Architects	Property Developers	Construction Industry
X	X	X	X	X	X	X	X	X	X	X

Educational Goals: The overall goal of this education activity is for the target audience to understand the connection between land use practices and surface water quality, be aware of best management practice techniques to preserve or improve surface water quality, and to understand and support regulations aimed at controlling storm water runoff and improving water quality.

Implementation: 2000

Measurable Goals: Plan - Completed capital improvements.

SECTION VI
EDUCATION ACTIVITY IMPLEMENTATION PLAN

Education Activity: Wetland Protection and Management Plan
BMP Number: 34
Description: The City of Bloomington developed a guide plan to provide direction concerning the protection and management of wetland resources within the City. The WPMP serves the City as a means to protect wetlands designated uses and future use classifications as inventoried. The plan was reviewed and approved by all appropriate state and local agencies.

Minimum Control Measures Addressed:

Public Education & Outreach	Public Particpation/ Involvement	Illicit Discharge Detection & Elimination	Construction Site Runoff Control	Post-construction Runoff Control	Pollution Prevention/Good Housekeeping for Municipal Operations
X	X		X	X	X

Target Audiences:

General Public	K-12 Students	Home owners	Business owners	Property Managers	Government Officials	MS4 Staff	Other Commercial/ Industrial Operations	Engineers & Architects	Property Developers	Construction Industry
X	X	X	X	X	X	X	X	X	X	X

Educational Goals: The overall goal of this education activity is for the target audience to understand the connection between land use practices and surface water quality, be aware of best management practice techniques to preserve or improve surface water quality, and to understand and support regulations aimed at controlling storm water runoff and improving water quality.

Implementation: 1997

Measurable Goals: Plan - Completed capital improvements.

SECTION VI
EDUCATION ACTIVITY IMPLEMENTATION PLAN

Education Activity: Development Plan Reveiw
BMP Number: 36
Description: The City of Bloomington Engineering Division reviews proposed development and redevelopment plans through the Development Review Committee process. The Engineering Division reviews the plans for compliance with City Code and standards in relations to streets, parking lots, grading, storm sewer, and erosion control.

Minimum Control Measures Addressed:

Public Education & Outreach	Public Particpation/ Involvement	Illicit Discharge Detection & Elimination	Construction Site Runoff Control	Post-construction Runoff Control	Pollution Prevention/Good Housekeeping for Municipal Operations
		X	X	X	

Target Audiences:

General Public	K-12 Students	Home owners	Business owners	Property Managers	Governement Officials	MS4 Staff	Other Commercial/ Industrial Operations	Engineers & Architects	Property Developers	Construction Industry
			X	X	X	X	X	X	X	X

Educational Goals: The overall goal of this BMP is for the target audiences to be aware of the City's erosion control requirements, understand site design and on-going maintenance of storm water best management practices, and be aware of site maintenance practices that will minimize the potential for erosion and other storm water impacts.

Implementation: On-going

Measurable Goals: Number of plans reviewed.

SECTION VI
EDUCATION ACTIVITY IMPLEMENTATION PLAN

Education Activity: Construction Turf Establishment Plans
BMP Number: 38
Description: The City of Bloomington Engineering Division will continue to provide timely turf re-establishment on city improvement projects.

Minimum Control Measures Addressed:

Public Education & Outreach	Public Particpation/ Involvement	Illicit Discharge Detection & Elimination	Construction Site Runoff Control	Post-construction Runoff Control	Pollution Prevention/Good Housekeeping for Municipal Operations
			X	X	X

Target Audiences:

General Public	K-12 Students	Home owners	Business owners	Property Managers	Governement Officials	MS4 Staff	Other Commercial/ Industrial Operations	Engineers & Architects	Property Developers	Construction Industry
					X	X				

Educational Goals: The overall goal of this BMP is for the target audience to be aware of landscape maintenance techniques and procedures used to minimize storm water impacts and improve surface water quality.

Implementation: On-going

Measurable Goals: Number of construction projects.

SECTION VI
EDUCATION ACTIVITY IMPLEMENTATION PLAN

Education Activity: Shore Area Regulations
BMP Number: 41
Description: The City of Bloomington has established regulations to protect the natural characteristics of certain shore areas in the City of Bloomington. The regulations were adopted to prevent pollution of surface and ground waters, minimize flood damage, and to effectively manage the effects of shore area development.

Minimum Control Measures Addressed:

Public Education & Outreach	Public Particpation/ Involvement	Illicit Discharge Detection & Elimination	Construction Site Runoff Control	Post-construction Runoff Control	Pollution Prevention/Good Housekeeping for Municipal Operations
				X	

Target Audiences:

General Public	K-12 Students	Home owners	Business owners	Property Managers	Governement Officials	MS4 Staff	Other Commercial/ Industrial Operations	Engineers & Architects	Property Developers	Construction Industry
X		X	X	X	X	X	X	X	X	X

Educational Goals: The overall goal of this BMP is for the target audiences understand the impacts of urban development on storm water runoff volumes, rates, and quality, and be aware of site maintenance practices that will minimize the potential for erosion and other storm water impacts.

Implementation: On-going

Measurable Goals: Regulatory Mechanism.

SECTION VI
EDUCATION ACTIVITY IMPLEMENTATION PLAN

Education Activity: Special Zoning Overlay Districts
BMP Number: 42
Description: The City of Bloomington has adopted special zoning overlay districts to protect natural features in private, common, or public open space.

Minimum Control Measures Addressed:

Public Education & Outreach	Public Particpation/ Involvement	Illicit Discharge Detection & Elimination	Construction Site Runoff Control	Post-construction Runoff Control	Pollution Prevention/Good Housekeeping for Municipal Operations
				X	

Target Audiences:

General Public	K-12 Students	Home owners	Business owners	Property Managers	Government Officials	MS4 Staff	Other Commercial/ Industrial Operations	Engineers & Architects	Property Developers	Construction Industry
X		X	X	X	X	X	X	X	X	X

Educational Goals: The overall goal of this BMP is for the target audiences understand the impacts of urban development on storm water runoff volumes, rates, and quality, and be aware of site maintenance practices that will minimize the potential for erosion and other storm water impacts.

Implementation: On-going

Measurable Goals: Regulatory Mechanism.

SECTION VI
EDUCATION ACTIVITY IMPLEMENTATION PLAN

Education Activity: Goose and Waterfowl Feeding Policy
BMP Number: 44
Description: The City of Bloomington developed a mechanism for addressing water quality and other problems associated with the feeding of geese and other waterfowl.

Minimum Control Measures Addressed:

Public Education & Outreach	Public Participation/ Involvement	Illicit Discharge Detection & Elimination	Construction Site Runoff Control	Post-construction Runoff Control	Pollution Prevention/Good Housekeeping for Municipal Operations
X	X				

Target Audiences:

General Public	K-12 Students	Home owners	Business owners	Property Managers	Government Officials	MS4 Staff	Other Commercial/ Industrial Operations	Engineers & Architects	Property Developers	Construction Industry
X	X	X	X	X						

Educational Goals: The overall goal of this BMP is for the target audience to understand the benefits of proper yard care to minimize impacts to water resources and be aware of the impacts to water resources from excess nutrient loading and their sources.

Implementation: 2006

Measurable Goals: Mechanism.

SECTION VI
EDUCATION ACTIVITY IMPLEMENTATION PLAN

Education Activity: Metro Area Water Resources Meetings
BMP Number: 46
Description: The City of Bloomington Engineering Division routinely meets with other water resources staff from neighboring local governments and agencies to discuss storm water impact issues and accomplishments.

Minimum Control Measures Addressed:

Public Education & Outreach	Public Particpation/ Involvement	Illicit Discharge Detection & Elimination	Construction Site Runoff Control	Post-construction Runoff Control	Pollution Prevention/Good Housekeeping for Municipal Operations
					X

Target Audiences:

General Public	K-12 Students	Home owners	Business owners	Property Managers	Government Officials	MS 4 Staff	Other Commercial/ Industrial Operations	Engineers & Architects	Property Developers	Construction Industry
					X	X				

Educational Goals: The overall goal of this BMP is for the target audience to understand proper erosion control techniques and best management practices to minimize storm water impacts.

Implementation: 2003

Measurable Goals: Number of meetings attended. Meeting notes.

4.40 Programs

4.41 Summary

The plan presents nine programs that affect wetlands. Four exist today in some form (street sweeping, public trap manhole maintenance, public storm water pond maintenance and park turf maintenance). The street sweeping program will be modified to sweep streets in priority watersheds first (i.e. those with high quality wetlands). Formal public trap manhole inspection and maintenance, and public storm water pond maintenance, programs will be developed to insure maintenance is performed when needed. The park turf maintenance policy will be revised to address vegetative buffer zones.

Five new programs will be developed. The education program will be a focal point of this plan. Much of the benefit to be derived from the implementation of this plan will come from educating the public about what wetlands are, why they are important and what individuals can do to help protect and preserve wetlands.

The second new program addresses methods for controlling invasive or exotic wetland vegetation. Such vegetation can choke out other types of vegetation and result in a significant loss of floral diversity and wildlife habitat.

The third new program is called the Adopt-A-Wetland Program. It is being developed to foster public involvement and to provide residents with hands-on opportunities for wetland protection. A neighborhood or group can "adopt" a wetland and volunteer for numerous tasks such as debris cleanup or exotic vegetation control.

The wetland banking program will be implemented to provide wetland mitigation sites within the City. These sites would be used to provide WCA-required wetland mitigation acres for future City projects that impact wetlands. If such a program is not begun, the City may find itself in the position of needing to acquire wetland property in other portions of the county to satisfy future mitigation requirements.

The fifth new program will establish methods for monitoring and evaluating the overall effect of implementing the recommendations in this plan. The biological and chemical condition of numerous wetlands will be monitored as a part of this program.

4.42 Education Program

Introduction

A major factor in the long term success of the City's Wetland Protection and Management Plan will be the degree to which people adapt their activities to benefit the wetlands. The most effective way to bring about this change is through a comprehensive information and education program.

A recent survey of the public in Dakota County showed that there is a definite need to educate the public concerning water related resources. Many people do not understand the functions a

wetland performs. They also do not realize that storm sewers convey water directly to a water body or watercourse, or that their activities dealing with lawn and garden care or waste disposal can have a major impact on the quality of a wetland.

Discussion

The goal of this education program will be to increase the public's knowledge and awareness of the value of wetlands as a water resource and to stimulate public involvement in preserving and improving this resource. This goal will be met through the completion of the following action steps and will involve various target audiences in the City:

1. **Develop education information** for target audiences and distribute that information via various sources; articles in *Bloomington Briefs* and the *Bloomington Sun-Current*, presentations on cable TV, information brochures to be mailed city wide, and utility billing inserts. This information will explain what a wetland is and why it is valuable. Depending on the target audience, the information will provide specific recommendations for actions that groups can take to help preserve wetlands

2. **Prepare a bibliography and a web page** of sources for information and assistance with water resources issues, including wetlands.

3. **Establish a staff speaker program** to provide staff who can present basic information about wetlands and the city's Comprehensive Wetland Protection and Management Plan to interested groups in the City.

4. **Establish an "Adopt-a-Wetland" program** to encourage citizens to become more actively involved in preserving wetlands.

5. **Prepare a handout for all grading permit applicants** that explains the need for proper erosion control on a site and describes the steps needed to ensure that it occurs.

The Target Audiences Include:

- the general public
- shoreland owners
- business owners and operators
- developers and contractors
- government policy and decision makers
- city staff
- students and teachers

Recommendations

It is recommended that the City carry out the above public awareness programs. Implementation is recommended as follows:

1. Develop education information and distribute it to target audiences.

The first portion of the education plan will involve the preparation and distribution of a brochure that explains what a wetland is and why it is valuable. The brochure will explain the many functions a wetland can serve (floral diversity, wildlife habitat, fishery habitat, flood and storm water storage, water quality protection, shoreland protection, recreational/educational/aesthetic benefits, groundwater interaction and commercial uses). It will also describe the variety of wetlands in Bloomington, how wetlands have been affected by our past actions and why it is now important to preserve and improve wetland quality.

It is hoped that, by providing this information about the importance of wetland quality, people's awareness of the issue will be heightened and they will recognize there is a problem, what causes it and accept the solutions presented for addressing wetland quality issues.

The brochure will then present various actions that each target audience can take to become involved in preserving and improving wetlands.

The **general public** will be told about the effects of improper application of lawn and garden fertilizers and pesticides, the affects of the improper disposal of household hazardous materials, the improper disposal of lawn clippings and leaves and the improper disposal of pet wastes. Proper methods of dealing with these issues will be provided.

Shoreland owners will be told of the value of providing vegetative buffers around wetlands and that compost sites should be kept back from the shoreline.

Business owners and operators will be told of the value of proper parking lot maintenance (trash pickup, sweeping, catch basin cleaning), and proper disposal of hazardous materials.

Developers and contractors will be told about the benefit of proper erosion and sedimentation control on construction sites.

Copies of this brochure will be given to the **City Council, legal staff and planning staff**; along with a staff memo identifying possible changes or additions to City ordinances and policies that would aid the effort to preserve and improve the City's wetlands.

City staff involved in construction and maintenance will be given instruction in any changes in procedure or policy produced as a result of the adoption of this plan.

A number of steps will be taken to enhance the educational materials and opportunities for **students and teachers.** The City will work with the staff of the Minnesota Valley National Wildlife Refuge and the Hennepin Conservation District (HCD) to coordinate the acquisition of new educational materials, catalog the materials on hand at the City, the Refuge resource library, web site contacts, and the HCD and notify the schools of the

availability of the general wetland information brochure and provide copies to schools as requested.

2. **Prepare a bibliography and a web page** of sources for information and assistance with water resources issues, including wetlands.

This document will be available through the City. It will list federal, state, regional, county and local sources of information concerning water resources. Its availability will be noted in the initial information brochure. It will be provided to K-9 teachers. The web page would include the bibliography and a section addressing current wetland issues.

See Appendix H for a list of sources for obtaining additional information.

3. **Establish a program to provide staff as speakers** who can present basic information about wetlands and the City's Comprehensive Wetland Management Plan.

These individuals will be available to speak to schools, service organizations and neighborhood groups to further the education effort. A core presentation will be developed that can be modified based on the interests or needs of the audience.

4. **Establish an "Adopt-A-Wetland" program** to encourage citizens to become more actively involved in preserving wetlands.

This program will enhance the education program and allow citizens to take ownership of the wetland plan by taking part in activities that will restore, enhance and protect wetlands. Examples of projects that a group can do under this program include buckthorn and purple loosestrife control, litter and trash removal, developing vegetative buffer zones and water quality monitoring.

5. **Prepare a handout for all grading permit applicants** that explains the need for proper erosion control on a site and describes the steps needed to ensure that it occurs.

This handout will briefly explain the reason proper erosion control is necessary, provide information (including typical details) on the types that are available and provide information on proper maintenance.

APPENDIX G

Summary of Local NPDES Programs

Table 1
BMP IMPLEMENTATION PROGRAM

Best Management Practices	Description of BMP & Goal	Schedule
MCM 1 - Public Education and Outreach		
1a-1 Distribute Educational Materials Brochures, Handouts, and Newsletters, SWPPP Web Page, Annual Public Meeting	Distribute a minimum of 3 educational publications via City mailings, workshops, presentations, website postings, or newsletters. Begin working collaboratively with the Minnehaha Creek Watershed District (MCWD), Nine Mile Creek Watershed District (NMCWD), and Richfield-Bloomington Watershed Management organization (RBWMO) in distributing educational materials and promoting/supporting outreach programs.	Begin September 1, 2007. Implement activities in 2008. Review and revise educational activities schedule and funding January 1, 2009 through 2011.
1b-1 Implement an Education Program	Minnehaha Creek Watershed District (MCWD), Nine Mile Creek Watershed District (NMCWD), and Richfield-Bloomington Watershed Management organization (RBWMO). Record attendance, web site visits, keep minutes, record statements/requests, and written comments.	Begin September 1, 2007. Implement activities in 2008. Review and revise educational activities schedule and funding January 1, 2009 through 2011.
1c-1 Education Program: Public Education and Outreach Program	Develop a City website devoted to water resource related issues. Distribute water resource related articles in the City newsletter.	Begin September 1, 2007. Implement by January 1, 2008.
1c-2 Education Program: Public Participation	Encourage public participation to public presentations and the City's website.	Begin September 1, 2007. Implement by January 1, 2008.
1c-3 Education Program: Illicit Discharge Detection and Elimination	Distribute a minimum of one illicit discharge related publication to residents per year. Provide illicit discharge education to City staff.	Begin distributing educational material to residents in 2008 through May 31, 2011. Provide staff education in 2007 through May 31, 2011.
1c-4 Education Program: Construction Site Run-off Control	Meet with contractors and residents prior to the start of construction to discuss implementing project specific BMP's. Provide erosion control education to City staff.	Continue the plan review process/pre-construction meetings. Provide staff education in 2007 through May 31, 2011.
1c-5 Education Program: Post-Construction Stormwater Management in New Development and Redevelopment	Distribute a minimum of one post-construction stormwater management related publication to residents per year.	Begin distributing educational material to residents in 2008 through May 31, 2011.
1c-6 Education Program: Pollution Prevention/Good Housekeeping for Municipal Operations	Provide a minimum of one pollution prevention related training opportunity to City staff per year.	Begin in 2007 through the expiration of this permit, May 31, 2011.

Best Management Practices	Description of BMP & Goal	Schedule
1d-1 Coordination of Educational Programming	Coordinate educational components, programming, and schedule with MCWD, NMCWD, and RBWMO.	2007 or as specified in each BMP of MCM 1.
1e-1 Annual Public Meeting	Hold an annual public meeting to distribute educational materials and present an overview of the MS4 program and City's SWPPP	Minimum of once/year, annually through May 31, 2011.
MCM 2 Public Participation and Involvement		
2a-1 Comply with Public Notice Requirements	Notice the annual public meeting in the official newspaper 30 days prior to the meeting date	Annually through May 31, 2011
2b-1 Solicit Public Input and Opinion on the Adequacy of the SWPPP	Hold an annual public meeting and host a web page to solicit public opinion on the SWPPP	Minimum of once/year, annually through 2011.
2c-1 Consider Public Input	Record attendance, keep minutes, record statements, and written comments and document changes made to the SWPPP	Minimum of once/year, annually through 2011.
MCM 3 Illicit Discharge Detection and Elimination		
3a-1 Storm Sewer System Map	Update storm sewer system map, as needed.	Annually 2008 – May 31, 2011
3b-1 Regulatory Control Program	Review city ordinances related to illicit and non-stormwater discharges	Review existing ordinances in 2009-May 31, 2011.
3c-1 Illicit Discharge Detection and Elimination Plan	Develop and implement a program to detect and reduce non-storm water discharges.	Develop program starting September 1, 2007. Implement program and document inspections starting January 1, 2008.
3d-1 Public and Employee Illicit Discharge Information Program	Distribute educational materials to residents and provide illicit discharge educational activities to City staff a minimum of one time annually.	Begin January 1, 2008. Review annually through May 31, 20011.
3e-1 Identification of Non Stormwater Discharges and Flows	The City has identified and evaluated all non-storm water discharges (as defined in Part V.G.3.e) to be insignificant pollutant contributors.	Completed
MCM 4 Construction Site Storm Water Runoff Control		
4a-1 Ordinance or other Regulatory Mechanism	Continue to implement construction site inspection program. Review erosion control and revise if necessary. Add new NPDES requirements if necessary.	Review ordinance in 2008. Revise (if necessary) by March 1, 2008. Add new NPDES requirements (if necessary) through May 31, 2011.
4b-1, 4c-1 Construction Site Implementation of Erosion and Sediment Control BMP's: Waste Controls for Construction Site Operators	Construction site operators must conform to NPDES Phase II, watershed district, and City ordinances pertaining to erosion and sediment controls and waste controls.	Continue to implement through May 31, 2011. Add new NPDES requirements (if necessary) through May 31, 2011.

Best Management Practices	Description of BMP & Goal	Schedule
4d-1 Procedure for Site Plan Review	No City permit to allow land disturbing activities shall be issued until approval of storm water management plan (if applicable) and/or erosion control plan or waiver has been obtained.	Continue to implement through may 31, 2011.
4e-1 Establishment of Procedures for the Receipt and Consideration of Reports of Stormwater Noncompliance	Provide a phone number, website, and point of contact for the public to report storm water pollution issues.	Begin developing September 1, 2007. Implementation and record keeping January 1, 2008 through May 31, 2011.
4f-1 Establishment of Procedures for Site Inspections and Enforcement	Continue erosion control site inspections and enforcement procedures. Add additional procedures as necessary.	Review and revise as necessary 2008 through May 31, 2011.
MCM 5 Post Construction Storm Water Management Measures		
5a-1 Development and Implementation of Structural and/or Non-Structural BMP's	The City will evaluate all structural and non-structural BMP's during the plan review process for the potential of new and/or revised BMP's. The City will also actively look for non-structural opportunities where prudent and feasible.	Begin evaluation January 1, 2008, recordkeeping 2008 through May 31, 2011.
5b-1 Regulatory Mechanism to Address Post Construction Runoff from New Development and Redevelopment	The City will implement the requirements of the Comprehensive Surface Water Management Plan and applicable City ordinances.	Continue to implement through May 31, 2011
5c-1 Long-term Operation and Maintenance of BMP's	The City will continue to annually inspect a minimum of 20% of all its MS4 outfalls, sediment basins, and ponds, then evaluate and record the number of proposed maintenance projects and successful funding of each project (if applicable). Success of this BMP is defined as acheving the measurable goals of minimum control measure 6.	Continue to implement through May 31, 2011
MCM 6 Pollution Prevention/Good Housekeeping Measures		
6a-1 Municipal Operations and Maintenance Program	City staff will implement the Comprehensive Surface Water Management Plan; conform to all BMP's within MCM #6.	Begin implementing in 2007. Review and revise in 2009 through May 31, 2011.
6a-2 Street Sweeping Program	Street sweep twice annually. Record the annual number of times streets are brush swept as well as document any additional activities that were undertaken regarding this program.	Sweep twice per year; record annually 2007- May 31, 2011.
6b-2 Annual Inspection of All Structural Pollution Control Devices	Inspect and document all structural pollution control devices a minimum of once per year.	Minimum of once/year, annually through May 31, 2011.

Best Management Practices	Description of BMP & Goal	Schedule
6b-3 Inspection of a Minimum of 20% of the MS4 Outfalls, Sediment Basins and Ponds Each Year on a Rotating Basis.	The City will inspect all mapped outfalls, sediment basins, and ponds a minimum of 20% each year (on a rotating schedule during permit coverage) and record the number inspected, and rate the condition of each outfall.	Inspect a minimum of 20% per year. Continue through May 31, 2011 or until 100% complete prior to May 31, 2011.
6b-4 Annual Inspection of All Exposed Stockpile, Storage, and Material Handling Areas.	Locate and inspect all exposed stockpile, storage and material handling areas located on City-owned properties, record inspections, correct and document all remedial actions a minimum of once per year.	Begin in 2007 through May 31, 2011.
6b-5 Inspection Follow-up, Including the Determination of Whether Repair, Replacement, or Maintenance Measures are Necessary and the Implementation of the Corrective Measures.	Determinations of repair, replacement, or maintenance measures will be directed by the City Engineer. All corrective maintenance, repair, and/or replacement measures will be recorded in the City's SWPPP.	Continue to implement through May 31, 2011. Begin recording in the SWPPP, January 1, 2008.
6b-6 Record Reporting and Retention of All Inspections and Responses to the Inspections	The City will record the number of inspection record requests and distributed materials.	Continue to implement through May 31, 2011.
6b-7 Evaluation of Inspection Frequency	Record all inspections completed annually	Continue annually through May 31, 2011.
6b-8 Landscaping & Lawn Care Practices Review	Continue to evaluate current practices of fertilizer, pesticide, and herbicide application, mowing operations, grass clipping collection, mulching, and composting.	Minimum of one/year, annually through May 31, 2011.
6b-9 Road Salt Application Review	Continue to evaluate current practices of road salt applications, alternative products, calibration of equipment, inspection of vehicles and staff training.	Minimum of one/year, annually through May 31, 2011.
Additional BMPS		
7 VI.D- Section 303(d) Impaired Waters Listings	The City will review all discharges from the City's MS4 system to impaired waters, pursuant to section IV.D.	Submit to MPCA prior to June 30, 2008. Continue annually through May 31, 2011.

V. ANNUAL REPORT

An annual report will be prepared and submitted to the MPCA prior to June 30 of each year from 2006 through 2011. This annual report will summarize the following:

A. Status of Compliance With Permit Conditions

The annual report will contain an assessment of the appropriateness of the BMPs and progress toward achieving the identified measurable goals for each of the minimum control measures. This assessment will be based on results collected and analyzed, inspection findings, and public input received during the reporting period.

B. Work Plan

The annual report will contain a list of storm water activities that are planning to be undertaken in the next reporting cycle.

C. Modifications to the SWPPP

The annual report will identify changes to BMPs or measurable goals for any of the minimum control measures.

D. Notice of Coordinated Activities

A notice will be included in the annual report for any portions of the permit for which a government entity or organization outside of the MS4 is being utilized to fulfill any BMP contained in the SWPPP.