

RECONNAISSANCE REPORT ON THE
PROPOSED OUTLET IMPROVEMENT FOR COUNTY DITCH #39
IN OAK PARK AND BIG WOODS TOWNSHIPS
MARSHALL COUNTY, MINNESOTA
TO THE
BOARD OF MANAGERS OF THE
MIDDLE RIVER-SNAKE RIVER WATERSHED DISTRICT

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION
OR REPORT WAS PREPARED BY ME OR UNDER MY
DIRECT SUPERVISION AND THAT I AM A DULY
REGISTERED PROFESSIONAL ENGINEER UNDER THE
LAWS OF THE STATE OF MINNESOTA.

Ronald J. Adams

REG. NO. 13675 DATE 7 Aug 84

INTRODUCTION

In December 1983, the Marshall County Board, after holding a public hearing, transferred jurisdiction over County Ditch #39 to the Board of Managers of the Middle River Snake River Watershed District. This ditch, which was established in about 1948 is located in Oak Park and Big Woods Townships. Figure 1 shows the approximate location of the channel. One of the reasons this drainage system was turned over to the Board of Managers was because interest has been expressed in the construction of a new outlet. There are several possible locations for a new outlet, however, this report deals only with an outlet along the line common to the north half and the south half of the north east quarter of section 5 of Oak Park Township.

This report is intended to provide the Board of Managers and persons interested in County Ditch #39 with a preliminary estimate of the quantities and costs that could be expected to implement this proposal.

The information presented in this report has been derived from a preliminary survey of the proposed route and, an inspection of the topographic maps of the area. It should be noted that the information presented herein is preliminary in nature and is likely to change with the acquisition of additional data concerning this proposal.

OUTLET CHANNEL

A profile was taken of the ground along the proposed route. To provide drainage to the west will require a channel about 1,800 feet long. The first 500 feet would average about 7 feet deep, the second 500 feet would average about 11 feet deep, and the last 800 feet would average about 13 feet deep. Assuming that a stable channel could be provided with 2:1 side slopes and using a six foot bottom the excavation would total about 20,000 cubic yards. Using \$.65 per cubic yard as the unit cost for excavation this could be expected to cost about \$13,000.

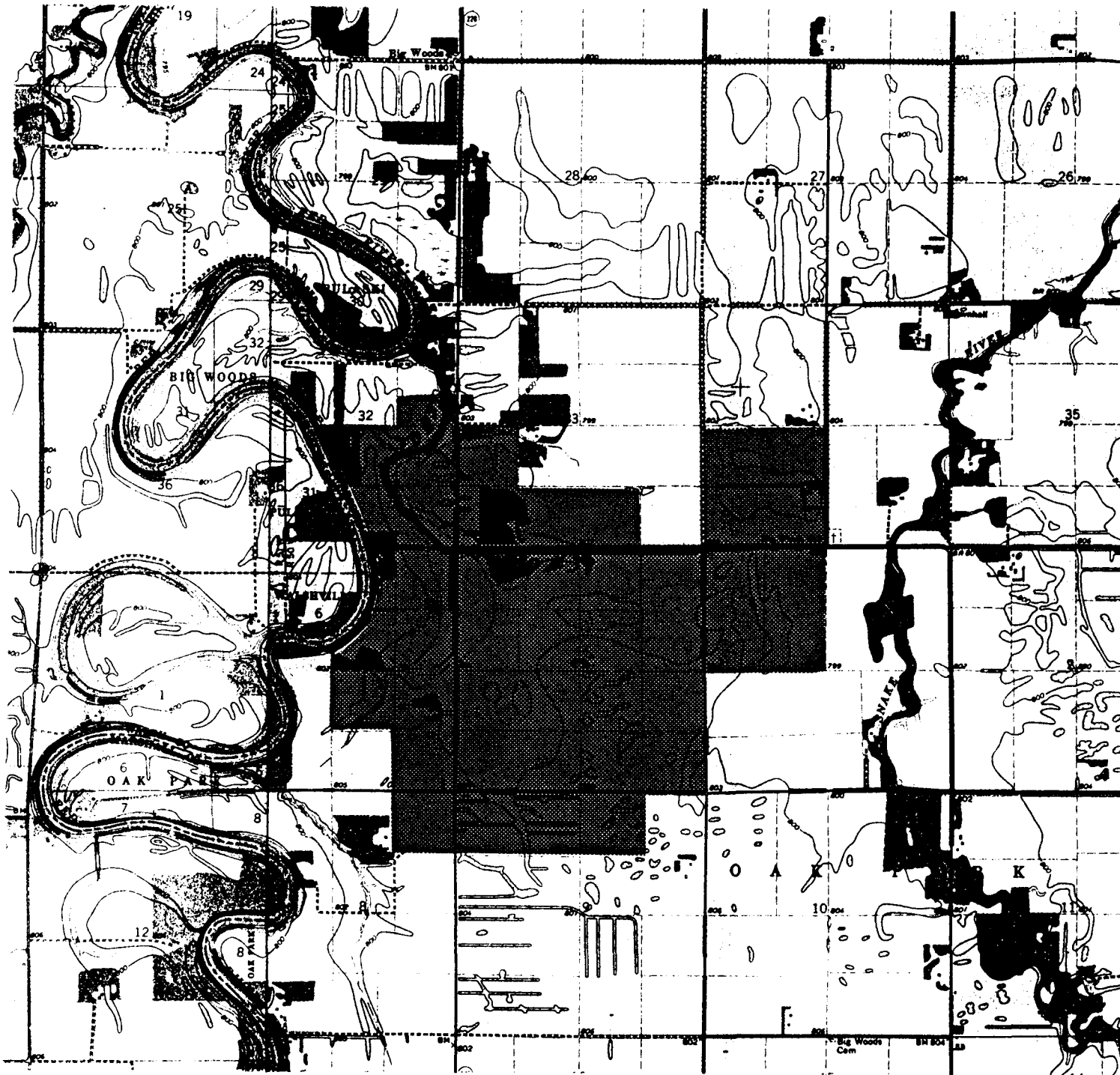


FIGURE 1
Marshall County Ditch #39
Benefited Area (1948)

AGRICULTURAL LEVEES

The proposed outlet channel would pass through the RRN agricultural levee system. The channel bottom would be about 19.0 feet below the top of the levee in place. To provide an outlet through this would require a 48" diameter corrugated steel pipe or equivalent approximately 140 feet long. To prevent waters from the Red River from backing up through the culvert will require a gate on the west end. The cost of installing this culvert and a gate is estimated to be about \$8,500.

RIGHT OF WAY

The right of way required for this proposal is estimated to total about 8 acres. Approximately 2.6 acres would be required for the channel and approximately 5.4 acres would be required for the spoil. Using \$1,000 per acre as the estimate of the unit cost of the right of way for the channel and \$180 per acre as the estimate of the unit cost for the right of way for the spoil results in the estimated cost of right of way totaling \$3,600.

UTILITIES

There do not appear to be any utilities which would be affected by this proposal.

PERMITS

It is expected that permits would be required from the Minnesota Department of Natural Resources and the Corps of Engineers. Two permits would be required from the Department of Natural Resources, one for works in Public Waters and one for works within the regional floodplain of Red River of the North. The permit from the Corps of Engineers would be required under section 404.

BENEFITED AREA

The area benefited by the construction of the County Ditch #39 totals about 1,600 acres. This area is shown in figure 1. In addition there are roadways which were found to be benefited. A comparison was made of the benefited area with the apparent drainage area and it appears that there may about 600 acres contributing waters to County Ditch #39 that are not presently benefited by County Ditch #39. If this is found to be the case then the benefited area could be expected to increase to about 2,200 acres.

ESTIMATED COST

The cost of the construction of the proposed ditch as outlined, is estimated to be \$29,100. A summary of the estimated quantities and cost is given in Table 1. Assuming a benefited area of 2,200 acres, the cost per acre would average about \$14. If it becomes necessary to use a 4:1 side slope then the subsequent cost would be greater. Table 2 is a summary of the estimated quantities and costs for the same channel using 4:1 side slopes. The cost for this alternative is estimated to be \$40,500 or about \$18 per acre. It should be noted that this is a preliminary estimate and is likely to change substantially as the project is defined further and as more information is acquired.

TABLE 1
SUMMARY OF ESTIMATED QUANTITIES AND COST
COUNTY DITCH #39 OUTLET IMPROVEMENT
(2:1 Side Slopes)

ITEM	QUANTITY	UNIT	UNIT-RATE	COST
Excavation	20,000	CuYds	.65	13,000
Outlet Culvert w/gate	1	Units	8,500	8,500
R/W				
Permanent	2.6	Acres	1,000	2,600
Temporary	5.4	Acres	180	1,000
Eng. & Admin.	NA	NA	NA	4,000
			TOTAL	<u>\$29,100*</u>

TABLE 2
SUMMARY OF ESTIMATED QUANTITIES AND COST
COUNTY DITCH #39 OUTLET IMPROVEMENT
(4:1 Side Slopes)

ITEM	QUANTITY	UNIT	UNIT-RATE	COST
Excavation	35,000	CuYds	.65	22,000
Outlet Culvert w/gate	1	Units	8,500	8,500
R/W				
Permanent	4.4	Acres	1,000	4,400
Temporary	9.0	Acres	180	1,600
Eng. & Admin.	NA	NA	NA	4,000
			TOTAL	<u>\$40,500*</u>

*NOTE: This estimate is based on incomplete information and is likely to change substantially with the acquisition of additional information.