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ANNUAL WATERSHED PLANNING REPORT

JULY 1, 1971 – JUNE 30, 1972

NEBRASKA NATURAL RESOURCES COMMISSION
(Formerly Nebraska Soil and Water Conservation Commission)

Watershed Planning Section

ANNUAL REPORT

July 1, 1971 - June 30, 1972

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Watershed Planning Section

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ANNUAL WATERSHED PLANNING REPORT

INTRODUCTION

In the past, the annual Watershed Planning report was prepared on a calendar year basis. To keep in line with the fiscal year concept, this annual report covers fiscal year 1972. This report contains information from the last six months of calendar year 1971 which was included in the last annual report.

The Watershed Planning Section of the Nebraska Natural Resources Commission has several major programs. The oldest provides aid to the Soil Conservation Service through surveying, Kelsh plotting, and the services of one technician, and for the past year, one full time engineer. This service started in 1959 initially with only two survey crews and has grown to the size indicated in this report.

Another major program of the State Watershed Planning Section is the development of small watershed projects under Public Law 566, the Small Watershed Act. Under this program, considerable progress has been made on all P. L. 566 projects assigned to the party.

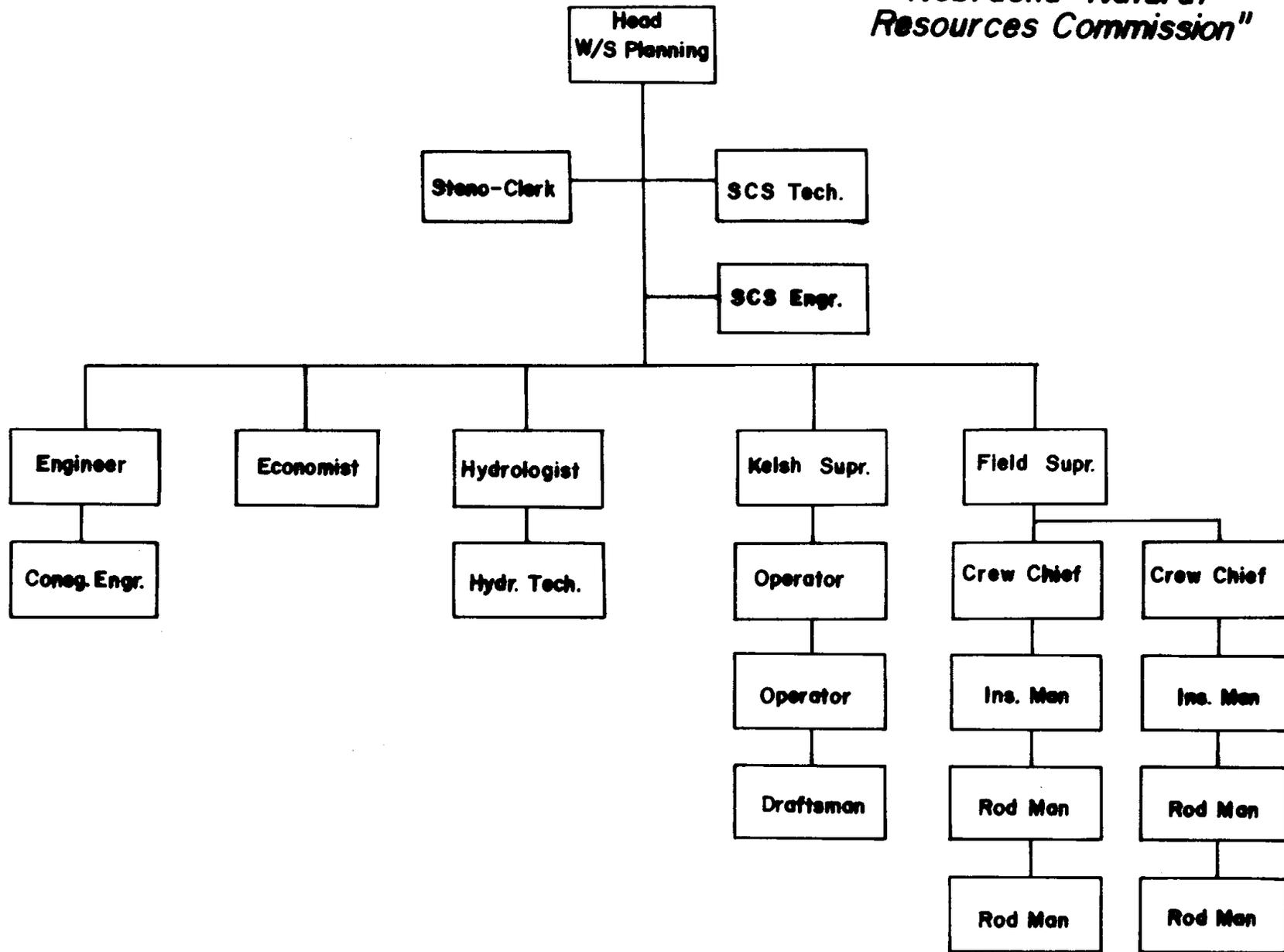
The third program consists of providing technical planning assistance to Soil and Water Conservation Districts (as of July 1, 1972, Natural Resources Districts) and other units of State Government. Projects such as Brown's Canyon, Lost-Dry, the Peterson Feedlot, Scotts Bluff County, and RC&D projects are current examples.

In addition to the programs listed above, the Watershed Planning Section has provided field surveys and Kelsh plotting to the Flood Plain Zoning Program of the Commission. This assistance has also been provided to local groups and individuals, and Soil Conservation Service.

This report summarizes the activities of the Watershed Planning Section during the past year. The information contained within this report shows the significant progress that has been made on both P. L. 566 and other special projects, as authorized by the Commission.

WATERSHED PLANNING

"Nebraska Natural Resources Commission"



SURVEYING

The Commission's Watershed Planning Staff provides 100 percent of all P. L. 566 planning surveys needed by both the Soil Conservation Service and the Commission. In addition, surveys were completed for use in the Flood Plain Zoning Program, the RC&D Program, and Soil and Water Conservation Districts' projects (Natural Resources Districts as of July 1, 1972).

The survey crew activities are shown in detail in the following tables, 1a and 1b.

TABLE 1a
 (Crew Weeks)
 SURVEY ASSISTANCE - COMMISSION PROJECTS
 July 1, 1971 - June 30, 1972

Projects	County	Watershed Area (Acres)	Vertical Control	Valley Cross Sections	Bridge Cross Sections	Kelsh Control	Field Topo	Stream Profile	Total Crew Weeks*	Remarks
Weeping Water	Cass, Otoe	167,520	3.2						3.2	P.L. 566
Southern Sarpy	Sarpy	76,000	1.0						1.0	P.L. 566
Bone Creek	Butler	49,200		3.2			19.8		23.0	P.L. 566
SUBTOTAL			4.2	3.2			19.8		27.2	
Beaver Creek	Holt					0.2			0.2	Special
Lost-Dry	Phelps Kearney	183,040				0.6			0.6	Special
Platte River Flood			3.0						3.0	U.S. Corps of Engineers
North Platte Flood Plain				18.0					18.0	U.S. Corps of Engineers
Scottsbluff Airport						1.4			1.4	Special
Kimball RC&D							1.6		1.6	Special
Grand Island Flood Plain						3.0			3.0	U.S. Corps of Engineers
TOTAL			7.2	21.2		5.2	21.4		55.0	

*Crew week = 4 men x 40 hours

TABLE 1b
(Crew Weeks)
SURVEY ASSISTANCE - SOIL CONSERVATION SERVICE PROJECTS
July 1, 1971 - June 30, 1972

Projects	County	Watershed Area (Acres)	Vertical Control	Valley Cross Sections	Bridge Cross Sections	Kelsh Control	Field Topo	Stream Profile	Total Crew Weeks*	Remarks
Blackwood	Hays * Hitchcock	151,000					13.0		13.0	P.L. 566
Middle Big Nemaha	Pawnee Gage Johnson	136,415				2.0	2.0		4.0	P.L. 566
Maple Creek	Stanton Colfax Dodge	250,000		1.0	1.0				2.0	P.L. 566
South Branch Little Nemaha	Otoe Johnson Lancaster	126,220				6.4	3.0	5.0	14.4	P.L. 566
Upper Little Nemaha	Lancaster Cass Otoe	123,520				1.8			1.8	P.L. 566
Swan Creek	Saline Jefferson	156,160				6.0			6.0	P.L. 566
Big Muddy	Richardson Johnson Nemaha	183,680					10.0	2.0	12.0	P.L. 566
Long Branch	Richardson Pawnee Nemaha Johnson	46,080				3.0			3.0	P.L. 566
TOTAL				1.0	1.0	19.2	28.0	7.0	56.2	

*Crew week = 4 men x 40 hours

KELSH PLOTTING

The Kelsh Plotting Section furnishes all the mapping requirements of the Soil Conservation Service in the State of Nebraska in addition to the needs of the Nebraska Natural Resources Commission. In addition to the mapping listed in Tables 2a and 2b, they also provided extensive drafting services for miscellaneous reports completed by the Watershed Planning Section and other divisions of the Commission.

TABLE 2a
KELSH PLOTTING - COMMISSION PROJECTS

Project	County	Work Completed	Remarks	Plotting Time
Beaver Creek	Holt County	2 Floodwater Retarding Structures	Special	4 weeks
Greenwood Project	Lancaster Co.	Topographical map of approximately 1300 acres	Special	6 weeks

NOTE: The plotting time does not include drafting time, developing of negatives, the making of diapositives, shutdown time on updating and repair of equipment, etc.

TABLE 2b
KELSH PLOTTING - SOIL CONSERVATION SERVICE PROJECTS

Projects	County	Work Completed	Remarks	Plotting Time
Blackwood	Hayes	1 Floodwater Retarding Structure	P.L. 566	4 weeks
Long Branch	Nemaha Richardson	2 Grade Stabs., 6 Floodwater Retarding Structures	P.L. 566	16 weeks
Upper Little Nemaha	Otoe Lancaster Cass	6 Floodwater Retarding Structures	P.L. 566	14 weeks
Middle Big Nemaha	Johnson	1 Floodwater Retarding Structure	P.L. 566	3 weeks
South Branch Little Nemaha	Otoe Johnson	27 Grade Stabs., 1 Floodwater Retarding Structure	P.L. 566	28 weeks
Swan Creek	Jefferson Saline	3 Floodwater Retarding Structures	P.L. 566	9 weeks

OTHER ASSISTANCE TO THE SOIL CONSERVATION SERVICE

The Watershed Planning Section furnishes one engineer and one engineering technician to the Soil Conservation Service. The engineer is assigned to the Engineering and Design Section of the State Engineer's Office, Soil Conservation Service. The technician is permanently assigned to the SCS Watershed Planning Party and works full time in their office. The administration and supervision of these employees have been delegated to the Soil Conservation Service. The salary and field expenses of these two individuals are furnished by the Commission Watershed Planning Section.

WORK PLAN DEVELOPMENT

The following table indicates the status of each P. L. 566 project the Commission is currently working on.

In addition to the projects that are shown on the table, the Watershed Planning Section of the Commission is involved in special projects. These projects are covered in the Summary of Planning Status.

Various staff members, in addition to their regular duties, have on occasion throughout this past year assisted other Commission staff members in special assignments. For general information and as a guide, following the status of table of P. L. 566 projects are the progress reports of engineering, hydrology, and economics showing projects worked on, stages of planning, and percentage of time spent on each.

WORK PLAN PROGRESS
COMMISSION PL.566 WATERSHEDS

	PLANNING PRIORITY	BASIC DATA	BASIC SURVEYS	PRELIMINARY HYDROLOGY	PRELIMINARY ENGINEERING	PRELIMINARY ECONOMICS	COSTS	BENEFITS	COMPARE ALTERNATIVES	PRESENT TO SPONSORS (to include public meetings)	FISH AND WILDLIFE REPORT	P. I. REPORT	PLANNING AUTHORIZATION	SITE SURVEYS*	DETAILED ECONOMICS	DETAILED ENGINEERING	REFINED HYDROLOGY	COST ESTIMATES	BENEFIT DETERMINATION	FINAL ALTERNATE COMPARISON	PRESENT TO SPONSORS (to include public meetings)	SELECT PLAN	AGENCY REVIEWS	SPONSORS ACCEPTANCE	DRAFT WORK PLAN	REVISE WORK PLAN PREPARED & FORWARDED (to include Environmental Statement)	SCS APPROVAL	OW & B APPROVAL	AUTHORIZED (CONGRESS)	% COMPLETED
BONE CREEK	X	X	X	X	X	X	X	X	X	X	X	X																		50%
CREIGHTON VALLEY	X	X	X	X	X	X	X	X	X	X	X	X	X	X																65%
NORTHEAST CASS	X	X	X																											10%
STEVENS CALLAHAN	X	X	X	X	X																									30%
TWIN CREEK	X	X	X	X	X	X	X	X	X	X	X	X																		40%
WAHOO CREEK	X	X	X	X	X	X	X	X	X	X	X	X																		40%
WINTERS CREEK	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	98%
WEeping WATER	X	X	X																											10%
SOUTHERN SARPY	X	X	X																											10%

* Work on the Environmental Statement begins as soon as the Project receives Planning Authorization

FISCAL YEAR 1972 WORK PROGRESS REPORT
ENGINEERING

<u>Watershed</u>	<u>Percentage Time Spent</u> (Approximate)
Bone Creek W/S	8%
Creighton Valley W/S	3%
Lost-Dry W/S	17%
Northeast Cass W/S	1%
Southern Sarpy W/S	1%
Stevens-Callahan W/S	11%
Twin Creek W/S	42%
Wahoo Creek W/S	11%
Weeping Water W/S	1%
Winters Creek W/S	5%

FISCAL YEAR 1972 WORK PROGRESS REPORT
HYDROLOGY

<u>Watershed</u>	<u>Percentage Time Spent</u> (Approximate)
Bone Creek W/S	16%
Creighton Valley W/S	8%
Lost-Dry W/S	6%
Northeast Cass W/S	6%
Southern Sarpy W/S	6%
Stevens-Callahan W/S	14%
Twin Creek W/S	10%
Wahoo Creek W/S	8%
Weeping Water W/S	6%
Econ II Computer Program	4%
University Project	10%
W.S.P. Computer Program	6%

FISCAL YEAR 1972 WORK PROGRESS REPORT
ECONOMICS

<u>Watershed</u>	<u>Percentage Time Spent</u> (Approximate)
Bone Creek W/S	18%
Creighton Valley W/S	6%
Lost-Dry W/S	14%
Northeast Cass W/S	1%
Southern Sarpy W/S	1%
Stevens-Callahan W/S	6%
Twin Creek W/S	20%
Wahoo Creek W/S	18%
Weeping Water W/S	1%
Winters Creek W/S	15%

SUMMARY OF PLANNING STATUS

BONE CREEK

The P. I. Report, as accepted by the Watershed Board, was completed and forwarded to Washington for work plan authorization. This authorization was received May 1, 1972 and the detailed investigation for the development of the work plan has begun. Approximately 75% of the topography has been completed on the six structure sites in the watershed and approximately 75% of the test drilling of the project has been completed. The topography will be completed sometime this fall along with the additional test drilling that will be required. Additional work will continue on this project in the areas of hydrology, economics, etc.

CREIGHTON VALLEY

The work plan is approximately 25% completed. During this past fiscal year there has been virtually no progress made on this project. The initial major concern was the condemnation on structure site #2. Other concerns have entered into the picture and until these problems are rectified nothing can be done on this project. The main concern of the local people is the 1½ to 2 inch rain every other year rather than a 50-year frequency storm. If the NRD assumes sponsorship of this project it can then be moved off dead center.

EXETER-DOGTOWN

Planning on this project has been suspended for sometime as the planning studies concluded that the watershed is not feasible under P. L. 566. A meeting was held with the sponsors and they in turn, based on the information given them, requested that planning authorization be suspended. This has been complied with.

LOST-DRY

Planning studies concluded that this project was not feasible under P. L. 566. This project was never sponsored so any formal request to suspend or withdraw planning was not necessary. Through local interest, the Commission authorized a preliminary plan to be developed by the Watershed Planning Party on this project. This plan has been completed, printed, and has been presented to the local people. This fulfills the Commission's responsibility to the project.

NORTHEAST CASS

All 3.2 inch to the mile aerial photographs and all topography maps have been obtained. The collection of basic data and initial basic surveys have been initiated during this past fiscal year. The development of a P. I. is now in process with approximately 10% being completed.

STEVENS-CALLAHAN

The preliminary investigation is about 85% completed towards the development of a P. I. Several obstacles confronted the economics and hydrology initially but these problems are in the planning of being solved. A P. I. report will probably be completed sometime during the current fiscal year.

SOUTHERN SARPY

All 3.2 inch to the mile aerial photographs and all topography maps have been obtained. The collection of basic data and initial basic surveys have been initiated during this past fiscal year. The development of a P. I. is now in process with approximately 10% being completed.

TWIN CREEK

Planning on this project has been suspended as the P. I. report pointed out that it was an unjustifiable project with a B/C ratio of

.89 to 1.00. Additional considerations were given to the economics of the project as they related to road and bridge damages. The sponsors are being notified of our additional economics in this area and that the project is still non-justifiable. Action to terminate planning will be considered at the August 10, 1972 Commission meeting.

WAHOO CREEK

A P. I. report has been completed but the current board has refused to accept it, therefore all planning has been temporarily suspended. The Commission has shelved indefinitely any action on this project.

WEeping WATER

All 3.2 inch to the mile aerial photographs and all topography maps have been obtained. The collection of basic data and initial basic surveys have been initiated during this past fiscal year. The development of a P. I. is now in process with approximately 10% being completed.

WINTERS CREEK

This project is near completion and according to all information it has been approved by the Office of Management and Budget and has been forwarded to the appropriate committees of the House and the Senate for authorization.

SUMMARY OF EXPENDITURES

To adequately evaluate the funds expended this past year in watershed planning, it is most important to emphasize what proportion was expended for direct support of the Soil Conservation Service. In addition to expenditure of \$21,961.67 for services of the two employees assigned to SCS, approximately 50 percent of the total crew weeks on surveys was spent in direct support of the SCS. This amounts to \$39,868.05 expended on surveys for SCS projects of the total survey expenditure of \$79,736.10. In addition to these expenditures, approximately 88 percent, or \$32,759.00 of the total expenditure of \$37,226.18 of the Kelsh operation, was in support of SCS. This is a total of \$94,588.72, or 42 percent, of the total expenditure of the Watershed Planning Section that was in direct support of SCS. (See Table 3)

For the fiscal year 1972, estimated expenditures by project area in planning, Kelsh and surveys have been proposed. These estimates show that during fiscal year 1972, approximately 46 percent of total expenditures were in support of Commission watershed projects, 8 percent to floodplain surveys, 3 percent towards special projects and 33 percent to SCS watershed projects. The expenditure of 33 percent to SCS watershed projects does not include the salaries, travel, etc. of the two Commission employees assigned to SCS. The estimated expenditures are as follows.

<u>Commission Projects</u>	<u>Planning</u>	<u>Kelsh</u>	<u>Surveys</u>	<u>Total</u>
Bone Creek	\$11,780		\$16,492	\$28,272
Creighton Valley	5,092			5,092
Lost-Dry	10,485		430	10,915
Northeast Cass	2,808			2,808
Stevens-Callahan	10,298			10,298
Twin Creek	21,865			21,865
Wahoo Creek	9,720			9,720
Weeping Water	2,808		2,295	5,103
Winters Creek	4,151			4,151
Southern Sarpy	2,808		717	3,525
Subtotal	\$81,815		\$19,934	\$101,749
<u>Floodplain Projects</u>				
Platte River			\$ 2,151	\$ 2,151
North Platte			12,907	12,907
Grand Island			2,151	2,151
Subtotal			\$17,209	\$17,209
<u>Special Projects</u>				
Beaver Creek		\$1,773	\$ 144	\$ 1,917
Scottsbluff Airport			1,044	1,044
Kimball RC&D			1,147	1,147
Greenwood		2,659		2,659
Subtotal		\$4,432	\$2,295	\$ 6,727
<u>SCS Projects</u>				
Blackwood		\$ 1,773	\$ 9,322	\$11,095
Swan		3,988	4,302	8,290
Long Branch		7,091	2,151	9,242
Upper L. Nemaha		6,204	1,291	7,495
Middle B. Nemaha		1,329	2,868	4,197
So. Br. L. Nemaha		12,409	10,325	22,734
Maple Creek			1,434	1,434
Big Muddy			8,605	8,605
Subtotal		\$32,794	\$40,298	\$73,092
TOTAL	\$81,815	\$37,226	\$79,736	\$198,777

TABLE 3
 FUNDS EXPENDED - WATERSHED PLANNING
 July 1, 1971 - June 30, 1972

	Employees Assigned to SCS	Planning	Kelsh	Survey	Total
Salaries	\$19,800.00	\$68,227.00	\$28,678.00	\$51,177.90	\$167,882.90
Social Security Retirement Life Insurance	1,563.17	3,406.94	2,365.94	3,690.85	11,026.90
Subtotal	\$21,363.17	\$71,633.94	\$31,043.94	\$54,868.75	\$178,909.80
Operational Expenses	448.50	2,142.60	2,216.49	3,029.21	7,836.80
Supplies	-----	1,767.33	1,828.27	2,498.63	6,094.23
Travel	150.00	2,500.00	250.00	11,378.51	14,278.51
Capital	-----	3,771.31	1,887.48	7,961.00	13,619.79
TOTAL	\$21,961.67	\$81,815.18	\$37,226.18	\$79,736.10	\$220,739.13