Fifteenth Biennial Report

OF THE

Department of Public Works

TO THE

Governor of Nebraska

1923-1924

Fifteenth Biennial Report

of the

Department of Public Works

to the

GOVERNOR OF NEBRASKA

1923-1924

To Honorable Chas. W. Bryan,

Governor of the State of Nebraska,

Lincoln, Nebraska.

My Dear Governor:

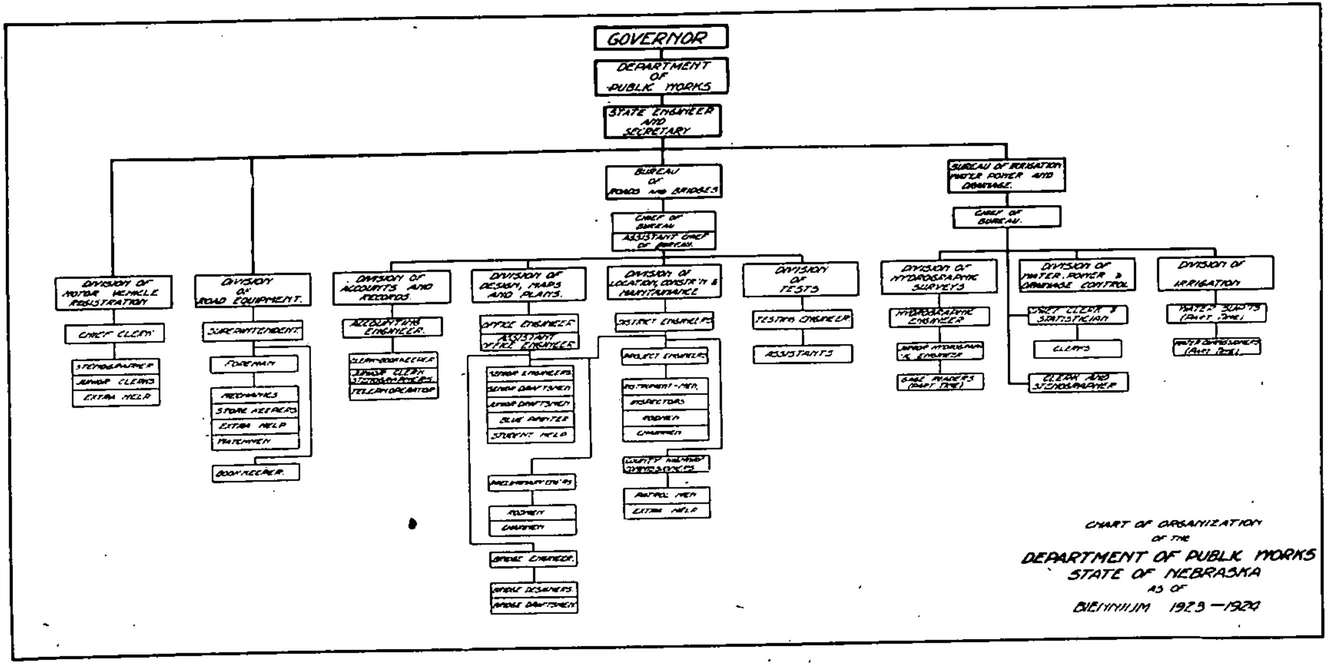
I have the honor to submit herewith the following report of the work of the Department of Public Works during the past two years.

Respectfully submitted,

R. L. COCHRAN,

State Engineer.

December 1, 1924.


GOVERNOR
DEPARTMENT OF PUBLIC WORKS
STATE ENGINEER AND SECRETARY
BUREAU OF ROADS AND BRIDGES
CHIEF OF BUREAU
ASSISTANT CHIEF OF BUREAU
BUREAU OF IRRIGATION WATER POWER AND DRAINAGE.
CHIEF OF BUREAU.
DIVISION OF MOTOR VEHICLE REGISTRATION
CHIEF CLERK
STENOGRAPHER
JUNIOR CLERKS
EXTRA HELP
DIVISION OF ROAD EQUIPMENT.
SUPERINTENDENT.
FOREMAN
MECHANICS
STORE KEEPERS
EXTRA HELP
WATCHMEN
BOOKKEEPER.
DIVISION OF ACCOUNTS AND RECORDS.
ACCOUNTING ENGINEER.
JUNIOR CLERK STENOGRAPHERS.
TELEPHONE OPERATOR
DIVISION OF DESIGN, MAPS AND PLANS.
OFFICE ENGINEER
ASSISTANT OFFICE ENGINEER
SENIOR ENGINEERS
SENIOR DRAFTSMEN
JUNIOR DRAFTSMEN
BLUE PRINTER
STUDENT HELP
RODMEN
CHAINMEN
BRIDGE ENGINEER.
BRIDGE DESIGNERS.
BRIDGE DRAFTSMEN
DIVISION OF LOCATION, CONSTR'N & MAINTENANCE
DISTRICT ENGINEERS
PROJECT ENGINEERS
INSTRUMENT-MEN
INSPECTORS
RODMEN
CHAINMEN
PATROL MEN
EXTRA HELP
DIVISION OF TESTS
TESTING ENGINEER
ASSISTANTS
DIVISION OF HYDROGRAPHIC SURVEYS
HYDROGRAPHIC ENGINEER
GAGE READERS (PART TIME)
DIVISION OF WATER, POWER & DRAINAGE CONTROL
CHIEF CLERK & STATISTICIAN
CLERKS
CLERK AND STENOGRAPHER
DIVISION OF IRRIGATION
WATER SUPT'S (PART TIME)
CHART OF ORGANIZATION OF THE
DEPARTMENT OF PUBLIC WORKS
STATE OF NEBRASKA
AS OF
BIENNIUM 1923—1924

LIST OF EXECUTIVES AND LENGTH OF SERVICE WITH DEPARTMENT OF PUBLIC WORKS

R. L .Cochran, State Engineer	7 yrs.	5 mo.
C. A. Hiss, Sup't of Equipment Division	1 yr.	4 mo.
Mable Tracy, Chief Motor Vehicle Registration	5 yrs.	10 mo.

Bureau of Roads and Bridges

Mont. C. Noble, Chief	5 yrs.	8 mo.
John R. Carnahan, Ass't Chief	4 yrs.	7 mo.
R. O. Green, District Engineer No. 1	7 yrs.	5 mo.
M. F. Black, District Engineer No. 2	6 yrs.	10 mo.
A. C. Tilley, District Engineer No. 3	5 yrs.	7 mo.
F. C. Rolls, District Engineer No. 4	5 yrs.	7 mo.
A. M. Gaddis, District Engineer No. 5	5 yrs.	9 mo.
A. T. Lobdell, District Engineer No. 6	5 yrs.	4 mo.
M. B. Jones, Office Engineer	4 yrs.	8 mo.
M. E. Burr, Assistant Office Engineer	6 yrs.	5 mo.
C. M. Coff, Bridge Engineer	3 yrs.	8 mo.
Earl Ketcham, Accounting Engineer	1 yr.	6 mo.
C. M. Duff, Testing Engineer	2 yrs.	3 mo.

Bureau of Irrigation, Water Power and Drainage

Robert H. Willis, Chief	30 yrs.	0 mo.
John D. Heywood, Superintendent Division 2	3 yrs.	10 mo.
K. I. Ward, Statistician	7 yrs.	6 mo.
A. E. Johnston, Hydrographer	4 yrs.	8 mo.
O. M. Finley, Water Com. Dist. 1, Div. 1-A	4 yrs.	7 mo.
W. F. Chaloupka, Water Com. Dist. 2, Div. 1-A	12 yrs.	0 mo.
O. H. Eyerly, Water Com. Dist. 5, Div. 1-A	2 yrs.	4 mo.
P. M. Whitehead, Water Com. Dist. 1, Div. 1-B		5 mo.
Fred Hood, Water Com. Dist. 1, Div. 2-D	3 yrs.	7 mo.
John Cook, Water Com. Dist. 1, Div. 2-C	13 yrs.	7 mo.

NEBRASKA'S NEW STATE CAPITOL

CAPITOL COMMISSION—Governor C. W. Bryan, chairman; Roy L. Cochran, secretary.

MEMBERS—W. W. Head, Omaha; W. E. Hardy, Lincoln; W. H. Thompson, Grand Island.

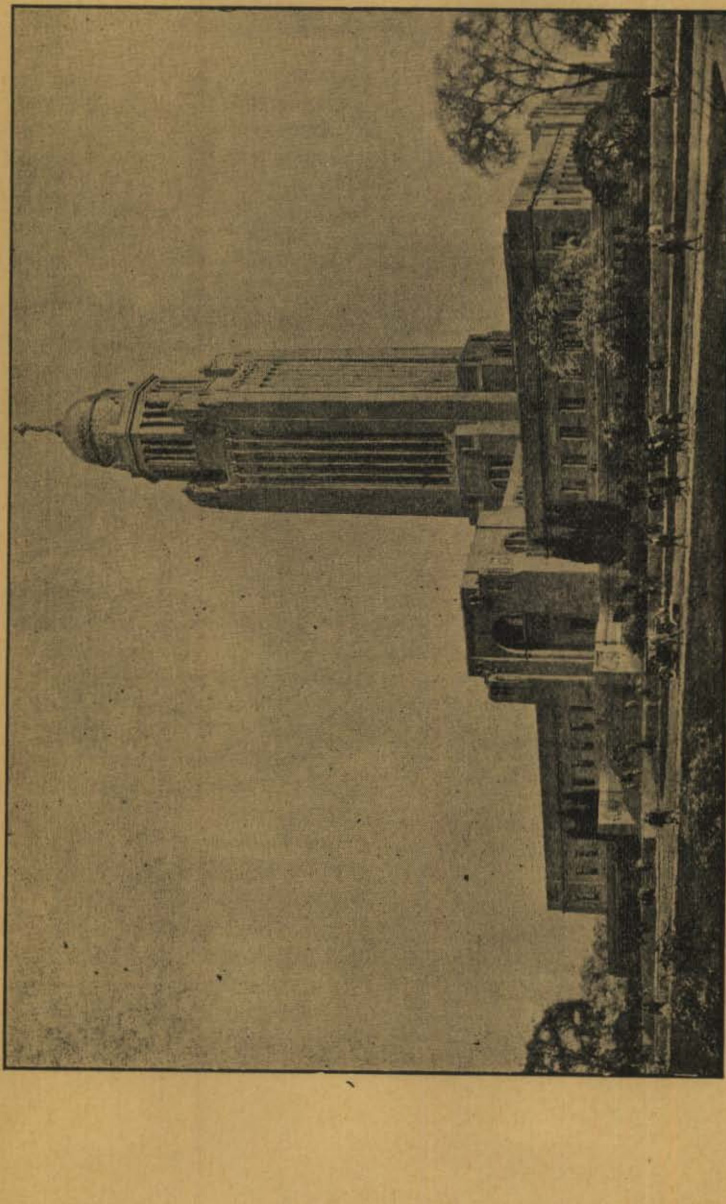
ARCHITECT—Bertram G. Goodhue (Deceased).

Supervision being carried on by Bertram G. Goodhue Associates. Construction started March 15, 1922.

Base of Building 438 feet square. Tower 80 feet square at base and 405 feet high.

Contains 9,700,000 cubic feet, with over 400 rooms. All offices have outside light.

The Department of Public Works will move into their new quarters in December, 1924.



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REPORT OF THE BUREAU OF ROADS AND BRIDGES

Division of Location, Construction and Maintenance

Division of Tests

Division of Designs, Maps and Plans

Division of Accounts and Records

1923-1924

RECOMMENDATIONS

In general a continuation of the present "Pay as you Go" road building plan is recommended. It is to be noted from this report that during the present year a real start has been made in the surfacing (for the most part with gravel) of Nebraska's State Highway System. The greatly increased traffic over the past few years as shown in this report justifies in the opinion of the writer a continuation of the surfacing program as fast as available financing will permit.

It is recommended also that State finances be made available aside from those used in conjunction with Federal Aid for use in cases where very light and intermittant grading is required to prepare a road for surfacing and for use in the sandhill regions of this state.

In both of the above cases it is not logical or economical to use Federal Aid. This recommendation in the opinion of the writer is very important by the adoption of which a large amount of money can be saved and equally good results accomplished.

Respectfully submitted,

R. L. COCHRAN,
State Engineer.

December 1, 1924

R. L. Cochran,

State Engineer,
Department of Public Works,

State of Nebraska, Lincoln.

Sir:

Pursuant to the established policy of the Department of Public Works, I have the honor to submit to you the following report covering briefly the salient activities of the Bureau of Roads and Bridges for the two years ending November 30, 1924.

In so far as possible the numerous tabulations, data, photographs and discussions have been seggregated, correlated, and consolidated under the Divisions most closely associated with these activities to form a concise, comprehensive report. The scope and functions of these Divisions are rather clearly implied in their titles as, Division of Location, Construction and Maintenance; Division of Tests; Division of Design, Maps and Plans; Division of Accounts and Records. The reports of the Division of Equipment and the Division of Motor Vehicle Registration follow the Bureau's report.

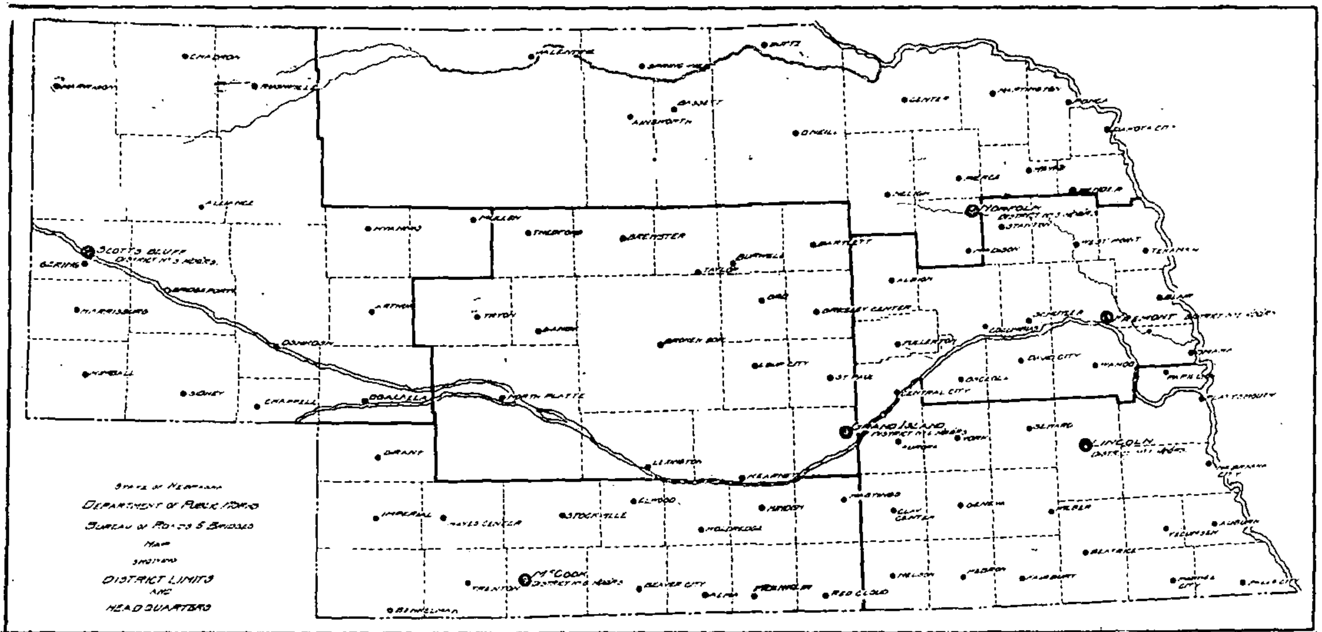
The Bureau has just witnessed the heaviest construction program in this state since the inauguration of Federal Aid in 1917. The splendid harmony existing among the Bureau's personnel, the excellent cooperation and assistance granted by all county officials, the confidence and support displayed by the contractors and public have all combined to make possible a record breaking year in the face of an economic period when public funds were very limited and outside capital was drawing many of our experienced engineers.

I can not give too much credit to the engineering and clerical forces under this Bureau for their constant untiring efforts in carrying out your policies and desires of administration. Their loyalty alone is responsible for this effort and the records speak plainly of the accomplishments of this effort.

Trusting that this report will properly serve the purpose for which it is intended and that it will meet with your approval, it is

Respectfully submitted,

(Signed) M. C. NOBLE
Chief Bureau Roads and Bridges.


Department of Public Works
Bureau of Roads & Bridges
Map
District Limits
and
Headquarters
Scotts Bluff
North Platte
Grand Island
Lincoln
McCook
Norfolk
Fremont
Ogallala
Broken Bow
Kearney
Central City
Red Cloud

ORGANIZATION, LAWS AND DISCUSSIONS

To better appreciate the functioning of this Bureau and to understand clearly the discussions and tabulations following in this report, particularly with references to State-Federal Aid construction, it appears advisable to outline briefly the Department organization, also a few of the outstanding highway laws, governing policies, and types of construction caused by the demand for economy and use of materials at hand.

ORGANIZATION OF HIGHWAY DEPARTMENT

Previous to the Legislative Session of 1919, the highway department was under the State Board of Irrigation, Highways and Drainage. This Board consisted of three members, the Governor acting as President, the Attorney General, and the Commissioner of Public Lands and Buildings. This Board appointed a State Engineer who became the active responsible head of State Irrigation, Highways and Drainage. The State Engineer, with approval of the Board, appointed a deputy, or assistant State Engineer in charge of the highway work.

The 1919 Legislature adopted the Civil Administrative Code Bill which has been the law in force since that time. Under the Code, the State Board of Irrigation, Highways and Drainage was abolished and in its place was created the present Department of Public Works. The Governor who is the head appoints the Secretary-State Engineer as the active head of the Department of Public Works. The State Engineer with the Governor's approval appoints an Assistant as Chief of the Bureau of Roads and Bridges. The Code does not define the officers and their duties below the State Engineer so the organization is developed and responsibility placed as directed by the State Engineer and Governor. The organization chart as shown on page four explains the lines of responsibility for this Bureau as established by the State Engineer.

HIGHWAY SYSTEM ESTABLISHED

The original Federal Aid Highway Act was approved July 11, 1916. Following the acceptance of Federal Aid as covered in this Act by the Legislature of 1917, the County Board of Supervisors and Commissioners designated a program of roads upon which they desired State-Federal Aid participation. This system was approved by the State Engineer. Later the 1919 Legislature established this system comprising approximately 5000 miles under eighty-eight route numbers as the Nebraska State Highway System with the provision that as other roads were constructed with State and Federal Aid funds such constructed roads would become a part of the State Highways. In addition to the statutory system as originally outlined by the County Boards, the law also provided that the Counties establish a system of county roads not exceeding twenty per cent of the total mileage in the County, which system is under the jurisdiction of the County Board.

The amended Federal Highway Act approved Nov. 9, 1921 delegated authority to the United States Secretary of Agriculture to approve a system of highways known as the Seven Per Cent System. Each State was required to submit a map showing the Seven Per Cent System as desired, which map was to be approved by the Secretary of Agriculture as usbmitted or as modified under the Secretary's suggestion. The mileage of highways in this Seven Per Cent System, for any State, cannot exceed seven per cent of the total road mileage in the state as certified under the original highway act. Nebraska's certified mileage at that time was 80,272 miles, which permits the Seven Per Cent System to contain 5,619 miles. A careful check of all highway mileage in Nebraska was recently completed and the mileage found to be 94,633. The maps on file with the Federal Bureau show this Seven Per Cent mileage in Nebraska to be entirely exhausted so the Nebraska highways which may receive State-Federal Aid funds are definitely established until the system is constructed in its entirety at which time additions may be made.

Since Federal funds cannot be expended on highways outside the seven per cent system and since our state road legislative appropriations are made to meet Federal Aid appropriations, it was the present administration's desire to increase the allowable mileage up to Seven Per Cent of 94,633, the correct mileage for the State, in order to incorporate several very important intercounty and interstate highways in this system. This request to the Federal Bureau was disapproved on the basis that the Federal Highway Act particularly specified that the mileage as certified by the State under the original act was to govern.

FEDERAL AID APPROPRIATIONS AND LAWS

Federal Aid appropriations are made from the General Fund of the United States Treasury. Distribution to the states is made upon the ratio that the state bears to the total of all States in the following three ways, area of State ,population of State, and miles of mail route. In this manner the eastern states which contribute heavily to the Federal taxes do not receive a proportionately heavy return for roads while the western states profit accordingly. For example Nebraska receives $4.15 for Federal Aid roads for each dollar of Federal taxes paid for roads.

The Federal Bureau participates up to fifty per cent of the construction and engineering costs of a project except the engineering costs necessary on preliminary surveys, preparation of plans and estimates, and administration. The maximum Federal Aid available per mile has varied from $10,000.00 to $20,000.00 exclusive of bridges over 20 feet clear span as noted below. Federal funds may participate on construction through cities under 2500 population, and in larger cities these funds may be expended on that portion of the road along which the houses for a distance not exceeding one mile, average more than 200 feet apart. All construction supervision and engineering must be done by the State under a State Highway Department. The County Boards make formal application to this Department for State-Federal Aid funds specifying the highways upon which expenditure is to be made before any plans are made for contracting.

The following table of appropriations is self explanatory:

Federal Appropriation	Fiscal Yrs. Covered	Amount	Nebr. Share	Max. Fed. Aid per Mi.
July 11, 1916	1917 to July 1-21	75,000,000	1,589,850.01	10,000
Febr. 28, 1919	1919 to July 1-21	200,000,000	4,266,911.65	20,000
Mar. 9, 1921	1922 to July 1-24	75,000,000	1,581,189.50	20,000
June 19, 1922	1923 to July 1-25	50,000,000	1,054,126.33	16,250
	1924 to July 1-26	65,000,000	1,371,713.17	15,000
	1925 to July 1-27	75,000,000	1,581,189.50	15,000
Total			11,454,980.16	

STATE AID APPROPRIATION AND DISTRIBUTION

Nebraska lacks progressive legislation which will permit this Department to plan a program of definite expenditures in advance. Each legislative appropriation is made for one biennium so that once each two years the Department must wait several months before the program for the biennium can be established, surveys made and plans approved. This generally throws a large highway letting in late midsummer when fewest contractors are free to bid.

The following appropriations to meet Federal Aid have been made by the past state legislatures.

State Appropriations	Years Covered	Amount
1917 Legislature	1917 to July 1, 1919	640,000.00
1919 Legislature	1919 to July 1, 1921	3,093,262.00
1921 Legislature	1921 to July 1, 1923	2,262,750.39
1923 Legislature	1923 to July 1, 1925	1,500,000.00
Total		7,496,012.39
Deducted by 1921 special session		366,870.99
Total State Aid Road Appropriation		7,129,141.40

The above funds are raised by direct property tax. Collections are made by the counties and transmitted to the State Treasurer. The funds are then credited back to the counties in the same manner as Federal Aid is distributed to the States, namely under the ratio that each county bears to the State in the following three ways, area, population and miles of mail route. The ratio relative to population is determined by the number of votes cast for Governor at the General election, 1916.

The following ratio shows the ratio or percentage of each appropriation credited to the county based upon population, miles of mail route and area. By multiplying the ratio as shown in the last column of this chart by the Legislative appropriation, the share due any county from the state appropriation can at once be determined.

CHART SHOWING METHOD OF DISTRIBUTION OF STATE—FEDERAL AID ROAD FUND

County	Area Sq. Miles	Population	Miles of Post Route	Ratio of County to State
Adams	565	4,999	530.5	.013532718
Antelope	872	3,538	514.2	.013030930
Arthur	800	444	108.0	.005070928
Banner	742	322	145.6	.005059311
Blaine	711	458	89.5	.004513862
Boone	692	3,400	430.5	.011243391
Box Butte	1,076	1,576	115.5	.007640354
Boyd	535	1,745	316.3	.007513526
Brown	1,235	1,483	228.0	.009360157
Buffalo	945	5,282	621.8	.016427436
Burt	475	3,051	415.0	.009745575
Butler	583	3,609	505.25	.011764575
Cass	538	4,874	489.5	.012858351
Cedar	735	3,551	551.75	.012827476
Chase	899	1,006	172.0	.006790326
Cherry	5,979	3,054	538.5	.034882745
Cheyenne	1,194	1,503	122.0	.008134534
Clay	579	3,877	554.0	.012546384
Colfax	405	2,607	373.0	.008509313
Cuming	577	3,113	526.0	.011380300
Custer	2,588	6,322	943.0	.027992922
Dakota	253	1,721	188.5	.004971961
Dawes	1,402	1,923	205.0	.010356314
Dawson	985	3,666	502.5	.013546663
Deuel	439	563	110.0	.003660678
Dixon	472	2,654	365.5	.008778137
Dodge	531	5,337	397.0	.012423765
Douglas	331	41,642	310.0	.052238170
Dundy	927	1,042	236.0	.007599445
Fillmore	576	3,600	562.0	.012297063
Franklin	578	2,530	359.0	.009030556
Frontier	975	1,992	367.0	.010218377
Furnas	721	2,920	430.0	.010814705
Gage	862	7,047	855.0	.020443556

CHART SHOWING METHOD OF DISTRIBUTION OF

STATE—FEDERAL AID ROAD FUND—Continued

County	Area Sq. Miles	Population	Miles of Post Route	Ratio of County to State
Garden	1,652	963	123.5	.009519145
Garfield	575	809	170.0	.005138502
Gosper	464	1,101	294.0	.006243441
Grant	726	414	78.0	.004412441
Greeley	571	2,000	218.0	.006969365
Hall	528	5,321	404.0	.0124631127
Hamilton	538	3,369	516.0	.01140311
Harlan	574	2,278	348.0	.008613616
Hayes	722	665	143.0	.005338912
Hitchcock	724	1,204	212.0	.006661517
Holt	2,393	3,990	674.0	.021760174
Hooker	722	353	90.0	.004446449
Howard	561	2,254	310.0	.008145927
Jefferson	578	3,890	548.5	.012501378
Johnson	374	2,547	390.5	.00848284
Kearney	516	2,771	310.5	.008547534
Keith	1,068	1,022	100.0	.006814882
Keya Paha	775	790	106.0	.005338324
Kimball	958	649	141.5	.006329645
Knox	1,114	4,361	671.0	.016603948
Lancaster	853	16,925	876.0	.031924683
Lincoln	2,536	3,895	513.0	.020645934
Logan	573	495	73.0	.0033790675
Loup	576	442	140.0	.004419713
Madison	576	4,887	407.5	.012209955
McPherson	874	332	110.0	.005284059
Merrick	463	2,665	381.0	.008908219
Morrill	1,417	1,472	130.0	.009147626
Nance	446	2,186	270.0	.007165007
Nemaha	389	3,145	398.1	.00930927
Nuckolls	579	3,354	410.5	.010498335
Otoe	606	4,683	567.5	.013722597
Pawnee	431	2,541	415.0	.008970787
Perkins	886	667	27.0	.00488134[illegible]
Phelps	538	2,543	393.5	.009220291
Pierce	577	2,321	354.0	.00873646
Platte	673	4,436	528.0	.013331662
Polk	430	2,777	420.0	.009287115
Red Willow	720	2,510	464.0	.010684404
Richardson	545	4,928	530.0	.013359593
Rock	1,004	898	218.0	.007586966
Saline	573	4,268	562.0	.013048752
Sarpy	240	2,360	210.0	.005864201
Saunders	756	4,886	700.0	.015944194
Scotts Bluff	723	2,938	235.0	.008874514
Seward	574	3,775	552.0	.012387718

CHART SHOWING METHOD OF DISTRIBUTION OF

STATE—FEDERAL AID ROAD FUND—Concluded.

County	Area Sq. Miles	Population	Miles of Post Route	Ratio of County to State
Sheridan	2,469	1,884	404.0	.016952125
Sherman	573	2,010	309.5	.00791363
Sioux	2,055	1,126	190.0	.012126336
Stanton	431	1,705	232.0	.006165479
Thayer	578	3,486	532.5	.01187729
Thomas	716	440	34.0	.003954412
Thurston	387	2,153	219.0	.006356086
Valley	570	2,340	342.0	.008606633
Washington	380	3,009	348.0	.008608519
Wayne	450	2,312	344.5	.00807905
Webster	578	2,266	406.0	.009203029
Wheeler	578	514	130.0	.004409817
York	575	4,402	601.0	.013604726

What is the road tax in Nebraska as viewed by the general taxpayer who foots the bills? The following facts tell the story:

Assessed valuation all property in Nebraska 1923	$3,198,632,992	
State levy necessary to raise $1,000,000	.312	Mills
Road tax on each $1,000 assessed valuation	31.2	Cents
Road tax on each $10,000 assessed valuation $	3.12	
Average assessed valuation per acre land $	38.44	
Road tax per acre to raise $1,000,000	1.2	Cents
Road tax on 1-4 section land to raise $1,000,000 $	1.92	

The above taxes meet a like amount of Federal Aid, so in Nebraska to raise $2,000,000 State Federal Aid funds in one year the average 1-4 section of land pays $1.92 or the "well to do" taxpayers whose property is actually assessed at $10,000 (meaning it is actually worth considerably more) pays $3.12 state road tax for construction.

In addition to the $1,500,000 appropriated by the Legislature of 1923, which was insufficient by over two million dollars to meet the Federal fund available, the same Legislature authorized the counties to meet as much of the surplus Federal Aid, through the State Department, as was available for their county. As a result in addition to the regular road tax the counties in the year 1923 raised $647,592 and in the year of 1924 they raised $779,702 to meet Federal Aid whereas in the previous three bienniums or six years all the local or county funds raised totalled only $513,853.00.

A most unfortunate condition arises under the present State-Federal Aid laws in a few of the western counties. In these particular counties traffic is very light and standard highway construction is very expensive on account of sandy soil. In these counties state funds should be free to use, independent of Federal Aid funds, so that the occasional bad spots in the sand hill trails could be improved and many miles of additional highways made useable rather than following federal requirements in the construction of a high type sand clay road.

Such construction means very little progress can be made with the meager funds available so that the improvement is of very little service to the public. Such counties would benefit greatly if state funds in excess of those appropriated to meet Federal Aid were available so that strictly State Aid funds could be used at least in counties under 4000 population.

The following figures show the obligations contracted by this Bureau on highways this biennium to November 30, 1924 together with balance of the Legislative appropriation on hand.

State Aid Road	$1,252,535.56
Federal Aid	2,526,500.34
County Donations	1,568,504.16
State Aid Bridge	194,010.65
Totals	$ 5,541,550.71
State Aid Road Appropriation	$1,500,000.00
Balance not contracted	247,464.44
State Aid Bridge Appropriation	200,000.00

All of which has been contracted.

The cost of administration including the preparation of plans, specifications and estimates, preliminary surveys, and other miscellaneous office expense is about 1.3% of the above expenditures as shown by the following chart.

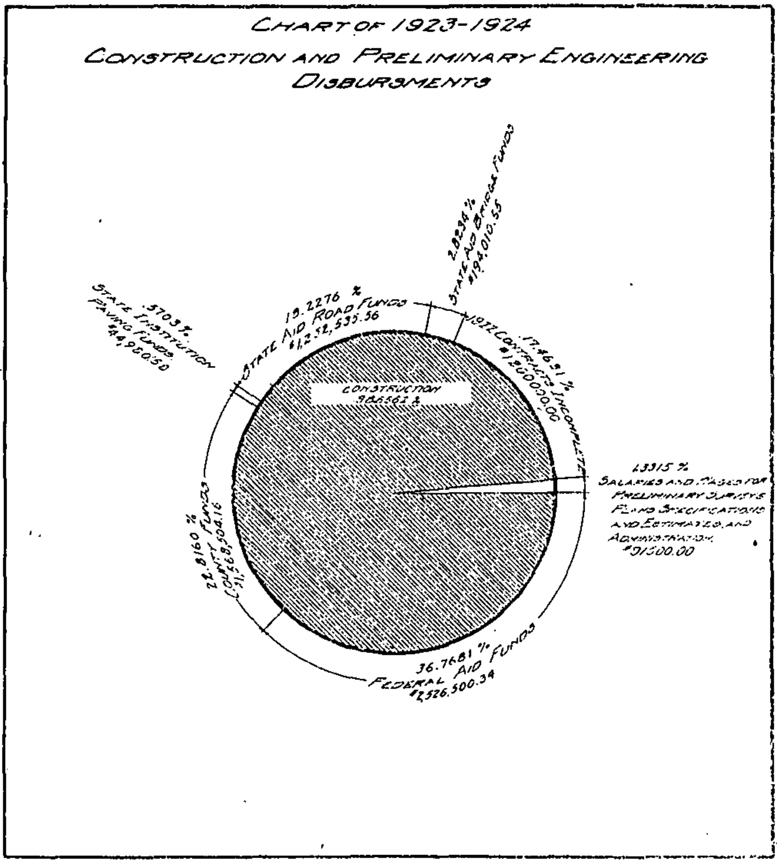


CHART OF 1923-1924
CONSTRUCTION AND PRELIMINARY ENGINEERING
DISBURSMENTS
CONSTRUCTION
98.6562 %
2.8234 %
STATE AID BRIDGE FUNDS
#194,010.55
19.2276 %
STATE AID ROAD FUNDS
$1,252,535.56
.5703 %
STATE INSTITUTION
PAVING FUNDS
#49,980.50
1922 CONTRACTS INCOMPLETE
17.4631 %
#1200000.00
1.3315 %
SALARIES AND WAGES FOR
PRELIMINARY SURVEYS
PLANS SPECIFICATIONS
AND ESTIMATES, AND
ADMINISTRATION
#91500.00
22.8160 %
COUNTY FUNDS
$1,568,504.16
36.7681 %
FEDERAL AID FUNDS
#2,526,500.34

CONTRACT PRICES FOR 1923-1924.

ITEM	Unit	Total Quantity Contracted	Unit Prices		
			Maximum	Minimum	Average
Earth Excavation	Cu. Yd.	2,931,674	0.4600	0.165	0.2320
Earth Excavation	100 Ft. Sta.	2.872	10.0000	2.500	3.7070
Clay Haul	Cu. Yd. Mile	256,887	1.0000	0.350	0.5710
Loose Rock Excavation	Cu. Yd.	9,300	1.0000	0.400	0.6170
Solid Rock Excavation	Cu. Yd.	4,136	2.5000	0.700	1.7060
2-in. Gravel Surfacing	Sq. Yd.	1,872,355	0.1985	0.065	0.1600
3-in. Gravel Surfacing	Sq. Yd.	2,429,873	0.2870	0.100	0.2050
4-in. Gravel Surfacing	Sq. Yd.	1,529,694	0.4490	0.130	0.2220
6-in. Gravel Surfacing	Sq. Yd.	40,483	0.2890	0.289	0.2890
Headwall Concrete	Cu. Yd.	2,143	40.0000	20.000	26.2200
Box Culvert Concrete	Cu. Yd.	2,858	34.0000	16.500	23.0700
Bridge Concrete	Cu. Yd.	7,754	30.7100	11.500	21.9500
Concrete Pavement	Sq. Yd.	327,174	2.7600	2.440	2.5960
Brick Pavement	Sq. Yd.	124,564	3.9100	3.420	3.5660
Bituminous Concrete Pavement	Sq. Yd.	54,206	3.3400	2.450	2.5810
Concrete Overflow Pavement	Sq. Yd.	14,038	3.6000	2.400	2.7100
Cable Guard Rail	Lin. Ft.	85,032	0.7500	0.300	0.4020
Anchors	Each	782	8.0000	3.700	5.3340
Woven Wire Guard Rail	Lin. Ft.	90,354	0.7000	0.400	0.5060

AVERAGE CONTRACT PRICES FOR 1917-1924

ITEM	Unit	1917-1918		1919-1920		1921-1922		1923-1924	
		Quantity	Price	Quantity	Price	Quantity	Price	Quantity	Price
Earth Excavation	Cu. Yd.	483000	0.310	7028587	0.454	5211999	0.305	2931674	0.2320
Earth Excavation	100 Ft. Sta.					3251	6.150	2872	3.7070
Clay Haul	Cu. Yd. Mile			115003	1.130	149752	0.657	256887	0.5710
Loose Rock Excavation	Cu. Yd.				2.250	23902	0.860	9300	0.6170
Solid Rock Excavation	Cu. Yd.				3.000	15098	1.770	4136	1.7060
2-in. Gravel Surfacing	Sq. Yd.			144432	0.247			1872355	0.1600
3-in. Gravel Surfacing	Sq. Yd.					132231	0.200	2429873	0 2050
4-in. Gravel Surfacing	Sq. Yd.			368498	0.325	815863	0.388	1529694	0.2220
6-in. Gravel Surfacing	Sq. Yd.							40483	0.2890
Headwall Concrete	Cu. Yd.	731	28.090	4130	38.320	4410	32.400	2143	26.2200
Box Culvert Concrete	Cu. Yd.	Included	above	5997	36.420	6101	29.980	2858	23.0700
Bridge Concrete	Cu. Yd.					3452	23.940	7754	21.9500
Concrete Pavement	Sq. Yd.			104731	3.140			327174	2.5960
Brick Pavement	Sq. Yd.	57524	2.830	10986	3.950	6994	4.330	124564	3.5660
Bituminous Concrete Pavement	Sq. Yd.					54775	3.050	54206	2.5810
Concrete Overflow Pavement	Sq. Yd.			23247	4.430	11478	3.290	14038	2.7100
Cable Guard Rail	Lin. Ft.					52806	0.457	85032	0.4020
Anchors	Each					Included	above	782	5.3340
Wood Guard Rail	Lin. Ft.			43469	0.740	107034	0.464		
Woven Wire Guard Rail	Lin. Ft.							90354	0.5060

The State Aid Bridge and State Institution Paving appropriations and expenditures are shown under their headings later in this report. These funds need not be expended on the State-Federal Aid system but in the event that they are so expended they may be used in conjunction with Federal Aid funds. Any county may make application for one-half the cost of any bridge spanning a stream the width of 100 feet or more. Application may be made by either county on a county line bridge and if approved by this Department the structure may be built and one-fourth cost collected from each county. In the event of dispute between two counties on the location of such a bridge, the State Engineer may cast the deciding vote. Counties expending over $100.00 in any one year on State Aid Bridge repairs under the direction of the State Engineer may be re-imbursed for one-half the cost of repairs from the State Aid Bridge fund.

State Institution Paving appropriation is applicable for fifty per cent of the excess costs over the special benefits assessed provided the institution making application to this Department is located more than one-half mile and not exceeding three miles from a railroad unloading track or permanent highway leading to the railroad unloading track.

OTHER HIGHWAY LAWS

A few of the highway laws which affect State and Federal Aid construction are mentioned here very briefly.

Contracts—Construction work involving State Aid Road funds must, be advertised in the official county paper for three consecutive issues not less than twenty days. Such notice must state that the plans and specifications may be inspected at the office of the County Clerk and Department of Public Works and must also state the date and the hour when the receiving of the bids shall close, at which time they must be publicly opened before any bidders or their representatives. The details of a typical highway letting are related later in this report.

State aid bridge notices must be advertised four consecutive weeks. On all state aid or federal aid construction the contracts are signed jointly by the County and State. On strictly county bridge construction the law requires the advertisement to run four consecutive weeks and be based upon plans and specifications prepared by the Department of Public works. The counties must advertise all bridge work estimated to cost over $500 but may let annual contracts covering all work for the year or if bids are rejected the counties may purchase material and employ labor for the construction and repair of all bridges for the year. All bridges must be painted white above the floor system for at least twenty feet from either end.

Maintenance—All maintenance funds are derived from the motor vehicle license tax. The collections are made by each county on vehicles within that county. All funds remain in the county where collected except three and one-half per cent which is transmitted to the State General Fund a portion of which if appropriated is used for motor vehicle and state highway maintenance administrative purposes.

Once a year a representative of the Department of Public Works with the assistance of the County Board prepares a maintenance budget listing the funds needed for the maintenance of State Highways in each county. This budget is certified to the County Treasurer who sets aside from the motor vehicle license collections the amount of funds shown by the budget providing such amount does not exceed seventy-five per cent of the Motor Vehicle taxes collected. The balance of the Motor Vehicle collections not taken in the budget or in the three and one-half per cent transmitted to the state or not otherwise taken is credited to the county road dragging fund. Generally less than fifty per cent of the collections are budgeted in the Maintenance (State Highway) Fund.

When the county adequately maintains the state system to the satisfaction of the Department they are reimbursed the actual cost of such maintenance by claims upon the State Highway Fund approved by this Department. If the maintenance is not satisfactory the Department may upon thirty days written notice take over complete control of such maintenance and pay all costs from the State Highway Fund of said county. This has never been done to date although several warnings had to be issued to improve the maintenance. The maintenance of the state system in each county is directly under a County Highway Commissioner who is appointed each year by the County Board of Commissioners or Supervisors. The county board may appoint as County Highway Commissioner one of their own members or anyone else regardless of residence. Invariably the class of maintenance reflects directly the ability of the Highway Commissioner and his degree of cooperation with the State Department.

Motor Vehicles—Motor vehicles include motorcycles, and all vehicles propelled by any other power than muscular power, excepting traction engines, road rollers and vehicles which run only on rails or tracks. Trucks include all vehicles equipped or used to carry anything other than passengers. Numbers are assigned to vehicles consecutively (from number one up in each county) at the time the license fees are paid. Each county is assigned a key number designating the order of the counties in which the larger number of vehicles have been registered as for example a Douglas County car with number 227 would carry 1-227 since Douglas County has the largest registration while a car with the same number in Hooker County with the smallest registration would carry 93-227. Numbers must be carried on front and back of the vehicle a minimum distance of sixteen inches from the ground. Certificates of registration showing ownership must be carried in containers in the car subject to public inspection.

Registration fees are dependent upon the weight of the vehicle as follows: motorcycles and two wheeled trucks weighing less than one thousand pounds $5.00, motor vehicles less than two thousand pounds $10.00 with fifty cents additional for each one hundred pounds over two thousand pounds provided that upon vehicles equipped to carry more than seven passengers the total weight shall include the vehicle loaded to capacity with persons of 150 pounds weight. Public owned motor vehicles are not taxed. Registration year extends from January 1 to December 31 with 50 per cent reduction in fees on vehicles registered after July 1. Foreign cars may stay in the state 30 days without purchasing a license.

The maximum speed limit is 35 miles per hour on highways but does not apply to emergency calls of police, fire vehicles, doctors and ambulances, except when governed by city ordinances.

Lenses must be tested by this Department for a fee of $10.00 and only approved lenses may be used. This Department is authorized to make rules and regulations governing lights and lenses.

The following size and weight limitations are placed upon the operation of motor vehicles upon public highways: Width maximum 7½ feet, height maximum 12 feet, 600 pounds maximum per inch width of tire, 7000 pounds maximum on one wheel.

Signs—The Department has authority to mark the State Highway system from State Highway Funds (the 75% budget of motor vehicle tax for maintenance). No other signs are permitted on the State Highway right-of-way except where permit is granted by this Department. One permit has been granted this biennium for an individual sign and perhaps a dozen has been granted in previous bienniums, only one of which was a state wide permit. Permits cannot be issued for signs larger than ten square feet surface. Signs can not be placed within 300 feet of a railroad crossing or highway intersection.

IMPROVEMENT DISTRICTS

In addition to legislative appropriation funds the law provides several means of improving highways by various methods of assessing property benefitted under improvement districts created by the County Boards upon application of the districts. These laws are bulky and detailed but a few are summarized briefly here for general information.

Douglas County Paving Bill—applying to counties having population in excess of 150,000 provides that districts may be established, appraised and assessed as per benefits received.

Lancaster County Paving Bill—applying to counties having population of 40,000 to 100,000 provides that property over two miles from town can not be assessed over 10% of the total cost. Six zones are created bearing percentage of cost as follows: 50, 25, 10, 5, 5, 5%.

Sarpy County Paving Bill—applying to counties having population of 9000—11,000 provides that property may be assessed half way between any two state highways but not over a distance of two miles. Exclusive of state and federal aid funds which may be available, the county at large is assessed twenty-five per cent of the remaining cost and fifty per cent assessed on front footage of the property and twenty-five per cent to balance of property.

. **State Paving Bill**—applying to counties under 40,000 population provides that assessments shall be made upon four equal zones not exceeding two miles on either side of the highway in the following percentage of cost. 25, 20, 15, 10%.

Precinct, Village,Township or County Bonds—may be issued for improvements by petition vote of special election or unanimous order of the County Board but such issue in some instances can not exceed two per cent of the assessed valuation of the district. A tax is generally levied on the district sufficient to pay interest and five per cent of principal on bonds. There are many methods by which the subdivision of State Government may form improvement districts and be bonded as a unit but under the constitution the state can not be so bonded.

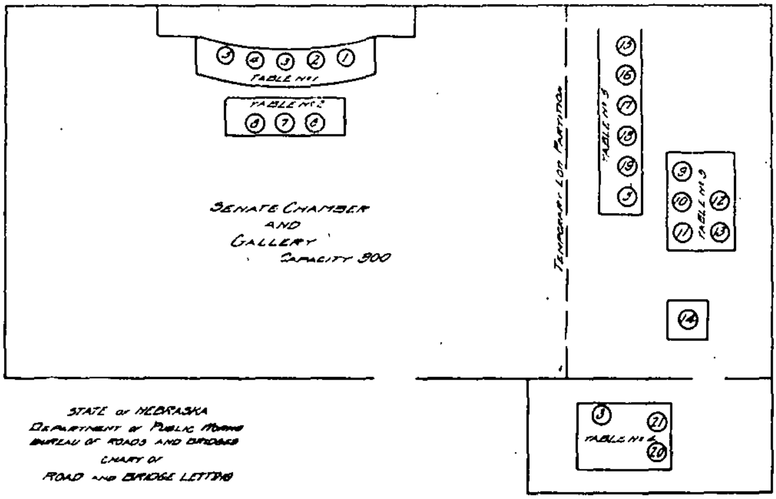
TYPICAL HIGHWAY LETTING

It is of interest to many to know how a highway letting is handled at a time when several hundred bids are received with over a hundred bidders present besides many other interested parties and spectators.

This department took heed this summer to the demand of the general public that the projects be made smaller so the smaller or new contractors could participate in the bidding. As a result all previous records for numbers of bids and numbers of contractors at a single letting were repeatedly broken. At one letting of fifty-five projects totalling less han one million dollars there were ninety-nine different bidders with as many as thirty-four bids filed on a single project. Out of a mailing list of 250 contractors, eighty-four were successful in receiving contracts in 1924. When this idea was first put into practice the Department was freely advised that they would have many failed contractors and incompleted projects with bonding companies on their hands, but the records prove the contrary to be true. Conditions in this respect have never been better.

The following chart shows the plan of one of these lettings with Department employees represented by numbers from one to twenty-one with the exception of number three who is a represntative of the county. Th notice to contractors definitely stipulates the hour at which the receiving of bids will close. Most of these bids are personally handed to a Department representative within fifteen minutes of the closing time.

When the hour for closing bids arrives the Department employees take places as shown on the chart. At table one employee No. 1 has received all proposals and grouped them under their proper project num-



bers as shown on the sealed envelope. No. 1 cuts the sealed envelop, opens and passes the bid to No. 2. No. 2 calls the chairman or representative of the County Board No. 3 to the stand to witness the opening and reading of the bids. No. 2 reads aloud the county, project number, contractor's name and address, amount of certified check, and all items and bid prices submitted together with any special conditions or provisions the contractor may have inserted and passes the proposal to No. 3 who after inspection passes the proposal to No. 4. No. 4 lists the certified checks for permanent record and passes this record and proposal to No. 5 who is in charge of table five.

Three tabulators are stationed at table No. 2 who tabulate all bid prices as they are read aloud by No. 2. These tabulators Nos. 6, 7, and 8 with previously prepared sheets tabulate independently as a check. When all bids on a project are read and tabulated the tabulated sheets are passed to No. 9 in charge of the computing and checking squad Nos. 10, 11, 12, 13 and 14 at table No. 3. No. 9 extends all items, checks and circles low bidders on each item, group, or permissable combination of groups as covered in the specification or stipulated in the contractors' proposals. He reads one tabulation sheet aloud which is checked by Nos. 10 and 11 holding the second and third tabulated sheets. As No. 9 reads the quantities and bids aloud they are computed mechanically by Nos. 12 and 13 checking each other and results read back by No. 12 to Nos. 9, 10 and 11 for recording. The final addition of all quantities to determine low bidder is made by No. 14 on a mechanical adding machine.

Employees of the clerical and accounting division are seated at table No. 5. General information to bidders and the press is passed out by No. 15 who also attends to all certified checks. Nos. 16, 17, 18 and 19 copy and prepare contracts for signatures of the County Board, contractor and bonding companies. Most of these signatures are obtained before the parties leave to avoid delay through the mails. No. 5 transmits the tabulation sheets which have been completed to show low bidders as indicated by No. 9 to table No. 4 in the awarding room. At this table sits No. 20 awarding contracts with No. 21 taking a record of all minutes, and No. 3 representing the county board.

All tables are active at the same time so that as table No. 1 is reading bids, table No. 2 is tabulating, table No. 3 computing, table No. 4 awarding, and table No. 5 signing contracts and bonds. If the letting is small about twelve employees are used and all bids are read before the awarding starts. Under the above system of awarding contracts, from fifteen to twenty average highway projects, each with from one to five separate contracts carrying the usual number of road and bridge items with ten to thirty-five bidders on each project totalling several hundred thousand dollars can easily be read, awarded and contracts signed between the hours of 10 A. M. and 5 P. M. The larger lettings are usually spread over two, three or four days so that a bidder who is unsuccessful one day may try again, using his same certified check the succeeding days.

GRAVEL ROADS

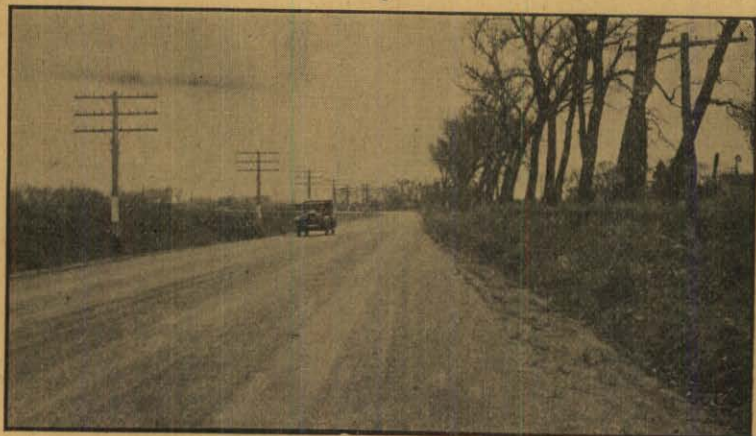
The present Highway Department is a strong advocate of gravel roads for Nebraska. Consequently a vigorous yet quiet campaign for such type of surfacing was started in 1923 which bore fruit quite forcibly in 1924. No definite surfacing program had been started previous to this year, however with the gravel campaign well under way it is believed that the public will authorize a program which will insure and protect the road grades previously completed as well as to surface the future construction.

Nebraska is taking exception to the accepted facts claimed by her neighboring eastern states relative to the life of gravel roads. When Iowa, Minnesota, Wisconsin, or other states advise that an eight inch gravel road can withstand economically only 400 vehicles per day, Nebraska admits the fact as it applies to these states but replies that in general within Nebraska half that depth of gravel will withstand satisfactorily three times that much daily traffic and will continue to do so without replacement for several years. Few people except the native Nebraskans who have travelled such roads for the past four years are ready to agree to such a statement. Further when such a Nebraskan with the aid of a pencil, a spare moment, and Nebraska contract prices figures that seven per cent interest on warrants for pavement averaging \$30,000 per mile is \$2100 annually and that this same \$2100 will place at least two inches of gravel surfacing on a mile each year, this same Nebraskan is mighty slow to vote pavement bonds, because he knows from experience that considerably less than two inches of gravel annually will insure a splendid highway. So long as the gravel surface can carry the traffic satisfactorily twelve months of the year without excessive costs for maintenance or gravel replacement it is not economical to pave, but when these maintenance costs assume a proportion out of line with engineering estimates on pavement costs, then these surfaces must be protected by pavement.

This department and the people realize that some portions of the state require pavement on the main highways for economy, but this is not a general state wide fact as in the neighboring states on the east. The eastern engineer immediately asks, why? The reply as follows is brief. The neighboring states on the east have about 50% more rainfall and a much heavier soil. The Nebraska soil is generally a lighter sandier loam which dries quickly while the neighboring soil is a heavier clay gumbo which holds on to water tenaciously when once absorbed. The damaging effects of more water on a much heavier soil under highway traffic is great so it is this difference alone that makes the above statement relative to Nebraska a general fact with of course a few admitted exceptions.

Saunders County State Highway No. 9

The above view shows a gravel highway that has formed a better riding surface than the average pavement twelve months out of the year for the past five years. This is Federal-State project No. 27 south of Wahoo. The gravel was started in the late fall of 1919 and completed in the early summer of 1920, thus giving five years service up to the present time. Another remarkable fact about this road is that 6.5 miles was surfaced with gravel four inches deep and 4.5 miles surfaced two inches deep. The maintenance cost on these sections has been slightly less than the maintenance on the adjoining state dirt roads and no money has been expended for gravel replacements. The four inch section is in wonderful condition today after five years service and is apparently good for several years to come without the addition of more gravel while the two inch section must be scarified and two inches more added at once to produce a suitable road. This with one other short project was the only two inch gravel surfacing tried in 1920 but other four inch sections placed check the above records closely and are today in splendid condition except in two or three instances where the subgrade was heavy gumbo in the extreme eastern part of the state or the sub-grade was a prepared sand-clay foundation and the clay is wearing out. The traffic on the Saunders County project has averaged about 800 cars daily the past five years. The traffic census taken in August 1924 shows 1070 cars daily for the daylight hours only.



Lancaster County's Graveled Boulevard

The above gravel road State-Federal Aid project No. 17 lies between Lincoln and Omaha on the D L D. This section is four inches deep. Over eleven miles were completed early in 1923. After more than a years' service it is in perfect condition, supporting traffic including heavy freight trucks, passenger busses, and cars averaging 1434 vehicles daily during only the daylight hours of August 1924.

A four inch gravel surfacing has been the maximum for Nebraska with the exception of one contract recently let, using 6 inches of local poor grade gravel but many miles of two inch and three inch depths have been constructed, only one of which to date needs replacement. The following table shows the gravel surfacing placed by this Department.

Year placed	Miles
1919	42
1920	6
1921	23
1922	64
1923	10
1924	467

Totals:

Depth	Miles
2 inches	162
3 inches	212
4 inches	238

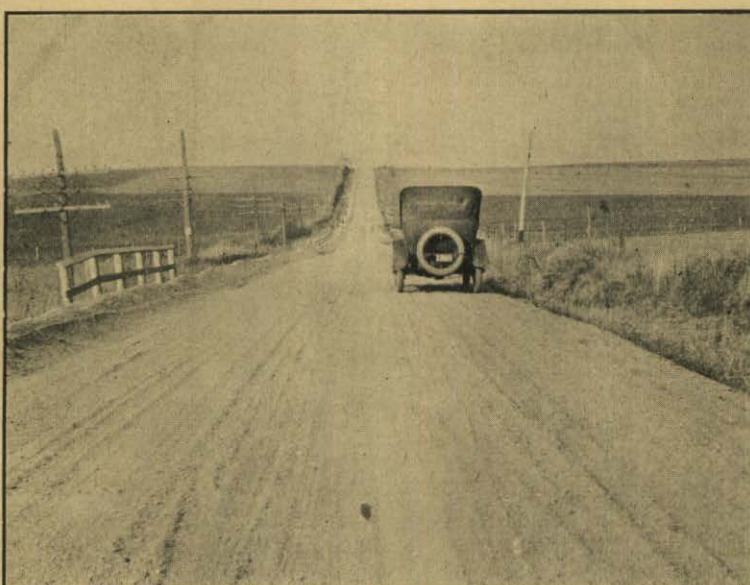
GRAVEL SPECIFICATIONS AND METHODS OF CONSTRUCTION

Some credit for the unusual success of gravel roads in Nebraska must be given to the materials and methods of construction. The larger part of the gravel used in Nebraska is pumped from the Platte River and screened according to specifications. This gravel is very hard and so fine that engineers are inclined to speak of the material as sand rather than gravel. Outside engineers, after reviewing the Nebraska specifications, comment that this state has no gravel roads but rather a sand-clay type of construction. Nebraska does have a sand-clay type of road construction but it is much different from the so-called gravel surfacing.

The general screen analysis for gravel surfacing is as follows: passing one inch screen—100%, retained on No. 4 sieve not less than 10%, retained on No. 6 sieve not less than 32%, retained on No. 10 sieve not less than 70%. To obtain the above analysis, from 20% to 80% of the pumped gravel is screened out as fine sand. This analysis is occasionally modified to meet the conditions found in suitable dry gravel deposits.

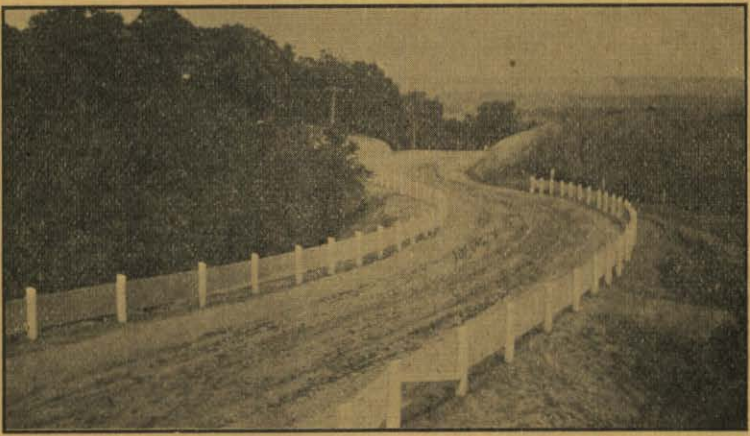
The pumped gravel when delivered upon the road is absolutely clean and void of any silt or clays so that the finished surface should depend upon the gravel producing its own binder by pebbles pulverizing under traffic into stone dust cement which forms the best possible binder following the rains. Traffic is not in the mood, however, to await this longer period for compaction necessitated if the gravel forms its own binder so a satisfactory but less permanent binder is supplied by adding a light mixture of the subgrade in the gravel after placing.

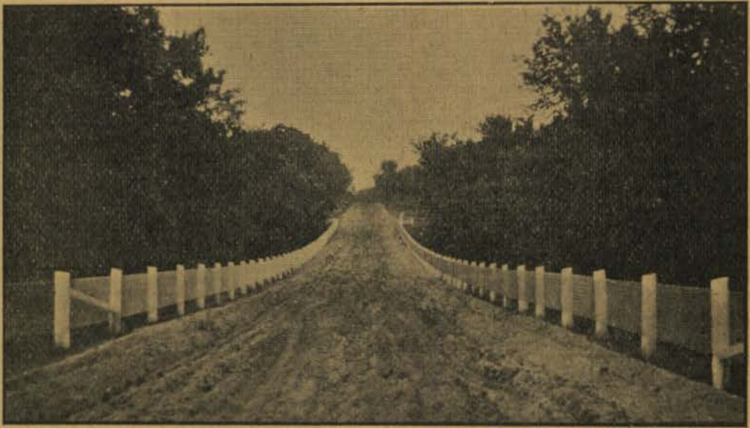
This subgrade has been incorporated in the gravel the past five years by the following methods: scarifying, discing, harrowing, blading shoulder slopes and ditch cleanings over the gravel surface, and by placing the gravel in thin layers under traffic which beats the gravel into the subgrade or brings up a small part through wear. The application of thin layers under traffic as rapidly as traffi ccompacts same has proven to be by far the most satisfactory method since a good percentage of stone dust binder is produced and traffic is not hindered. In late fall or prolonged dry seasons a light scarifying or discing has proven desirable to hasten the incorporation of the gravel, but in general scarifying is a dangerous process. A new gravel road receiving too much scarifying compacts quickly, forms a good surface quickly but wears out quickly, due to the addition of too much low grade binder and for the same reason such a road is badly rutted and cut up following a rain.



The beginning of a graveled speedway through the rich agricultural districts of Seward County on Project 134-A, the D. L. D. Highway between Lincoln and Milford.

The above view shows a three inch gravel surfacing all deposited in one windrow on one shoulder line from where the blade maintainers spread one-half inch layers across the roadway as rapidly as the traffic compacts each layer. This process does not hinder traffic and does not require very many weeks' time to compact the three inches except during very dry periods when it may be assisted by light discing or scarifying.





Above views show the result of spreading too much gravel across the roadway at one time causing traffic to follow a single deeply rutted track. Views also show new guard rail used in Nebraska for first time.

Since it is not satisfactory to hold the contractor responsible for continuous manipulation of the gravel surface until it is thoroughly compacted and since the state desires to collect from the Federal Bureau one-half the cost of manipulating the gravel the specification was so written that the contractor is paid on a square yard basis for furnishing and depositing the gravel as directed on the roadway while the state maintenance organization is paid one-half cent per square yard of gravel for each inch depth for preparation of subgrade, spreading of gravel, and all manipulation necessary to produce a compacted completed road.

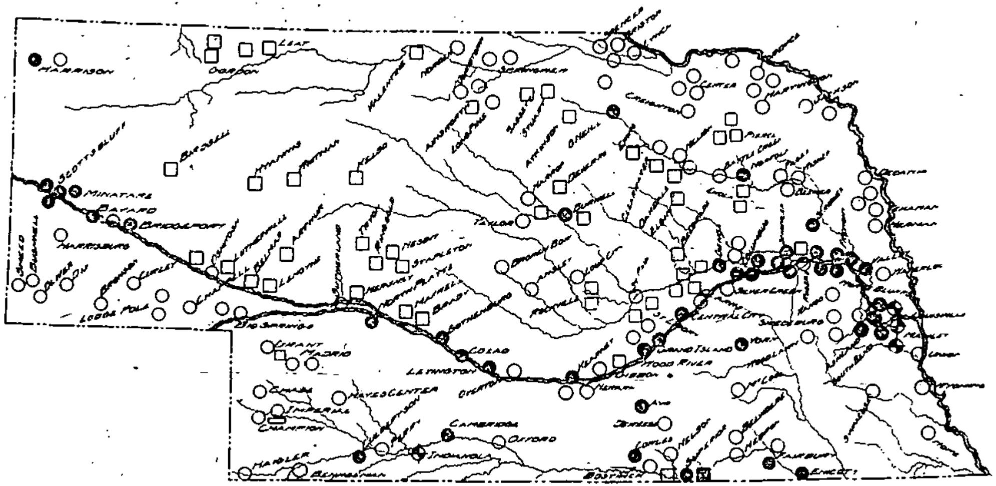
The secrets of good gravel roads are believed to have been solved. The finished surface can be but little better than the foundation. Proper highway construction and drainange is the first essential followed by clean gravel deposited in one winrow on one shoulder line from which it can be spread in one-half inch layers across the road as rapidly as traffic compacts it. This construction must be followed by intensive heavy maintenance during the heavy rains, not several hours or days after the rain, although continuous maintenance on dry graveled roads carrying a thin layer of loose gravel is essential. Such maintenance avoids chatter bumps, or corrugations, and keeps a thin film of loose but not objectionable gravel evenly spread over the surface. Nebraska's fine, hard, clean gravel with all stones over one inch diameter removed, compacts solidly and does not ravel. Too much natural clay content or the addition of a high per cent of local soil binder destroys the life of the road. Larger stones, if permitted, tip and rock under traffic, causing a small hole. The impact of traffic soon produces a large objectionable pot hole where once lay an oversized stone. One pot hole forms another particularly easy in the presence of objectionable foreign matter as lumps of earth, sod, or pieces of cloth used to plug leaky freight cars in shipment. These details are watched by the Department's inspector to insure a good gravel highway.

SURVEY OF ROAD MATERIALS IN NEBRASKA

Road materials used by the Highway Department must comply with certain specifications, must be suitably located with respect to the roads on which they are used, and must exist under conditions suitable to economic production.

Sand and Gravel. Most of Nebraska's sand and gravel is produced from mantle rock deposits. But a small portion is derived from the bedrock formations. These sources of gravel in Nebraska range in geologic time from the Pennsylvania Beds to the Dakota Formation, the Arikaree Formation, the Ogalalla Formation, an unnamed tertiary formation, glacio-fluvial deposits, glacial drift and alluvium. Among these the most important are the alluvium of the Platte River, the Aftonian Sand Plain and gravel bodies occurring at the base of the Dakota Formation.

Pennsylvania Formation. The Pennsylvania Beds outcrop in the southeastern counties of the state. Sand is found only in a few strata such as those outcroppings at Peru and south of Falls City.



WHERE ROAD MATERIALS ARE PRODUCED IN NEBR.

LEGEND

- ● ACTIVE COMMERCIAL GRAVEL PITS
- ○ GRAVEL DEPOSITS AVAILABLE FOR PRODUCING ROAD MATERIAL
- ⊕ COMMERCIAL STONE QUARRIES
- □ CLAY OR MAGNESIA DEPOSITS AVAILABLE FOR SURFACING SAND ROADS
- ▣ PORTLAND CEMENT MILL

Here the sand is too fine to be of value as a road material.

Dakota Formation. The Dakota Formation consists mainly of a buff to a rusty brown sand stone heavily stained with iron. At the base of the formation lying uncomformably on the Pennsylvania rocks are lenticular beds of sand and fine gravel. The sand is too fine for construction work but the gravel is very good for road surfacing. These deposits occur quite extensively in the vicinity of Louisville. The gravel ranges from 10 to 20 feet in thickness and contains a great many clay balls, large boulders and often a small body of fire clay. There is also in the same vicinity a buried gravel body which is glacio-fluvial or a stream deposit of cretaceous time. The deposit extends in a generally southeasterly direction from Cedar Creek to south of Richfield and is about ten miles in length. Sand is produced from this deposit at several places.

Arikaree Formation. The Arikaree Formation outcrops over a large area in northwestern Nebraska. The sands are grayish and generally of fine texture. In a few places it contains deposits of coarse gravel suitable for construction work.

Ogalalla Formation. The formation is the bedrock in a large portion of the southwestern counties of Nebraska. It outcrops along the Republican River from below Franklin westward to the state line, and in the Lodgepole and North Platte Valleys. It contains a vast amount of sand and gravel some of which occurs as a friable sand stone conglomerate. The particles are made up of rounded grains of material loosely cemented by a calcareous cement.

Sand of the Late Tertiary Age. Beneath the loess of much of central Nebraska and extending eastward under the western edge of glacial deposits is an unnamed tertiary formation which carries vast quantities of sand interstratified with layers of clay and silt. This formation forms nearly a continuous sand plain from 25 to 100 feet thick, outcropping along the Missouri River in northeastern Nebraska as in Knox and Cedar Counties and in the valleys along the Republican River in the southwestern counties. The extent of this said plain is not known nor what its geologic relation to the drift sheet may be. Much of the sand is too fine for use but a portion of it may be utilized as a surfacing material for roads. It is too dirty for concrete work, containing not only clay and silt but also an iron cement.

The Glacio-Fluvial or Aftonian Sand Plain. This plain lies between the Nebraska and Kansas drift sheets and has a thickness of from 10 to 70 feet. The sand varies from dirty to clean and from fine sand to coarse gravel. It contains boulders, cobbles and large clay balls which were undoubtedly carried to their present positions from the north, by streams, during the glacial time. Just what caused these streams to drop their heavy load in eastern and central Nebraska is not known. This sand plain extends through much of the upland of the loess hill and drift areas of Nebraska and is reported also in southwestern Iowa, northwestern Missouri and northeastern Kansas.

Sand is produced commercially from this source at Fairbury, DeWitt, Ulysses, Wahoo, Superior, Nelson and Hebron from the same horizon. As a surfacing material this gravel is one of the best in the state. It is of suitable size and quality and has a good binder of clay and iron oxide. When this gravel is laid upon a road and subjected to the impact of traffic it forms a surface which is extremely hard and durable in either wet or dry weather. There will undoubtedly be a great many miles of road surfaced with gravel from this source in the future.

Glacial Drift. The drift of the Kansas sheet covers approximately the tier of the eastern four counties of Nebraska. It is evidenced on the surface by large boulders of many kinds of material, by rounded pebbles in the soil or by a heavy red clay. The deposits occur in pockets which contain material grading from extremely fine sand to large boulders. At the base of these deposits the material is usually clean but is badly stained with iron, making it a poor aggregate for concrete.

Either for construction work or surfacing material drift sands are poor at best, and the supply is so limited that at the present time it seems inadvisable to utilize it.

Dune Sand. Dune Sand is the prevailing surface formation of the well-known sand hill region. It is too fine for any road use and offers a serious problem to road construction wherever it exists.

Alluvium. The alluvial deposits of sand and gravel in the state are by far the most important sources of road material. These deposits occur in the valleys of the Platte, Loup, Elkhorn, Blue, Republican and Missouri rivers. The alluvium of the Platte is very coarse in the western part of the state, becoming finer toward the east, due of course to the action of the water upon the material. That of the Loup and Elkhorn rivers is almost too fine for road use. The Big and Little Blue carry material derived from the Aftonian Sand Plain, tertiary sand and glacial drift. Much of the sand is used commercially. The alluvium of the Republican Valley varies a great deal in size and quality depending upon the region. That of the Missouri grades from very fine sand to clay and is seldom used.

In the alluvium of the Platte, Nebraska has an unlimited source of road material. This alluvium ranges from twenty-five to 100 feet in thickness and extends the full width of the Platte Valley throughout its coarse. It grades from fine sand to coarse gravel and is very hard and durable.

State Owned Gravel Land. The gravel land near Ashland purchased by the State in May, 1920, is located in Sections 30 and 31 of Township 13 North, Range 10 East, Saunders County. It is on the main line of the C. B. & Q. railroad between Lincoln and Omaha.

There are a great many reasons which enter into the fact that Platte Valley land in the vicinity of Ashland is almost ideal for gravel production. The Platte valley is about 1½ miles in width at this point so the river has had neither a chance to change its course appreciably nor has it lost any of its velocity. There are no tributary streams flowing into the Platte which might carry finer material immediately above this location and the river has not meandered enough to appreciably change the alluvium, as originally deposited, below a depth of about ten feet.

There are 62.8 acres of deed land in the tract purchased. With this the State received title to thirty-four acres of accretion land. The tract has 2100 feet of trackage on the main line of the C. B. & Q. It is possible to produce from this land approximately 500,000 cubic yards of road gravel or 1,000,000 cubic yards of concrete gravel and the supply from the river is unlimited. The land is protected on the south from overflow by the grade of the C. B. & Q. railroad and on the east along the river front by a dike thrown up by the railroad company which facts are indeed an advantage.

The gravel on this tract when analyzed, tested from forty to forty-six per cent retained on a No. 10 screen with the exception of a small area of about twenty-seven acres which has about ten feet of fine sand deposited on the surface. To date it has been unnecessary to open this pit to secure proper gravel prices from the various commercial companies.

Since freight rates greatly reduce the area that might be served from any gravel pit, it may prove advisable to acquire additional ground for sources of gravel supply in various parts of the state, particularly along the Platte and Republican rivers.

Survey Methods. The survey of road materials in Nebraska has been conducted for several years by the State Conservation and Soil Survey, however, when the Federal Aid program was enacted a more detailed survey of certain areas became necessary which was carried on by the Department's engineering forces.

The most important road materials surveyed are deposits of sand, gravel, clay and stone suitable for road construction. For the benefit of county officials and others interested in general road work, a few general statements will be made regarding methods used.

The problem of testing sand deposits is divided into distinct phases; first, that of testing alluvial deposits, and second, that of testing bank deposits. These will be treated separately as follows:

Alluvial Sand Testing. The economic side of the production of gravel enters so thoroughly into the situation that the quality of gravel possible to produce is often necessarily disregarded because of economic features. A site must be chosen not only with regard to the possibility of producing gravel of good quality, but also with regard to distance to the road upon which it is to be used, with regard to shipping facilities, and the purchase price of the land.

Having decided upon a plot of land which is suitably located the detailed examination of that particular deposit is made.

All alluvial gravel lies either practically at or below the water line, therefore it is necessary to procure such equipment as will work under these conditions. A casing four or six inches in diameter is sunk and the sand is removed from within this casing by either a sand bucket, a sand pump or a trap auger. The pump is often times mechanically inefficient, and the sand bucket gives a false impression as to the exact stratification of the sand. The trap auger is the most certain and effective tool for this work. It removes the gravel exactly as it occurs in the ground, taking out the fine and coarse materials in their exact relationship. It is much slower than either of the methods mentioned above but one may be certain of the results obtained.

After several test holes have been put down evenly distributed over the plot of ground and samples have been obtained at different depths in these holes, the results are averaged and the quality of gravel possible to produce from the certain plot of ground determined.

Next, quantities of material present must be figured. An easy way of doing this in the field is to figure the area of usuable ground in square yards, multiply this by the depth to which the gravel may be worked and make a correction for the material to be wasted by screening. This will give approximately the number of yards of gravel in a given area.

It then becomes necessary to map the ground as to the best possible location for trackage, driveways, buildings and the pits, so as to give the largest areas possible to gravel production. Classify the ground as to the number of trees or stumps to be pulled, the amount of stripping to be done and the nature of the material to be stripped, and evaluate the land to be purchased.

Bank Pits. The location of a dry land pit is much more complicated and uncertain as to results than is that of the alluvial pit. The material in these bank pits is derived from the sand plains, from two unnamed tertiary deposits and glacial pockets and because of the manner of their deposition great care must be taken in their survey. These deposits are not consistent as to thickness, quantity, quality of geoligic relation to other formations making deductions very uncertain.

If seeking to locate a pit in an area where only bank pits will be possible, trace up the drainage ways in the vicinity, looking for a stream or intermittent drainage which carries gravel. If such a stream is found, follow this until the gravel body is located. Then determine the elevation of this layer of gravel and trace it by the use of a level and surface indications until a suitable location for production is found. Proceed by putting down test holes and by the methods stated previously, determine the exact quantities of gravel present.

Clay. Clay as treated here is used as a surfacing material on sand roads and as a binding material on sand-clay roads or sand-clay roads to be surfaced with gravel. In nearly all places in the state where gravel roads are constructed the road soil and gravel dust has sufficient cementing quality to bind the gravel together into a hard wearing surface, but in some vicinities where sand clay roads have been built additional clay must be added to insure a suitable foundation and binder for a gravel course.

Clay is used frequently in the sandhill regions as a surfacing material where it not only binds together the fine particles of sand but also forms a hard crust-like surface that will stand the wear of the traffic.

The problems involved in the location of suitable deposits of clay for either binding or surfacing material are fewer than those of a location of gravel deposits because of the fact that most of the counties of the state have been thoroughly surveyed with respects to the soil existing. This work has been done by the U. S. Bureau of Soils and the Nebraska Conservation and Soil Survey.

When seeking a suitable deposit of clay the soil survey maps are consulted and the location for clay made with respect to the road on which the material is to be used.

A sand clay or gravel clay road is constructed most effectively when the sand and clay are mixed in proper proportions. These proportions are not purely arbitrary but are determined by definite testes of the material to be used. These proportions are determined in the field by tests known as the slacking and flouring tests.

A sample of the clay to be used is dried and sieved through a 100 mesh sieve. This clay is then mixed with the sand in many different proportions, a little water added and the mixture molded into briquettes and allowed to dry. These briquettes are then given the slacking and flouring tests which indicates the best proportion to use.

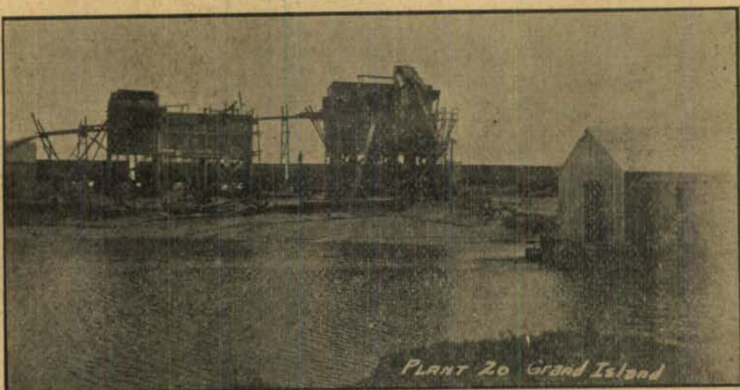
Gravel Deposits The Platte River Valley is the most important source of sand and gravel in the state. There are 30 commercial producing plants located at different points along this stream within the limits of Nebraska. Practically all of the aggregate for concrete work, and 60% of the gravel for surfacing on our Federal Aid roads is secured from this source.

Outside the limits of the Platte River Valley, the most important commercial sand and gravel producing plants are located at the following towns: Long Pine, Burwell, Norfolk and Cowles.

During the last two years there has been a growing demand for gravel surfacing on the State Highway system. This has led to an increased interest in local deposits that might be suitable and available for surfacing purposes. Much exploration work has been done by the State Highway Department and by the local road authorities. This is especially true in sections of the state, to which freight rates are extremely high from Platte River pits. Many deposits have been uncovered and utilized, in places where previously there was little idea, that gravel existed in pay quantities.

During the construction season of 1924, gravel from local bank pits has been used for surfacing in Otoe, Saunders, Furnas, Chase, Perkins, Cheyenne, Kimball, Morrill, Boyd, Cedar, Sioux and Dixon counties. The total yardage amounted to 134,000 cubic yards. From local alluvial pits 133,700 cubic yards of gravel has been produced for surfacing in the following counties: Jefferson, Garden, Red Willow, Madison, Colfax, Merrick, Hall, Buffalo, Dawson and Kearney. By utilizing these local gravel deposits many thousands of dollars have been saved to the tax payers in freight charges alone.

Below are shown three typical Platte River gravel producing plants:

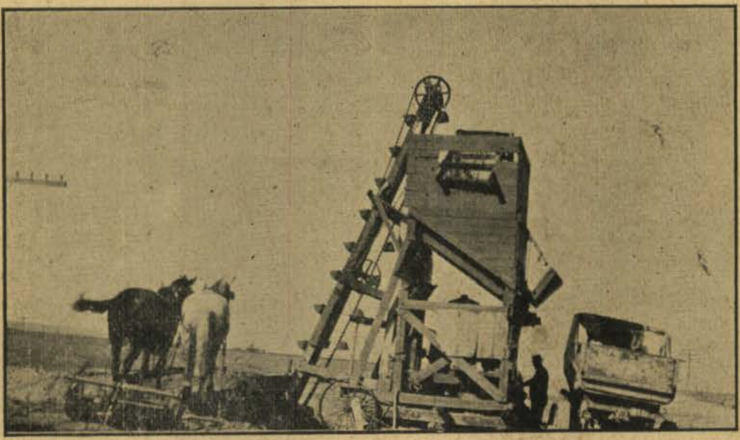


Stone Deposits. There are very few stone deposits of commercial value in the State The quarries located at Louisville and Weeping Water are the most important.

A large deposit of sand stone, located near Indianola has been tested and found suitable for concrete aggregate. It is proposed to lay an experimental section of Macadam road from this material, which although slightly soft should give reasonably good service.

Portland Cement. This State has one cement mill located at Superior. This mill has a daily capacity of 3000 barrels.

In the past it has been the policy of the Department to leave the securing of leases for privately owned local gravel deposits either up to the County Board of Commissioners of the county in which the surfacing was to be done, or to the successful contractors. It is believed that considerable uncertainty among contractors can be eliminated, and an appreciable economy effected, if the Department of Public Works had funds to investigate and determine the location, quality and quantity of gravel accessible to any given project and to secure favorable leases from land owners on all available deposits prior to advertising for bids.



Screening and loading gravel for maintenance purpose from a dry pit in Cheyenne County.

DIVISION OF LOCATION, CONSTRUCTION, AND MAINTENANCE

In this Division the Chief of Bureau and Assistant Chief functions directly through six District Engineers upon whose shoulders is placed direct responsibility for the proper location, construction and maintenance of the state highway system.

Through group conferences monthly with the District Engineers and by occasional field trips usually with District Engineers, or Testing Engineer, the Chief of Bureau is enabled to keep in close contact with all field work. Such monthly conferences, where the problems and accomplishments of each District Engineer are discussed and future policies established, result in a very great benefit to the individual Engineers and the functioning of the organization as a whole.

Each District Engineer has established permanent headquarters centrally located with reference to highways and railroad service in his district to best serve the purpose of the office. The ten outstanding duties of the District Engineer follow, together with a brief explanation of each duty.

Location

1. The District Engineer is largely responsible for the location of the highways. Too little power is granted this Department in the location of highways and too much is granted to the local county officials who although competent are often times seriously embarrassed by their constituents unfair demands upon them relative to a location benefiting a town or private interests at the expense of the state as a whole. Through engineering influence and with the aid of the Federal Engineer at the time of inspection the District Engineer can obtain a reasonable location for the highway or recommend the postponement of construction.

2. Preliminary survey parties are under the direction of the District Engineers. The Preliminary Engineer is shown the general alignment to be surveyed and reports direct to the District Engineer. The funds available this biennium as in all past bienniums has been too meager to permit the Preliminary Engineer to do justice to the necessary field investigation which would insure proper and economic highway location, design and construction.

3. Through coöperation with the County Boards of Commissioners and Supervisors the District Engineer obtains resolutions required by statute locating highways, requesting state-federal construction pledging funds for various purposes such as right-of-way, materials, construction and maintenance.

4. The District Engineer makes the plan-in-hand inspection upon which the final plans are made previous to contracting. Upon receipt

of tentative plans from the Office Engineer, the District Engineer and Federal Engineer in company with the County Board make an inspection over the route laying the proposed grade line and recommending adequate surfacing and drainage structures.

Construction

5. The District Engineer has direct supervision over all construction on the state highway system and all state aid bridges regardless of their location. Frequent inspection trips are made over all work to insure adequate engineering, satisfactory progress by the contractor and proper completion.

6. The District Engineer is responsible for the engineering parties in charge of construction. Such parties consist of a Project Engineer, generally in charge of several projects together with instrument men, inspectors, rodmen, and chainmen. The Project Engineer reports direct to the District Engineer.

7. The District Engineer checks and approves all payrolls, expense vouchers, changes in construction plans, agreements, progress and final estimates submitted by the Project Engineer.

Maintenance

8. The District Engineer prepares a budget for each county at the beginning of each year of anticipated expenditures for maintenance on the state highway system and submits this budget to the County Board for their approval. Patrol sections are designated, equipment purchased, and patrolmen hired in accordance with the approved budget which can not exceed 75% of the automobile license collections.

All claims for expenditures for maintenance are approved by the District Engineer before payment is made by the County Treasurer.

The District Engineer prepares maps of the patroled sections, showing types and lengths of patrols, and checks and approves all cost records and distribution sheets from which are prepared the annual maintenance costs and distribution sheets.

Occasional trips are made by the District Engineer over the state highway system, inspecting the maintenance over which he has general supervision. Following each trip, recommendations and criticisms are made to the County Highway Commissioner calling attention to conditions as observed.

Miscellaneous

9. The markings of the state highwal system and placement of advertising signs are also under the supervision of the District Engineer. During the past biennium the Department has removed the

old highway numbers, which numbers totaled eighty-eight leading nowhere in particular, and has replaced them with about one-third that number which are continuous across the state or lead into some through highway. This has been a great boon to tourists, but lack of funds has prevented the purchase and placement of a thoroughly standardized system of markers which have been under study for some time.

The Department has authority to approve advertising signs upon the highway but is extremely reluctant to do so. In fact only one approval has been granted this biennium and this was for an individual sign. Some counties have wisely started an active campaign for the removal of all signs not approved by this Department.

10. The District Engineers are frequently called upon to address meetings, discuss matters with various delegations, and to represent the Department at different times. For this reason considerable responsibility is placed upon District Engineers in promoting cooperation between various organizations, units of government, and the public.

A splendid concrete highway with large easy curves built for safety, but made dangerous by the business man's desire to advertise his goods to the public.

PERMITS ISSUED TO PLACE SIGNS ON STATE HIGHWAY SYSTEM

Years 1919 to 1922 Inc.

S. M. Dunlap, Lincoln, Nebraska.	Permit No. 1. Signs on Lincoln Highway ---------------------- $4.00
S. M. Dunlap, Lincoln, Nebraska.	Permit No. 2. Signs on Potash, Sunflower Trail, S. Y. A., D. L. D. Meridian, King of Trails, Cornhusker, Blue Pole, Golden Rod, Washington, Black Hills Trail -------------- 4.00
L. T. Cuming, Howe, Nebraska.	Permit No. 3. One sign on Washington Highway road No. 10 on west end of mile 33-34, Nemaha County, Nebraska, Auto sign size 16-24 inches, 3 feet ----------------------- 1.50
G. D. Parker, Johnson, Nebraska.	Permit No. 4. Two garage signs 3x3 feet on Golden Rod Highway No. 19, Mile No. 10 in Nemaha County Nebraska @ 4.50 each----------------- 9.00
Sawyer, Barclay & Co., Pawnee City, Nebraska.	Permit No. 5. Ten signs at the following described locations:

1—on the N. E. Cor SE¼, Sec. 29, T. 2, N. R. 12 E
1—on the S. E. Cor NE¼, Sec. 30, T. 2, N. R. 12 E
1—on the S. W. Cor NW¼, Sec. 30, T. 2, N. R. 12 E
1—on the N. W. Cor SW¼, Sec. 28, T. 2, N. R. 11 E
1—on the N. W. Cor SW¼, Sec. 29, T. 2, N. R. 11 E
1—on the N. W. Cor SW¼, Sec, 25, T. 2, N. R. 10 E
1—on the N. W. Cor SW¼, Sec. 26, T. 2, N. R. 10 E
1—on the S. W. Cor NW¼, Sec. 28, T. 2, N. R. 10 E
1—on the S. E. Cor NE¼, Sec. 30, T. 2, N. R. 10 E
1—on the N. W. Cor SW¼, Sec. 30, T. 2, N. R. 10 E
Ten signs, size 24"x30", 5 Sq. Ft. @ .50 $2.50 each

National Sign Co., Ottawa, Kansas.	Permit No. 6. Along State Highway System running through Dakota, Sarpy, Thurston, Lancaster, Washington, Dodge and Douglas Counties. -- 150.00 This fee has been deposited to show good faith in erection of signs per rules and regulations of this Department, the correct amount of fee to be determined after all signs have been placed.

A. M. Kingdom, Gretna, Nebraska. — Permit No. 8. Two signs 1'x4' at southwest corner of Section 31, Township 14, Range 11, Sarpy County, Nebraska, Tax Lot D1 in Section 36, Township Fourteen, Range ten, Gretna, Nebraska. ---------------------- 4.00

NOTE: In addition to above, Permit No. 7 to the National Highway and Signal Service Association, Permit No. 9 to the Automatic Signal Advertising Company, and Permit No. 10 to the Pawnee City Commercial Club for Highway Signal or marking signs have been allowed for which no fees were charged.

Permits Issued Biennium 1923-1924.

Coupe Brothers, Falls City, Nebraska. — Permit No. 11. SE¼ of Sec. 27, Falls City Township, Range 16, Two and one-half miles south of Falls City Hy. No. 2. ---------------------- 2.50

REPORT OF DISTRICT ONE
R. O. Green, District Engineer

MILEAGE OF STATE AND FEDERAL ROADS WITH CLASSIFICATION OF IMPROVEMENTS.

COUNTY	Total State & Federal Roads 1	Paved Roads outside City limits 2	Graveled Roads outside city limits 3	Sand-clay Roads 4	Constructed to perm. grade without surf'c'g 5	Constructed to temp. grade 6	Tot'l imp. rds. sum of cols. 2, 3, 4, 5, & 6. 7	Unimproved Roads 8
Cass	86.50	0.0	8.19	0.0	33.17	45.14	86.50	0.0
Clay	50.29	0.0	22.83	0.0	27.46	0.0	50.29	0.0
Fillmore	61.50	0.0	0.0	0.0	42.05	15.44	57.49	4.01*
Gage	105.05	1.15	11.15	0.0	43.87	23.88	80.05	25.00‡
Hamilton	63.25	0.0	1.71	0.0	32.39	28.15	62.25	1.00†
Jefferson	41.50	0.0	11.57	0.0	17.37	12.56	41.50	0.0
Johnson	45.45	0.0	0.0	0.0	15.88	16.82	32.70	12.75¶
Lancaster	112.01	9.93	34.69	0.0	45.38	22.01	112.01	0.0
Nemaha	37.85	.59	0.0	0.0	28.93	8.33	37.85	0.0
Nuckolls	49.11	1.33	2.00	.47	34.31	0.0	38.11	11.00!
Otoe	63.65	.68	27.38	0.0	21.53	14.06	63.65	0.0
Pawnee	38.30	0.0	0.0	0.0	15.70	22.60	38.30	0.0
Richardson	64.90	0.0	0.0	0.0	25.30	28.80	54.10	10.80
Saline	67.50	.69	11.30	0.0	28.22	17.29	57.50	10.00
Sarpy	51.00	.90	13.33	0.0	0.0	32.77	47.00	4.00
Seward	57.00	0.0	11.24	0.0	28.53	17.23	57.00	0.0
Thayer	50.25	0.0	0.0	0.0	35.63	14.62	50.25	0.0
York	54.50	0.0	11.48	0.0	37.36	5.66	54.50	0.0
Total	1099.61	15.27	166.87	.47	513.08	325.36	1021.05	78.56

NOTES:

* 4.01 miles contracted in 1924. Construction incomplete Nov. 30, 1924. This is not included in column No. 5.

‡ 4.50 miles contracted in 1924. Construction incomplete Nov. 30, 1924. This is not included in column No. 5.

† 1.00 mile sandy and requires surfacing.

¶ About 8 miles of the unimproved road is on a new location where there is no right-of-wty provided at present.

! 11.00 miles not located on present marked route for travel.

Cass County

The topography in Cass County varies from the hilly country in the eastern part of the county near the Missouri river, to the more gently rolling land in the western portion. About forty per cent of the mileage improved by State and Federal Aid is located in the hilly portion of the county and the remainder in the more level section.

The County Board has adopted the policy of using all available state and federal funds to bring their state highway system to a permanent grade, and are extending county money to match funds raised locally for the purpose of meeting Federal Aid, not met by the state, to construct gravel surfacing. In 1924 about ten per cent of their system has been graveled by this method of financing.

The county supervision of the maintenance of the state highway system is divided between the County Board members. On a part of the system the results obtained average with the best obtained in District One.

Clay County

All of the state highway system as laid out in Clay County has been brought to a permanent grade, which condition does not prevail in any other county in District One. When the first state and federal project was laid out in the county Federal Aid was not obtainable, under rules in force at that time by the U. S. Bureau of Public Roads, on roads not used as mail routes, and the county paid for the

Unloading gravel from freight train at Sutton. Project 232.

work done on these miles. This help from the county, together with the nature of the topography of the county, which makes light construction feasible has made it possible to obtain so much improved highway.

In 1924 the first gravel surfacing placed on public highways in the county was on the D. L. D. highway, and extends across the county in an east and west direction, with an exception of three miles between Harvard and Sutton. As soon as additional funds are available, this short piece will be surfaced with gravel, together with some of the K. N. D. highway, which crosses the county from south to north.

Fillmore County

The topography of Fillmore county is quite similar to that of Clay county, except that the state highway system crosses a few more lagoons in Fillmore than in Clay county.

Contracts awarded in 1924 jointly by the County Board and the Department of Public Works constitute about twenty per cent of the mileage improved with drainage structures and brought to grade on the state highway system in Fillmore county. The 1924 work lays east of Fairmont and consists of grading and drainage structures. It involves a change in location between Friend, in Saline county, and Fairmont which will eliminate from the state highway, when all portions of the project are completed, four crossings of a main line railroad and two of a branch line, leaving only two crossings of branch lines at grade. Formerly there were five grade crossings of main line tracks and three crossings on branch lines.

The Fillmore County Highway Commissioner has designed a removable culvert headwall post, which has been approved by the U. S. Bureau of Public Roads and the Department of Public Works. This was first used on the 1924 work in Fillmore county. Its use permits the removal of broken headwall posts and their replacement with new posts at a minimum of cost; and also permits the removal of a post without damage to the headwall in case some property owner wishes to move a building which is wider than the clear roadway between the posts.

Gage County

About 50% of the State Highway System in Gage county has been brought to permanent grade and drainage structures built, using State and Federal Aid jointly with county funds. About 20% of the mileage improved in this manner has been graveled, using County and Federal Funds. The first gravel surfacing was placed by the county in 1923 without Federal Aid.

Gage county is favored with the location of two of the primary inter-state highways within its borders. The Golden Rod Highway crosses it from east to west and the Cornhusker Highway crosses it from south to north, with the intersection of the two at Beatrice. In addition to these, they have a secondary highway located across the northern portion of the county, through Clatonia, which, when constructed, will connect the county seats of Nemaha and Fillmore counties.

Hamilton County

The State Highway System in Hamilton county is located through terrain which is flat or gently rolling. The highway north of Aurora crosses lagoons; at one place the road is subject to inundation in time of extra heavy rains for a distance of about 1.75 miles. This has required the construction of side drainage across farm lands and along side roads to natural drainage courses.

On the Platte river bottoms in the north part of the county it has been necessary to place heavy soil on the natural soil in the subgrade before gravel surfacing could be applied. When the balance of the system is constructed to a permanent grade and surfacing applied, two other locations will be encountered where this type of construction will be required.

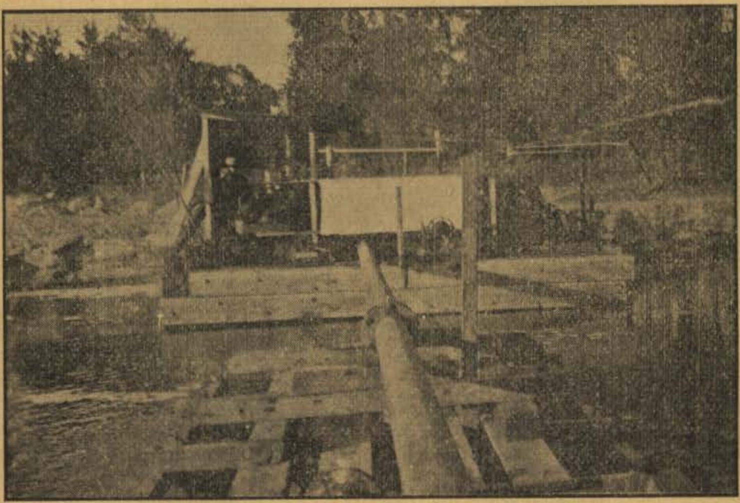
The funds for the first gravel surfacing placed in Hamilton county were obtained from the city of Aurora, Hamilton County, and Federal Aid. Following the construction of this project in 1924 from the city limits north to the Cemetery. The County Board made application for gravel on the S. Y. A. highway from Aurora to the York county line.

Jefferson County

During the first few years of State and Federal Aid road construction in Nebraska, the Golden Rod Highway was constructed to a permanent grade and drainage structures built across Jefferson County. This constitutes about 70% of the mileage of the State System as now laid out in the county.

After interviews with the Department of Public Works and local people interested, the County Board decided to make application for the expenditure of available funds to construct gravel surfacing east and west of Fairbury, the work to extend as far as available funds would permit. Contracts were awarded on this work and carried to completion in 1924, using State and Federal Aid Road Funds.

The gravel for this project was pumped from the Little Blue River within about 500 feet of the highway. Other local deposits of material were considered by the contractors, but it was decided that pumped gravel could be more easily screened to meet specifications than the dry pit gravel. The presence of the local gravel so near the project effected a saving to the county, over shipped-in gravel, of approximatejly $1,400.00 per mile for surfacing three inches deep.



Pumping plant mounted on boat in Little Blue River delivering gravel to storage bin.

Johnson County.

Highway construction in Johnson County is more expensive than in the average counties of District One, on account of the heavy clay and loose rock encountered in some of the hills, and also on account of the heavy drainage encountered. The topography of the county is mostly hilly and rolling and the surface soil is of a loose nature which washes badly during heavy rainfall. This condition presents problems in highway construction not met in some of the counties.

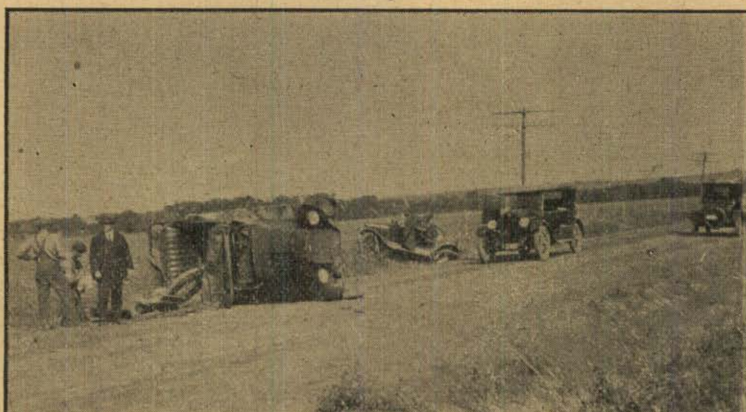
For the 1924 construction program the County Board and the Department of Public Works selected the worst place on the system in Johnson County, and have built two miles of road west of Sterling, using State and Federal Funds. The bridge contract on this project amounted to approximately 70 per cent of the total cost of the project. The improvement consists of grading and drainage structures, built on a new alignment which avoids crossing the Nemaha river twice, as was done on the old location.

Storage bin on Little Blue River gravel pit showing pipe discharging gravel from pumping plant onto screens. The fine material is carried away by flume on opposite side of bin while screened gravel is dropped in storage bin to be removed by trucks.

Lancaster County.

Lancaster county has a larger mileage of state highway than any other county in District One, having 10 per cent of the total mileage of the District, which includes eighteen counties. Sixty per cent of the pavement and twenty-one per cent of the gravel surfacing built to date in the District is located in this county. The funds for this improvement has been derived in part from abutting property

Lancaster County Project No. 175-B. Earth road under splendid maintenance.



Wide State Highway under splendid Lancaster County maintenance invited the Ford roadster to pass up the Chevrolet touring car going in same direction, but reckless driving and speed resulted in the above.

owners, county road and bridge taxes, inheritance taxes, motor vehicle fees and the State and Federal Aid Fund.

The construction of gravel surfacing in the county was begun in 1923 when the D. L. D. Highway was graveled from Havelock to the Cass County line, using county and federal funds. In 1924 the Cornhusker highway was graveled from the pavement south of Lincoln to the Gage County line, the D. L. D. Highway graveled from the pavement at Emerald to the Seward County line and the S. Y. A. graveled from the end of the pavement northwest of Lincoln to Woodlawn. This work has been done with State and Federal Road Funds.

In addition to the above, the highway south from Bennett to the Gage County line was completed in 1924. This improvement consisted of grading and drainage structures, including one concrete arch bridge, one concrete girder bridge and two concrete slab bridges, and all was paid from County and Federal Funds. In 1923 a thirty foot roadway bituminous pavement was laid on East O Street and in 1924 the same kind of pavement with eighteen foot and twenty-four foot roadways was laid at College View. The combined length of these is 1.47 miles and both were financed with Improvement District, State and Federal funds. In 1923 a concrete arch bridge was built on the S. Y. A. west of Woodlawn and in 1924 a four span concrete girder bridge 200 feet long was placed under construction on the Cornhusker Highway across Salt Creek north of Havelock, using County and Federal Funds.

Nemaha County

Nemaha County joins Johnson County on the east and the road problems in the two counties are quite similar in regard to grades, materials encountered and drainage.

Nebraska Federal Aid Project No. 2, from Kansas line north through Falls City to Nebraska City, crosses Nemaha County through Auburn. It was constructed during the early period of State and Federal Aid Road development in Nebraska. During 1923 the project from Auburn west to Rohrs was completed and in 1924 it was extended west to Johnson. The improvement consists of standard grading and drainage structures built from State and Federal Aid Road Funds with County Funds used on the larger drainage structures.

Also in 1924 The Sheridan Cemetery Association and the County provided funds to meet available Federal Aid and constructed 0.59 miles of eighteen foot roadway concrete pavement which joins the city pavement with the Cemetery west of Auburn.

The City of Auburn has attained what many of the smaller cities of the state aspire to atttain, namely, to be located on an important highway. Entering Auburn from the north the traveler observes the "W" (Washington Highway), C. R. (Capitol Route—Follow the Ducks), K. T. (King of Trails), G. R. (Golden Rod), Nebraska 3 and Nebraska 5.

Nuckolls County

The State and Federal Aid Road program began in Nuckolls County in the season of 1918 when the County Board took a contract to construct the highway from Superior north through Nelson to the Clay County line south of Clay Center. This was later carried to completion and the improvement consists of a permanent grade with suitable drainage structures to replace those in poor cndition, leaving in place such structures as did not require replacing at that time. After the completion of the grading the county placed a light application of local gravel on about the two north miles of this project with gratifying results.

In 1924 the last gap of the State Highway from Nelson south and east to the Thayer County line was brought to permanent grade and drainage structures constructed, using available State and Federal Aid Road Funds. This improvement involved a change in location which shortens the route between Nelson and Hebron two miles and eliminates two railroad crossings at grade.

The 1924 project from Superior southwest to the Kansas line contains 1.33 miles of eighteen foot roadway concrete pavement and 0.47 miles of sand-clay surfacing. It was necessary to select pavement for this improvement on account of the flooding of land, joining the highway, by the Republican River and on account of the sandy soil. County, State and Federal Funds were used in this improvement. It is the longest single paving project built in District One, outside of corporate limits, in 1923 and 1924.

No Federal or State money has been expenden on the Golden Rod Highway between Superior and the west county line, but the County has bladed up a roadway and people interested in the highway have donated money and labor to haul local sand gravel on about eight miles of this with the result that they now have a road which will permit speed and comfort.

Otoe County

Since the State and Federal Aid Road program began in Nebraska, about eighty per cent of the laid out highway system in Otoe County has been brought to permanent grade. This County does not have a mileage of laid out State Highways in excess of their funds available to construct and maintain same, which is true of some of the counties of the state.

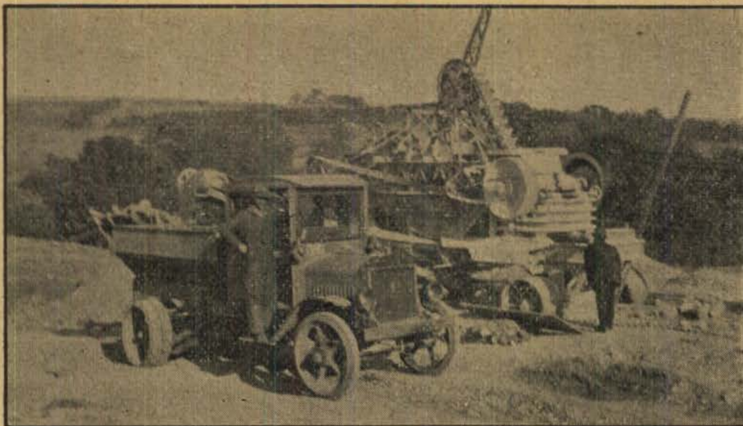
The major improvement in Otoe County has been made in 1924 by the construction of 0.68 miles of eighteen foot roadway concrete pavement and 27.38 miles of gravel surfacing.

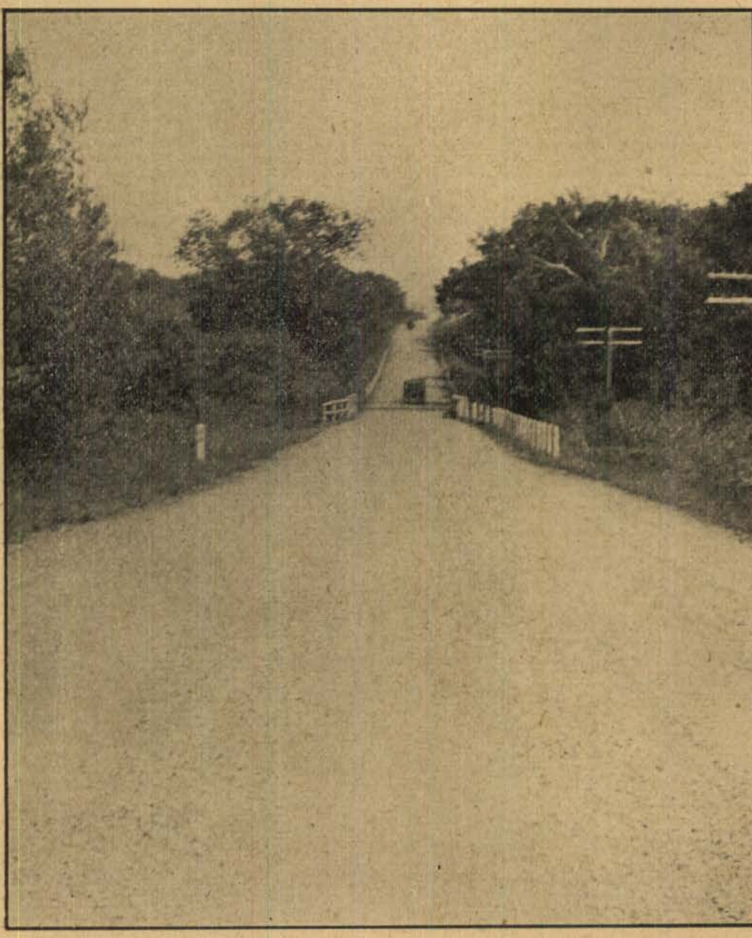
The concrete pavement skirts the south and west borders of Arbor Lodge, the newly acquired State Park at Nebraska City which was presented to the state by the heirs of J. Sterling Morton during the 1923 session of the State Legislature. The conditions of the gift were that a pavement should be built along the property and the State should make adequate provisions to maintain the old Morton Home as a park.

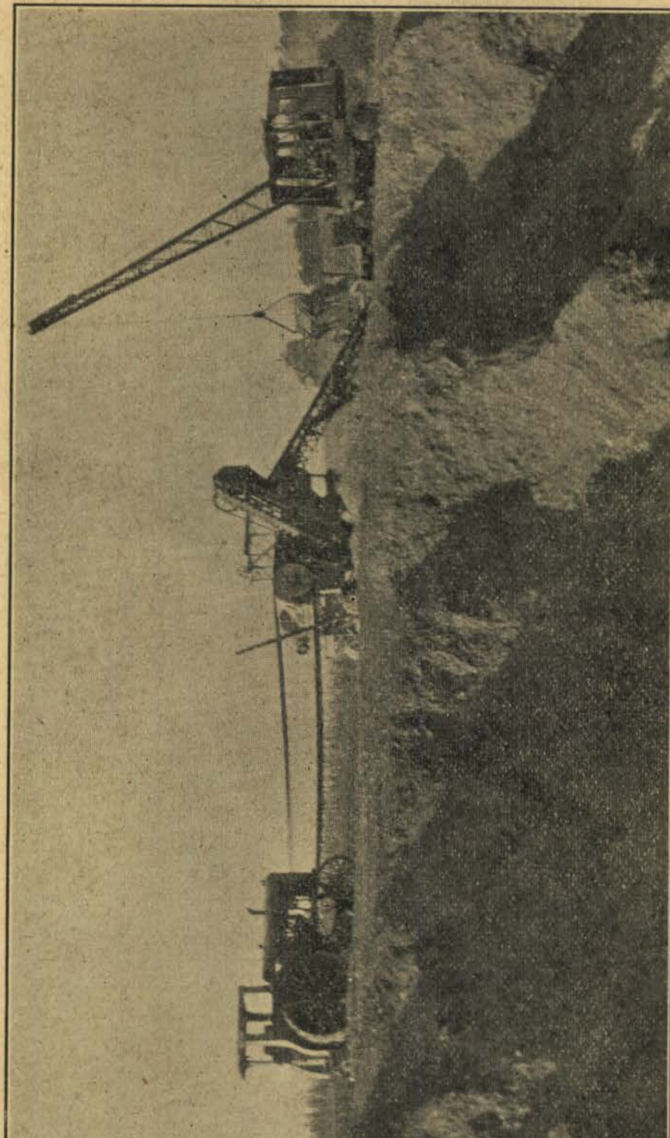
Otoe County Project No. 214—Concrete Pavement at Arbor Lodge.

The gravel surfacing extends from Nebraska City south to the Nemaha County line, from Nebraska City west to Dunbar and from the end of the pavement at Arbor Lodge to the Cass County line. The entire gravel program was carried out using County Funds to meet Federal Aid. State and Federal Funds were used to build the concrete pavement.

Platte River gravel was used on 1.75 miles north of Arbor Lodge and local gravel was used on the remainder of the road surfaced in 1924. In order to make the local gravel meet specifications for grading of sizes, it was necessary to run the pit-run material through a portable crusher. There is a small amount of clay in the local material which acts as a natural binder, causing the gravel placed on the road to compact rapidly and form a good surface.







These pictures show Otoe County Project No. 133 gravel surfacing completed and under maintenance, also the local gravel pit, drag line excavator, gravel and rock crushing plant and screens, tractor power, and truck receiving load of screened gravel and rock.

Pawnee County

The inhabitants of Pawnee County are proud of the one State Highway which traverses their County from east to west through the county seat, connecting Falls City with Beatrice and towns west in the south tier of counties. In 1920 and 1921 about 40 per cent of this highway was brought to a permanent grade and drainage structures built, using State and Federal Aid Road Funds on the grading and smaller structures, and County Funds on the larger structures.

The constructed road is east and west of Pawnee City. The highway west of Lewiston and east of Table Rock encounters heavy grades, when the latter is built, loose rock will be encountered in several of the cuts. Since this road was laid out at a State Highway and placed under patrol maintenance in 1920, a very good surface has been developed as the result of the County's maintenance forces. They have done considerable clearing along the right-of-way, have rebuilt with County Funds the poorest drainage structures, and east of Table rock have removed much of the rock from the surface of the roadway.

Richardson County

Richardson County lies in the southeastern corner of the State and the flood waters from Counties north and west of them pass across the State Highways of this County. This condition makes bridge building one of the most important features of highway construction in this County.

At present they have one highway across their County from Kansas through Falls City towards Auburn brought to permanent grade and drainage structures built. This is known as the Washington or K. T. The Capitol Route also crosses the County from Kansas through Dawson towards Auburn. The third highway is in the central part of the County and runs from the K. T. west through Humboldt to connect with Pawnee City and towns west.

The 1924 construction consisted of building one 100 foot span steel truss bridge on the Capitol Route north of Dawson. It is planned that the balance of the 1923-24 apportionment of State and Federal Aid Road Funds will be used to build other bridges on this route and the next available funds will be used to build bridges on the highway through Humboldt.

Saline County

The major part of the State Highway System in Saline County is located through flat or gently rolling country. About 40 per cent of their system has been brought to permanent grade using State and Federal Funds on the grading and smaller structures and County Funds on the larger structures.

The 1923-24 construction consisted of building 0.69 miles of bituminous pavement near Crete using local funds to meet State and Federal Aid; the completion of the grading between Friend and Crete, the building of five steel and concrete bridges between Wilber and Western, the grading and building of drainage structures between Friend and the Fillmore County line, using State and Federal Aid Road Funds; and the placing of gravel wearing surface between Friend and Dorchester, and east of Crete, using County, State and Federal Funds. The gravel at Crete was placed four inches deep, four miles of the gravel between Friend and Dorchester was placed 2 inches deep and the remainder is 3 inch gravel.

The grading west of Friend connects with the projects in Fillmore County east of Fairmont, which constitute a change in location, made in order to eliminate crossing the main line of the Burlington at grade four times between Friend and Fairmont.

Sarpy County

The primary highway from Kansas City to Omaha crosses the east end of Sarpy County and the D. L. D. Highway crosses the northwestern portion of the County. In addition to these they have a secondary State Highway connecting from the D. L. D. through Papillion, the county seat, with South Omaha as well as with the Kansas City road, and the Bellevue Boulevard in the extreme eastern end of the County. Also there is a connection from Gretna north to Douglas County.

The topography of the County is rolling and hilly, making the construction of drainage structures a very important item in road building.

The apportionment of State-Federal Funds to Sarpy County is small on account of the size of the County. The traffic on the primary State Highways in the County is very heavy on account of being principle feeder highways in Omaha. To date the principle portion of the State-Federal Funds expended in the County has been on the D. L. D. Highway, only one bridge having been constructed on any portion of the secondary system in the County.

About two years ago the people of the County began to realize that if they ever obtained any improvement on their roads, they would have to finance the greater portion themselves. Since that time two Precincts, Papillion and Gilmore, have voted a total of $110,000.00 to grade and gravel 19.7 miles of road within the two precincts. About 7.5 miles of the improvement will be on precinct roads and the remainder on secondary State Highways. On a part of the State Highway a small amount of Federal Aid will be available. Of the total, 14.2 miles have been placed under construction and will probably be completed before the end of the year.

Under the Hughes Improvement District Law three districts were formed on the Bellevue Boulevard between South Omaha and the Village of Bellevue, comprising 0.75 miles of grading and brick pavement and 3.47 miles of grading and gravel surfacing. All of this is under contract to be completed by the end of this season.

Two other districts were formed on the Omaha-Kansas City road for the purpose of meeting Federal Aid in the construction of 0.58 miles of brick pavement and 4.3 miles of gravel surfacing, including grading on both, between South Omaha and the entrance to Fort Crook. This work has not yet been placed under contract.

One district was petitioned covering four miles of gravel surfacing north from Gretna, but this has not been consumated because it has been thought that it might be possible to organize a precinct bond proposition which would accomplish more miles of improvement three ways from Gretna.

Seward County

Seward County has expended County Funds jointly with State and Federal Funds until now they have 70 per cent of their system brought to permanent grade and gravel surfacing placed on approximately 30 per cent of this mileage. The heaviest grading in the County has been completed.

During the season of 1924 the County has met Federal Aid on one 50 foot span girder bridge north of Seward and on the grading and drainage structures on the cut-off from the D. L. D. Highway to the S. Y. A. Highway east of Seward, and in addition have made payments on the gravel surfacing on the D. L. D. Highway between Milford and the Lancaster County line, meeting Federal Aid and State appertionment available.

In 1923 the County placed gravel on about 1.5 miles of the S. Y. A. across the river bottom west of Seward.

Thayer County

In Thayer County the road builder encounters a variety of conditions ranging from hilly topography to flat table lands, and from heavy clay to light sand. Nevertheless the traveler usually finds the Thayer County State Highways in exceptionally good condition.

The State Highway System of Thayer County includes Nebraska Highway No. 4 (The Meridian), and Nebraska Highway No. 3, which connects with the Golden Rod at Fairbury and Superior.

In 1923 the project leading west from Hebron was completed and in 1924 Highway No. 3 has been brought to permanent grade and drainage structures built from Deshler west to the Nuckolls County line.

As yet a gravel surfacing project has not been constructed in Thayer County, but it is expected that in places local surfacing gravel can be procured, which will make very cheap work when such a program is entered upon.

York County

On account of the gently rolling or flat land of York County, the grading of the State Highway to permanent grade has not been very expensive and as a result the Meridian Highway and the S. Y. A. Highway have each been brought to permanent grade.

One gravel project has been built from York north to the Polk County line. On this local gravel was used from a pit near York. Other small deposits are available for portions of the remainder of the State Systems when gravel surfacing is placed.

The 1924 construction program consisted of building a three span I Beam and concrete bridge with concrete post and rail bannisters at the south entrance of the Meridian Highway into the City of York. State, Federal and County Funds were used in the construction of the bridge and the City furnished lighting fixtures placed on concrete posts at each corner of the structure. In addition the City widened the pavement to meet the wide roadway of the bridge and also placed gravel surfacing on about one block of the highway leading south from the bridge.

REPORT OF DISTRICT TWO

M. F. BLACK, District Engineer

MILEAGE OF STATE AND FEDERAL ROADS WITH CLASSIFICATION OF IMPROVEMENTS.

COUNTY	Total State & Federal Roads 1	Paved Roads outside City limits 2	Graveled Roads outside city limits 3	Sand-clay Roads 4	Constructed to perm. grade without surf'c'g 5	Constructed to temp. grade 6	Tot'l imp. rds. (sum of cols. 2, 3, 4, 5, & 6.) 7	Unimproved Roads 8
Boone	41.0	0.0	1.0	0.0	32.98	7.02	41.0	0.0
Burt	63.69	0.0	1.5	0.0	24.88	37.31	63.69	0.0
Butler	55.25	0.85	0.63	0.0	38.80	14.97	55.25	0.0
Colfax	38.41	1.41	8.23	0.0	6.00	22.77	38.41	0.0
Cuming	64.5	0.0	13.37	9.28	41.85	0.0	64.5	0.0
Dodge	70.5	11.72	25.00	0.0	33.78	0.0	70.5	0.0
Douglas	139.89	89.49	14.0	0.0	36.4	0.0	139.89	0.0
Merrick	67.0	0.0	16.55	0.0	7.59	42.86	67.0	0.0
Nance	45.00	0.0	0.0	0.0	23.77	22.22	45.99	0.0
Platte	76.50	1.79	33.23	0.0	16.74	24.74	76.50	0.0
Polk	52.0	0.0	1.0	0.0	24.77	26.23	52.0	0.0
Saunders	63.41	1.18	25.578	0.0	23.68	12.972	63.41	0.0
Stanton	38.26	0.0	0.0	0.0	20.01	18.26	38.26	0.0
Washington	45.0	0.0	4.69	0.0	20.24	20.07	45.0	0.0
Total	861.40	106.44	144.778	9.28	351.49	249.422	861.40	0.0

Boone County

The roads comprising Boone county system of State highways includes Highway No. 14 extending from north to south and Highway No. 32 extending eastward from Albion. All of No. 14 has been constructed with Federal and State Aid funds and one mile adjoining the city of Albion has been graveled with maintenance funds of the county and donations from the commercial club of Albion. A project five miles in length is being constructed at the present time east of Albion on Highway No. 32 and when completed will eliminate the only bad piece of highway within the County. The soil on No. 14 for the most part is a silty clay which washes badly necessitating the highway to be reconstructed and shaped a number of times during the biennium.

The county is actively interested in good roads and show this interest in splendid cooperation with the State Department. The maintenance forces have taken care of the snow removal in the past by keeping the roads open and passable at all times. No grade crossing elimination is contemplated at the present time.

Burt County

The highways maintained in Burt county include Highway No. 5, extending from north to south across the county. No. 5-B, which joins No. 9 with No. 5 west of Oakland; No. 5-C which begins at Tekamah and extends to Decatur, an inland town in the northern part of the county, and a river crossing, and No. 9 extending northerly and westerly in the extreme west part of the county.

The system as laid out affords all points in the county an outlet and every town of importance can be reached on one of these highways. The soils for the most part are loess with an occasional hill of heavy clay, but it has been found that a coat of gravel on this clay changes the aspect of this material and affords a surface surpassed only by paving. The entire system has been constructed with federal, state aid and maintenance funds from the county and has been well maintained during the past biennium. The regular patrols combined with the necessary teams and laborers have taken care of the snow removal satisfactorily.

In the northern part of the county, at the Latta Ranch and near Decatur and Tekamah good gravel deposits over fifty feet deep have been found by the state. Since this deposit is a desirable road gravel a project involving federal and state aid has been formed to surface the highway from Decatur to Tekamah. Fortunately for this county there exists no bad railroad grade crossings and no improvement is contemplated at present on the only one that exists.

Butler County

The highways under state jurisdiction in Butler county are Highway No. 15 and Highway No. 16 crossing each other at David City. Highway No. 15 extends from north to south and Highway No. 16 extends from east to west across the county and each has a variety of soils ranging from sand gumbo in the bottoms to loess and plastic clay in the hills. A series of low lagoons prevail to the west of David City and these at times rise high enough to soften the road bed, but in general the road materials are such as to require no extraordinary methods to maintain them.

Highway No. 16 has been constructed from the east line to the west line of the county. That part of Highway No. 15 from David City north to the Platte River has been constructed with Federal and State aid funds. In addition an overflow pavement has been constructed adjoining the state aid bridge, south of Schuyler. This paving serving as a flood way for Bone Creek has taken care of the ice gorges and flood waters of the Platte.

The entire system of highways maintained with truck and tractors has been practically reconstructed during the past year. The patrol forces, equipped with snow plows and heavy tractors work on snow removal during the winter months. During the past year the county has added to and improved the garage so that all the repairing of the trucks and tractors of the state as well as the county has been done without private garage assistance. One mechanic's time is spent entirely on the equipment.

A careful study has been made both by the state and the county of the possible locations of gravel for surfacing but as yet none has been found except at the Platte River bottoms which is too long a haul to be of immediate benefit except to the roads near the river. No railroad facilities are available for this supply and any materials for surfacing will probably have to come from the Platte River east of Butler county. Owing to the fact that none but branch lines traverse this county no railroad grade crossing eliminations are contemplated at present.

Colfax County

The highways included within the maintenance program for Colfax county include No. 6 extending east and west and paralleling the Union Pacific railroad and Highway No. 15 crossing the county north and south. Highway No. 6 lying in the Platte River bottoms has a diversity of soil ranging from loose sand to heavy plastic clay, each in themselves a poor road material, but in proper combination with each other they form an excellent road. Highway No. 15 passes through the Platte bottoms with soil conditions identical with No. 6, then on to the loess hills of the bluffs further north. Highway No. 6 has been constructed from the Dodge county line to the Platte county line. That section from Rogers to Schuyler has been surfaced with gravel and from Schuyler west to the town of Richland the entire strip of highway has been surfaced with gumbo. The graveling has been paid from federal and state aid funds and the surfacing from maintenance funds of the county. Highway No. 15 has been constructed to a temporary grade for the most part although a few of the heaviest grades have been reduced to a maximum of seven per cent. All of the expenditure for this improvement has been paid from the maintenance fund. On the extreme south end of this road crossing the Platte River bottoms, overflow paving has been constructed with state and federal funds thus eliminating the worst section of highway in the county. For days after a rise in the Platte River this section was impassable before the improvement but at the present time no time is lost even when the Platte is out of the banks. The down stream side of the paving has been ripraped with stone and covered with soil to prevent wash. This protection has proven satisfactory.

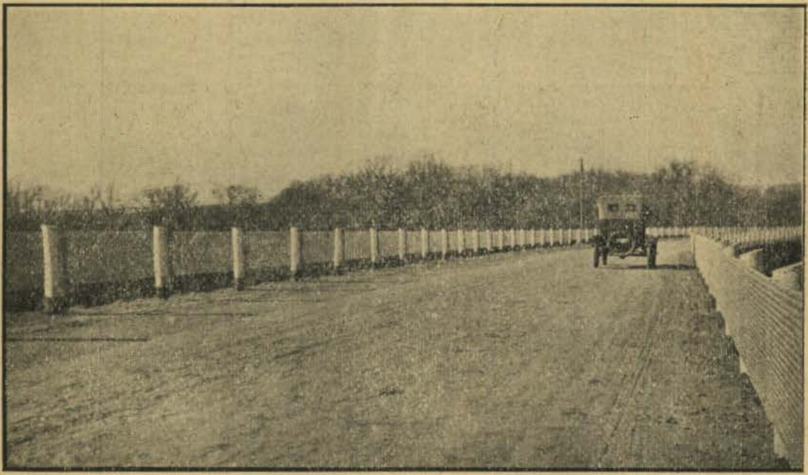
Considerable attention has been given by the county board to grade crossing elimination and with the contemplated improvement of the Lincoln Highway, two dangerous grade crossings will be eliminated. Each of these changes of alignment will take the highway away from the towns of Schuyler and Richland but the change is justified.

Snow removal is carried on each winter by the regular patrol forces with success. With the purchase of additional snow fence, no serious trouble is anticipated. The patrols have not only kept the state highways in good shape but also the detours incident to construction.

Cuming County

The highways maintained by the State Highway Department in Cuming county are No. 8, extending from east to west across the county; No. 9, extending from the Burt county line westward to West Point and northerly towards Pender; and No. 15, extending from Wisner northerly, all of which have been constructed to a grade line with Federal State aid and maintenance funds of the county The soil of No. 8 is sandy with some gumbo stretches. No. 9 is loess except on the hills contiguous to the Elkhorn River, which are very sandy and No. 15 is loess throughout. Most of the sandy stretches have been surfaced and an extensive gravel project has been completed between the city of West Point and the city of Wisner with Federal and State aid funds.

The maintenance of the highways have been carefully taken care of by truck and tractor patrols. The same equipment has been used successfully in the removal of snow. The county through the maintenance fund has constructed a large part of Highway No. 9 and Highway No. 15 and at no time during the last year has there been any bad sections of highway within the county. Valuable deposits of gravel have been found in the western part of the county which has been used on the highways and streets in the neighboring towns. These deposits have been worked commercially for some time but the most valuable deposit found is yet to be opened. This deposit has been offered to the state and county on a royalty basis at an extremely low price so the county board will this winter start graveling the four mile stretch contiguous to the west county line. No grade crossing elimination is contemplated at this time as only one crossing exists which is an open, clear crossing.



Project 230-A, West Point east.

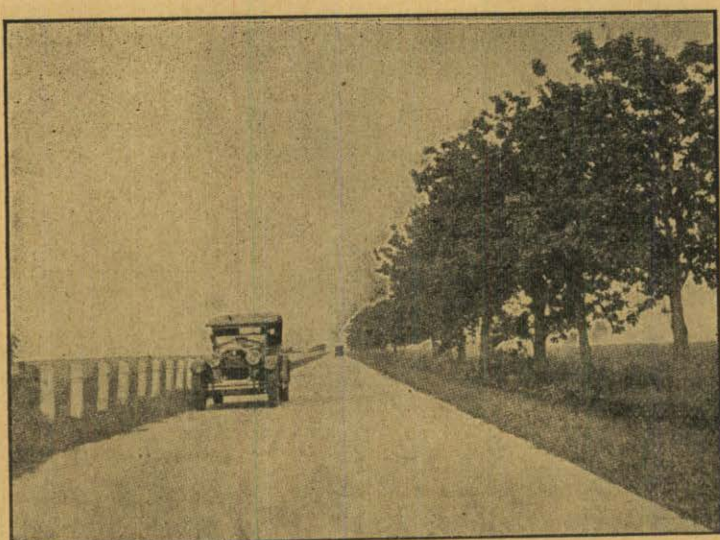
Dodge County

The highways maintained by the state in Dodge county include No. 6 extending east and west through the county; No. 8 extending westerly and northerly; No. 9 extending north and south; and No. 30 beginning at Fremont and extending easterly to connect with the Washington highway. All of these highways are nationally known highways which carry besides the local traffic a very heavy tourist traffic. The traffic census of the last year has shown that these highways are the most heavily traveled roads within the state not only from a pleasure standpoint, but as a commercial trucking route to the Omaha markets. The soil is for the most part very light and sandy with occasional strips of gumbo in the bottoms and loess in the hills.

Dodge county during the past year assisted in building a paving project east of the city of Fremont to connect with the Douglas county paving, thus affording an all weather route to the Omaha markets. This section of paving completes a forty-five mile strip of paving which extends from the city limits of Omaha to the east city limits of Ames, Nebraska.

This is one of the very few counties in which all the state roads have been constructed to a grade line. Considerable graveling has been done with the patrol forces during their spare time and extensive improvement is contemplated for the coming year. The patrol forces are used in the winter to remove snow and at no time during the biennium have the roads been closed for more than a few hours at a time.

A move has been made to eliminate two grade crossings, one at Ames and one east of North Bend. The county board is ready to acquire the land as soon as federal and state funds are available for the construction.



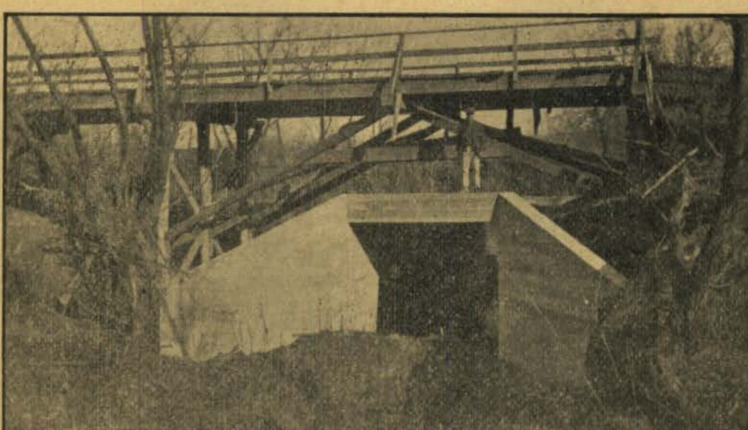
Concrete pavement on Dodge-Douglas County line. The last link connecting Omaha with Fremont and Ames on the Lincoln Highway with forty-five miles of pavement.

Douglas County

Douglas county is the richest and most populous county in the state, being the seat of the metropolitan city, with the largest number of automobiles, and most miles of paved roads. All the state highways are improved and the major part of them have been paved with either federal aid funds or county bond funds. With the diversity of types of paving in the system, it will be easy to find a type most desirable for future work.

The highways under the jurisdiction of the State Highway Department are Highway No. 5 beginning at the Sarpy county line and extending north through Omaha to the Washington county line; Highway No. 6 beginning in Omaha and extending westerly to the Dodge county line; Highway No. 7 beginning at Omaha and extending westerly in the southern part of the county to the Sarpy county line; Highway No. 8 beginning at Omaha and extending to Highway No. 6 north of Valley, Nebraska; Highway No. 16 beginning at Omaha and extending to the Yutan bridge; Highway No. 31 extending from the Sarpy county line to the Washington county line; and Project No. 187 extending from Florence westerly and connecting with Highway No. 8 west of Bennington.

Highways Nos. 5, 6, 7, and 8 are paved the entire distance across the county. No. 16 has been graded and will be paved the entire dis-



Not an uncommon sight in any progressive state.

tance when the Yutan bridge shall have been completed. No. 31 has been graveled with four inches of gravel which was paid from the maintenance funds of the county. During the biennium past, the county has widened all the bridges on the paved highways to a width of eighteen feet or more and have started construction on three river bridges, two being over the Elkhorn and one over the Platte River.

The county has built a substantial garage and machine shop on the county hospital grounds and are equipped to do all classes of overhauling and repairing of the state equipment.

No gravel deposits except those of the Platte River on the western boundry of the county have been found or explored. These pits are owned by private concerns but furnish the major part of the gravel for construction in the county.

Snow removal has been taken care of successfully by county forces supplanted with such team and man power as is needed. At no time during the past two years has the highways been closed except for a few hours after an unusual snow storm. The county has purchased a large amount of snow fence to be placed as needed and the difficulties of the past will, to a great extent be overcome. Several grade crossings are under consideration for elimination but no definite stand has been taken as yet to eliminate them.

Merrick County

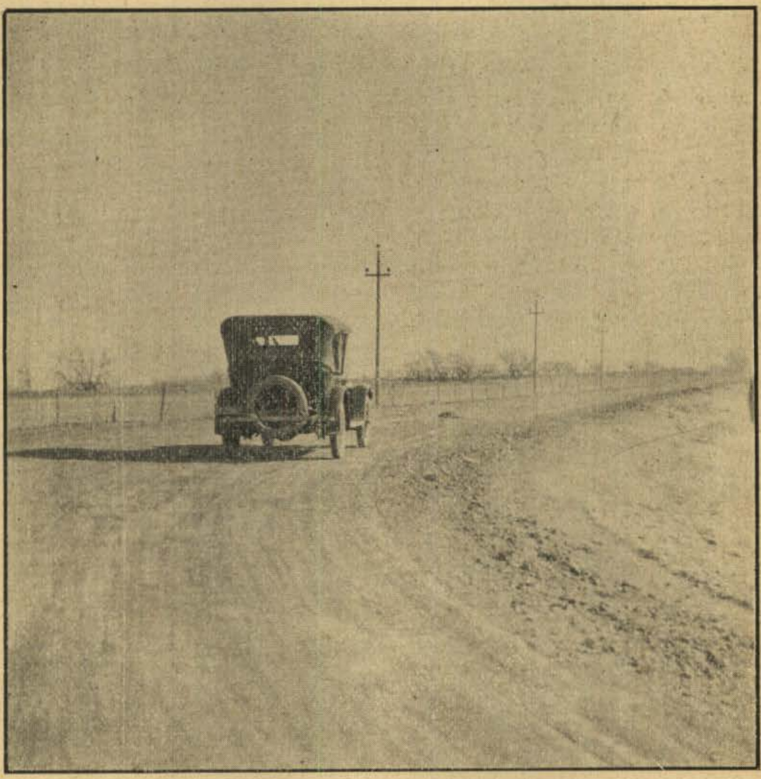
The highways under state control in this county are No. 6 and No. 14, both of which are of state wide importance. Highway No. 6, the Lincoln Highway, traverses the county from east to west and No. 14 from north to south. Highway No. 6 lying entirely within the Platte valley, is extremely sandy in spots while in other stretches very heavy gumbo is encountered, each of which makes a very poor road but in a combined state makes an excellent surface as well as a good foundation for gravel surfacing. A greater part of this road lies only a few feet above the normal level of the Platte River so capillary attraction has previously caused endless troubles at different points on the highway. By building intercepting ditches parallel to the river the county has been able to overcome this to a great extent. The section of No. 6 from the Hall county line east has been worked to a grade and two federal aid projects have been constructed between Chapman and Clarks.

Highway No. 14 traverses a series of low lagoons for several miles north of Central City and then enters into a sand plain which extends to the Cedar valley. During the dry season these low lagoons afford an excellent road surfacing material which has been utilized on many stretches of the road. Underlying the entire valley and extending westward extensive deposits of gravel have been commercially developed. The contractors have taken advantage of this deposit by producing their own materials from road side pits at a reasonable cost. The county also expects to take advantage of this deposit so they are contemplating buying a pump and using their tractors for power to pump each year the amount of gravel necessary for their use. On Highway No. 14 the entire section was brought to a grade with federal-state aid and county maintenance funds and thus reverting a trail into a well maintained highway.

Five patrol crews work the roads at all times. In addition to the lighter maintenance equipment, these crews are supplied with a heavy tractor for construction work so the highways for the past two years have been in excellent shape.

Nance County

Three state highways pass through Nance county. No. 13 extending from the Platte county line on the east to Greeley county on the west; No. 14 extending from the Merrick county line to the Boone cunty line; and No. 13-A extending from the city of Fullerton to the city of Belgrade. That part of state Highway No. 14 from the Merrick county line to Fullerton and from Genoa to the Boone county line and all of Highway No. 13-A have been constructed with federal and state funds.



Nance County Project 50-D—A very sandy road transferred into a fine highway by surface application of clay.

The soil of the highways traversing the south part of the county is very loose and sandy while on the north side the soil is mostly loess mixed with a loose shaly chalk rock and underlaid with a strata of sand. Large canyons have formed back in the hills contiguous to Highway No. 13-A and the patrols are continually menaced with the washed sand and silt. The highway ditches become filled frequently as well as the drainage structures and it has been extremely expensive to keep all the drainage structures functioning. Special provisions have been made to take care of this condition in placing a spillway at the point of maximum flow and steepening the grade of the outlet ditches of the darinage structures, but this has not been entirely satisfactory.

The streams in this section are a serious menace to the highways, due to steepness of the drainage area and the great amount of debris that is carried. A water power dam with dykes has seriously menaced the roads adjoining Fullerton and at times has diverted the water across the road in a number of places.

The highways have been well maintained during the last biennium but the item of reconstruction has been the most expensive part of the maintenance program. Adjoining the Loup River in an old stream bed, an extensive bed of good road gravel has been found which at a later date will be used to surface the highways. Snow removal was carried on successfully with the patrol forces during the winter with ordinary equipment. Owing to the fact that only branch lines of the railroads pass through this county, no attempt has been made as yet to eliminate grade crossings but with a few minor changes in alignment practically all will be illiminated at a later date.

Platte County

Platte county has three state highways to maintain. Each are of more than local importance, centering the traffic in the city of Columbus and distributing it in all directions. Highway No. 5 traverses the county north and south; No. 6 east and west and No. 13 affords an outlet to the north and west.

The soil of the valley is typical of the Platte and Loup Rivers which is very sandy while in the hills loess and heavy plastic clay predominate. The entire system of highways within the county has been constructed except a small stretch beginning at Duncan and extending to the Merrick county line. This section being devoid of clay has been an expensive and undesirable piece of highway for some time. The county contemplaté removing this highway to the south side of the Union Pacific railroad thus eliminating two railroad crossings. It will be necessary to have suitable material for surfacing from a clay pit south of Columbus.

Platte county ranks first in the division in mileage of gravel surfaced roads, a major part of which has been paid from the maintenance funds of the county. The Loup River bridge adjoining Columbus on the south has been refloored from county funds with tar macadam resting upon creosoted wood base. This construction is new and is the first time in the state that this particular type has been used on a state highway.

Each highway has been successfully maintained during the past biennium with truck and tractor patrols. Snow removal has been more or less successfully carried out and with the extensive purchase of snow fence of the slat type. It is believed that no trouble will be experienced during the coming winter. Urged by the commercial clubs and the traveling public, the county board have taken action toward the immediate removal of all grade crossings west of Columbus. These crossings, each one with clear vision have caused numerous accidents, many of which have been fatal.

Polk County

The highways under state control in Polk county are Highway No. 4, the Meridian Highway, and Highway No. 16. The Meridian Highway extends from north to south across the county while No. 16 extends from east to west, both serving the local farm to market traffic as well as an extensive tourist traffic. No. 16 will increase in tonage as soon as the Yutan bridge is built and will have a tendancy to divert part of the traffic which now congests Highway No. 6 from Central City east besides opening up the contiguous territory for direct line traffic to Wahoo and Omaha.

The soil conditions on each of the highways are excellent and the roads are very easy to maintain but, due to a series of low lagoons, they are subject at times to overflow. These lagoons are for the most part without an outlet so the highway must be thrown up higher than is usual in other localities.

Three federal and state aid projects have been constructed in this county, each of which have been carefully maintained. The county through its maintenance fund has reconstructed considerable of the highway along the Platte River bottoms, has installed a spillway adjoining Clear Creek and widened the Clear Creek bridge to take care of the floods that occur in the early spring. The county has widened all the narrow culverts to a standard of twenty-four feet in width and have constructed to a temporary grade all the state highways not otherwise constructed. No gravel deposits have been found in the southern part of the county but in the north on the river bottoms extensive deposits have been explored and the county is figuring on installing a pumping plant in the south channel of the Platte River to pump gravel for all the highways within economic haul.

Saunders County.

The highways included in the maintenance program for Saunders

County include Highway No. 7 which traverses the southeastern part of the county. Highway No. 9 which extends from north to south across the county and Highway No. 16 extending from the Yutan Bridge site to the west county line. All three highways are of national importance. With the completion of the Yutan bridge over the Platte River to the south and east of Yutan, this highway will relieve the congested conditions of the Lincoln and D. L. D. Highways and give the central part of Saunders County an outlet to the Omaha markets for their farm and dairy products and also shorten the distance slightly between the county seat and the eastern points of the state.

Highways No. 7 and No. 9 have been constructed with Federal and State Aid funds. The entire section of No. 7 has been surfaced and all except about six miles on No. 9 has been graveled. Six miles of No. 16 has been graded within the county with Federal and State Aid funds but the major part of this highway has been bladed with county maintenance funds.

The maintenance in this county has been carried on with truck and tractor patrols and these in turn take care of the snow removal in the winter. Their work has been entirely satisfactory, so that at no time during the biennium have the roads been closed.

Extensive deposits of good road gravel have been found at Wahoo and Ceresco and this has been used on the State Highway No. 9. The county has through its local funds, contributed to Federal Aid on a bridge across Wahoo Creek, south of Wahoo, also graveling projects in the southeastern part of the county and the purchase of local gravel pits to further the maintenance of the gravel roads. The county too has obligated itself for one-sixth of the cost of the Yutan State Aid bridge, the balance of the expenditure being borne by the State Aid Bridge fund, Federal Aid funds and Douglas County.

Stanton County.

The highways maintained in Stanton County consist of Highway No. 8 which extends from east to west across the county and No. 15 that extends from the Colfax County line to Pilger. The soils of these two highways are varied and consist of sand, gumbo and loess, each of which demand different treatment in maintenance and construction. On Highway No. 8 west of Stanton, the highway skirts the clay hills which are underlaid with sand and gravel and the wash from this deposit has caused much trouble with silting up the ditches and the drainage structures. All of Highway No. 8 has been constructed with Federal and State Aid funds and Highway No. 15 has been constructed to a temporary grade with maintenance funds. The county has constructed all the bridges on the state highways of sufficient width that two vehicles can pass with safety. Owing to the fact that all the railroad crossings are open and the visibility is good, no grade crossing elimination is contemplated at present.

In the extreme western part of the county, extensive gravel deposits have been found. Some of these have been worked commercially but up to the present time the county has no gravel roads, although they contemplate the use of this material in the near future. In the eastern part of the county, west of Wisner on the "Oscar Thompson Farm" a deep and valuable deposit of course gravel has been found recently and offered to the county or contractors at a very reasonable price per load at the pit.

The maintenance has been carried on with tractor and truck patrols. Their work has been exceptionally good so the road has at all times been in a satisfactory condition. Snow removal has been carried out with the patrol forces with the ordinary equipment and has been a means of keeping the highways passable during the winter months.

Washington County

The highways included in the state maintenance program for the past biennium include No. 5 extending from north to south across the county; No. 30 extending east and west and No. 31 extending from the Douglas County line in a northerly direction and connecting with No. 30. This system of highways which affords an outlet to the markets not only within the county but also to the Omaha markets is very heavily traveled by trucks as well as pleasure cars.

Highway No. 5 has been constructed across the county with Federal and State Aid funds. A part of No. 5 has been graveled. Highways No. 30 and No. 31 have been bladed and shaped with county funds into an exceptionally good road. The soil on Highway No. 5 is for the most part loess combined with silt and washes badly while Highways No. 30 and No. 31 are of loess entirely and requires no special effort or method to maintain. Typical of the Missouri River bluffs large erosions occur which are at times very difficult to check. During the past biennium the largest items of reconstruction have been at these places, especially south of Blair, Nebraska. At the present time, the county is framing a creosoted wood trestle at a point one mile north of Nashville, this being the first sructure of the type in the division.

The county through its maintenance fund has contributed to the gravel surfacing on Highway No. 5 from Fort Calhoun northerly towards Blair and contemplates further improvement in surfacing this coming year. Deposits of gravel of fair quality have been found west of Herman but the overburden is so heavy that it would not be economic to strip the pit as better gravel could be shipped in from the Platte River at a cheaper rate than could be produced at this point. Deep under the hills west of Desota lies an extensive bed of good gravel which has been explored and tested during the past year but has been found that the cost of getting it out is so expensive that its use is prohibitive at the present time.

The highways have been well maintained during the past biennium. The county has used the patrol forces in removing snow in the winter. This county fortunately has no railroad grade crossings excepting within the city limits of Blair and on Highway No. 31. Due to slow speed of branch line trains the county has taken no action as yet to eliminate them.

REPORT OF DISTRICT THREE

A. C. Tilley, District Engineer

MILEAGE OF STATE AND FEDERAL ROADS WITH CLASSIFICATION OF IMPROVEMENTS.

COUNTY	Total State & Federal Roads 1	Paved Roads outside City limits 2	Graveled Roads outside city limits 3	Sand-clay Roads Constructed to 4	perm. grade without surf'c'g 5	Constructed to temp. grade 6	Tot'l imp. rds. sum of cols. 2, 3, 4, 5, & 6. 7	Unimproved Roads 8
Antelope	71.75	0.0	12.00	a12.00	9.75	33.00	66.75	5.00
Boyd	61.0	0.0	4.9	2.46	0.0	b45.1	50.00	11.0
Brown	67.76	0.0	8.41	c 1.64	0.0	22.00	30.41	37.35
Cedar	75.5	0.0	30.76	0.68	15.82	0.0	47.94	28.24
Cherry	134.0	0.0	0.0	11.91	12.65	23.0	47.56	86.44
Dakota	36.0	0.0	3.4	d 2.07	12.92	8.0	24.32	11.68
Dixon	47.35	0.0	0.0	.492	27.659	0.0	28.151	19.199
Holt	134.0	0.0	15.55	e18.08	11.54	48.00	87.62	46.38
Keya Paha	60.5	0.0	17.0	1.36	6.19	20.49	28.04	32.46
Knox	98.00	0.0	18.65	0.0	3.43	75.92	98.00	0.0
Madison	80.47	0.0	25.6	f14.12	14.27	36.48	80.47	0.0
Pierce	54.5	0.0	g 1.0	4.10	15.338	24.062	44.0	10.0
Rock	92.00	0.0	0.0	16.168	1.003	0.0	17.171	74.829
Thurston	27.07	0.0	0.0	0.0	20.07	7.00	27.07	0.0
Wayne	36.203	0.0	0.0	0.0	24.203	12.00	36.203	0.0
Total	1076.103	0.0	137.27	85.08	174.843	355.052	713.705	362.578

NOTES

a. of the 12 miles of sand clay 4.8 miles is also graveled.

b. includes mileage under No. 4.

c. clay surfaced road is also graveled.

d. clay surfaced road is also graveled..

e. 5.55 miles of the clay surfacing also graveled.

f. 10 miles of the clay surfacing also graveled.

g. 1-2 mile clay surface also graveled.

Antelope County.

Antelope County has been at all times very progressive in the development of its roads both State and County. They have followed a very consistent plan of completing one route before starting another as they have felt that the road was only as good as its poorest part and they have endeavored to make one route complete rather than start several routes which would have left weak links in all. The Blue Pole Highway which is coincident with Highway No. 8 in this County is now completed across the entire County, the last six miles from Clearwater to the County line being finished this year. In a similar way the County each year has a construction crew at work on its feeder roads and this outfit completes each feeder before another is started. As a result this County is gradually and surely building a fine net work of roads, and while completing their through routes, they are opening up their market roads so that each thickly settled farming community has its outlet.

Fortunately local gravel deposits are available within easy hauling distance of the State Highway and it has been the policy to gravel consistently as a part of the maintenance program. This has been carried on very economically due to the nearness of material and already twelve miles have been surfaced. It is expected that another year will find all Federal Aid construction surfaced with gravel.

Maintenance has been carried on systematically under the direction of an experienced maintenance supervisor and the results have been excellent as well as comparatively economical. Trucks and tractors with multiple blade maintainers and heavy drags form the principal maintenance equipment, though two team patrols were used where the soil was light.

All roads are well marked in a very neat manner with the Standard Nebraska Highway marking and particular attention has been given to marking bad railroad crossings, dangerous curves and narrow bridges.

Excellent cooperation from the County Board of Supervisors and all County officials in carrying out a definite program is the real basis of the successful biennium just passed.

Boyd County.

Boyd County, so situated that it is bounded on one side by the Niobrara River, barring travel to the south, and so situated that its long east and west highway is crossed and recrossed by the Ponca Creek, which carries a torrent of flood waters at certain seasons, has found it necessary to spend most of its money and efforts to date on the construction of bridges. A State Aid bridge has been built at Red Bird crossing the Niobrara and this year a protection jetty and mat was built at this side. A Federal Aid bridge was completed this year south of Spencer at the site known as the Whiting Bridge, crossing the Niobrara. This bridge is a concrete arch structure and is the gateway from Boyd County and points in South Dakota and the Black Hills to the South. Beside these two large structures several bridges of about one hundred foot span have been built across the Ponca Creek, one span being completed this year.

This County has constructed only one short road project due to its expenditures for bridges which reduced its funds. This project, being number 110-A, which was in controversy for over a year and practically impassable during that time, is now complete and graveled with a four inch thickness. It is in excellent condition and a source of joy to both local and through travellers who used to cross this hazardous Ponca Valley before the construction of this project was completed.

With the important bridges out of the way, this County now plans to concentrate its attention on the construction of Highways No. 8 and No. 12.

The soil in his county varies greatly from heavy gumbo and blue clay in the bottoms to light sandy loam as the Highway proceeds west. Excellent and abundant deposits of gravel in the hills provides an economical material for permanent construction.

At present there are only eleven miles of unimproved roads, all the rest having been constructed to temporary grade with a blade grader making a very fair road for travel. Two truck maintenance patrols fully equipped with also a tractor and grader outfit for shouldering and reconstruction has taken care of the maintenance in a very good manner. Through close cooperation of the County Board during the past season very good results have been obtained and it is expected that this County so rich in natural road material will soon take a foremost place for good highways.

Brown County.

With only a small fund to work with and nearly sixty-eight miles of highways, this County has made excellent progress with one-half of the roads in an improved condition. The soil varies from sand and sandy loam to gravel. To date eight and one-half miles of Federal Aid road have been constructed and promptly graveled by the County.

With a heavy gang maintenance outfit putting up temporary grade where soil permits and when funds are available, this County is gradually working out an improved system of highways, both State Highways and feeder roads, that is of great benefit to the County at large.

Project 197 which is a short project over the bluffs and making an approach to the Meadville Niobrara bridge is now complete. Another project which will be an extension to this in the direction of Ainsworth is now being advertised for letting.

The hearty cooperation and progressive spirit of the County Board and County officials in this County has been commendable.

Cedar County.

Cedar County is favored for the most part with good soil conditions and under proper maintenance the Highways has been kept in very good condition particularly during the past season. Patrols have been kept regularly only on Highway Number 15, which is about fifty-two miles long through this County. Highway Number One has been partly constructed by the County and has received intermittent maintenance. Highway Number Four is still unimproved in this County. A new bridge across the Missouri River at Yankton adds greater importance to both Highways Number 15 and Number 4, since both these roads lead to Yankton, South Dakota. Formerly a ferry crossing was the only means of getting into South Dakota at this point but with the opening of the bridge in October, 1924, a much heavier traffic is expected over both Highways.

This County has many gravel deposits which have made gravel surfacing of the Highways quite an economical improvement. The road from Laurel to Fordyce is now gravelled with a three inch thickness making an excellent road between these points. The gravel used contained just enough natural binder to cause good compaction of the aggregate. The construction outfit which put on the gravel worked twenty-four hours a day. No stops were made for meals as the drivers of the trucks took their meals in shifts of three to five at a time thus keeping the loading equipment busy at all times and causing no loss of time. A belt conveyor carried the material to rotary screens and hence to a loading bin. Twenty trucks ranging in capacity from one yard to four yards did the hauling. Only two pits were opened to gravel the entire distance from Laurel to Fordyce. The extreme haul at any time was about twelve miles.

Three shifts of inspectors were necessary due to the night hauling. Inspection was especially difficult due to the fact that the gravel deposits varied from specification material to very fine material necessitating frequent tests. Screening was found to be impossible due to the clay content which clogged the screens preventing the removal of the fine material. In lieu of screening, extra material was added to replace the fine sand. In some cases it was necessary to add as much as 45%.

All Federal Aid construction in the County is now graveled except for about seven miles.

Project 72-B from Fordyce to the Yankton bridge was disapproved by the Federal Bureau of Roads because it served as a feeder to a toll bridge although the state department had prepared plans and taken bids which would have permitted of its construction this year. This link would complete Highway Number 15 across this county and connect with South Dakota.

The state of improvement in Cedar county is well above the average. Highway No. 1 will probably be constructed next year.

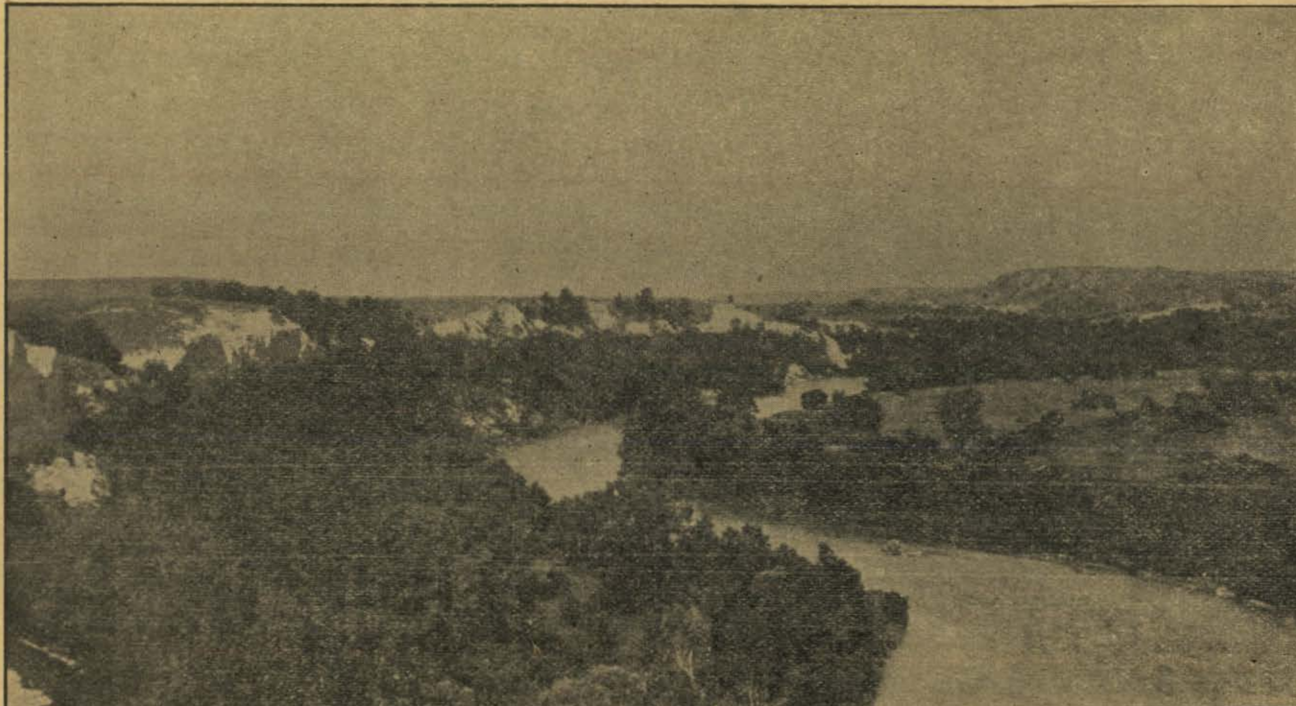
Cherry County

Cherry county, commonly thought to be the real home of sand hills, is rapidly coming into it's own and a study of this county shows that its road building possibilities are not quite so desolate as they appear. This county boasts of one hundred and thirty-four miles of state federal aid roads, one hundred and twenty-five miles being on Highway No. 1, east and west across the county. Many consider the building of roads across this sandy stretch to be an endless task, yet a first class start has already been made and at the present time another twenty-two miles of clay surfaced road is being added to take away the terrors of a trip across this long county. The Valentine to Sparks project, now complete, is in excellent condition and upon the completion of the present project this winter, approximately one-half of the distance across the county will be finished.

Construction consists of grading up the sand and covering it with clay, magnesia, loam, or top soil, depending on the material available. The difficulty is to find the surfacing material but experience has shown that perseverance in this case generally wins. Sometimes the material is found in the most unlikely places and results are only obtained by boring everywhere until success attends. Sometimes a scarcity of good heavy material causes the use of what is feared to be rather light and risky substitute but curiously enough this light material often gives first class service and surprising results. Of course the traffic is not particularly heavy.

About twenty-three miles of road have been constructed on temporary grade where soil conditions permitted and many short grades have been built up through maintenance, taking care generally of the low marshy places. The patrols, all but one of which are team patrols, spend their time claying, grading up low places, haying the hills, and dragging where possible until at the present time a very fair trail road with occasional good stretches is available across the county and can be traveled without difficulty. A truck patrol maintains the project from Valentine to Sparks.

The county board has been very progressive and the maintenance is very ably handled in a systematic manner making possible the great improvement that has been made against great odds.



Cherry County is not all sand. The Niobrara River offers beautiful scenery and some very productive valley.

With the same progress during the next biennium as has been made in the past, the last very important and difficult link in Highway No. 1 will be nearing completion.

A few buffalo that defy the white man under the protection of the State Game Reserve in Cherry County along the completed Valentine-Sparks highway project.

Dakota County

This county, with thirty-six miles of state federal aid roads, has its grading construction about one-half completed. Two federal aid projects have been constructed here and a gravel surfacing placed on about three and one-half miles. Two miles of this, between Dakota City and South Sioux City has a four inch course while the other which was placed under maintenance has about two inches.

Construction has been completed now on Highway No. 5 across this entire county; this is known as the Washington Highway. Future construction will be done on Highway No. 1, known as the Antelope Trail and Grant Highway.

This county for its size, is crossed by an excessive number of large creeks and streams necessitating large and expensive bridges. During the past season order was placed by the county for replacing such bridges as are necessary on the Federal aid work and construction of these will be complete next summer.

Situated adjacent to the Iowa state line at Sioux City, the roads in this county are subjected to a very heavy traffic consisting of automobiles, heavy horse drawn vehicles, and a great many heavy trucks, hauling produce from the truck farms, dairy farms, etc., to the Sioux City market. Because of this, maintenance has been very difficult, for it has been found that the earth and gravel roads cannot withstand the loads they are daily subjected to when in a district receiving the heavy rainfalls common in northwestern Iowa and this part of Nebraska.

The maintenance forces have consisted of two well equipped tractor patrols, with extra help most of the time, and though these patrols have worked diligently, only fair success has resulted against such great odds.

It is considered that more expensive construction will be necessary particularly adjacent to Sioux City.

Dixon County

Dixon county with excellent road soil, nice to construct and easy to maintain, justly boasts of its good roads. With Project 31, from Ponca to Allen, and Project 57, from Allen to Wakefield, both complete, Highway No. 9 is complete across the county.

A contract has been awarded for graveling about ten miles of Project 31 starting at Ponca and running south. This particular piece of road consisting in part of black gumbo and running through some low bottoms was the poorest part of a very good road and the graveling of this stretch will be very beneficial.

With Highway No. 9 finished, future construction will be carried out on Highway No. 1, east and west through the county.

Maintenance in this county has consisted of two truck patrols fully equipped, and with two men to each patrol. Both patrols worked on Highway No. 9, while the county with county patrols took care of No. 1.

Excellent cooperation and understanding on the part of the county board and other county officials has made for progress and has been a definite factor in carrying out a successful program.

Holt County

Because there is a definite and well defined difference in soil conditions the farther west one goes in the Elkhorn valley, it might well be said that Holt county is "where the west begins," for it is in this county that the real change in soil conditions is consumated and we find all through this county difficult sand hills to cope with. For this reason construction has been more costly here, necessitating a heavy clay surface with long hauls on the material in many cases. Consequently the constructed mileage is not as great as it would otherwise have been, yet good progress has been made and many of the most serious problems have been met. By use of a blade grading outfit temporary grade has been constructed wherever the soil would permit. This work has been done under the guidance of a supervisor of maintenance as part of the maintenance program. During the past season as a result of studious attention in the carrying out of a previously planned maintenance program under this supervision, it has been possible to keep the roads through this county in very creditable condition in spite of the drawbacks imposed by nature and real improvement is apparent.

With a natural gravel deposit located at Stuart, it was found economical to gravel from this town to the west county line, covering Project 168-B which was a sand clay job with about two inches of gravel which was needed as a stabilizer for the clay surface. This was particularly needed due to the wet condition of the borrow pits at certain seasons causing the surface to break up in places and causing waves. This condition has been improved considerably by the addition of gravel.

From O'Neill north an excellent road has been maintained at all times. This project which is twenty miles long extended by chance through a section of country which contains a natural gravel and of the twenty miles there are ten miles which have a natural gravel top.

Maintenance has been carried on mostly by team patrol because the variations in soil conditions were wide and the use of motor patrols was not found adaptable. One truck patrol is used on the twenty mile project from O'Neill north.

Slowly but surely this county is making progress against adverse conditions.

Keya Paha County

Situated about twenty-five miles from the nearest railroad, good roads mean much to this county. There are two roads leading to the railroad from the county seat, one to Basset and one to Ainsworth, opening up a market for the produce and cattle which come from this county. A state aid bridge with a short earth project which cut down the bluff approach to the river affords a pass to the southeast, while a federal aid project has just been completed to the bridge on the Niobrara, southwest between Springview and Bassett.

The soil in this county varies from Butte outcrop in the hills above the river to an excellent gravel and loam mixture on the table land which gradually runs into sand in places in the western part of the county. With an improved mileage of thirty miles, about seventeen has been through this gravel soil, making an excellent road. As though nature had conspired to meet conditions, this gravel soil is particularly opportune, for this county is so small and sparsely settled that funds are meagre and the excellent soil conditions which have made maintenance costs light have solved the problem of finance nicely.

Maintenance has consisted of four team patrols working part time and under good supervision with cooperation from the county board a successful program has been carried out in spite of meagre funds.

Knox County

With nearly one hundred miles of state federal highways this county has every mile improved, either permanently graded or on temporary grade.

Three federal aid projects have been built now and a fourth is under construction. A very varied soil condition exists throughout this county, ranging from sand, clay, black loam and soft shale, to excellent gravel deposits. Of the three finished jobs, two have already been graveled under maintenance and work has been started on the third.

Difficult drainage problems are encountered throughout the county because of the very hilly nature of the ground. Many running streams as well as many dry creeks have to be bridged with large

A twenty-five hundred pound charge of dynamite moved a rock cut on Knox County Project No. 113-B, but due to poor management one horse was killed, a school house and several automobiles badly damaged, and several spectators and laborers narrowly escaped death by falling rocks.

structures making expensive construction and taxing the bridge finances of the county to the limit. Because of this it is intended to use many creosoted timber bridges in order to bring the expense within reach of the finances available.

In addition to the federal aid projects, a state aid bridge wtih fill approaches has been built at Pischelville.

On account of the great mileage, opinion of county officials has been divided as to location first to be improved but a very consistent and equitable system has been followed.

Five tractor patrols and one team patrol take care of the maintenance in this county with good results.

Madison County

Madison county has a large mileage on the state and federal aid system and this county is rapidly bringing their roads into good condition. Already approximately one half of the system is built to permanent grade, while more than a quarter of the system has been graveled. All of the system not built to permanent grade has been constructed to a proper cross-section with temporary grade through the medium of heavy maintenance crews and light construction crews.

This county firmly believes in a permanent type of construction consistent with existing conditions and have adopted gravel surfacing because of the nearness of the material which makes this type of construction the most economical. It has been found that the soil is well adapted to take a gravel surface and the twenty-five miles already constructed have been a real success. Maintenance costs have been cut preceptibly wherever the gravel has been put on. Heretofore the graveling has followed the grading after a period of two or three years and it was found that considerable expense was necessitated to put the grades in condition to gravel. For this reason it is probable that as a matter of further economy this county will follow all earth work immediately with a gravel surface.

Madison county is seventh in number of automobile licenses sold and the maintenance fund has been large enough to permit considerable heavy maintenance and surfacing to be done by means of county-federal aid.

It is further to be noted that Madison county has been consistent in their construction in that they have followed a policy of continuous construction, completing one highway before another is started. In their gravel surfacing they have followed a similar policy with the result that a continuous system is being constructed with no unconstructed gaps.

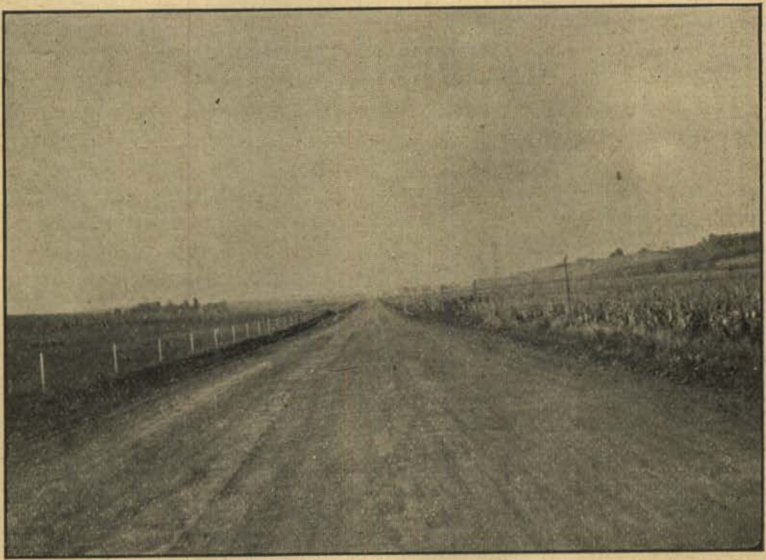
Pierce County

Pierce county has fifty-four miles of state and federal aid highway. Approximately twenty-eight miles is on the Meridian Highway, which is an International highway 3,100 miles in length, extending from the city of Winnipeg, Canada, to the City of Mexico. This is an important north and south highway across the United States. The other twenty-six miles is on Highway No. 1, a through highway across northern Nebraska which promises to become an important route.

About one-third of the highways in this county have been constructed to permanent grade, while all the remainder except for ten miles has been brought to proper cross-section on temporary grade, making travel easy and enjoyable.

Regular maintenance patrols are employed to take care of the upkeep of all the improved roads and good results have been accomplished.

Construction north and south through Pierce county has been rather expensive due to the lay of the country, which has presented formidable drainage problems. On all projects a great number of drainage structures have been necessary, including numberless bridges, box culverts and pipes, together with many overflow pavements and



Pierce County Project No. 136-B, earth road, smooth as a table and a joy to drive upon.

channel changes. In all cases high grades have been essential due to habitual overflow from the streams which run parallel to the road.

In spite of the difficulties including only moderate funds, three excellent projects have been built and the worst places have already been eliminated. This county has kept their construction continuous with a view to completing one road before another is started. About eight miles remain to complete the Meridian Highway and this doubtless will be built next season.

Rock County

Rock county, laying in the very heart of the sand hills with practically no material of which to build roads, has ninety-two miles of state and federal aid roads. With nature and financial conditions adverse, this county has a real problem to face. It is this county which every traveler used to dread because it was noted in Nebraska highway history as having the "sandiest sand road" possible. This road from Newport to Bassett in the dry weather was practically impassible and many a vehicle has, in the old days, turned back or "stayed stuck" because of its sandy condition in spots alternating with bottomless lake beds in other spots.

Today a road is built between these two points—a high dragline grade where needed and surfaced with clay hauled long distances. This road is now again the talk of the travelers who remember it of old, because it is now a wonderful improvement in defiance of nature. The driver who dreaded his trip in the old days now drives at forty miles per hour over this road making the distance in perhaps one-tenth the time formerly required.

Because of its location in the valley with the water from the surrounding country draining to it from all directions, it has been a very difficult road to keep up. At times the ditches which are four to five feet deep run full of water for weeks causing no slight damage and making a terrific strain on the very meagre maintenance fund. However, perseverance has conquered in both the construction and the maintenance and a very good road encourages this country to carry on against odds.

A state aid bridge has been constructed across the Niobrara river at Riverview and about one mile of grade has been constructed in the high bluff on the south end of the bridge, this also being done by state aid. This makes a connection and an outlet from Springview to the railroad at Bassett and is much used for marketing purposes.

Because of the limited funds only the seventeen miles of constructed road are maintained regularly although the sand trails are kept hayed so that traffic may get over them without great difficulty. These seventeen miles constructed can not long stand the present traffic unless funds are obtained to add a gravel surface.

On the whole, with natural resources, finances, and location against it, this county has made a very perceptible progress.

Thurston County

With only about twenty-seven miles of state highways to construct this county is comfortably fixed. To date all but seven miles of the system has been permanently graded. All the permanent grading was done on Highway No. 5 and this highway was completed across the county this year. Another season will see all the state highway permanently graded and attention will then be turned to graveling.

Three regular and fully equipped tractor patrols take care of the maintenance which is excellent most of the time.

Favored with good soil for road construction, this county is not so fortunately situated for drainage conditions as it is crossed and recrossed by many streams and dry creeks which in time of flood or freshet do great damage, often inundating the roads in the bottom land and on one occassion flooded the town of Homer, causing extensive ruin. Due to this condition many large bridges are needed. Because there is so much Government land on the Indian Reservation in this county, the total taxable property is not great and the fund for bridge building is very small, making it difficult under the circumstances to keep the streams bridged.

There are two Indian Reservations located in this county, the Winnebagos and the Omahas both being located here, and one interested in Indian lore may find much to interest him.

Wayne County

Wayne county, though it has only thirty-six miles of state federal aid roads, four miles of which are on the county line but maintained by Wayne county, also maintains regularly other important roads in the county, making the total miles under constant maintenance about one hundred. This maintenance is paid for from the state maintenance fund.

Wayne county has been exceptionally progressive in building up its county roads and feeder roads. Most of this work has been done with a heavy blade outfit although low bottoms subjected to flood conditions have been elevated or put up with teams and fresnoes in many places. It is particularly to be noted that this county provides excellent drainage for all its roads including even the temporary grades. Permanent drainage structures are put in as soon as any improvement is made, this being considered good economy as none of the structures have to be removed when permanent grades are laid. This county is also conspicuous for its many concrete bridges. Good soil conditions, good drainage structures and many maintenance crews are the causes of the good condition of the roads, both highways and feeders in this county.

All except twelve miles of state federal aid highways have been constructed to permanent grade. To date no gravel has been placed but the county plans to start graveling its constructed roads next year.

REPORT OF DISTRICT FOUR

F. C. Rolls, District Engineer

MILEAGE OF STATE AND FEDERAL ROADS WITH CLASSIFICATION OF IMPROVEMENTS.

COUNTY	Total State & Federal Roads 1	Paved Roads outside City limits 2	Graveled Roads outside city limits 3	Sand-clay Roads 4	Constructed to perm. grade without surf'c'g 5	Constructed to temp. grade 6	Tot'l imp. rds. sum of cols. 2, 3, 4, 5, & 6. 7	Unimproved Roads 8
Blaine	33.0	0.0	0.0	e12.00	0.0	25.00	25.00	8.00
Buffalo	83.00	0.0	51.00	0.0	15.00	17.00	83.00	0.0
Custer	180.00	0.0	0.0	6.00	50.00	105.00	161.00	19.00
Dawson	55.00	0.0	28.25	1.50	0.0	26.75	55.00	0.0
Greeley	69.0	0.0	0.0	1.74	12.66	48.60	63.0	6.00
Garfield	45.00	0.0	6.00	3.16	0.0	10.00	19.16	25.84
Hall	70.25	0.0	52.75	c 3.40	0.0	17.50	70.25	0.0
Howard	65.00	0.0	5.34	8.00	7.58	44.08	65.00	0.0
Loup	39.00	0.0	0.0	b 1.50	1.11	17.89	19.00	20.00
Lincoln	153.00	2.50	35.20	0.0	3.00	23.00	63.70	89.30
Logan	60.00	0.0	0.0	8.00	4.62	3.00	15.62	44.38
McPherson	26.00	0.0	0.0	11.92	3.80	0.0	15.72	10.28
Sherman	57.00	0.0	0.0	3.00	20.00	34.00	57.00	0.0
Thomas	51.00	0.0	0.0	d5.00	0.0	25.00	25.00	26.00
Valley	56.00	0.0	0.0	0.0	21.50	21.00	42.50	13.50
Wheeler	31.00	0.0	0.0	a10.00	0.0	31.00	31.00	0.0
Total	1073.25	2.50	178.54	75.22	139.27	448.82	810.95	262.30

a. included with No. 6 also.
b. included with No. 6 also.
c. included with No. 3.
d. included with No. 6.
e. included with No. 6.

Buffalo County

The state highway from Shelton to Kearney runs parallel to the Union Pacific railroad in the Platte valley through low ground and has been the cause of considerable expense raising grades and making drainage ditches. This has always been one of the worst stretches on the Lincoln highway as it was not only low but a snow trap in winter. An entire new road has been built and graveled and it is now one of the best.

The road north from Kearney is through the hills. The soil is mostly yellow clay which makes a fine surface but powders in dry weather. It will, however, make a good binder for the gravel that is now being placed.

Blaine County

The state highway in this county will have to be surfaced with clay for its entire length. County has clayed and hayed part of the system but it is more or less of a temporary nature. Clay with suitable binding qualities is very hard to find. This county, along with several other counties in the west where soil is light or sandy and where funds are small and traffic light, needs a revision of the present statutes covering the distribution of maintenance funds and the possible use of state aid funds independent of federal aid. Such revision would mean help from the eastern county with large maintenance tax since they use the through roads as the Potash Highway very largely and also it would mean that a type of construction could be adopted to fit local needs and light traffic rather than an expensive standard federal aid type which could not be maintained and which would blow away under winds more rapidly than it would wear away under traffic.

Custer County

This county has the largest mileage of improved roads in the district. On account of the number of miles of heavy construction to be done it was not thought advisable to spend any funds for graveling until Projects 22-42-127 and 188 were completed. These projects improved the worst stretches in the county, and future funds will no doubt be used for graveling.

With the exception of nineteen miles of sand Custer county has splendid soil for road building.

Dawson County

Dawson is another county strongly in favor of gravel surfacing. There are now 28.25 miles of gravel in the county. Low, flat country with resultant drainage problems together with gumbo soil has been the cause of poor surface on roads that have been built to temporary grade. Graveled federal state aid projects have made a remarkable improvement and this county now has some of the best roads in the state.

Greeley County

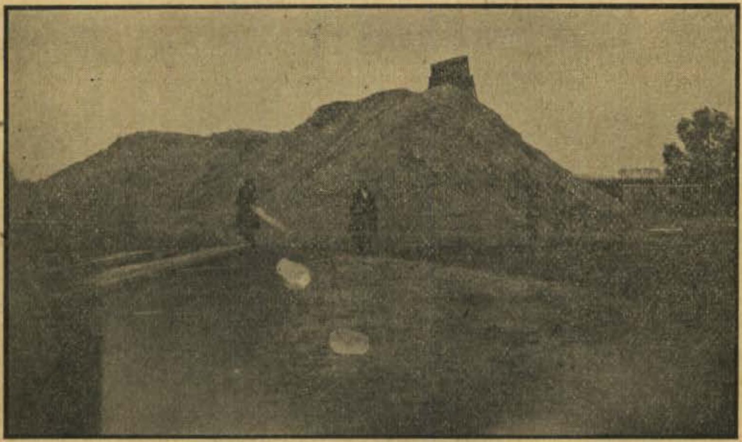
This county is extremely hilly and grading has necessarily been heavy and drainage structures numerous on all three federal-state projects. The soil is perfect for road surface. On account of the above conditions funds have not covered as much mileage as in adjacent counties.

Garfield County

Projects 34-A and 34-B has made it possible for the entire north part of the county to reach their only shipping point, Burwell. The road runs through a canyon where formerly there were fourteen per cent grades, narrow roadway and bad curves. With the grades cut to maximum six and one-half per cent and curves either eliminated or widened, this road has meant a great deal to the entire county. The part of the road not in the canyon had to be surfaced with clay. As a further improvement the county has surfaced this with two inches of gravel. All future improvement will be expensive as the entire north part of the county is in the sand hills.

Hall County

Hall county was one of the first three counties in the state to surface with gravel. Each year since 1920 all available funds have been invested in gravel surfacing until there is now 52.75 miles of gravel on the state system. It is worthy of note that the Grand Island Chamber of Commerce has cooperated with the county and



Hall county gravel pumped and screened and deposited ready for maintenance crews to haul whenever spare time is found. This method insures an ample supply for winter months when pumping and screening is impossible or costly.

state to the extent of donating $5,000.00 towards graveling. The county owns and operates their own gravel pits.

On account of the flatness of the country it has been a problem to properly drain the highways. Soil in the vicinity of Grand Island is light and it is difficult to find suitable binding material that will stand up under the heavy traffic.

Four bridges across the Platte river south of Grand Island have been built from federal, state and county funds. These consist of two bridges with three eighty-foot steel truss spans each; one bridge eighty-foot steel truss; one of six eighty-foot steel trusses. The abutments are built of reinforced concrete resting on forty-foot wood piling; the piers of reinforced concrete resting on forty-five-foot wood piling. The total length of bridge, 1,040 feet.

Howard County

The road from St. Paul to St. Libory on the road to Grand Island undoubtedly was as bad as any in the state as it was little better than a sand hill trail. Since this stretch has been graded and surfaced with clay it now ranks with the best of federal state aid earth roads. The heavy traffic and wind has worn the clay surfacing to such an extent that gravel surfacing will have to be placed in the near future to save the clay binder. Another feature of improvement is the elimination of two railroad crossings at St. Libory.

Lincoln County.

Lincoln County Project 221-A bituminous concrete pavement connecting North Platte and the State Farm.

Probably in no other county has federal state aid been of more benefit. The entire length from east to west is through low country adjacent to the Platte river with soil varying from sand to clay and gumbo. With the exception of nine miles there is now a graveled surfaced road across the county.

The paving of two and one-half miles from North Platte to the State Experimental Farm created quite an engineering problem as the road was through low, wet ground. Through the swampy portions gravel was placed on the subgrade in order to overcome capillary action.

Loup County

Loup county has no railroad entering it so has to depend entirely upon its highways. South of the Loup river the soil is good, but from Taylor north through to the county line the soil is practically all sand. Clay deposits, however, have been noted along this road which will cut down future road improvement costs considerably. Fourteen miles of this road has been graded and hayed. On account of lack of funds maintenance in this county is a problem.

Logan County

This is one of the sandhill counties and suitable road improvement consists mainly of clay surfacing while many miles must be covered with hay or straw to make traffic possible. Another biennium should see the completion of the east and west state highway.

McPherson County

This county can boast of only one short state highway but most of this highway has been built by state federal aid funds. This being another county in the sandhills all projects with little exceptions have had to be built with clay surface.

Sherman County.

Soil and topography are of two kinds. Along the Loup river valley Project 37 is built on light soil through comparatively flat country.

Other projects, 92-A and 92-B and 212, are through a very hilly part, necessitating heavy grading and large drainage structures.

Except along the Loup river the soil is fine road material. Features on Project 212 are the three channel changes and propesed overhead bridge crossing the C. B. & Q. R. R. tracks.

Thomas County

Practically every mile of state highway will have to be surfaced. Good clay is difficult to obtain. County has hayed a good portion of the highway but is handicapped by lack of funds for maintenance. As stated under Blaine County this county needs a revision of the present highway laws.

Valley County

A problem in this county on the road which runs from North Loup to Ord is drainage. Federal Aid Project 85 is built along the foothills. Flood water which comes down the canyons carries silt which is deposited on the flats in ridges causing the water courses to change before reaching the road. Old, well defined water courses have been filled up rendering some of our drainage structures practically useless. Overflow pavements have since been installed and appear to have solved the trouble.

Project 193, from Ord to Arcadia is built through the worst hills in the county. Fourteen per cent grades have been cut to seven per cent and bad curves eliminated and flattened. This road will be of great benefit to the county as heretofore there was practically no road connecting the southwest part of the county with the county seat.

Valley County-Ord-Arcadia Project 193. A genuine blessing to the traffic that must pass through these hills. Fill practically complete ready for guard rail.

View of side hill cut and fill at the beginning of curve shown in first picture, Project 193.

Wheeler County

Another sand hill county where improvement means surfacing with clay. Considerable surfacing has been done, but like other sand hill counties the cost of maintenance is more than the available funds. This county, like a few others needs the sufficient support of maintenance funds from eastern counties to insure proper maintenance to roads used largely by eastern traffic.

REPORT OF DISTRICT FIVE

A. M. Gaddis, District Engineer

MILEAGE OF STATE AND FEDERAL ROADS WITH CLASSIFICATION OF IMPROVEMENTS.

COUNTY	Total State & Federal Roads 1	Paved Roads outside city limits. 2	Graveled Roads outside city limits 3	Sand-clay Roads 4	Constructed to perm. grade without surf'c'g 5	Constructed to temp. grade 6	Tot'l imp. rds. sum of cols. 2, 3, 4, 5, & 6. 7	Roads Unimproved 8
Arthur	15.00	0.0	0.0	7.0	0.0	0.0	7.0	8.0
Banner	30.0	0.0	0.0	0.0	14.0	16.0	30.0	0.0
Box Butte	85.0	0.0	8.0	0.0	25.0	32.0	65.00	20.00
Cheyenne	78.0	0.0	11.0	0.0	a25.00	42.0	78.0	0.0
Dawes	115.0	0.0	1.0	1.0	14.0	78.0	94.0	21.0
Deuel	42.0	0.0	16.0	0.0	3.0	23.0	42.0	0.0
Grant	32.0	0.0	0.0	5.0	0.0	2.0	7.0	25.0
Garden	38.0	0.0	6.0	9.0	0.0	12.0	27.0	11 00
Hooker	32.0	0.0	0.0	4.0	0.0	6.0	10.0	22.0
Keith	96.0	0.0	0.0	8.0	15.0	45.0	68.0	28.0
Kimball	51.00	0.0	11.0	0.0	12.0	28.0	51.0	0.0
Morrill	90.0	0.0	21.0	0.0	0.0	17.0	38.0	52.00
Scottsbluff	62.0	0.0	18.0	1.5	4.0	38.5	62.0	0.0
Sheridan	101.0	0.0	2.0	8.0	48.0	8.0	66.0	35.0
Sioux	50.0	0.0	3.0	0.5	11.0	16.0	30.5	19.5
Total	917.0	0.0	97.0	44.0	171.0	363.5	675.5	241.5

a. 10 miles of improved road contain sufficient gravel in soil to be called gravel surfaced.

Arthur County

Arthur county is one of the sand hill group, the principal industry being grazing. It is an inland county, its only outlet being south to Ogallala via the only state highway in the county.

Road building here is a very difficult task on account of the very unsatisfactory character of the soil. Little or no good road building material is available within the county.

Some seven miles of the total fifteen miles of state highway in the county have been graded to permanent grade and surfaced with the best local material available.

Another problem confronting Arthur county is that of maintenance. Sufficient funds are not available in so sparcely a settled county to properly care for their highway after construction.

Banner County.

Banner county is an inland county, its only outlet being the state highway which traverses it leading to Gering and Scottsbluff on the north and Kimball on the south. All the freighting for the county is done over this highway and thousands of bushels of wheat are taken to market over it each year.

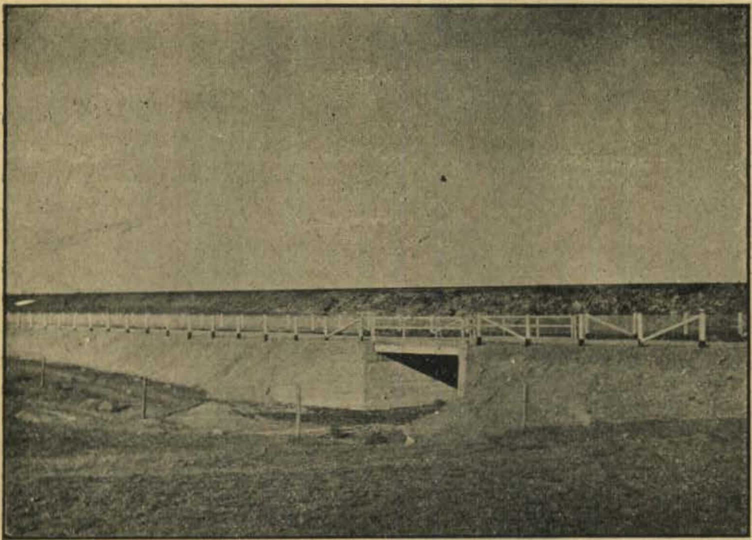
The highway south from Harrisburg has been constructed to the county line, it being one of the first to be completed in the state. On the north edge of Banner county lie a range of hills known as Wildcat Range, which furnish excellent scenery for the tourist. All along the highway the entire length of the county, the scenery is very fine, the road being called by some the most scenic drive in Nebraska.

Excellent road material is available at many points along the highway and it will be but a short time when the entire length will be a hard surfaced drive.

Banner county is handicapped by not having sufficient funds to make needed improvements on their highway but in spite of this they take great pride in it and keep it in as good condition as is possible with the means available.

Box Butte County

Box Butte county is more fortunate than all her neighbor counties in having much more level country and soil conditions than are for the most part excelled by none. Sandy land borders the county on all sides but only a small per cent of sandy land lies within its own borders.

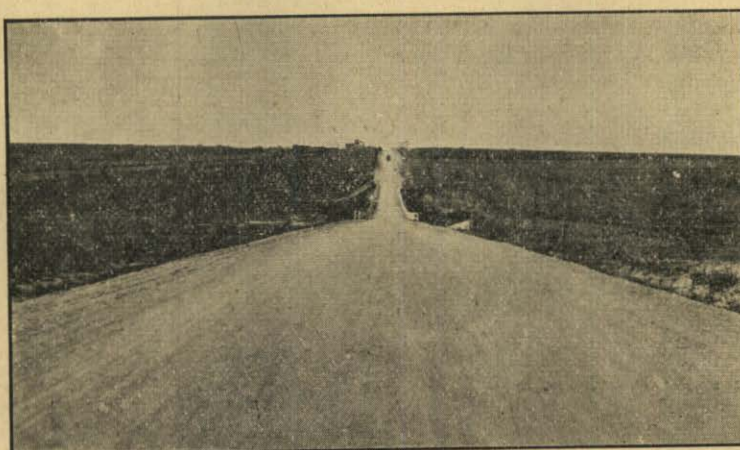


Box Butte County Project No. 198-A. A speedway over which the over-ambitious autoist can pass up the passenger trains on the paralleling Burlington railroad tracks.

Citizens of the county are especially interested in good roads and they possess some highways of which any county may be proud. No hard surfacing material is available within the county, but it is in easy access from the North Platte river, and every advantage is being taken to get the highways surfaced.

The need for good highways is further emphasized by the heavy marketing of small grains and potatoes for which Box Butte county is famous.

Cheyenne County



Two views of the dirt road, Cheyenne County Project No. 130-A, north of Sidney upon which the maintenance is excellent.

Cheyenne county contains two state highways, the Lincoln Highway and a north and south highway connecting with the Colorado system south of Sidney and leading north through Bridgeport, Alliance and Chadron to the Black Hills. The Lincoln Highway, as in many other counties carries a very large tourist traffic while the north and south road provides a means of marketing the large wheat crops typical of the table lands lying north and south of Sidney.

The north and south highway has been constructed from the Colorado line north to Gurley, about twelve miles north of Sidney. Seven miles of this road are under contract for graveling, and many miles of the remaining portion are through natural gravel soil making the addition of surfacing unnecessary. Gravel lies in abundance throughout the county making hard surfaced roads inexpensive.

But seven miles of the Lincoln Highway in this county have been improved under state and federal aid, but the remaining portions will come in for their share of improvements in the future.

Cheyenne county prides herself on her roads and at most times they are surpassed by none in the state.

Dawes County

Dawes county is traversed by the Blue Pole Highway and a north and south highway leading through Chadron to the Black Hills. The only highway to receive any state and federal aid is the one south of Chadron. This road leads south over Pine Ridge, a range of pine covered hills in which is located a Nebraska State Park. Those who have seen this county, state that it has some of the finest scenery in Nebraska. Dawes county is very unfortunate in having very serious drainage problems with which to contend. The topography, on the whole is very rough, this feature making road construction difficult and expensive. It contains some of the best as well as some of the poorest road building material. Gravel for hard surfacing is almost unknown.

Deuel County

Deuel county is traversed its entire length east and west by the Lincoln Highway. The Colorado or Denver branch of this highway leaves the main highway at Big Springs striking Colorado at Julesburg. Conditions for road building are very favorable here, particularly on account of the soil and road materials which exist in large quantities within easy access of the highway.

Deuel county is famous for its wheat, which is raised in large amounts, the entire north portion of the county is very productive and wheat fields are of enormous size.

View in Dawes County showing the gigantic butte rocks in the dis tance as seen from the road through Fort Robinson.

Hooker County

Hooker is one of the sand hill group of counties, but from the road standpoint in a way is more fortunate than some of the others on acocunt of having a class of material which make a very good surfacing for the sand. This clay lies in large quantities along the middle Loup river. As well as having the distinction of having some of the best road material found within the sand hill section, this county contains some of the most objectionable sand along the Potash Highway.

Grant County

This is another of the sand hill group, not however as bad as some of the others. No extensive program has been carried on here, but sufficient work has been done on the Potash Highway by the county and state to make a very passable road through the county. It does not take as much or as good a road in such a country to satisfy the local people, their first desire being to have a road which can be traveled at all times in safety. Their highway has been improved to the point where it is termed by some "a high gear road."

In a class with many other western sandy counties, Grant county would greatly benefit by legislation permitting the expenditure of strictly state aid road funds independent of federal aid thus allowing a lower type of construction to meet the needs of the locality and traffic.

Garden County

The Platte Valley Highway running east and west through Garden County is the only one of which they boast. It parallels the Platte River and affords very fine scenery as well as providing a means of marketing their principal crop, the sugar beet.

A large percentage of the highway mileage in this county lies in sandy land, and construction has not reached the point where a very large portion of their highway has been improved. Eight miles have been built west of Oshkosh and seven miles are now being graveled east of Oshkosh. The remaining mileage is in some places but little better than a trail road, all of which will require clay and gravel surface.

In addition to the Federal and State work on the Highway system, the County has voted bonds for three permanent type bridges across the Platte, one of which is now under construction.

Keith County

Keith County contains two well known State Highways, the Lincoln and the Platte Valley, as well as a third highway which leads to Arthur from the Platte Valley, with the exception of the Lincoln Highway. A great percentage of the remaining mileage of the State System lies in sandy soil. A great portion of the Platte Valley Highway which leaves the Lincoln Highway, has been constructed by the State and Federal Government, and some work has been done on the Lincoln Highway. On account of the very adverse road conditions, but a small percent of the total highway mileage has been improved. The Lincoln Highway is next in line for improvement, and it should be but a short time until a greater portion of this highway will be improved.

Gravel deposits lie along the Lincoln Highway in abundance and it will be an easy matter to surface its entire length with this material.

Kimball County

Kimball County is traversed by the Lincoln Highway as well as a highway which branches off at Kimball leading to Scottsbluff. About 22 miles of the total highway mileage has been improved, some of this having been graveled from pits within short distance of the road. Gravel deposits lie in abundance along both the Lincoln Highway and the Kimball North road and it will be but a short time when their entire mileage will be graveled. The natural materials from which the roads are graded contain in many places sufficient gravel to make excellent roads.

The greater part of the heavy grading work in the county has been completed, there remaining only the highway which traverses practically level land and on which the construction costs will be comparatively small.

It can be safely stated that graveling this county can be done for one-third the cost in eastern counties.

Morrill County

Morrill County is not so fortunate in her road program as are many other counties of the State. In spite of the fact that she claims 23 miles of the best highway in the State, she has mile after mile of road on the State system which at times are fairly impassible. The most serious problem confronting Morrill County is the construction of a road north from the Platte River to Alliance. The construction of such a road will necessitate the expenditure of considerable sums of money in making a highway through these sand hills lying between the river and Alliance. Sufficient funds have not as yet been available to make a start on this piece of construction.

Eight miles east and west from Bridgeport have been graded and graveled, and this is being extended westward toward Bayard for a distance of seven miles during the present season. At this time also a 700 foot span steel truss bridge is being built on the Platte Valley Highway just south of Broadwater, 50 per cent by County funds and 50 per cent Federal Aid.

The east and west, or Platte Valley Highway parallels the Platte River its entire length through the county, and road materials are easily accessible at all points making construction costs small.

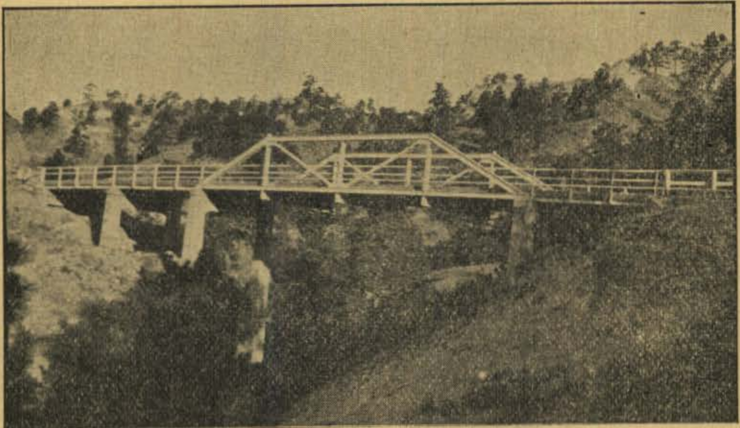
Sheridan County

Sheridan county is divided into two well defined sections, the North and South as relates to Highways, the North end made up of farm lands is traversed by the Blue Pole Highway, the south end strictly a Sand Hill section being crossed by the Potash Highway.

A good highway has been constructed across the North end of the County as well as a branch leading north from Gordon connecting with the South Dakota System of highways. Only seven miles of the south highway have been constructed, this being a much more difficult and expensive undertaking.

Sioux County

Sioux County the north west corner of the State is one in which some of the most excellent scenery exists as well as possessing some of the mose widely known fossil beds in the world. These fossil beds are located near Agate, 20 miles south of Harrison. These beds have been worked by noted geologists from all over the world and they have produced rare specimens of prehistoric ages. A very fine museum is maintained at Agate, to which people travel from all parts of the coun-



Sioux County Project 102-A in Smiley Canyon showing steel truss bridge and I beam approaches on permanent yet cheap foundation.

try. Sioux County is very rough and broken. Road building being difficult both on account of topography and fossil conditions. The only achievement along this line is the construction of a Highway East and West through the county traversing Fort Robinson and leading up through Smiley Canyon, a spot equaled by none in the State for its scenery.

Work is still in progress on the highway east of Harrison, the county seat, and it is planned to carry this work to completion as well as to construct a highway south from Harrison.

Scottsbluff County

The east and west highway through Scottsbluff conuty follows the North Platte Valley, being not more than 3 miles distant from the river at any point. It traverses some of the most fertile farming districts of the North Platte Valley, and offers a very good view of the Sugar Beet industry for which the Valley is famous.

The north and south road in the county starts at Scottsbluff, crossing the North Platte River between Scottsbluff and Gering, leading thence to the Lincoln Highway meeting it at Kimball. A 600 foot span concrete bridge has been built over the river by the State and Federal Government. At the south county line lies what is known as Stage Hill. The road at this point crosses a very rugged range of pine bearing hills over which a very fine highway has been constructed. This provides a very scenic drive for local and tourist traffic.

Scotts Bluff County is fortunate in having an abundance of gravel, both in the Platte River and gravel bearing hills. This feature helps materially in the cost of permanent improvement, and enables the County to have some of the best highways in the western part of the State.

REPORT OF DISTRICT SIX

A. T. Lobdell, District Engineer

MILEAGE OF STATE AND FEDERAL ROADS WITH CLASSIFICATION OF IMPROVEMENTS.

COUNTY	Total State & Federal Roads 1	Paved Roads outside City limits 2	Graveled Roads outside city limits. 3	Sand-Clay Roads 4	Constructed to perm. grade without surf'c'g 5	Constructed to temp. grade 6	Tot'l imp. rds. Sum of cols. 2, 3, 4, 5, & 6 7	Unimproved roads. 8
Adams	50	a 4.0	29	0.0	17.0	0.0	50	0.0
Chase	65	0.0	14	8.5	2.5	27.0	52	13
Dundy	43	0.2	3	6	13.8	5.0	28	15
Franklin	45	0.2	0.0	1	12.2	19.6	33	12
Frontier	68	0.2	0.0	0.0	18.0	25.8	44	24
Furnas	70	0.2	5	0.0	22.0	34.8	62	8
Gosper	52	0.0	0.0	0.0	20.0	8.0	28	24
Harlan	87	0.0	0.0	0.0	11.3	50.7	62	25
Hayes	62	0.1	1	0.0	18.0	14.9	34	28
Hitchcock	77	0.2	0.0	0.0	16.0	22.8	39	38
Kearney	77	0.0	15	2.8	8.2	25.0	51	26
Perkins	71	0.0	11	6.5	.5	31.0	49	22
Phelps	72	b 0.8	6	2.0	20.0	33.2	62	10
Red Willow	47	c 1.8	8	0.0	16.0	92.0	35	12
Webster	47	d 2.0	6	0.0	15.0	14.0	37	10
Total	933	9.7	98	26.8	210.5	321.0	666	267

a. includes 4 in Hastings.
b. includes 8 miles in Holdrege.
c. includes 8 in McCook.
d. includes 2 in Red Cloud.

Some of the damages due to heavy rains and almost continuous floods lasting three months in the Summer of 1923, as a result of four times the average rainfall, are noted in the following chart of Counties along the Republican River Valley:

County and Location	Damage	Time	Height of Water Above Normal
Dundy—			
1 mile West Parks	600 ft. State Highway washed out	May 22-25	5 ft. to 6 ft.
15 miles South Benkelman	South Forks Dam broke	May 22	
3 miles East Benkelman	1500 ft. State Highway washed out; C. B. & Q. train wrecked, one killed	6 A.M. May 23	6 ft. to 7 ft.
Hitchcock—			
3 miles West Stratton	4 spans wood bridge washed away	7 A.M. May 23	7 ft.
South of Culbertson	River two miles wide, normally 400 feet	May 23	5 ft.
Red Willow—			
McCook	Cut new channel 700 feet wide	May 23-24	6 ft. to 8 ft.
Bartley	4 arches State Aid bridge washed away	6 A.M. May 24	6 ft. to 8 ft.
	2 Arches State Aid bridge washed away	July 30	4 ft. to 5 ft.
Furnas—			
Arapahoe	250 feet State Highway washed out	May 22-25	6 ft. to 8 ft.
Arapahoe	250 feet State Highway washed out	July 28-30	4 ft. to 5 ft.
Harlan—			
South of Alma	Steel Republican River bridge washed away	Early morning of June 7	9 ft.
Franklin—			
Bloomington	Steel Republican River bridge wrecked	7 P.M. May 22	8 ft.
Franklin	North Span Steel Republican River bridge wrecked	12 P.M. May 22	8 ft. to 9 ft.
Webster—			
Red Cloud	Pier in Republican River bridge settled	Night May 23	10 ft.
Nuckolls—			
Superior	Power Dam broke		
	State Aid Bridge settled		

From old settlers is it learned that similar periods of excessive floods have occurred regularly about once every nine years, as long as records have been kept. The lesson from these floods teaches the public to build their roads and bridges so that they will withstand such periodical run-offs.

Adams County

This is the first County in Southwest Nebraska to complete all of the grading and structures on the State road system. The last gap, from Hastings north to Hall County was completed in October ,1924. In addition, the State road East and West across the County, as well as the road North of Hastings, have received a two inch application of screened gravel, which was shipped by rail from Cowles, Kearney, Grand Island, and Central City, unloaded by machinery, and hauled by trucks. This gravel has given excellent satisfaction to the Adams County tax payers, and has served as a model for other Western Counties. The County Board now has two main desires; (1) to gravel the road South of Hastings, and (2) to extend the State road system to reach other parts of the County.

Maintenance with tractors and trucks has been satisfactorily and economically handled except following snow-falls. To overcome this situation, and to keep the roads open during the winter as well as other seasons, a big double rotary snow plow has been purchased.

The highways right of way have been kept mowed, and have been kept clear of advertising signs. Structures have been painted white, and as a result, the highways have always been in good shape, and have looked clean and neat. Cooperation with the County Board of Supervisors and other officials has been entirely satisfactory.

Dundy County

In the previous biennium, construction was started with State Federal funds from Haigler West to the State line of Colorado. Due to the fact that the road was not included in the new "seven per cent" system, and due to the cancellation of the contract by the contractor on structures, this project has remained in an uncompleted condition for over a year. There has been a steady and strong demand for gravel surfacing by Dundy County people and the County officials in line with the strong campaign for gravel roads by the State Department, and it is expected that this demand can be satisfied next year.

This County has had insufficient maintenance funds to have regular patrolmen in sufficient numbers to properly maintain the State system. In previous years debts were incurred and some of these old debts are still unpaid. Very limited maintenance funds have caused insufficient work. In 1923 were numerous protracted floods that caused much damage. Again in 1924 were damaging floods. These damages to bridges and grades were repaired as well as funds permitted, but not as well as County and State road officials desired. Results in counties like Dundy are hampered by lack of funds. There are no more enthusiastic and efficient county road officials in the State than in Dundy County.

Chase County

Chase County has received four projects this last year from State-County-Federal funds.

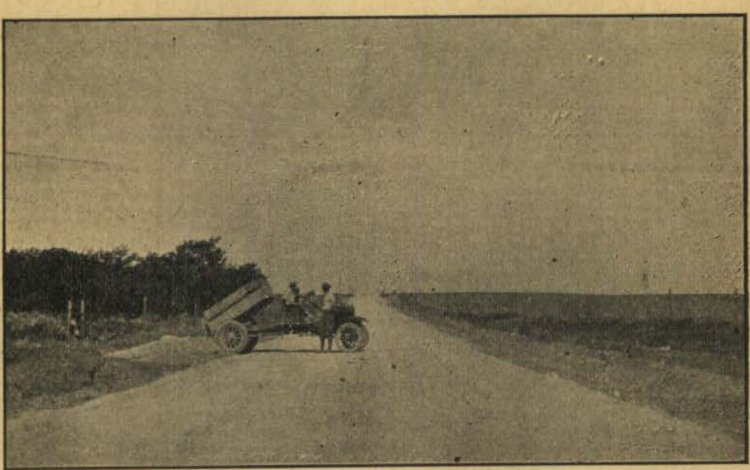
1. The long expected and much needed improvement of the sand trail from Imperial to Champion. The transformation in this road by grading, confining the blow-sand with magnesia, and surfacing the magnesia with gravel, has led to the following expressions:

"The best road in the State."

"Now that this road is completed, there is no need of a railroad to Champion."

"The State should buy and open magnesia pits, and ship magnesia wherever there are sand roads."

The magnesia on the road resembles concrete in color, and under good maintenance is very hard and smooth.



Chase County Project No. 206 showing magnesia surfacing on a light sandy soil.

2. Two and one-half miles of gravel North West of Imperial, which has completed the gravel surfacing on Project 95-A.

3. The narrow light capacity bridge at Wauneta was replaced by a twenty ton, twenty foot roadway, Nebraska Standard bridge, with a four foot sidewalk, and four lamp posts.

4. The old bridge at Champion, on which two wings had collapsed, was replaced by a sixty-three foot creosoted, twenty ton, twenty foot roadway, Nebraska Standard bridge.

Maintenance has been uniformally good and very satisfactorily and economically handled by an efficient highway commissioner. The entire State highway system was completely regraded in 1924. Co-operation with all County officials has been excellent.

Frontier County

One of the heaviest grading jobs in the State was completed in 1923 between Curtis and Maywood. This assured a good all-weather road between these two towns, eliminated a dangerous C. B. & Q. R. R. crossing, and saved two miles of distance. It is of interest that the first creosoted timber bridge in Southwest Nebraska, and one of the first in the State involving State-Federal funds was the C. B. & Q. railroad over head crossing on this project. The C. B. & Q. railroad paid a quarter of the cost of this bridge. After advertising for bidders, bids were rejected as too high, and the C. B. & Q. were awarded the bridge work at estimated costs, thus saving nearly two thousand dollars.

Taxpayers were well pleased with this work, and have insistently demanded that grading be continued from Stockville East to complete the East and West Highway across the County. This road has been surveyed and will be under contract in 1925. This road East of Stockville to Gosper County line, 22 miles in length has been blade graded, and considerable improvement has been made the past two years by placing many pipes, box culverts, straightening the alignment, and doing much heavy team work. The topography over which this highway passes is almost a continuous series of deep canyons and very steep hills.

Maintenance has been good. Cooperation with the County officials and the public has been satisfactory. Maintenance work has been done with tractors, trucks and teams. A new patrol shed has been erected on lots furnished by the City of Curtis, and is used for storage, repair shop and service for the County equipment.

Franklin County

Following the completion in 1921 of the heavy work from Franklin West 12 miles with State-Federal funds, there was no State-Federal work this biennium. A survey has been made preparatory to more State-Federal work in 1925 East of Franklin.

Maintenance work during 1923 was difficult, and results were only fair, due to numerous floods and delayed work. Maintenance work in 1924 has shown a very decided improvement, due to the active interest of the County Clerk and County Supervisors. Cooperation between the State and the County has been exceptionally good this last year. The patrolmen have taken a great personal interest in their work, and results have pleased the taxpayers.

The good roads and good roads boosters of Franklin County succeeded in attracting two National Highways to enter Nebraska from Kansas.

The old winding trail South of Franklin has been widened into a fair road, and will be further improved next year. The highway north of Franklin to Minden has been constructed and maintained from maintenance funds so that except for a few hills and a short sand stretch, it is equal to a State-Federal project. From Franklin East maintenance has been good.

A large frame building for a patrol station, with a well equipped work shop and yards has been built at Franklin, and is used for winter work. Trucks are used exclusively on maintenance work.

Furnas County

The Furnas County Board has been very aggressive in obtaining construction projects, and has cooperated well with the State. The Board has also been successful in bidding in grading and gravel work on the following projects in 1924:

1. Project 67-A. 4.5 miles of gravel surfacing East of Cambridge.

2. Project 30-B. A channel change and fill south of Arapahoe, to provide a new outlet for the Muddy Creek into the Republican River.

3. Project 194-A. Two and one-half miles of clay surfacing South of Oxford. During the construction of this job, an unusual condition was found, when a pocket of quick sand about nine feet deep and 140 feet long was encountered, 11 feet under the surface of the top of a high clay hill South of the River. The sand was removed and placed in the bottom of the fill and the cavity filled with clay.

The successful completion of these projects showed the results of a good organization, and splendid management by the highway commissioner, who personally handled the supervision of all construction and maintenance work.

Maintenance on the D. L. D. Highway across the County has been only fair. The heavy floods of 1923 caused many washouts in every mile and almost a year was required to overcome this damage. Satisfactory maintenance is prevented by lack of funds, and the location of the highway at the foot of continuous hills and across long canyons, and is not due to lack of effort. This condition is not generally understood by the traveling public. Heavy construction and many structures are needed across the County, so that maintenance can be made effective. The results of maintenance on other roads have been good. Trucks and tractors have been used for power. A small patrol shed and yards have been established at Arapahoe.

Gosper County

1923 saw the completion of the 28 miles of East and West State Highway across Gosper County, 20 miles by State-Federal funds, and 8 miles by maintenance funds. The transformation of narrow winding canyon roads and prairie trails to standard width highways has started a road system in Gosper County that has been the envy of neighboring Counties. The County officials now desire the completion of the road system from Elwood North to Lexington and South to Arapahoe.

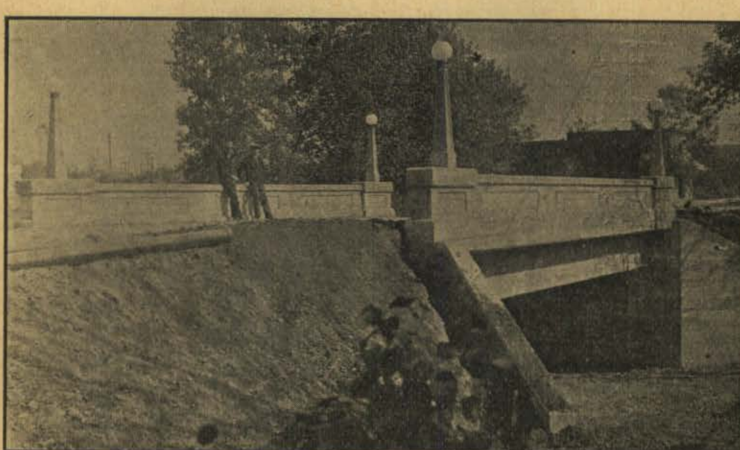
The heaviest floods for nine years did much damage to the fresh fills West of Elwood in 1923. The restoration of washouts and the installation of ditch checks occupied the patrol crew until the Fall of 1924. The fills have now become seeded down, and maintenance has become a matter of surface and shoulder work, rather than replacing hundreds of feet of washed out shoulders.

A patrol shed and yards have been established at Elwood. Patrol work is almost exclusively done by tractors.

Harlan County

Three good, permanent bridges have resulted from State-Federal construction work this biennium at the following locations.:

1. Republican City, on State Highway No. 3, gained an ornamental and useful forty foot, twenty ton, reinforced concrete girder with twenty-four foot clear roadway, and four concrete lamp posts.

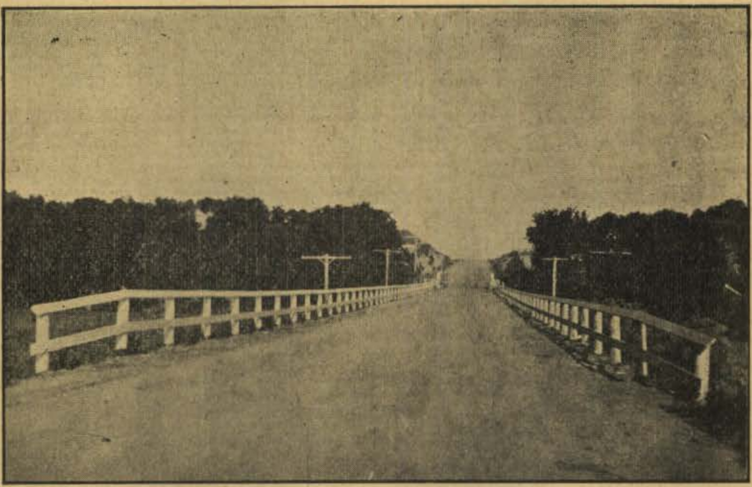


A neat little forty foot concrete girder bridge and approaches nearing completion on Harlan County Project No. 71-B.

2. Orleans received a new forty foot span, twenty ton, twenty foot roadway, and two four-foot sidewalks together with four lamp posts, of the same type as Republican City bridge, to replace a steel wood bridge built ten feet off center line about twenty-five years ago.

3. Oxford acquired a new entrance into the City by the construction of a fifty-five foot steel skew bridge opposite a C. B. & Q. railroad subway at the East edge of the City. This permits the traffic on State highways 3 and 7 to pass under the tracks and completed the elimination of a dangerous railroad crossing.

Maintenance on State roads in Harlan County has been uniformly satisfactory due to a hard working experienced patrol organization under a very capable highway commissioner, and an interested efficient County Board. Maintenance results have been economically obtained with the use of tractors and trucks. A small patrol shed with work shop at Alma is used by all road crews.



A well maintained Harlan County Highway near Alma—Earth road Project No. 71.

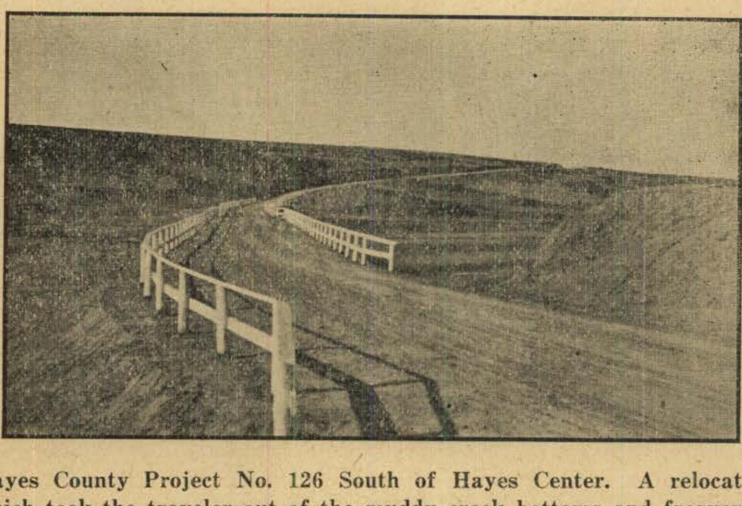
During this last year, meetings were held at Republican City, Alma, and Orleans, to attempt to obtain gravel surfacing, of which there is none in the County. When more funds are available, and the urgent grading needs West and Northwest of Orleans are satisfied, gravel will be used extensively. Plans have been prepared for a grading project in 1925 from Orleans to Oxford.

Travelers report that the heaviest grades from Denver to Omaha exist on the D. L. D., Highway No. 7, in Harlan County. To avoid these heavy grades and to include the town of Mascot, without any increase in the length of the road, a relocation has been proposed which will be surveyed and investigated next year.

Hayes County

The Hayes County Board has requested construction work Northwest of Hayes Center, and also favors completion of the D. L. D. West of Palisade for next year, as well as an extension of the State system from Hayes Center to Maywood, which last request of course is impossible for some time under the present laws.

Maintenance in 1923 was poor due to lack of funds and equipment. In 1924 by dividing the cost with County funds, a big engine and 12 foot blade grader outfit was purchased. This is the first workable equipment which the County has owned. The entire State road system was graded and put into shape this year, and the State roads have been in better condition this year than ever before. Due to their big mileage and small funds, regular patrol crews cannot be employed constantly so erratic results are obtained. Some places the surface is good, and some places very poor. The County officials are willing and anxious to co-operate, but as they are actively engaged in farming and live many miles from the State roads, the highways suffer from a lack of a properly supervised organization with a responsible head.



Hayes County Project No. 126 South of Hayes Center. A relocation which took the traveler out of the muddy creek bottoms and frequently impassable steep hills on either side and placed him on a fine highway not previously dreamed of by the old settlers.

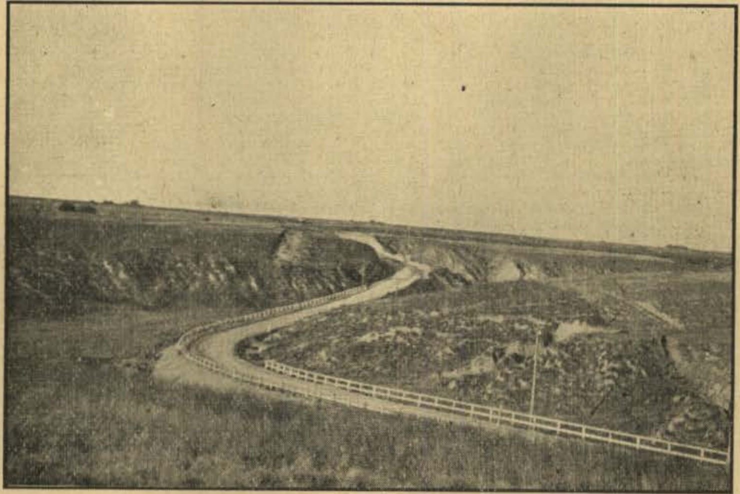
Hitchcock County

Hitchcock County has the largest mileage of State roads in Southwest Nebraska, requiring regular patrol work, and has the smallest funds for maintenance. Through no lack of cooperation by County officials, but through lack of funds, and lack of equipment, road conditions have been only poor to fair. Poor soil conditions have also greatly hampered maintenance work.

Construction work for the biennium has included two short projects, 68-C, 4 miles East of Culbertson; and 68-D, 5 miles West of Culbertson. The results from these two projects have not been as satisfactory as they should be, due to lack of funds for maintenance and also due to the fact that these two jobs are at the outlet of a long irrigation system and have been frequently damaged by improperly controlled irrigation water.

During the early part of 1923, a sand storm in the Southwest corner of the County deposited about twenty-four inches of blow sand on a mile and a half of State road, and has made this almost impassable. Later in 1923 came many floods and washed out many bridges and fills. As a result of the above conditions the County and State have received an endless amount of undue criticism.

Some law should be devised to aid Western Counties like Hitchcock, and sustain a better condition on the State Highways, by a more even distribution of maintenance funds.



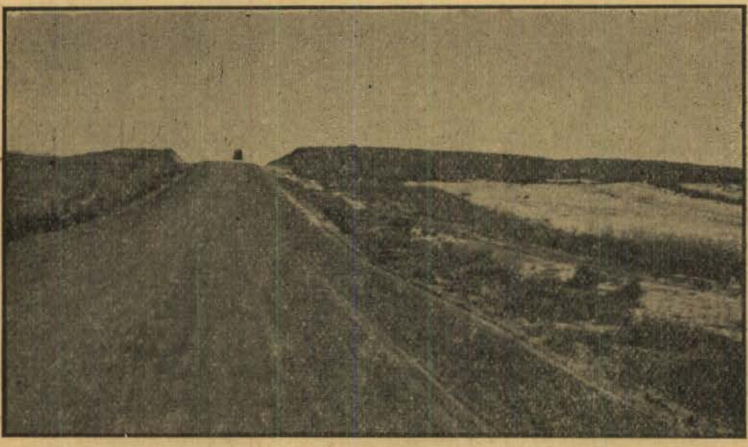
A relocation and construction which made a speedway out of a formerly very bad canyon crossing Hitchcock County Project 68-A.

Kearney County

The use of Platte River gravel for road surfacing has been the greatest activity in Kearney County during this biennium. In 1923 the grading and structures on the Minden-Newark road were completed, and four inches of screened gravel applied over clay surfacing in the sand hills. The success of this gravel work encouraged the local demand for gravel on the Harding Highway, State Highway No. 7, so a contract from State-Federal funds was entered into for two inches of gravel surfacing from Minden East 17 miles, to meet the gravel surfacing in Adams County. Half of this was completed in 1924, and the balance will be placed early in 1925. The County Board has requested construction from Axtell North to the Kearney bridge, and also from Minden West to Phelps County.

On a level County like Kearney, with well graded roads, and good soil, and plenty of maintenance funds, there are few problems in maintenance work. Cooperation has been satisfactory and maintenance has been uniformly good throughout the biennium. Tractors have been used for surface work, and a truck has been used on the gravel for hauling in clay and gravel for patch work. Patrol sheds and yards have been established at Heartwell, Minden and Axtell.

Perkins County



Perkins County project No. 121.—A remarkable earth road made by surfacing sand with lagoon dirt. Note the sand trail close on the right.

Perkins County good roads program started in the previous biennium. Four years ago, 32 miles of crooked prairie and sand hill trails greeted the stranger and served local traffic. There were no road signs or turn markers to show the stranger which pair of ruts belonged to the State Highway. During the previous biennium, a complete transformation took place. One State-Federal project of 16 miles of sand-clay construction between Grant and Elsie was completed, and transformed a winding sand trail to the "Boulevard of the Sandhills."

The County purchased two large Holt tractors with grading outfits and bunk houses from the State Department, and they have built real roads quickly and economically. The entire State system has been graded. They have also graded most of the main County roads. Excellent co-operation on the part of all County officials has been the keynote of this County's success.

During this biennium, good maintenance has been the rule. In order to preserve the clay surfacing between Grant and Elsie, which was beginning to show need of repair after three years service, a gravel project was let. The County was the low bidder. Gravel was very scarce in Perkins County and it was necessary to remove fourteen feet of very hard magnesia, much of which had to be blasted in order to uncover the gravel. About one-half of the pit product could be used. The County set up and operated a gravel loading and screening plant, and after many delays and breakdowns, succeeded in completing their contract within the contract figures. The gravel has given good results and much more gravel has been demanded for next year.

Phelps County

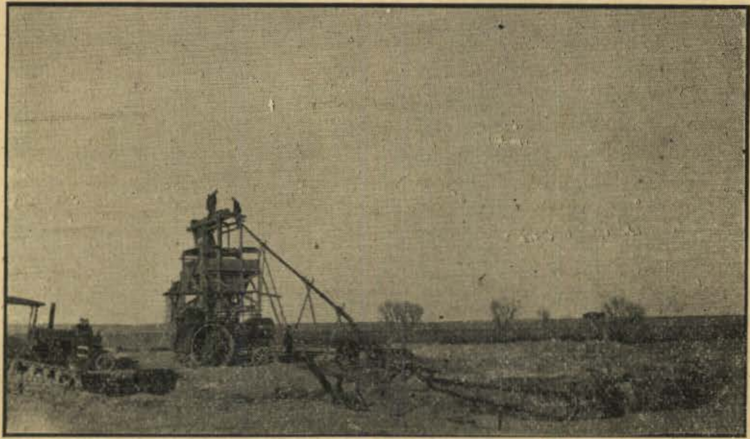
Following the completion of the Holdrege-Elm Creek highway in 1921, there developed a demand by the County officials, and taxpayers, to arrange for improving State Highway 7 across the County. Following several conferences between the County Board, Holdrege Community Club, and State Department representatives, plans were prepared and contracts let in September, 1924, for grading, structures, and two inches of gravel surfacing from Kearney County line through Funk and Holdrege to Atlanta. The grading and structures were completed in 1924 from Holdrege East, and it is expected to complete the entire project early in 1925. Following th start of work on State Highway 7, the Board asked for similar work on State Highway 23 to Loomis, and plans are being prepared for this work.

Maintenance on the State road was only fair in 1923. In 1924 due to the fact that the County Board took an active interest in road work with good cooperation, and due to purchase of additional equipment, a decided improvement in road conditions has taken place. Maintenance work has been done with tractors and occassionally with teams.

Red Willow County

In 1923, Red Willow received the worst floods since 1915. These floods rendered the roads West of McCook impassable for days at a time, and increased the demands for a good highway from McCook West. The summer of 1924 was spent in the construction by State-Federal funds of Project 68-B, from McCook West, which includes a half mile of paving and 8 miles of gravel.

It is extremely interesting and important to record that unlimited quantities of the best quality of washed gravel for concrete and road surfacing have just been discovered and used in the vicinity of McCook from the Republican River Valley. It was generally believed that there was no good gravel in the Republican Valley, and the discovery of this gravel came in a unique way. On a feeder road on the D. L. D., 1 1-2 miles west of McCook, the farmer users of this feeder road donated $1,100.00 to improve the road, and the business men of McCook donated a like amount. The work was done under a committee with the engineering donated by the State Department of Public Works. In grading this road, the ditches were deepened, and gravel was found near the surface, under about three feet of clay. Soundings were made by the County at this point and other points, which revealed from ten to sixty feet of good gravel lying in water.



A new gravel pumping and screening plant being installed in Red Willow County at Perry.

The County and State have purchased and are operating a six-inch pumping outfit and are satisfying the very strong demand for gravel surfacing. Why this gravel was not used prior to 1924 is well expressed by the remarks of the man on whose farm the pit was found: "Yes, I knew there was gravel there, but I never knew there was any other way to get it out except by slips, and never paid any attention to it."

Another discovery this last year is of a hard native stone South of Indianola. Due to lack of funds, no attempt has been made to open a quarry for this material. It is the desire of the County and State Department to start crushing operations on a small scale and build a mile of paved road with this material next year. The need of road surfacing material is more urgent each year, due to wearing out and blowing away of the light soils, and constantly increasing traffic.

Webster County

No construction from State-Federal funds was done in Webster County this biennium. Gravel surfacing was projected from Red Cloud North to Adams County line, but due to more urgent needs for grading and drainage structures from Red Cloud East, the County Board cancelled the gravel project after bids were opened. Plans are being completed for a project East of Red Cloud to Guide Rock for next year.

Although no State-Federal funds were used on construction there have been some marked improvements made on the State roads. The County Board has taken an active interest in the State roads, and has built four new standard steel concrete bridges on the State roads from their bridge funds. State maintenance funds have been used to good advantage on the Golden Rod Highway, State Highway No. 3. This maintenance work West of Red Cloud has been of sufficiently high class so that this highway will be in shape to be surfaced with very little extra expense on the subgrade. East of Guide Rock as a result of the united efforts of Guide Rock citizens, the State road has been greatly improved. Very heavy grading, and several new bridges will be necessary to reduce the steep grades on this road.

The Board has readily cooperated with the State. Each Board member has outlined the general plans for State road work in his district, and in cooperation with the highway commissioner, regular and steady work has been the rule and maintenance has been satisfactory.

When the "Red Cloud North" gravel project was postponed, the County officials decided to use local prison labor on this road. As a result of this method, about four miles of gravel have been placed North of Red Cloud, using material from road side pits. This is the only instance where convict labor has been used in Southwest Nebraska on road work during this biennium. The results have been economical and satisfactory.

STATE OF NEBRASKA

Department of Public Works

SUMMARY OF 1923 MAINTENANCE COSTS

COUNTY	Miles Maintained	75% of total motor vehicle license 1923.	New Equipment, license plates	General Maintenance	Total Expended	% of Total Expended to 75% of total collected
Adams	45.66	42,809.63	915.50	12,868.47	13,783.97	32
Antelope	71	28,312.28	5,187.88	19,804.72	24,992.60	88
Arthur	15	1,767.75	105.49	1,262.97	1,368.46	77
Banner	27.5	3,866.38	78.01	3,567.31	3,645.32	94
Blaine	35	2,373.38	63.95	2,499.42	2,563.37	108
Boone	79.35	29,261.03	15,457.82	17,152.07	32,609.89	111
Box Butte	23.2	14,463.64	1,491.55	6,282.97	7,774.52	54
Boyd	63	12,584.34	6,486.25	6,619.53	13,105.78	104
Brown	53	8,292.38	144.15	8,943.60	9,087.75	110
Buffalo	83.5	46,216.69	21,703.00	13,334.23	35,037.23	76
Burt	135.88	28,323.54	15,410.34	20,793.47	36,203.81	128
Butler	110.5	31,307.44	14,079.53	17,648.97	31,728.50	101
Cass	100.5	35,909.06	11,307.45	17,330.18	28,637.63	80
Cedar	52	33,310.13	13,602.12	17,457.58	31,059.70	93
Chase	52	10,803.94	2,445.80	7,373.90	9,819.70	91
Cherry	49	11,412.55	3,218.14	10,604.64	13,822.78	121
Cheyenne	138	21,596.22	2,321.07	18,857.11	21,178.18	98
Clay	50.2	27,160.88	2,057.38	12,586.02	14,643.40	54
Colfax	61	25,653.19	15,680.26	9,561.87	25,242.13	98
Cuming	106.5	33,377.78	21,655.10	22,760.84	44,415.94	133
Custer	204	48,543.13	21,929.43	24,318.57	46,248.00	95
Dakota	18	15,539.25	9,104.94	6,632.08	15,737.02	101
Dawes	72	13,780.76	941.51	10,674.54	11,616.05	84
Dawson	73	33,167.06	20,789.26	13,678.44	34,467.70	104
Deuel	32	7,721.63	2,595.63	4,943.38	7,539.01	97
Dixon	28	22,782.75	2,491.36	10,791.61	13,282.97	58
Dodge	76.5	55,106.55	16,443.41	29,997.55	46,440.96	84
Douglas	105	366,453.75	363,741.06	36,029.23	399,770.29	109
Dundy	42	9,722.06	2,213.99	7,291.51	9,505.50	98
Fillmore	86.5	27,074.06	3,807.79	16,580.85	20,388.64	75
Franklin	50	18,372.19	7,975.43	10,690.09	18,665.52	102
Frontier	44	16,478.12	8,275.76	7,580.21	15,855.97	96
Furnas	67	24,256.68	4,600.48	15,644.12	20,244.60	83
Gage	78.9	55,480.16	3,547.27	18,920.47	22,467.74	40
Garden	37	8,004.19	117.26	6,171.17	6,288.43	79
Garfield	17	5,112.19	459.78	5,736.92	6,196.70	121
Gosper	28	9,428.63	3,632.22	6.405.70	10,037.92	106
Grant	24	2,046.00	....	1,733.86	1,733.86	85
Greeley	59	12,847.05	186.43	12,940.69	13,127.12	102
Hall	70	48,590.72	29,857.41	17,074.34	46,931.75	97
Hamilton	52	28,482.60	3,141.14	15,698.04	18,839.18	66
Harlan	52	17,515.31	1,754.88	11,470.97	13,225.85	76

COUNTY	Miles Maintained	75% of total motor vehicle license 1923.	New Equipment, license plates	General Maintenance	Total Expended	% of Total Expended to 75% of total collected
Hayes	56	7,659.56	160.08	4,400.03	4,560.11	60
Hitchcock	63	11,688.19	45.00	8,805.47	8,850.47	76
Holt	138	24,528.94	8,307.66	15,105.04	23,412.70	95
Hooker	28	1,985.44	....	768.95	768.95	39
Howard	47	19,988.63	3,947.51	9,076.74	13,024.25	65
Jefferson	41.5	30,571.50	2,226.12	12,778.93	15,005.05	49
Johnson	25.7	18,817.13	9,471.32	6,522.78	15,994.10	85
Kearney	49	16,587.00	1,682.80	6,076.14	7,758.94	47
Keith	86	11,091.98	3,601.66	7,162.25	10,763.91	97
Keya Paha	26	4,768.88	1,259.63	3,700.38	4,960.01	104
Kimball	49.9	8,761.31	2,923.35	7,191.01	10,114.36	115
Knox	100	36,648.94	5,467.16	22,123.73	27,590.89	75
Lancaster	109.51	183,288.87	18,352.84	35,471.04	53,823.88	29
Lincoln	58	37,220.46	9,115.61	16,976.12	26,091.73	70
Logan	15	3,425.70	79.81	1,973.07	2,052.88	60
Loup	11.5	2,507.63	2,360.44	3,568.03	5,928.47	236
Madison	96	50,204.19	22,261.85	20,703.51	42,965.36	86
McPherson	17	1,923.19	1,048.90	944.13	1,993.03	104
Merrick	99	21,819.19	7,720.33	14,099.68	21,820.01	100
Morrill	51.6	13,580.63	2,286.09	9,163.24	11,449.33	84
Nance	68	17,255.85	1,978.15	14,522.54	16,500.69	96
Nemaha	38.10	24,622.22	3,539.90	9,168.42	12,708.32	52
Nuckolls	33.88	24,834.94	1,688.34	10,170.56	11,858.90	48
Otoe	59.20	40,781.81	12,929.70	17,417.88	30,347.58	74
Pawnee	48.8	18,148.50	2,831.05	8,400.73	11,231.78	62
Perkins	43	10,380.94	643.80	5,753.01	6,396.81	62
Phelps	67	22,276.04	2,624.51	6,770.32	9,394.83	42
Pierce	44	22,856.44	10,067.59	11,594.95	21,662.54	95
Platte	110.5	39,259.69	22,423.44	18,465.60	40,889.04	104
Polk	85.5	24,454.69	3,975.14	15,139.08	19,114.22	78
Red Willow	35	21,632.93	7,198.02	11,318.40	18,516.42	86
Richardson	47.2	38,198.91	2,080.10	13,013.07	15,093.17	40
Rock	75.5	5,291.06	94.12	5,125.46	5,219.58	99
Saline	95	36,850.69	8,342.69	20,036.74	28,379.43	77
Sarpy	51.08	20,197.69	5,856.47	18,138.46	23,994.93	119
Saunders	36.4	45,883.16	1,142.21	9,671.63	10,813.84	24
Scotts Bluff	58.4	33,176.64	11,668.52	11,976.13	23,644.65	71
Seward	57	34,587.94	15,285.02	11,151.75	26,436.77	76
Sheridan	83.3	13,923.56	3,258.46	6,862.64	10,121.10	73
Sherman	55	15,908.21	6,110.44	11,687.41	17,797.85	112
Sioux	30	5,478.56	476.86	3,967.33	4,444.19	81
Stanton	40	18,481.24	1,037.18	9,798.37	10,835.55	59
Thayer	50	27,979.69	851.69	12,672.98	13,524.67	48
Thomas	55	1,805.25	30.08	1,005.25	1,035.33	57
Thurston	65	14,418.00	1,117.60	10,457.18	11,574.78	80
Valley	32	18,598.60	1,747.38	5,814.37	7,561.75	41
Washington	60.5	28,570.84	8,236.26	12,999.55	21,235.81	74

COUNTY	Miles Maintained	75% of total motor vehicle license 1923.	New Equipment, license plates	General Maintenance	Total Expended	% of Total Expended to 75% of total collected
Wayne	92	27,536.44	20,654.09	20,502.97	41,157.06	149
Webster	47.7	19,090.13	4,911.80	7,798.95	12,710.75	67
Wheeler	34	4,045.09	2,859.88	3,770.71	6,630.59	164
York	115	35,980.69	5,187.42	15,477.88	20,665.30	57
Total	5,658.46	2,514,880.87	934,183.30	1,085,574.80	2,019,758.10	80

Total miles maintained in 1923.	5,658.46
Average expended per mile per month for general maintenance, 1923 (on 12 month basis)	15.98
Average per cent of total expenditures approved by the Department of Public Works to 75 per cent of total collections available	80
Total fees collected in 1923 for Motor Vehicle licenses	3,353,175.32
75 per cent of Motor Vehicle License Fund available for State Highway maintenance	2,514,880.87
Amount of Motor Vehicle License Fund expended co-operatively by County and State	2,019,758.10
Amount expended for general maintenance State Highways	1,085,574.80

STATE OF NEBRASKA

Department of Public Works

LINCOLN, NEBRASKA

TOTAL MAINTENANCE COSTS BY DIVISIONS, YEAR 1923

Division Number	Miles Maintained	Total Maintenance Costs	Aver. Cost per Mile per Year	Aver. Cost per Mile per Month
1	1,150.07	$ 271,536.78	236.11	19.68
2	1,174.63	248,640.45	211.68	17.64
3	970.50	190,166.98	195.95	16.33
4	866.00	144,398.44	166.74	13.90
5	755.90	100,584.86	133.07	11.09
6	741.36	130,247.29	175.69	14.64
	5,658.46	$ 1,085,574.80	191.85	15.98

DISTRIBUTION OF TOTAL MAINTENANCE COSTS, YEAR 1923

	Costs	Percentage of Total Cost
Salary—Patrolman	$ 434,593.61	.40
Gas, Oil and Grease	183,180.20	.17
Repairs—Truck	84,353.66	.07
Repairs—Tractor	26,941.67	.02
Repairs—Other Equipment	27,287.79	.02
Purchase Tools and Equipment	18,442.00	.02
Material and Repairs—Culverts	7,293.29	.01
Material and Repairs—Bridges	19,630.87	.02
Material and Repairs—Guard Rail	2,356.93	.01
Extra Labor	132,175.99	.12
Extra Team Hire	63,901.76	.06
Miscellaneous Expense	49,066.51	.05
Material for Maintenance	10,378.98	.01
General and patrol Station Maintenance	25,971.54	.02
	$ 1,085,574.80	100

EXPENDITURES OTHER THAN MAINTENANCE, YEAR 1923

	Cost
County Roads—Seward County	$ 6,907.81
Large Equipment	111,903.63
New Culverts	25,825.60
New Bridges	178,511.26
New Guard Rail	4,891.81
Construction—Patrol Stations	77,826.94
License Plates	39,598.00
1922 Claims	13,513.38
Construction	475,208.98
	$ 934,188.80

TRAFFIC CENSUS REPORT—1924

TOTAL HOURLY TRAFFIC FOR WEEK OF AUGUST 17 TO 23 INCLUSIVE.

STATION	LOCATION	HOURS 6-7	7-8	8-9	9-10	10-11	11-12	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	Total Per Week	Aver. Per Day
Albion	2 1-2 Mi. S.E.	53	178	204	232	274	298	266	328	293	355	353	355	389	384	352	4294	613
3 Atkinson	2 Mi. West	28	45	61	73	93	55	57	83	88	78	79	82	64	136	84	1105	158
Beatrice	2 Mi. West	104	116	259	317	405	349	392	337	349	387	281	404	470	426	401	5001	714
Broken Bow	2 Mi. S.E.	17	50	87	168	257	231	173	161	162	143	161	210	222	249	220	2511	359
2 Chadron †	1 1-2 Mi. east	....	113	98	135	135	103	72	97	122	120	153	193	....	....	....	1341	224
4 Chadron ‡	1 1-2 Mi. S.W.	....	129	148	178	190	171	143	184	164	214	221	281	206	90	31	2350	392
8 Columbus *	S. of Loup Br.	174	323	460	584	661	616	596	693	843	737	768	777	790	1022	....	9044	1292
Falls City	1 Mi. North	224	591	318	326	379	383	405	508	643	691	637	564	604	555	558	7160	1023
Fremont	"L. H'gw'y" E.	250	328	580	653	731	803	637	693	881	899	1232	1143	912	1010	977	11852	1693
Fremont	"L. H'gw'y" W.	162	262	446	514	667	774	788	742	726	739	683	874	774	1139	907	10197	1457
Fremont	"Bee Line"	110	256	222	365	397	489	317	474	381	370	491	539	510	578	422	5919	846
Fremont	Cornhusker N.	178	360	529	617	795	876	745	688	839	898	1008	1088	890	1144	1083	11732	1676
Fremont	Cornhusker S.	96	174	285	374	493	432	323	538	605	498	440	602	516	667	531	6574	939
Grand Island	1 Mi. east	152	200	313	403	468	383	405	421	531	436	485	627	561	658	752	10455	1494
Grand Island	1 Mi. west	125	241	329	440	494	437	367	419	374	469	487	537	598	820	818	9438	1348
Grand Island	1Mi. north	255	336	519	622	724	641	716	630	695	583	719	795	722	755	729	6955	994
Grand Island	2 mi. south	213	528	538	606	717	639	725	632	682	930	959	960	726	826	774	6792	971
Greeley	2 1-2 Mi. S.E.	44	99	151	201	209	189	203	280	270	234	340	331	309	318	501	3682	526
Gretna	1 Mi. N.E.	182	315	451	625	684	635	616	661	691	734	664	830	648	628	594	8954	1279
3 Hastings	2 Mi. east	145	289	523	628	691	560	550	553	645	560	601	697	670	703	786	8601	1229
3 Hastings	2 Mi. west	315	444	458	616	523	592	538	532	720	531	620	678	759	821	809	8956	1279
3 Hastings	2 Mi. south	109	148	186	266	271	281	213	250	328	272	283	343	287	341	245	3823	546
Havelock, going east	1 Mi. N.E.	142	235	271	313	339	295	239	327	390	374	367	422	451	562	389	5126	731
Havelock, going west	1 Mi. N.E.	58	137	173	265	323	346	264	302	349	362	404	447	405	505	581	4943	703
Holdrege, * D.L.D.	4 Mi. west	50	134	155	230	294	293	212	244	259	228	209	296	327	194	....	3120	446
Holdrege, * High Line	4 Mi. west	19	66	81	100	143	165	128	155	143	93	90	149	192	140	....	1663	238
Kearney	2 Mi. west	161	381	457	627	705	641	569	676	616	652	754	891	694	835	669	9316	1333
Kearney	2 Mi north	45	123	174	202	245	202	170	200	267	199	223	330	325	333	295	3325	476

9	Long Pine	1-2 Mi. N.W.	25	61	106	123	131	121	99	153	157	171	167	130	138	175	139	1896	271
6	Madison *	S. City limits	128	152	186	180	175	205	162	230	369	302	254	131	88	12	....	2574	368
6	Madison *	W. City limits	130	214	254	304	417	284	298	247	353	276	370	403	160	74	....	3790	541
	McCook	4 1-2 Mi. east	99	230	233	354	369	402	214	324	405	415	487	406	498	411	362	5190	744
3	Milford	3 Mi. north	235	338	[illegible]	645	762	635	415	588	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1210
	Nebraska City	1 Mi. south	146	252	355	366	458	426	406	546	485	504	617	784	661	668	411	7093	1014
	Nebraska City	3 Mi. N.W.	103	218	257	352	372	312	341	374	425	394	449	454	422	449	344	5265	752
	Nebraska City	1 Mi. west	103	149	275	294	319	312	259	358	430	338	377	560	484	595	511	5364	766
	North Platte	2 Mi. west	151	206	320	459	532	455	396	412	440	450	531	540	609	484	463	6448	921
	North Platte	2 1-2 Mi. east	147	245	284	414	494	415	434	411	427	449	470	515	515	463	475	6160	880
	Oakland	1 Mi. north	61	130	208	303	325	342	334	377	398	425	448	515	411	508	105	4890	699
	Oakland	2 Mi. west	55	103	164	238	228	256	227	315	339	300	278	331	278	292	184	3582	512
	Ord	2 Mi. S.E.	36	74	81	83	94	86	95	98	83	88	115	132	166	125	119	1475	211
2	Oxford, D.L.D.	1-2 Mi. east	86	119	220	217	308	257	217	206	209	267	310	285	240	278	148	3367	562
2	Oxford, G.R.	1-2 Mi. east	53	54	99	115	166	133	112	96	131	136	130	123	183	114	62	1717	286
5	Plattsmouth	4 Mi. north	124	184	297	316	274	230	249	291	319	365	328	387	404	347	186	4300	614
3	Scottsbluff	1-2 Mi. east	192	261	340	454	400	433	388	456	482	433	489	606	588	677	397	6600	944
3	Scottsbluff	1-2 Mi. south	365	477	589	720	802	711	654	838	1035	1004	1128	1179	1049	1398	1155	13104	1872
3	Seward, S.Y.A.	3 Mi. east	87	105	158	237	274	271	255	215	302	320	289	332	302	321	311	3779	540
3	Seward, cut off	3 Mi. east	67	79	170	189	260	224	151	161	218	198	245	242	221	254	218	2897	414
1	Sidney	1 Mi. east	122	188	163	185	202	199	184	220	258	206	190	193	199	222	178	2896	582
7	Sioux City	1 Mi. south	220	374	536	614	647	593	559	635	661	684	794	858	921	1107	1071	10274	1468
7	Sioux City	1 Mi. west	267	401	446	566	595	563	467	610	719	857	1023	1128	1256	1510	1368	11776	1682
	St. Paul	3 Mi. south	37	64	107	190	194	156	113	130	147	166	145	208	209	216	185	2267	324
	Tekamah *	1 Mi. south	74	145	179	220	223	218	203	242	226	248	297	330	260	341	....	3204	458
	Wahoo	1 Mi. N.E.	106	259	368	469	409	469	392	476	571	588	540	665	673	757	748	7490	1070
	York *	2 Mi. south	58	169	178	263	225	233	229	254	328	322	363	286	342	237	....	3487	498

Average Per Station—— 821

Weather—During the Entire Week was Good.

Variation in Dates of Survey:

1 August 17 to 21.
2 August 18 to 23.
3 August 18 to 24.
4 August 19 to 24.
5 August 19 to 25.
6 August 21 to 27.
7 August 24 to 30.
8 August 25 to 31.
9 August 31 to Sept. 6.

Variation in Hours of Survey:

* 6 A. M. to 8 P. M.
‡ 7 A. M. to 9 P. M.
† 7 A. M. to 6 P. M.

Compiled under the direction of the Nebraska Good Roads Association and the Department of Public Works, with the Cooperation of the Chambers of Commerce, Commercial Clubs, Community Clubs, and County Boards.

TRAFFIC CENSUS REPORT—1924

TOTAL COUNTY, INTER-COUNTY AND INTER-STATE TRAFFIC FOR WEEK OF AUGUST 17-23, INCLUSIVE

STATION	LOCATION	LOCAL COUNTY				Inter-County			Inter-State			TOTALS	
		Automobiles	Trucks	Horse-Drawn	Average per Day	Automobiles	Trucks	Average per Day	Automobiles	Trucks	Average per Day	Total per week.	Average per Day
Albion	2 1-2 Mi. south	3161	268	208	520	508	10	74	120	4	18	4294	613
3 Atkinson	2 Mi. west	657	50	50	108	231	2	33	115	......	16	1105	158
Beatrice	2 Mi. west	2598	118	124	406	1852	31	269	277	1	40	5001	714
Broken Bow	2 Mi. S.E.	1708	88	82	268	536	21	80	70	5	11	2511	359
2 Chadron †	1 1-2 Mi. east	813	93	104	168	203	4	34	119	5	21	1341	224
4 Chadron ‡	1 1-2 Mi. S.W.	1531	190	185	318	265	17	47	158	2	27	2350	392
8 Columbus *	S. of "Loup Br."	3211	504	136	550	3589	159	535	1412	33	206	9044	1292
Falls City	1 Mi. north	4327	......	389	674	1246	......	178	1198	......	171	7160	1023
Fremont	"L. H'gw'y" E.	4828	559	168	794	4492	75	652	1720	10	247	11852	1693
Fremont	"L. H'gw'y" W.	5494	509	92	871	2702	105	401	1279	26	186	10197	1457
Fremont	"Bee Line"	3460	489	134	583	1419	97	217	317	3	46	5919	846
Fremont	Cornhusker N.	6615	765	279	1094	2933	158	447	949	33	140	11732	1676
Fremont	Cornhusker S.	2131	211	82	346	3535	194	533	424	7	62	6574	939
Grand Island	1 Mi. east	5281	451	187	846	2721	143	409	1654	18	239	10455	1494
Grand Island	1 Mi. west	4374	511	164	721	2699	176	411	1467	47	216	9438	1348
Grand Island	1 Mi. north	3851	489	235	654	2049	133	311	198	......	28	6955	994
Grand Island	2 Mi. south	3403	245	189	548	2180	113	328	655	7	95	6792	971
Greeley	2 1-2 Mi. S.E.	2761	100	345	458	389	34	46	50	3	7	3682	526
Gretna	1 Mi. N.E.	1762	261	76	300	4621	341	707	1871	21	270	8954	1279
3 Hastings	2 Mi. east	3095	301	78	496	3509	162	524	1437	19	208	8601	1229
3 Hastings	2 Mi. west	4314	290	56	666	2670	87	394	1529	10	220	8956	1279
3 Hastings	2 Mi. south	2056	322	87	352	924	71	142	350	9	51	3823	546
Havelock, going east	1 Mi. N.E.	2615	185	74	411	1244	89	190	906	13	131	5126	731
Havelock, going west	1 Mi. N.E.	2258	220	50	361	1426	103	218	875	11	127	4943	703
Holdrege * D.L.D.	4 Mi. west	514	49	3	81	1478	48	218	1006	22	147	3120	446
Holdrege * High line	4 Mi. west	973	126	42	163	462	9	67	51	......	7	1663	238
Kearney	2 Mi. west	4301	412	59	682	2732	75	401	1709	28	248	9316	1333
Kearney	2 Mi. north	2433	121	110	381	557	20	82	83	1	12	3325	476

9	Long Pine	1-2 Mi. N.W.	1118	98	223	206	321	6	47	127	3	19	1896	271
6	Madison *	S. city limits	1459	129	57	235	548	20	81	359	2	51	2574	368
6	Madison *	W. city limits	2027	243	156	347	824	26	121	512	2	73	3790	541
	McCook	4 1-2 Mi. east	1842	130	39	287	1636	52	241	1466	25	213	5190	744
3	Milford	3 Mi. north	1845	216	8	286	4337	168	644	1869	28	271	8471	1210
	Nebraska City	1 Mi. south	2769	280	100	449	2226	140	338	1539	39	225	7093	1014
	Nebraska City	3 Mi. N.W.	1637	180	95	273	1902	107	287	1314	30	192	5265	752
	Nebraska City	1 Mi. west	3654	422	97	558	721	75	114	391	12	58	5364	766
	North Platte	2 Mi. west	2554	151	43	393	1962	43	286	1671	22	242	6448	921
	North Platte	2 1-2 Mi. east	1797	74	82	279	2131	34	309	2009	33	292	6160	880
	Oakland	1 Mi. north	2715	158	236	444	1165	40	172	561	15	82	4890	699
	Oakland	2 Mi. west	1029	182	72	183	1711	169	269	408	10	60	3582	512
	Ord	2 Mi. S.E.	873	53	76	143	415	15	61	40	3	6	1475	211
2	Oxford, D.L.D.	1-2 Mi. east	852	67	111	172	1214	49	211	1004	13	170	3367	562
2	Oxford, G.R.	1-2 Mi. east	587	37	49	112	701	29	122	281	6	48	1717	286
5	Plattsmouth	4 Mi. north	740	116	2	123	2276	72	335	1083	11	156	4300	614
3	Scottsbluff	1-2 Mi. east	4500	327	345	739	946	18	138	463	1	66	6600	944
3	Scottsbluff	1-2 Mi. south	9129	1782	162	1582	1110	32	162	803	86	127	13104	1872
3	Seward, S.Y.A.	3 Mi. east	948	63	31	145	2257	71	333	392	17	58	3779	540
3	Seward, Cut off	3 Mi. east	777	132	21	133	1527	136	238	199	5	28	2897	414
1	Sidney	1 Mi. east	1091	208	52	270	424	21	89	1032	68	220	2896	582
7	Siuox City	1 Mi. south	4513	431	157	728	1982	178	308	2824	189	427	10274	1468
7	Siuox City	1 Mi. west	3904	420	118	635	1723	200	275	5152	253	772	11776	1682
	St. Paul	3 Mi. south	1052	101	41	171	928	41	138	103	......	15	2267	324
	Tekamah *	1 Mi. south	1589	139	170	271	976	78	151	251	1	36	3204	458
	Wahoo	1 Mi. N.E.	4131	487	214	690	2053	112	309	465	4	67	7490	1070
	York *	2 Mi. south	1699	182	54	276	1160	32	170	436	4	63	3487	498

The Weather During the Week was Good.

Average Per Station—— 821

Variation in Dates of Survey:

1 August 17 to 21. 5 August 19 to 25.
2 August 18 to 23. 6 August 21 to 27.
3 August 18 to 24. 7 August 24 to 30.
4 August 19 to 24. 8 August 25 to 31.
9 August 31 to Sept. 6.

Variation in Hours of Survey:

* 6 A. M. to 8 P. M.
† 7 A. M. to 6 P. M.
‡ 7 A. M. to 9 P. M.

Average Daily Local County Traffic	435	—	53 per cent
Average Daily Inter-County Traffic	253	—	31 per cent
Average Daily Inter-State Traffic	132	—	16 per cent
Total Average Daily Traffic	821	—	100 per cent

Compiled under the direction of the Nebraska Good Roads Association and the Department of Public Works, with the cooperation of Chambers of Commerce, Commercial Clubs, Community Clubs and County Boards.

DIVISION OF TESTS.

During the first part of this biennium Prof. Clark E. Mickey was active as Testing and Consulting Engineer but was succeeded later in 1923 by Prof. C. M. Duff as Testing Engineer in charge of the analysis and tests of all materials used in the construction of State and Federal Aid roads and Bridges. This includes Portland cement, sand, sand-gravel, gravel, crushed rock, concrete, steel reinforcing bars, concrete and corrugated pipe, oils, asphalts, tars, and paving materials.

In addition to analyzing and testing recommendations are made as to the advisability of using such materials. Reports and recommendations are made to the Chief of the Bureau of Roads and Bridges for his consideration and action. Analysis of all tests are mailed at once to the Federal District Engineers' office. No materials are used that do not meet the requirements of the Standard Specifications of the State and Federal Government.

This testing is done under an agreement between the Department of Public Works and the State University by the terms of which the University furnishes the equipment and personnel for making tests. Payments are made for these tests by the Department direct to the University, such payments being based upon an agreed price for each test.

The principle object in view in the testing and analyzing of materials used, or proposed to be used in the construction of State and Federal Aid roads and bridges is for the purpose of determining their suitability for this use. The materials are tested to determine whether or not they meet with the requirements of the specifications. Due to lack of funds no research is carried on except such as can be gained from a study of the records of tests and work under construction.

The methods used for conducting all of the tests and analysis of materials are as provided by the American Society for Testing Materials.

On account of the lack of a sufficient quantity of good commercial rock to be used as concrete aggregate, it has been necessary to design a concrete made of sand-gravel aggregate. Nebraska has a large number of deposits of this material, which when of the right analysis, makes an excellent aggregate for concrete. A large number of tests have been made on the sand-gravel aggregate. This determines those particular characteristics which it must have in order to make the best concrete. These tests are being continued with a view toward using a leaner mix with a better grading of aggregate.

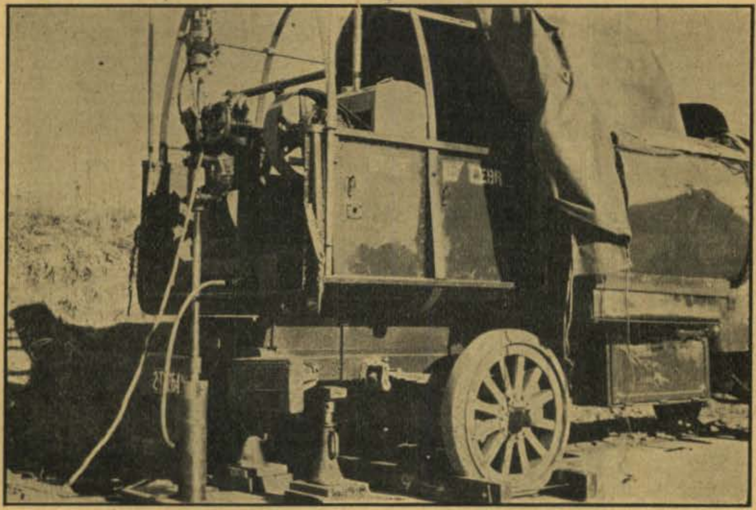
In parallel with the sand-gravel tests, two concrete cylinders six inches in diameter and twelve inches long are moulded in cyl-o-con paper moulds for each day's run of concrete pavement, concrete pavement base, concrete curb and gutter mixtures, and concrete bridges. Records are kept of the compressive strength of these concrete cylinders at the ages of seven and the twenty-eight days. Together with these tests are recorded the complete physical test for the Portland cement and sand gravel aggregate used in the mixture on the job from which the concrete cylinders are taken.

All of the laboratory testing and analyzing is made in the engineering laboratories at the University of Nebraska, except when certain paving projects have a large number of materials to be tested. In such cases a temparary laboratory is set up for that purpose near the work. Very often tests are made at the manufacturers plant on gravel and cement materials being shipped to numerous projects. This method is highly desirable and very economical when the shipments are large. On many projects the inspector makes his own tests on gravel supplying the Federal Bureau with copies of the analysis direct. This is also an economical method with great saving in time.

Owing to the difficulties and delays in testing paint and creosote for generally small jobs and the difficulty in determining definitely that the proper materials are being used even if a supposedly representative sample has been tested, this Department is seriously considering the plan of furnishing the contractors direct with paint and creosote for all state work. Under this plan the Department would purchase the estimated years supply in advance, have delivery made in advance, have tests made on these deliveries and furnish these supplies to all contractors practically at cost.

NUMBER AND KINDS OF TESTS MADE ON STATE—FEDERAL AID PROJECTS

Kind of Material	No. of tests	REMARKS
Gravel	933	In addition to these tests made in the laboratory several hundred additional field tests were made by the engineers and inspectors on the job.
Crushed Rock	1	
Concrete Cyl.	938	
Culvert metal	23	
Concrete pipe	1	These tests are made at the manufacturers plant.
Concrete cores	0	Core drilling machine just purchased and operation started Dec. 1, 1924.
Cement	725	Most of the cement is sampled at the plant and sealed in bins by a state representative.
Reinf. Steel	38	
Paint	13	
Drain Tile	6	
Clay Binder	42	Only questionable material is tested at the laboratory.
Asphalt	33	
Paving brick	2	Brick are tested at the manufacturers plant by a state representative.



View of Concrete Core Drilling Machine in Operation on a Concrete Pavement 7 inches thick. Fifteen Minutes Time is Required to Cut One Core, but an Additional 30 minutes Time is Lost in Moving and Setting Up.

DIVISION OF DESIGN, MAPS AND PLANS.

Under this Division the Chief of Bureau holds the Office Engineer responsible for the preparation of all standard and special designs and plans for state and federal aid construction as well as standard plans for county bridge construction, standard county bridge specifications and State Federal Aid highway and bridge specifications, supplies and equipment for office and field engineers and all records of field surveys.

Steps to a Federal Aid Highway.

The first step in the establishment of a Federal and State Aid road is the passage of a resolution by the County Commissioners giving a description of the road and requesting Federal Aid for its construction. This resolution is presented to the State Department, and after an investigation of the conditions, if found favorable, it is approved.

Upon approval by the State Department, a project statement is compiled and submitted to the United States Bureau of Public Roads. This statement contains a map showing the alignment of the proposed road, an estimate of the approximate cost, the source of funds available and all other data necessary to inform the Federal Bureau of the most important factors. Preliminary Survey is then made of the project by the State. The surveying party usually consists of three, project engineer, rodman and chainman. This survey establishes the status of the road in respect to alignment, drainage, and all essential defects or needs are determined. The notes taken by the engineer in the field are then reduced in the office by the draftsman, and platted in plan, profile and cross sections.

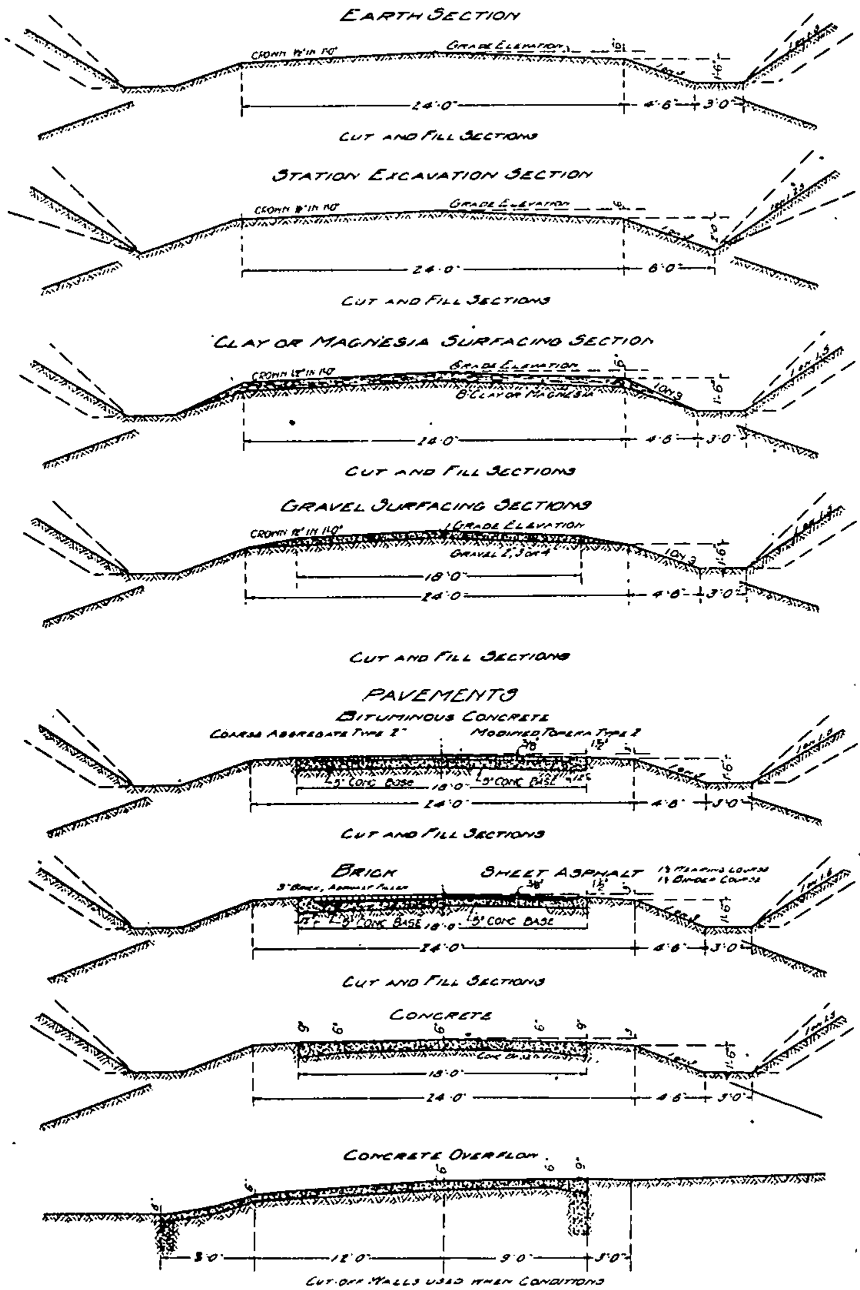
The plan of the road indicates the location of trees, fences, driveways, houses, telephone poles, and entire alignment. It is in fact an exact chart of the road showing the position of every landmark and structure which is contingent. The profile of the road is plotted to show the elevation of the center line of the road throughout the entire length. Cross sections of the road are plotted wherever they have been taken by the engineer in the field. These sections are taken every hundred feet and at intervals between these hundred foot stations whenever the profile of the road changes abruptly enough to warrant it. Two draftsmen will complete about three miles of plotting in one day.

A tentative grade is then laid on the profile, by the draftsmen in the office who studies the profile and establishes a grade which approximately balances the cuts and fills, making the road conform as nearly as possible to the desired standard. These plans are then sent to the District Engineer, who in company with an Engineer from the Federal Office, makes a plan-in-hand inspection of the road. This inspection covering the whole project, includes recommendations for all surfacing, grades and drainage structures. The plan-in-hand inspection notes are then sent into the office and the former plan is revised. Using the plan-in-hand inspection notes as a working basis, a balanced grade is laid utilizing the dirt that has been obtained from hills and ditches in raising the low places and bringing the road to the desired grade and cross section. Earth work quantities are computed from the cross sections and an estimate of the required yardage is made. Drainage structures are designed according to the plan-in-hand inspection and estimates are made for the new project.

These plans and estimates are then submitted to the Federal Government and after their approval, the State is at liberty to advertise and award contracts for construction. After completion of construction a final survey is made of the road as built. This survey is made over the same stations as preliminary, the notes being plotted over the preliminary cross sections and the actual yardage of excavation and embankment determined. The completed project is inspected by Federal engineers and after their approval the final plans and estimates are submitted to the Federal Bureau for approval and payment.

The following charts are self-explanatory showing cross sections, progress of construction and expenditures together with financial status of counties.

NEBRASKA
STANDARD CROSS SECTIONS



PROGRESS OF CONSTRUCTION

MILES CONSTRUCTED

TYPES	1918	1919	1920	1921	1922	1923	1924	Totals
Earth Road	169.807	662.998	374.471	419.230	375.742	8.110	371.768	2382.126
Sand Clay Surfacing	7.975	30.640	43.540	40.975	42.376	....	74.213	239.719
Brick Pavement	5.440	1.145	....	0.910	....	8.665	2.780	18.940
Bituminous Concrete Pavement	....	....	....	....	5.986	1.600	0.572	8.158
Sheet Asphalt Pavement	....	....	....	....	....	....	2.578	2.578
Plain Concrete Pavement	....	6.762	3.150	1.317	....	18.006	12.548	41.783
Gravel Surfacing, 2 inches	....	7.480	6.172	....	....	....	148.205	161.857
Gravel Surfacing, 3 inches	....	....	....	....	12.510	....	199.909	212.419
Gravel Surfacing, 4 inches	....	34.890	....	23.126	51.566	9.670	118.585	237.837
Gravel Surfacing, 6 inches	....	....	....	....	....	....	3.290	3.290

STATUS OF STATE-FEDERAL AID PROJECTS

Completed and Accepted by U. S. B. P. R.

December 15, 1924

No.	NAME	COUNTY	Length Miles	COST	
				State	Federal
1	Lincoln-Emerald	Lancaster	5.44	....	54,400.00
2-A	Falls City-Neb. City	Richardson	24.093	58,194.75	43.732.63
2-B	Falls City-Neb. City	Nemaha	21.158	43,979.49	42.865.32
2-C	Falls City-Neb. City	Otoe	9.782	11,275.34	10,953.25
3	Hall County Project	Hall	31.84	65,179.08	43.904.96
4	Hartington-Wayne	Cedar	26.543	48.690.95	48,162.78
		Wayne	9.419	17,232.78	17,068.52
		Dixon		1,532.63	1,532.62
5	Norfolk-Columbus	Madison	21.44	42,994.54	42,994.54
		Platte	25.74	32.409.55	32,409.55
7-A	Superior-Minden	Nuckolls	21.50	27.719.51	23,398.91
7-B	Superior-Minden	Clay	32.267	43,485.67	21,198.86
7-C	Superior-Minden	Adams	21.60	19.828.73	16,898.63
7-D	Superior-Minden	Kearney	16.23	15.875.89	13.497.55
10	N. Platte-Sutherland	Lincoln	19.083	54,715.50	54,089.09
11	Smithfield-Elwood	Gosper	6.96	19,696.68	19,525.05
12	Stapleton-Ringgold	Logan	11.54	24,771.84	18,731.63
		McPherson	5.92	7,481.18	6,812.38
14-A	O'Neill-Butte	Holt	19.947	62,612.36	62.612.36
16-A	Kimball-Harrisburg	Kimball	12.61	21,424.33	19,091.05
16-B	Kimball-Harrisburg	Banner	13.90	47,175.79	34,253.00
17	Havelock-Waverly	Lancaster	9.99	18,919.89	50,114.55
			....	....	....
18	Lincoln-Beatrice	Lancaster	17.967	21.473.99	20.067.77
		Gage	18.937	35,060.80	31,316.83
19	Emerald-West	Lancaster	3.98	7,836.10	7,836.10
20	Lincoln Highway	Douglas	16.342	30,082.02	105,582.43
			....	....	....
20-B	Lincoln Highway	Douglas	4.374	....	70.592.25
20-C	Lincoln Highway	Douglas	2.49	....	45.031.52
21	Alliance-Antioch	Box Butte	7.64	17,077.46	13.833.38
			....	....	....
		Sheridan	6.78	37,271.34	30,975.46
22	Litchfield-Broken Bow	Custer	31.50	97,745.32	97,745.31
23	Blair-Oakland	Washington	11.24	15,180.96	14.451.28
		Burt	22.10	48.158.85	45,374.69
25	Beatrice-Fairbury	Gage	10.66	15,048.86	14.714.59
		Jefferson	19.03	34,304.20	30,075.63
26	Hamlet-Imperial	Chase	9.76	11,971.32	11,434.49
		Hayes	6.03	10.077.61	10.077.60
27	Fremont-Ceresco	Dodge	0.44	10,242.19	6.746.69
		Saunders	28.65	55,022.47	55,022.46
28	Neb. City-Plattsmouth	Otoe	9.77	21,332.60	11.529.06
		Cass	15.90	38.262.75	24,462.39
29	Osceola-David City	Polk	8.738	11,633.32	10,253.72
		Butler	28.836	58,229.63	49.350.36
30	Beaver City-Arapahoe	Furnas	19.40	49,608.64	43,996.60
		Furnas	Bridge	6,418.53	6,418.53
31	Allen-Ponca	Dixon	16.86	48,508.70	33,863.98
32	Red Cloud-Ayr	Adams	6.26	15,601.06	15.601.05
		Webster	21.19	51.495.48	51,495.49
34-A	Burwell-Deverre	Garfield	5.912	26,603.36	34.285.86
35	D. L. D.	Douglas	1.91	6.849.07	8,694.95
37	Rockville-Loup City	Sherman	12.09	30,667.79	23.496.80
38	Curtis-Stockville	Frontier	12.09	15,731.72	14.539.22
40	Hebron-Belvidere	Thayer	7.29	19,040.98	19,040.98
41	Max-Doane	Dundy	12.72	30,894.82	29.220.27
42-A	Sargent-Taylor	Custer	4.803	43,614.12	43,614.41
		Loup	1.105	9,935.96	9,935.97
43	Tecumseh-Crab Orchard	Johnson	13.77	68,229.78	45,697.16

STATUS OF STATE-FEDERAL AID PROJECTS

Completed and Accepted by U. S. B. P. R.

December 15, 1924

Other Funds	Earth	Paving	Gravel 2"	Gravel 3"	Gravel 4"	Sand Clay	Dates Awarded
143,145.36	5.44	Br. 5.44					4-16-18
......	24,093		......	......	......	......	5-19-19
......	21.158		......	......	......	......	9-10-18
......	9.782		......	......	......	......	7-16-18
......	31.84		......	......	12.36	7.975	7-17-18
......	26.543		......	......	......	......	
......	9.419		......	......	......	......	4-16-19
......	......		......	......	......	......	
......	21.44		......	......	......	......	4-15-19
......	25.74		......	......	......	......	
......	21.50		......	......	......	......	7-18-18
2,538.32	32.267		......	......	......	......	7-18-18
......	21.60		......	......	......	......	7-18-18
......	16.23		......	......	......	......	7-18-18
......	19.083		2.992	......	16.091	1.807	4-19-19
......	6.96		......	......	......	......	9-24-19
......	11.54		......	......	......	4.931	5-21-19
......	5.92		......	......	......	2.456	
......	19.947		......	......	......	1.215	9- 7-20
......	12.61		......	......	......	......	9-25-19
......	13.90		......	......	......	......	9-25-19
38,944.13	9.99	Br. 0.314	......	......	9.67	......	9-28-18 G.
......	......		......	......	......	......	7- 5-23 Gr.
......	17.967		......	......	......	......	6- 2-19
......	18.937		......	......	......	......	
......	3.98		......	......	......	......	4-14-19
131,016.87	16.342	Bit. 5.986	......	......	......	......	7- 5-19 G.
......	......		......	......	......	......	6-16-22 P.
95,759.64	......	Br. 4.374	......	......	......	......	5-25-23
59,062.30	......	Br. 2.49	......	......	......	......	4- 5-24
......	7.64		3.193	......	......	1.539	5-15-19 G
......	......		......	......	......	......	4-18-24 Gr.
......	6.78		......	......	......	6.728	5-15-19
......	31.50		......	......	......	1.573	2-19-20
......	11.24		......	......	......	......	6- 3-19
......	22.10		......	......	......	......	
......	10.66		......	......	......	......	5-13-19
......	19.03		......	......	......	......	
......	9.76		......	......	......	......	7- 2-19
......	6.03		......	......	......	......	
......	0.44		......	......	......	......	5-12-19
......	28.65		4.488	......	6.439	......	
......	9.77		......	......	......	......	5-14-19
......	15.90		......	......	......	......	
......	8.738		......	......	......	0.966	5-12-19
......	28.836	Con. 0.822	......	......	......	......	
......	19.40		......	......	......	......	8-12-19
......	......		......	......	......	......	4- 3-24
......	16.86		......	......	......	......	6- 5-19
......	6.26		......	......	......	......	8-14-19
......	21.19		......	......	......	......	
10,850.08	5.912		......	......	......	3.218	4- 7-20
7,888.43	1.91		......	......	......	......	3- 6-20
......	12.09		......	......	......	7.551	9-26-19
......	12.09		......	......	......	......	8-25-19
......	7.29		......	......	......	......	2-18-20
......	12.72		......	......	......	2.86	7- 1-19
......	4.803		......	......	......	......	9- 7-20
......	1.105		......	......	......	0.506	
......	13.77		......	......	......	......	4- 6-20

STATUS OF STATE-FEDERAL AID PROJECTS—Continued

No.	NAME	COUNTY	Length Miles	COST	
				State	Federal
46	Bartley-McCook	Red Willow	17.13	51,734.92	50,707.92
49-D	Oakland-S. Sioux City	Burt	4.23	12,896.06	12,896.05
49-E	Oakland-S. Sioux City	Dakota	1.91	6,325.62	6,325.62
50-A	Central City-Belgrade	Merrick	7.59	21,670.60	21,670.60
50-B	Central City-Belgrade	Nance	12.03	31,813.92	29,638.57
52-A	Holdrege-Platte Riv.	Phelps	9.98	39,440.18	31,512.98
52-B	Holdrege-Platte Riv.	Phelps	Bridge	25.48	1,877.54
		Kearney		25.47	1,877.54
53	Genoa-Albion	Nance	8.16	12,842.22	12,842.22
		Boone	12.54	22,145.24	21,845.65
54	Chappell-Big Springs	Deuel	10.95	24,505.57	21,186.66
55-A	Dorchester-Fairmont	Saline	1.10	6,547.00	3,605.52
56	Seward-Aurora	Seward	13.50	19,167.78	19,167.77
		York	25.57	37,265.55	37,265.54
		Hamilton	9.35	14,855.65	14,855.65
58-A	Schuyler-Platte R.	Colfax	1.41	53,699.23	28,332.00
60-A	Cushing-Grand Island	Howard	7.55	40,904.44	31,463.46
64-A	Pierce-South	Pierce	9.62	34,788.60	33,710.71
67-A	Oxford-Bartley	Furnas	4.61	14,847.24	12,862.39
67-A	Cambridge-Holbrook	Furnas	4.538	3,828.54	3,828.53
68-A	McCook-Culbertson	Hitchcock	4.43	27,836.98	27,836.98
70-B	Stanton-Wayne	Wayne	11.222	29,407.35	27,897.28
71	Franklin-Orleans	Franklin	10.733	46,859.10	46,859.10
		Harlan	13.431	43,189.60	43,188.59
71-B	Republican City Bridge	Harlan	Bridge	3,098.59	3,098.59
73	Kearney-Pleasanton	Buffalo	20.35	38,971.67	37,209.32
75	Geneva-Belvidere	Fillmore	12.42	28,603.64	28,603.64
		Thayer	5.23	11,365.52	11,365.51
77	Hastings-Ayr	Adams	11.22	26,060.54	26,060.53
78	Center Street	Douglas	12.82	50,941.42	50,941.41
79-A	Bayard-Broadwater	Morrill	12.51	43,171.09	43,171.09
			....	....	....
81	Fremont-Ames	Dodge	5.94	17,025.05	95,364.12
82-A	Broadwater-Oshkosh	Garden	8.60	50,285.07	50,052.25
83-A	Albion-Neligh	Antelope	5.655	23,669.91	23,669.92
83-B	Albion-Neligh	Boone	17.01	43,751.29*	43,751.29*
84-A	Greeley Cent.Wolbach	Greeley	6.61	19,963.51	19,963.50
84-B	Greeley Cent.-Wolbach	Greeley	4.17	17,600.51	16,217.49
85-A	Burwell-Scotia	Valley	13.36	35,236.84	35,236.84
86	Shelby-Platte Riv.	Polk	16.478	49,702.52*	49,702.52*
		Butler		2,216.34*	2,216.33*
88-A	West Point-Crowell	Cuming	3.71	19,502.12	19,502.12
88-C	West Point-Crowell	Cuming	2.44	11,790.74	11,790.74
91-A	Blair-Calhoun	Washington	8.05	32,826.97	29,731.96
91-B	Blair-Calhoun	Washington	1.714	7,375.93	7,375.93
95-A	Chase-Imperial	Chase	5.95	14,007.13	14,808.50
			....	....	....
97-A	Table Rock-Lewiston	Pawnee	15.83	54,638.89	47,247.75
98-A	Crete-Dorchester	Lancaster	11.96	27,054.26	24,892.91
98-B	Crete-Dorchester	Lancaster	11.91	707.26	707.25
		Saline		28,282.15	31,908.44
100	Q-Street	Douglas	10.32	38,939.82	38,573.72
102-A	Harrison-Whitney	Sioux	8.675	66,633.03*	66,633.03*
102-B	Harrison-Whitney	Sioux	3.05	6,968.46	5,690.68
103	Scottsbluff-Gering	Scottsbluff	Bridge	97,411.68	84,673.96
104	Gr. Island-North East	Hall	3.01	5,499.86	5,405.70
106	State Intsitute Pav.	Gage	1.145	6,689.52	23,000.00
107-A	Greenwood-Chalco	Lancaster	8.98	119.90	119.90
		Cass		16,563.34	15,854.86
107-B	Greenwood-Chalco	Saunders	4.72	36,115.97	36,115.97
107-C	Greenwood-Chalco	Sarpy	3.73	26,410.40	26,410.40
111-A	Ringgold-Tryon	McPherson	6.21	20,265.79	19,053.05
112	Military Highway	Douglas	16.684	38,652.46	205,810.24
			....	....	....

STATUS OF STATE-FEDERAL AID PROJECTS—Continued

Other Funds	Earth	Paving	Gravel 2"	Gravel 3"	Gravel 4"	Sand Clay	Dates Awarded
....	17.13		....	....	....	....	8-13-19
....	4.23		....	....	....	....	6-13-22
....	1.91		....	....	1.867	1.086	6-12-22
....	7.59		....	....	....	....	2-18-20
....	12.03		....	....	....	0.578	2-18-20
....	9.98		2.979	....	....	1.989	2-20-20
1,903.01	....		....	....	....	....	8-17-23
1,903.02	....		....	....	....	....	
....	8.16		....	....	....	....	6- 4-19
....	12.54		....	....	....	....	
....	10.95		....	....	....	....	4- 7-20
....	1.10		....	....	....	....	5- 2-21
....	13.50		....	....	....	....	
....	25.57		....	....	....	....	6- 5-19
....	9.35		....	....	....	....	
....	1.41	Con. 1.41	....	....	....	....	2-17-20
....	7.55		....	....	....	6.231	2-19-20
....	9.62		....	....	....	....	4- 7-20
....	4.61		....	....	....	....	9-23-19
....	....		....	....	4.509	....	4- 3-24
....	4.43		....	....	....	....	4- 7-20
1,356.76	11.222		....	....	....	....	6-14-22
....	10.733		....	....	....	....	2-19-20
....	13.431		....	....	....	....	
....	....		....	....	....	....	4-15-24
....	20.35		....	....	....	1.451	6-30-19
....	12.42		....	....	....	....	3-19-20
....	5.23		....	....	....	....	
....	11.22		....	....	....	0.351	8-14-19
6,448.00	12.82		....	....	....	0.508	2-17-20
....	12.51		....	12.51	....	2.488	4- 7-20 G.
....	....		....	....	....	....	6-14-22 Gr.
78,998.00	5.94	Con. 5.94	....	....	....	....	8- 4-19
....	8.60		....	....	....	5.66	4- 7-20
....	5.655		....	....	....	4.973	5- 2-21
....	17.01		....	....	....	0.939	5- 2-21
....	6.61		....	....	....	1.288	4- 7-20
....	4.17		....	....	....	....	5- 2-21
....	13.36		....	....	....	....	4- 7-20
....	16.478		....	....	....	1.326	5- 2-21
....	....		....	....	....	....	
....	3.71		....	....	....	3.013	5- 2-21
....	2.44		....	....	....	2.30	6-14-22
....	8.05		....	....	....	....	5- 2-21
....	1.714		....	....	....	....	6-13-22
1,561.91	5.95		1.004	1.08	....	3.352	5- 2-21 G.
....	....		....	....	....	....	4- 4-24 Gr.
....	15.83		....	....	....	....	4- 5-20
....	11.96		....	....	....	....	5- 2-21
....	11.91		....	....	....	....	4- 5-20 G.
4,116.91	....	Bit. 0.124	....	....	1.119	....	8-24-23 P.
....	10.32		....	....	....	....	2-17-20
....	8.675		....	....	....	0.629	5- 2-21
....	3.05		....	....	....	....	6-13-22
....	....		....	....	....	....	9-16-19
....	3.01		....	....	....	....	2-18-20
26,000.55	....	Br. 1.145	....	....	....	....	10-13-19
....	8.98		....	....	....	....	5- 4-21
....			....	....	....	....	
....	4.72	Con. 1.171	....	....	1.354	....	5- 4-21
....	3.73	Con. 0.146	....	....	....	....	5- 4-21
....	6.21		....	....	....	5.888	5- 5-21
167,157.77	16.684	Con. 11.372	....	....	....	....	5- 3-21 G.
....	....		....	....	....	....	5-20-23 P.

STATUS OF STATE-FEDERAL AID PROJECTS—Continued

No.	NAME	COUNTY	Length Miles	COST	
				State	Federal
115-A	Barnum Creek	Platte	1.74	51,927.60	35,860.00
118-A	Hebron-Fairbury	Thayer	13.30	38,329.36	33,928.30
121-A	Grant-Elsie	Perkins	11.111	30,432.09	18,419.61
123	Falls City-South	Richardson	1.49	26,827.15	31,905.43
125	Long Pine-Johnston	Brown	7.69	49,024.13*	49,024.12*
126-A	Culbertson-Hayes C'tr	Hayes	11.482	19,474.81	17,086.50
128-A	Seward-Milford	Seward	6.68	40,726.17	34,028.37
130-A	Sidney-Dalton	Cheyenne	12.04	25,311.23	22,804.84
130-B	Sidney-Dalton	Cheyenne	16.33	19,838.71*	19,838.71*
132-A	Atkinson-South	Holt	6.002	32,323.58	....
133-A	Lincoln-Neb. City	Otoe	16.59	29,217.51	47,036.19
			....	....	....
133-B	Lincoln-Neb. City	Otoe	10.98	30,400.83	30,400.83
133-C	Lincoln-Neb. City	Cass	3.93	17,843.05	12,205.99
133-D	Lincoln-Neb. City	Lancaster	0.753	3,149.85	15,060.00
134-A	D. L. D.	Seward	9.74	32,716.36	32,716.36
135-A	Central City-Chapman	Merrick	9.89	30,897.80	29,875.08
136-A	Pierce-Wausa	Pierce	2.13	29,118.41	16,537.95
137-A	Springview-Bassett	Rock	1.003	11,161.10	....
137-B	Springview-Bassett	Keya Paha	3.04	40,039.28	....
139-B	Norfolk-Ewing	Madison	9.58	26,342.86	26,342.86
139-C	Norfolk-Ewing	Antelope	15.36	41,877.72	41,877.72
139-F	Norfolk-Ewing	Antelope	6.282	14,389.22	14,389.21
143-A	Fairmont-Osceola	York	11.75	16,649.19	16,649.16
143-B	Fairmont-Osceola	York	11.48	29,788.06	29,788.05
146-B	Ogallala-Belmar	Keith	7.597	17,568.37	17,568.36
151	Havelock-Paving	Lancaster	0.596	15.60	10,977.34
153-A	Eagle-Murdock	Cass	6.50	14,601.44	14,601.43
153-B	Eagle-Murdock	Cass	0.60	2,124.74	2,124.74
156-A	Central City-Eldorado	Hamilton	11.04	29,544.35	29,544.34
156-B	Central City-Eldorado	Hamilton	12.08	17,768.08	16,445.87
164-A	Hebron-Nelson	Thayer	4.521	10,985.24	10,387.87
164-B	Hebron-Nelson	Nuckolls	9.955	15,492.13	15,482.55
168-A	Stuart-Bassett	Holt	5.55	24,361.21*	24,361.21*
168-B	Stuart-Bassett	Rock	16.04	96,424.09*	96,424.08*
169-A	Gr. Island-Hastings	Adams	6.542	19,315.32	19,315.32
			....	....	....
170-A	North Platte-East	Lincoln	19.096	47,306.43	47,306.34
171	Fairmont-Sutton	Fillmore	12.508	19,802.22*	19,802.21*
172	West Point-Wisner	Cuming	13.915	39,513.23*	40,648.08*
175-A	College View-Bennett	Lancaster	11.897	52,248.92	52,248.92
175-B	College View-Bennett	Lancaster	10.90 *	....	40,533.21*
176-A	Curtis-Maywood	Frontier	5.75	29,761.35	31,142.57
177	Kearney-Shelton	Buffalo	16.90	35,788.90	35,788.89
179	Papillion Bridge	Sarpy	Bridge	8,020.53	8,020.52
180	Columbus-East	Platte	6.014	18,474.45	18,474.44
181	Ravenna-Sweetwater	Buffalo	5.973	12,459.47	12,428.04
182	Harvard-Eldorado	Clay	8.98	29,764.39*	35,519.39*
183	Gretna-Elkhorn	Douglas	12.99 *	38,712.10*	34,107.44*
184	Elwood-Stockville	Gosper	11.51	23,166.08	23,166.07
185	Geneva-Milligan	Fillmore	13.74	13,851.93	13,851.92
		Saline		238.03	238.02
188-A	Kimball-Bushnell	Custer	10.22 *	33,036.06*	33,036.05*
196	Minden-Newark	Kearney	6.69	21,987.82	20,625.09
199	Fremont-East	Dodge	2.213	....	39,967.95
		Douglas		....	
201-A	S. Y. A. Bridge	Lancaster	Bridge	....	4,167.02
209-A	Fremont-East	Dodge	4.421	....	63,316.60
220	Orleans-Bridge	Harlan	Bridge	2,854.32	3,666.82
230-A	West Point-Oakland	Cuming	3.089	13,001.11	13,001.10
		TOTALS	1,723.811	4,675,144.09	4,988,873.90

* Not submitted to U. S. B. P. R.

Bit. Bituminous Pavement	Paving Column	G. Grading	Date Column.
Br. Brick Pavement		Gr. Gravel	
Con. Concrete Pavement		P. Paving	
		B. Bridge	

STATUS OF STATE-FEDERAL AID PROJECTS—Continued

Other Funds	Earth	Paving	Gravel 2"	Gravel 3"	Gravel 4"	Sand Clay	Dates Awarded
10,654.50	1.74	Con. 1.74	....	....	....	....	4- 7-20
....	13.30		....	....	....	....	5- 6-21
....	11.111		....	....	....	6.48	5- 5-21
6,025.25	1.49		....	....	....	....	8- 7-20
....	7.69		....	....	....	0.881	4-10-20
....	11.482		....	....	....	....	5- 5-21
15,000.00	6.68		....	....	....	....	4- 5-20
....	12.04		....	....	....	....	5- 5 21
....	16.33		....	....	....	1.269	6-15-22
11,594.94	6.002		....	....	....	2.907	5- 4-21
17,818.68	16.59		....	....	8.129	....	6-14-22 G.
....	....		....	....	....	....	4-15-24 Gr.
....	10.98		....	....	....	....	5- 3-21
....	3.93		....	....	....	....	5- 3-21
18,986.35	0.753	Bit. 0.753	....	....	....	....	7- 5-23
....	9.74		....	....	....	....	7-12-20
513.56	9.89		....	....	9.886	....	3-14-21
....	2.13		....	....	....	2.13	4-10-20
....	1.003		....	....	....	0.549	6-15-22
....	3.04		....	....	....	1.875	9- 9-20
....	9.58		....	....	....	0.15	5- 4-21
....	15.36		....	....	....	2.058	5- 4-21
....	6.282		....	....	....	1.44	6-16-22
....	11.75		....	....	....	....	5- 6-21
....	11.48		....	....	11.48	....	6-15-22
....	7.597		....	....	....	1.042	6-15-22
25,823.09	0.596	Br. 0.596	....	....	....	....	4- 1-21
....	6.50		....	....	....	....	5- 4-21
....	0.60		....	....	....	....	10-13-22
....	11.04		....	....	....	....	5- 6-21
....	12.08		....	....	....	....	5- 6-21
....	4.521		....	....	....	....	6-16-22
....	9.955		....	....	....	....	6-14-22
....	5.55		....	....	....	3.816*	6-15-22
....	16.04		....	....	....	16.04 *	6-15-22
....	6.542		6.535	....	....	....	11-10-21 B.
....	....		....	....	....	....	2-26-24 G.
....	19.096		....	....	19.096	3.485	6-15-22
....	12.508		....	....	....	....	6-14-22
1,134.86 *	13.37		....	....	13.915	0.374	6-14-22
....	11.897		....	....	....	....	5- 3-21
40,533.22 *	10.90 *		....	....	....	....	6-16-22
1,381.23	5.75		....	....	....	....	8-26-22
....	16.90		....	....	16.90	....	12- 3-21
....	....		....	....	....	....	12- 3-21
....	6.014		....	....	1.33	....	6-13-22
....	5.973		....	....	....	....	6-15-22
5,755.00 *	8.98		....	....	....	....	6-16-22
1,408.30 *	12.99 *		....	....	....	....	6-16-22
....	11.51		....	....	....	....	6-15-22
....	13.74		....	....	....	....	6-13-22
....							
....	10.22 *		....	....	....	....	6-16-22
....	6.69		....	....	2.76	2.765	6-16-22
19,983.97	2.213	Con. 2.213	....	....	....	....	7- 5-23
19,983.99							
4,489.22	....		....	....	....	....	7- 5-23
63,316.61	4.421	Con. 4.421	....	....	....	....	8- 8-23
812.50	....		....	....	....	....	4-15-24
....	3.089		....	....	....	3.08	8-15-24
$1,043,866.33	1,710.719	50.457	21.191	13.590	136.905	137.716	

STATUS OF STATE-FEDERAL AID PROJECTS

Under Construction

No.	NAME	COUNTY	Length Miles	COST State	COST Federal
2-C	Falls City-Neb. City	Otoe	9.782		17,968.50
4	Hartington-Wayne	Cedar	17.328		20,291.70
5	Columbus-Norfolk	Madison	8.500		9,549.16
		Platte	9.05		16,064.99
7-B	Superior-Minden	Clay	13.868	18,015.55	18,015.54
7-C	Superior-Minden	Adams	21.603	18,063.54	28,063.53
7-D	Superior-Minden	Kearney	16.231	14,081.65	14,081.65
14-B	O'Neill-Butte	Holt	Bridge	11,050.37	11,050.37
		Boyd		11,050.37	11,050.37
18	Lincoln-Beatrice	Lancaster	16.712	28,234.80	28,234.80
19	Emerald-West	Lancaster	3.98	8,050.90	8,050.90
21	Alliance-Antioch	Box Butte	6.18		6,332.15
25	Beatrice-Fairbury	Gage	2.40		4,666.95
		Jefferson	7.04	7,001.28	7,001.28
26-B	Wauneta Bridge	Chase	Bridge		3,233.41
27	Fremont-Ceresco	Saunders	11.79		18,896.90
27-B	Fremont-Ceresco	Saunders	Bridge		12,141.00
28	Neb. City-Plattsmouth	Otoe	7.710		7,920.00
31	Allen-Wakefield	Dixon	10.731		13,471.70
33	Creighton-Center	Knox	11.35	65,701.10	65,701.09
34-B	Deverre-Burwell	Garfield	3.756	5,111.87	5,111.86
39	Overton-Cozad	Dawson	28.18	94,670.09	102,670.08
45-A	Crawford-Harrison	Sioux	3.29	14,990.73	14,990.72
49-A	Oakland-So. Sioux City	Dakota	12.83	32,708.36	32,708.35
49-C	Oakland-So. Sioux City	Thurston	11.93	35,026.47	35,026.47
49-F	Rosalie-Walthill	Thurston	7.31	15,824.98	15,824.97
50-D	Central City-Belgrade	Nance	3.59	12,668.87	12,668.86
55-B	Milford-Fairmont	Saline	10.927	17,009.38	22,436.19
55-C	Friend-Fairmont	Saline	4.99	5,561.93	5,561.93
55-D	Milford-Exeter	Fillmore	4.01	5,277.14	6,760.43
56	Seward-Aurora	York	25.57	6,762.24	12,962.23
57-A	Wakefield-Allen	Dixon	9.85	21,455.85	27,411.63
60-B	Gr. Island-Cushing	Howard	5.34	15,652.46	16,498.15
66	Valentine-Sparks	Cherry	24.45	320,047.71	116,625.20
68-B	McCook-Culbertson	Red Willow	7.941	26,083.95	31,094.32
68-C	McCook-Culbertson	Hitchcock	4.086	9,213.20	9,213.19
68-D	McCook-Trenton	Hitchcock	3.697	8,601.89	8,601.89
70-A	Stanton-Wisner	Stanton	11.96	22,827.91	22,827.91
70-C	Wayne-Wisner	Wayne	2.956	4,569.96	4,569.95
		Cuming	1.906	1,073.36	1,073.36
72-A	Hartington-Yankton	Cedar	10.448	31,440.89	38,733.89
72-B	Hartington-Yankton	Cedar	3.48	13,264.51	14,836.58
73	Kearney-Pleasanton	Buffalo	12.53	17,943.92	19,943.91
76-A	Alliance-Chadron	Dawes	14.53	65,219.09	65,219.09
76-B	Alliance-Chadron	Dawes	0.66	7,579.47	7,579.46
76-D	Alliance-Chadron	Box Butte	6.07	4,611.36	4,611.35
79-B	Bayard-East	Morrill	7.02	15,026.65	15,026.65
79-C	Broadwater Bridge	Morrill	Bridge	5,810.00	40,810.00
84-C	Greeley Center-Wolbach	Greeley	3.30	14,488.05	17,412.02
85-A	Burwell-Scotia	Valley	13.31		2,251.01
87-B	Norfolk-Stanton	Stanton	11.13	16,528.68	16,528.67
91-A	Ft. Calhoun-Blair	Washington	4.69		8,408.84
91-C	Florence-Blair	Washington	2.83	5,954.22	5,954.22
92-A	Litchfield-Hazard	Sherman	3.38	13,606.78	24,808.23
92-B	Litchfield-Pelasanton	Sherman	0.746	3,535.29	21,871.44
96-A	Arnold-Stapleton	Custer	2.87	6,266.73	6,266.73
96-B	Arnold-Stapleton	Logan	1.49	6,124.10	6,927.20

STATUS OF STATE-FEDERAL AID PROJECTS

Under Construction

COST	Earth	Paving	Gravel			Sand Clay	Date Contracted
Other Funds			2"	3"	4"		
17,968.50	......		......	9.78	......	......	4-15-24
20,291.70	......		......	17.33	......	......	7-19-24
9,549.17	......		8.5	......	......	......	4-16-24
16,064.99	......		......	......	9.05	......	8-15-24
......	......		13.868	......	......	......	2-26-24
10,000.00	......		21,567	......	......	......	2-26-24
......	......		16.23	......	......	......	9-11-24
......	......		......	......	......	......	6-15-22
......	......		......	......	......	......	
......	......		......	16.712	......	......	4-15-24
......	......		......	3.941	......	......	4-15-24
6,332.15	......		6.18	......	......	......	5-17-24
4,666.96	......		......	2.40	......	......	4-17-24
......	......		......	7.04	......	......	8-15-24
3,233.42	......		......	......	......	......	8-15-24
18,896.90	......		......	5.97	5.82	......	4-15-24
12,141.00	......		......	......	......	......	4-15-23
7,920.00	......		......	7.71	......	......	10- 2-24
13,471.70	......		......	10.73	......	......	7-19-24
......	11.35		......	......	......	1.19	4- 7-20
......	3.756		......	......	......	0.93	8-15-24
8,090.00	27.470		14.55	......	11.886	......	9-24-19 G.
......	......		......	......	0.700	......	4-17-24 Gr.
......	3.29		......	......	3.29-6"	......	6- 5-24
......	12.83		......	......	......	......	5- 4-21
......	11.93		......	......	......	......	5- 2-21
......	7.31		......	......	......	......	2-27-24
......	3.59		......	......	......	3.58	4-16-24
5,426.81	10.927		3.998	4.926	......	......	6-13-22 G.
......	......		......	......	......	......	2-26-24 Gr.
......	4.99		......	......	......	......	8-15-21
1,483.30	4.01		......	......	......	......	8-15-24
6,200.00	......		......	12.81	......	......	11-14-24
5,955.78	9.85		......	......	......	0.189	4-16-24
845.69	5.34		5.34	......	......	4.03	4-16-24
......	24.45		......	......	......	11.49	4- 7-20
21,035.85	7.941	0.29 Br.	0.53	......	7.05	0.09	2-28-24
......	4.086		......	......	......	0.49	2-28-24
......	3,697		......	......	......	......	9-26-24
......	11.96		......	......	......	......	6-14-22
......	2.956		......	......	......	......	2-27-24
......	1.906		......	......	......	......	2-27-24
7,293.00	10.449		......	7.614	......	......	5- 2-21 G.
......	......		......	......	......	......	7-19-24 Gr.
1,572.08	3.48		......	7.614	......	......	8-15-24
2,000.00	......		......	12.53	......	......	8-15-24
......	14.53		......	......	......	0.54	8- 5-20
......	0.66		......	......	......	......	8-15-24
......	6.07		......	......	......	......	4-18-24
......	7.02		......	3.00	4.02	4.02	2-28-24
35,000.00	......		......	......	......	......	3-28-24
2,923.98	3.30		......	......	......	......	4-16-24
2,251.01	......		......	......	......	......	4-17-24
......	11.13		......	......	......	......	5- 5-21
8,408.84	......		......	4.69	......	......	9- 8-24
......	2.83		......	......	......	......	9- 8-24
11,197.46	3.38		......	......	......	......	6-16-22
18,336.15	0.746		......	......	......	......	4-17-24
......	2.87		......	......	......	0.71	4-17-24
803.11	1.49		......	......	......	0.16	4-17-24

STATUS OF STATE-FEDERAL AID PROJECTS—Continued

No.	NAME	COUNTY	Length Miles	COST	
				State	Federal
98-C	Crete-Dorchester	Saline	6.72	12,103.81	18,398.80
98-D	Crete-Dorchester	Saline	1.24		2,134.76
100	Q Street	Douglas	10.32		136,052.50
107-A	Greenwood-Chalco	Cass	7.972	5,000.00	12,418.81
107-B	Greenwood-Chalco	Saunders	1.99	3,930.39	3,230.06
107-C	Greenwood-Chalco	Sarpy	3.58	7,423.39	7,423.39
107-D	Ashland-Cemetery East	Saunders	0.87		3,148.83
108	Hay Springs-Merriman	Sheridan	27.85	40,485.55	40,485.54
110-A	Niobrara-Spencer	Boyd	4.90	42,514.62	47,723.40
111-B	Ringgold-Tryon	McPherson	2.82	8,905.39	8,905.39
113-A	Center-Niobrara	Knox	5.05	41,393.04	41,393.04
113-B	Center-Niobrara	Knox	3.93	17,015.82	17,015.81
116-A	Tecumseh-Auburn	Nemaha	4.25	14,297.56	23,004.41
116-B	Tecumseh-Auburn	Nemaha	4.37	6,787.25	7,265.57
117-A	Lutherville-Oshkosh	Garden	2.08	8,019.23	8,019.22
117-B	Lewellen-Oshkosh	Garden	3.705	7,892.26	7,892.25
118-B	Hebron-Fairbury	Jefferson	9.91	49,752.99	49,752.99
121-A	Grant-Elsie	Perkins	11.11	12,620.39	12,620.38
122-A	Beatrice-Crab Orchard	Gage	18.35	51,174.90	58,880.38
124-A	Hay Springs-Chadron	Sheridan	6.02	9,976.54	9,976.54
127-A	Sargent-Ansley	Custer	6.615	24,935.58	24,935.57
130-A	Sidney-Dalton	Cheyenne	7.073	6,186.84	6,186.84
134-A	D. L. D.	Seward	9.74	5,000.00	17,224.35
136-B	Pierce-Osmond	Pierce	7.718	7,995.98	14,083.43
136-C	Pierce Co. line-Wausa	Knox	4.011		13,082.98
139-B	Norfolk-Ewing	Madison	7.212		7,371.37
139-D	Norfolk-Ewing	Holt	3.681	17,581.16	17,581.16
139-E	Norfolk-Ewing	Holt	5.47	22,740.71	22,740.71
139-G	Clearwater-Holt Co. line	Antelope	6.43	23,332.82	23,332.81
139-H	Battle Cr.-Meadow Grove	Madison	9.44	21,990.35	21,990.34
143-C	Fairmont-Osceola	Polk	3.073	10,345.58	10,345.58
143-D	Fairmont-Osceola	York	Bridge	7,375.75	7,375.75
145-A	Axtell-Holdrege-Oxford	Phelps	21.813	27,441.25	30,941.24
146-A	Ogallala-Belmar	Keith	13.29	26,987.84	25,245.59
149-A	Lodge Pole-West	Cheyenne	4.33	8,647.91	8,647.90
153-C	Eagle-Murdock	Cass	6.249	8,577.09	13,216.19
155-A	Havelock-Ceresco	Lancaster	11.74	27,375.17	42,754.66
156-B	Central City-Eldorado	Hamilton	1.08		1,980.55
156-C	Central City-Eldorado	Hamilton	1.634	9,082.05	14,404.50
157	Seward-David City	Seward	Bridge		3,216.87
161	Fairbury-Wilbur	Saline	Bridges	26,283.36	26,283.35
164-C	Hebron-Nelson	Nuckolls	4.022	9,412.76	9,412.75
164-D	Hebron-Nelson	Thayer	5.218	12,127.88	14,712.98
171-B	Exeter-Hastings	Fillmore	3.879	6,237.37	7,299.50
174	Elm Creek-Platte Riv.	Buffalo	3.22	3,001.79	3,001.79
175-B	Col. View-Bennett	Lancaster	10.90		40,533.21
175-C	Col. View-Bennett	Lancaster	11.268		15,480.71
186-A	Kimball-Bushnell	Kimball	9.61	26,245.32	26,245.32
187	Florence-Elk City	Douglas	12.21	65,860.64	116,220.47
189	Florence-Heights	Douglas	0.76	5,287.21	5,081.86
191-A	Haigler West-Colo. line	Dundy	6.76	15,748.39	15,748.38
193-A	Ord-Arcadia	Valley	8.18	22,308.08	28,308.07
194-A	Oxford-South	Furnas	2.508	8,640.61	10,640.61
197-A	Springview-Ainsworth	Keya Paha	3.95	16,029.81	16,029.80

STATUS OF STATE-FEDERAL AID PROJECTS—Continued

COST	Earth	Paving	Gravel			Sand Clay	Date Contracted
Other Funds			2"	3"	4"		
16,414.57	6.72	0.572 Bit. Conc.	......	......	......	......	6-13-22 G.
....	....		......	......	......	......	8- 9-24 P.
2,134.76	....		......	1.24	......	......	10- 3-24
171,630.63	....	4.291 Br.	......	......	......	......	4-18-24 P.
....	....	5.008 Conc.	......	......	......	......	5-25-23 P.
7,418.81	....		......	8.98	......	......	9-25-24
....	....		......	......	1.99	......	4-15-24
....	....		......	......	3.58	0.85	8-15-24
3,148.84	0.87		......	......	0.87	......	4-15-24
....	27.85		......	......	......	0.18	6-14-22
5,208.78	4.90		......	......	4.726	2.55	5- 4-21 G.
....	....		......	......	......	......	Br. 2-27-24 Gr.
....	2.82		......	......	......	2.82	4-17-24
....	5.05		......	......	......	......	4- 9-20
....	3.93		......	......	......	......	4-16-24
8,766.85	4.25	0.61 Conc.	......	......	......	......	6-15-22 G.
....	....		......	......	......	......	2- 2-24 P.
473.33	4.37		......	......	......	......	4-18-24
....	2.08		......	......	2.077	2.07	6-13-22 G.
....	....		......	......	......	......	4-18-24 Gr.
....	3.705		2.17	......	1.53	1.06	2-28-24
....	9.91		......	5.53	......	......	5- 6-21 G.
....	....		......	......	......	......	7-17-24 Gr.
....	....		11.11	......	......	......	5-14-24
7,705.49	18.35		......	3.96	......	......	5- 6-21 G.
....	....		......	......	......	......	4-17-24 Gr.
....	6.02		......	......	......	......	4-18-24
....	6.615		......	......	......	1.42	4-17-24
....	....		......	7.07	......	......	7-22-24
12.224.35	....		......	9.723	......	......	4-15-24
6.087.46	7.718		......	......	......	......	4-16-24
13,082.99	4.011		......	......	......	......	8-15-24
7,371.38	....		7.173	......	......	......	4-16-24
....	3.681		......	......	......	3.29	6-20-21
....	5.47		......	......	......	4.31	6-20-22
....	6.43		......	......	......	6.43	2-27-24
....	9.44		......	......	......	4.18	2-27-24
....	3.073		......	3.07	......	......	8-15-24
....	....		......	......	......	......	4-18-24
3.500.00	21.813		21.81	......	......	......	9- 3-24
....	13 29		......	......	......	3.42	5- 5-21
....	4.33		......	......	1.81	......	2-28-24
4,639.11	6.249		......	......	......	......	2-26-24
15,379.49	11.74		......	......	......	......	5- 3-21 G.
....	....		......	......	......	......	4-15-24 Br.
1,980.55	....		......	......	1.08	......	6-13-24
CB & Q 4,691.00	1.634		......	......	1.63	1.00	4-16-24
631.45	....		......	......	......	......	
3,216.88	....		......	......	......	......	4-15-24
....	....		......	......	......	......	3- 4-24
....	4.022		......	......	......	......	2-26-24
2,585.11	5.218		......	......	......	......	2-26-24
1,062.14	3.879		......	......	......	......	8-15-24
....	....		......	......	3.22	......	2-28-24
40.533 22	10.90		......	......	......	......	7-13-22
15,480.71	0.723	0.723 Bit.	......	......	......	......	7- 6-23
....	9.61		......	9.61	......	0.47	6-15-22 G.
....	....		......	......	......	......	2-28-24 Gr.
74,603.22	12.21	4.91 Conc.	......	......	......	......	6-16-22 G.
....	....		......	......	......	......	4-18-24 P.
....	0.76		......	......	......	......	6-16-22
....	6.76		......	......	......	......	6-13-22
6,000.00	8.18		......	......	......	......	4-17-24
2,000.00	2.508		......	......	......	0.57	7-18-24
....	3.95		......	......	......	1.36	11-28-22

STATUS OF STATE-FEDERAL AID PROJECTS—Continued

No.	NAME	COUNTY	Length Miles	COST State	COST Federal
197-A	Springview-Ainsworth	Brown	0.66	15,598.41	15,598.41
198-A	Alliance-Crawford	Box Butte	17.14	18,469.69	18,469.69
202-A	Valentine-Gordon	Cherry	21.982	54,418.68	54,418.68
204-A	Wahoo-David City	Butler	10.046	27,122.98	27,122.97
204-B	Wahoo-David City	Saunders	6.541	17,618.05	17,618.04
206	Imperial-Champion	Chase	7.64	23,700.77	24,473.29
207-A	Albion-Madison	Boone	4.839	17,265.80	17,265.80
208-A	Capital Highway	Richardson	Bridge	5,824.82	5,824.81
210	Superior-So. West	Nuckolls	2.609	28,937.12	38,036.14
211	Beatrice-Blue Springs	Gage	11.478	19,390.16	23,770.65
212	Sweetwater-West	Sherman	3.541	12,411.62	17,854.06
		Buffalo			5,442.45
213-A	Rogers-Schuyler	Colfax	8.23	30,951.09	30,951.08
214	Arbor Lodge	Otoe	2.43	13,929.31	23,305.96
215	Hansen-Gr. Island	Hall	Bridge	28,856.60	65,384.00
216-A	Central City-Clarks	Merrick	5.663	15,228.71	15,228.70
217	Ravenna-Bridge	Buffalo	Bridge		7,907.90
218-A	Sterling-Adams	Johnson	2.015	13,342.67	13,342.67
219	Oxford-Bridge	Harlan	Bridge	5,364.41	5,468.51
221-A	Maywood-No. Platte	Lincoln	2.578		38,745.45
221-B	Maywood-No. Platte	Lincoln	15.497	24,866.77	24,866.77
222-A	St. Paul-Elba	Howard	1.608	3,767.57	8,576.68
223	Gordon-North	Sheridan	14.013	30,092.96	30,092.96
224-B	Ogallala-Big Springs	Keith	1.282	6,409.00	6,408.99
225	Lincoln-Woodlawn	Lancaster	4.36	10,917.79	10,917.78
226	Milford-Seward	Seward	6.027		6,861.63
227	Shelton-Kearney	Buffalo	18.04	8,970.14	23,594.56
228-A	Aurora-Gr. Island	Hall	3.47		5,032.39
231	Elm Creek-Overton	Dawson	5.55	7,183.50	7,183.50
232	Fairmont-Hastings	Clay	8.973	13,375.97	13,375.97
235-A	Millard-Wahoo	Douglas	Bridge	....	32,205.87
		Saunders		....	32,205.88
236-A	Bayard-Scottsbluff	Scottsbluff	4.595		7,603.64
		TOTALS	1,002.236	2,349,883.67	2,996,168.11

Br.	Brick	Pavement Column
Bit.	Bituminous	
Conc.	Concrete	
Asph.	Asphalt	

G.	Grading	Date Column
Gr.	Gravel	
P.	Pavement	
Br.	Bridge	

Maintenance Costs, 1923

COUNTY	Miles Maintained	No. of Patrols	Salary Patrolman	Gas, Oil and Grease	Repairs Truck	Repairs Tractor	Repairs Other Equipment	Purchase Tools and Small Equipment	Purchase Large Equipment †	Material and Repairs Culverts	New Culverts †	Material and Repairs Bridges	New Bridges †	Material and Repairs Guard Rail	New Guard Rail †	Extra Labor	Extra Team Hire	Miscellaneous Expense	Material Maintenance	Patrol Stations †	Patrol Station Maintenance	License Plates †	1922 Claims †	New Highway structures & Construction	GRAND TOTAL	Total expended for maintenance (See note)	Cost per Mi. per season (12 mo.)	Cost per mi. per month
Adams	45.66	3	$ 5,906.00	$ 1,972.76	$ 283.32	$ 732.23	$ 479.31	$ 48.05	$	$	$	671.60	$	$	$	179.30	$ 554.40	$ 1,966.50	$ 75.00	$	$	915.50	$	$	$ 13,783.97	$ 12,868.47	$ 281.83	$ 23.49
Antelope	71	6	5,760.57	941.09	830.65	438.65	1,159.87	175.50	1,847.50	196.87		250.64		5.15		5,798.73	91.25	525.21	742.60	2,306.54		436.59		597.25	24,992.60	19,804.72	278.94	23.24
				* 2,887.94																								
Arthur	15	1	839.70				7.00	11.66		3.07						277.75	80.00	2.45	42.00			88.99		16.50	1,368.46	1,262.97	84.20	7.02
Banner	27.5	1	977.67	818.83	386.48	427.90	259.70	61.10		44.28						439.15	76.70	75.50				78.01			3,645.32	3,567.31	129.72	10.81
Blaine	35	1					61.47									1,375.25	398.45	523.50	140.75			63.95			2,563.37	2,499.42	71.41	5.95
Boone	79.35	4	7,331.85	2,751.51	2,012.18	116.98	275.31	669.18	2,306.00		234.83	1.45		46.09		3,540.45	357.57	49.50				498.64		12,418.35	32,609.89	17,152.07	216.16	18.01
Box Butte	23.2	2	2,044.14	511.56		264.92		369.28	1,253.75	2.12		55.30				582.27	2,453.38					237.80			7,774.52	6,282.97	270.82	22.57
Boyd	63	1	1,797.00	1,125.43	427.54		28.81			82.20						1,587.93	1,278.22	75.00	217.40			88.59		6,397.66	13,105.78	6,619.53	105.07	8.76
Brown	53	3	3,429.98	1,804.38	1,555.08		250.30	62.65		163.65						1,168.76	332.00	57.80	119.00			144.15			9,087.75	8,943.60	168.75	14.06
Buffalo	83.5	5	5,602.64	3,345.11	1,098.95	74.93	509.20	305.25		94.25		1.45		81.75	33.40	1,368.93	308.66	532.86	10.25			812.40		20,858.20	35,037.23	13,334.23	159.69	13.31
Burt	135.88	5	9,510.00	4,729.71	77.38	2,534.47	408.19	267.25	11,047.52	338.15	1,259.61			117.78		775.55	1,520.20	219.49	295.30	1,088.41		96.40	676.43	1,241.97	36,203.81	20,793.47	153.03	12.75
Butler	110.5	3	6,295.25	3,019.55	1,569.97	105.19	264.69	543.76	650.00	26.08		101.20		59.47		692.40	926.97	1,372.24	103.90	7,410.94	2,568.30	747.12		5,271.47	31,728.50	17,648.97	159.72	13.31
Cass	100.50	5	10,039.90	3,008.35	1,091.47		691.79	273.37	8,158.00	206.30		14.40		52.82		851.87	724.81	375.10		1,912.58		910.27		326.60	28,637.63	17,330.18	172.44	14.37
Cedar	52	3	6,509.60	2,436.41	1,145.87		424.03	423.04	5,225.00	25.00				4.40		4,429.48	689.20	1,106.03	81.00	1,301.87		474.70		6,600.55	31,059.70	17,457.58	335.72	27.98
				* 183.52																								
Chase	52	2	1,082.61	1,171.57	71.60	1,423.15	187.25	289.10						31.60		778.25	2,338.77			66.05		224.12		2,155.63	9,819.70	7,373.90	141.81	11.82
Cherry	49	4	3,341.58	1,670.65	643.73	223.25	344.95	575.90	222.00							2,696.06	174.90	917.12	16.50			472.00	91.20	2,432.94	13,822.78	10,604.64	216.42	18.04
Cheyenne	138	5	5,357.28	4,771.80	2,228.20	271.95	648.20	939.67	2,000.00	7.30		12.25				4,161.49	113.03	345.94				321.07			21,178.18	18,857.11	136.65	11.39
Clay	50.2	3	6,148.89	1,560.69	1,404.99	569.82	856.29	256.83	550.00	68.09					108.61	788.27	316.75	314.60	65.00	762.76	235.80	636.01			14,643.40	12,586.02	250.72	20.82
Colfax	61	4	3,641.95	1,804.47	794.72	605.75	386.08	179.30		4.85		77.62				913.60	320.22	704.12	129.19	452.37		423.56	148.90	14,655.43	25,242.13	9,561.87	156.75	13.06
Cuming	106.5	4	8,451.75	4,361.41	2,640.96	718.87	385.07	214.59	1,985.00	330.82	461.70	203.20		2.80		1,428.94	341.45	1,071.55	2,609.43			434.59		18,773.81	44,415.94	22,760.84	213.72	17.81
Custer	204	9	7,905.00	5,141.57	1,165.75	9.85	88.50	39.76		51.64		40.78		41.40		1,035.18	39.52	701.35		8,921.39	8,058.27	739.41		12,268.63	46,248.00	24,318.57	119.21	9.93
Dakota	18	1	2,400.00	1,479.03	71.40	247.89	42.34		675.00		158.86	1,327.12				641.60		422.70				271.08		8,000.00	15,737.02	6,632.08	368.45	30.70
Dawes	72	3	2,314.07	921.45	752.09	144.10	161.35	5.75	622.38	446.00		558.10				1,533.43	3,771.45	66.75				213.13		100.00	11,616.05	10,674.54	148.26	12.36
Dawson	73	5	5,002.25	3,206.68	2,068.56	298.52	686.52	437.74		159.57	752.20					591.50	557.98	178.02	491.10			508.60	6,462.00	13,066.46	34,467.70	13,678.44	187.37	15.61
Deuel	32	1	1,437.98	888.88	767.89		85.70	201.44	813.00		109.92		77.80			1,062.65	217.45	281.39				142.94		1,451.97	7,539.01	4,943.38	154.48	12.87
Dixon	28	2	4,133.52	1,478.98	1,171.68	136.50	107.85	13.45	870.00	200.78		825.21		14.40		888.71	532.43	1,288.10				473.91		1,147.45	13,282.97	10,791.61	385.41	32.12
Dodge	76.5	5	9,395.05	4,247.04	4,710.59	679.29	704.15	1,034.67	2,135.04	411.13	236.02	1,687.89				3,801.55	879.95	2,278.80	167.44			1,189.12		12,883.23	46,440.96	29,997.55	392.12	32.68
Douglas	105	11	9,526.21	3,340.07	23.70		76.40	206.43		432.44	6,460.52	5,131.73	172,477.85	587.55	2,186.25	8,797.79	2,876.94	2,595.55	153.20	37,147.69	2,281.22			145,468.75	399,770.29	36,029.23	343.14	28.60
Dundy	42	2	1,988.16	1,839.63	129.74	1,082.62	241.52	110.62	1,851.35	132.16	224.86	28.75				746.92	543.98	415.81	31.60			137.78			9,505.50	7,291.51	173.61	14.47
Fillmore	76.5	6	12,180.83	1,316.30	166.62	233.23	347.73	286.26	2,426.70	192.99		49.27		.55		577.95		1,221.36	7.76			360.33		1,020.76	20,388.64	16,580.85	216.74	18.06
Franklin	50	4	4,287.78	1,919.60	1,911.35	127.83	206.56	214.90	1,200.00			24.35	5,032.32	84.55		702.02	1,041.77	169.38				336.01		1,407.10	18,665.52	10,690.09	213.80	17.82
Frontier	44	1	2,022.81	2,472.05	78.18	164.44	135.22		4,846.40	114.21		529.60				331.60	1,288.46	416.44	27.20			1,172.78		2,256.58	15,855.97	7,580.21	172.28	14.36
Furnas	67	3	5,696.80	3,639.43	507.23	964.64	1,850.00		675.00							2,255.28	6.00	721.74	3.00			495.25		3,430.23	20,244.60	15,644.12	233.49	19.46
Gage	78.9	5	8,967.91	4,349.86	1,634.65		479.77	139.34	875.00	22.46	93.00	38.00	202.75	15.18	999.90	337.30	2,374.65	561.35		76.87		982.65		317.10	22,467.74	18,920.47	239.80	19.98
Garden	37	4	2,940.30	565.99	1,510.85		72.45	16.30				24.15				348.18	371.60	321.35				116.26	1.00		6,288.43	6,171.17	166.79	13.90
Garfield	17	1	400.00	219.49			36.75		325.00					37.20		3,436.57	1,124.50	319.30	164.11			134.78			6,196.70	5,736.92	337.46	28.12
Gosper	28	1	2,448.22	1,318.06	38.35	1,032.19	113.28	123.55	3,500.00							1,255.55		76.50				132.22			10,037.92	6,406.70	228.78	19.07
Grant	24	2	1,527.20				6.00									13.50	16.00	13.16	158.00						1,733.86	1,733.86	72.24	6.02
Greeley	59	1	135.00	3,150.79	490.97	657.57	455.96			173.18						4,960.89	2,509.02	407.31				186.43			13,127.12	12,940.69	219.33	18.28
Hall	70	4	5,317.55	3,197.38	695.48	437.97	871.96	61.71				9.30				1,981.19	268.50	143.82	152.65		3,936.83	755.47		29,101.94	46,931.75	17,074.34	243.92	20.33
Hamilton	62	8	13,485.00	35.15			471.55	221.00	613.00	52.37	660.87	35.50	302.03		37.83	868.31		463.81	65.35			463.91		1,063.50	18,839.18	15,698.04	253.19	21.10
Harlan	52	3	3,787.77	2,444.37	414.82	852.20	381.66	29.35	558.79	123.02	925.99	65.55		22.33		604.70	912.67	874.03	958.50			270.10			13,225.85	11,470.97	220.60	18.38
Hayes	56	2	742.80	1,158.39	220.04	166.52	95.62	6.55		82.36						188.85	1,504.60	234.30				160.08			4,560.11	4,400.03	78.57	6.55
Hitchcock	63	3	2,730.75	2,811.74		1,481.97	298.31	42.80								216.25	1,120.15	3.50				45.00	45.00		8,850.47	8,805.47	139.77	11.65
Holt	138	7	6,271.99	1,408.72	652.18	513.02	445.64	254.19	1,503.00	93.62	108.48	34.27				2,090.64	2,925.47	475.30		3,237.61		358.57		3,100.00	23,412.70	15,105.04	109.46	9.12
Hooker	28	1	297.60					116.95								227.65		4.50	122.25						768.95	768.95	27.46	2.29
Howard	47	1	2,422.70	2,309.53	1,440.14	18.63	234.66	177.14	2,708.10		43.81				188.95	963.66	697.82	812.46				271.60		735.05	13,024.25	9,076.74	193.12	16.09
Jefferson	41.5	3	5,867.50	2,861.80	2,377.26	50.35	295.13	273.88	560.95			106.19		17.52		757.23	14.00	117.66			40.41	110.34		1,554.83	15,005.05	12,778.93	307.93	25.66
Johnson	25.7	3	5,398.00	66.44	625.92	23.90	85.11	18.03	295.00	11.25				115.75		155.85		22.53				345.34		8,830.98	15,994.10	6,522.78	253.80	21.15
Kearney	49	4	2,303.47	1,644.58	429.40	489.17	100.65	82.25	613.80	17.50				49.70		65.75	714.67	179.00		21.00		614.23	424.77	9.00	7,758.94	6,076.14	124.00	10.33
Keith	86	4	3,793.13	1,452.35	58.68	116.20	156.10	353.79	2,553.00			5.00			778.80	413.70	263.75	549.65				267.36	2.50		10,763.91	7,162.25	83.28	6.94
Keya Paha	26	3	2,445.54	348.75		116.13	47.25	207.25				51.00		2.25		336.95	41.35	63.91	40.00			88.23	130.17	1,041.23	4,960.01	3,700.38	142.32	11.86
Kimball	49.9	2	1,205.47	1,226.54	739.84	7.35	283.82	950.00		1.00		33.75		141.06		1,966.18	596.50	39.50				214.55		2,708.80	10,114.36	7,191.01	144.11	12.01
Knox	100	6	4,416.88	3,190.86	397.46	562.94	426.79	623.87		9.95		2,152.24				7,082.65	1,297.20	813.09	1,149.80			692.65		4,774.51	27,590.89	22,123.73	221.24	18.44
Lancaster	109.51	10	15,128.85	6,524.07	3,903.05		270.42	674.93		4.55	2,525.57	106.31				3,897.21	731.95	1,809.21	238.00		2,182.49	7,060.67	116.45	8,650.15	53,823.88	35,471.04	323.91	26.99
Lincoln	58	3	5,587.48	4,579.18	2,343.64	34.82	578.85	409.71	557.00	230.41		1,196.84		31.80		1,124.70	353.00	505.69				503.39		8,055.22	26,091.73	16,976.12	292.69	24.39
Logan	15	1	733.50	544.14	92.68		.75	3.75								336.50	177.25	84.50				51.13	28.68		2,052.88	1,973.07	131.54	10.96
Loup	11.5	1	295.15	377.89	415.58	12.25	60.85		2,290.37							1,541.00	567.00	106.81	191.50			70.07			5,928.47	3,568.03	310.26	25.85
Madison	96	6	8,640.69	5,130.35	2,337.33	673.88	255.45	17.78		50.75	276.37	47.05				2,955.56	44.25	547.02	3.40			663.59		21,321.89	42,965.36	20,703.51	215.66	17.97
McPherson	17	2	318.95	65.08	19.30		14.30	1.80	1,000.00							222.95	272.25	29.50				48.90			1,993.03	1,944.13	55.54	4.63
Merrick	99	5	4,886.50	2,244.52	1,111.16		224.13	83.73				5.50				1,131.57	1,234.73	466.49		4,806.80	2,711.35	365.33	75.00	2,473.20	21,820.01	14,099.68	142.42	11.87
Morrill	51.6	3	4,021.92	2,373.47	1,048.91	2.25	184.58	57.65	1,359.50	39.20	55.11	152.75		39.60		58.10	989.95	194.86				258.84	441.39	171.25	11,449.33	9,163.24	177.58	14.80
Nance	68	6	6,336.75	971.95	200.59	138.80	315.98	252.14	816.64	362.78	145.62	111.50		32.50		4,722.29	231.95	845.31				276.49		739.40	16,500.69	14,522.54	213.57	17.80
Nemaha	38.10	3	4,704.25	1,331.90	267.07	250.67	265.13	104.65	840.18			3.25				767.55	887.20	586.75		176.43		344.65	138.06	2,040.58	12,708.32	9,168.42	240.64	20.05
Nuckolls	33.88	3	3,639.47	1,217.58	572.79	170.74	160.13	18.22	1,100.00	117.13		217.13		3.67	259.12	1,134.24	1,894.80	1,004.66	20.00			329.22			11,858.90	10,170.56	300.19	25.02
Otoe	59.20	4	6,300.00	3,370.07	3,380.87	28.80	579.04	217.17	2,190.40					6.10		655.55		602.55		6,250.00	2,277.73	635.28		3,854.02	30,347.58	17,417.88	294.22	24.52
Pawnee	48.8	4	5,534.16	1,162.84	587.26		36.13		1,039.33	5.00	1,174.85	4.35	303.95			379.64	18.50	672.85				312.92			11,231.78	8,400.73	172.15	14.35
Perkins	43	2	3,885.00	1,108.28	342.33		85.70		500.00	69.75						259.70		2.25				143.80			6,396.81	5,753.01	133.79	11.15
Phelps	67	1	1,214.44	1,101.42	542.86	11.55	53.05	32.15		67.85		27.62	114.55			2,309.52	666.99	242.87				501.96		2,008.00	9,394.83	6,770.32	101.05	8.42
Pierce	44	3	5,126.22	1,956.52	1,635.56	418.80	412.42	271.63	3,500.00	17.90	193.12			178.30		497.50	1,020.10	60.00				417.29		5,957.18	21,662.54	11,594.95	263.52	21.96
Platte	110.5	6	4,940.00	5,510.49	1,403.91	65.20	858.13	39.50	1,422.44		1,933.82	76.00				4,017.31		1,555.06		200.00		516.81		18,350.37	40,889.04	18,465.60	167.11	13.93
Polk	85.5	4	7,884.44	2,503.29	1,413.91	21.43	397.88	352.30	950.00	143.28		3.10		10.00		787.05	995.90	626.51				507.18		2,517.95	19,114.22	15,139.08	177.07	14.76
Red Willow	35	2	4,400.00	2,382.93	378.03	534.92	101.75	39.57	6,547.24	216.40	180.60	75.75		39.25		570.50	1,618.45	650.55	310.30			470.18			18,516.42	11,318.40	323.38	26.95
Richardson	47.2	7	8,528.81	679.25	166.91	83.70	303.75	13.78		55.70	459.02	238.61		195.24	299.95	381.90	723.44	1,030.38			57.60	273.01	202.14	845.98	15,093.17	13,013.07	275.70	22.98
Rock	75.5	3	2,935.60	57.05			135.65	82.77				141.00				948.12	440.75	334.52	50.00			94.12			5,219.58	5,125.46	67.89	5.66
Saline	95	5	9,075.00	3,790.51	3,573.58	.50	401.26	99.08	3,830.00	4.15		360.47		81.32		246.08	219.60	995.38		1,082.56	1,189.81			3,430.13	28,379.43	20,036.74	210.91	17.58
Sarpy	51.08	4	5,532.50	1,934.40	4,193.35	1,663.10	376.91	209.60	1,306.05	38.25		229.80		39.25		3,088.00	583.60	236.50	13.14	64.69		355.33	616.27	3,514.13	23,994.93	18,138.46	355.10	29.59
Saunders	36.4	4	5,205.80	1,634.37	928.48		557.95	56.42	292.93	107.21	68.87	165.80		8.78		573.95	67.34	365.53				605.55	174.86		10,813.84	9,671.63	265.71	22.14
Scotts Bluff	58.4	2	5,900.17	1,938.75	1,768.14		121.43	930.53	639.50	203.65		116.30				749.85	46.15	201.15		287.71		457.84		10,283.47	23,644.65	11,976.13	205.07	17.09
Seward	57	5	10,227.15	3,354.49	1,811.32		466.73	157.97		6.24		730.78		2.86		345.35	6.75	849.11	61.20	252.67		757.16	900.00	6,467.39	26,436.77 ‡	11,151.75	195.65	16.30
Sheridan	83.3	4	2,232.00	842.73	279.75	10.70	173.60	327.33	332.75	7.50				.95		543.90	2,288.90	105.28	50.00			205.70		2,720.01	10,121.10	6,862.64	82.39	6.87
Sherman	55	2	2,524.80	2,275.05	821.37	291.25	211.75	149.92	675.00	1.10	799.49	531.79		32.00		3,607.63	101.90	432.00	706.95			393.64	2,883.56	1,358.75	17,797.85	11,687.41	212.50	17.71
Sioux	30	2	3,052.57	15.90			53.45	160.40	222.70	2.85		52.85				499.75		70.00	59.56			21.45		232.71	4,444.19	3,967.33	132.24	11.02
Stanton	40	2	2,984.20	1,756.49	1,672.97	263.51	153.21	69.90		50.00	671.09	110.54		13.15		1,656.45	2.40	1,065.55				366.09			10,835.55	9,798.37	244.96	20.41
Thayer	50	8	11,056.46	86.58			271.20	208.83	473.00	8.90		.50				732.01	4.28	20.38			283.84	378.69			13,524.67	12,672.98	253.46	21.12
Thomas	55	1	170.00	7.25			50.52					7.00				173.20	573.28	4.00	20.00			30.08			1,035.33	1,005.25	18.28	1.52
Thurston	65	3	7,281.70	1,185.23	200.23	211.71	324.80	51.28	675.00	47.35		65.20				988.08	71.25	30.35				242.60		200.00	11,574.78	10,457.18	160.88	13.41
Valley	32	1	2,050.00	869.72	631.69		49.00	194.09	1,500.00	.50		170.95				1,041.56	307.02	352.95	146.89			247.38			7,561.75	5,814.37	181.70	15.14
Washington	60.5	3	4,355.75	1,766.70	332.83	1,169.78	399.81	60.35	1,136.72	746.68		515.97		84.92		1,345.20	1,121.10	1,214.36	46.10			163.54		6,936.00	21,235.81	12,999.55	214.87	17.91
Wayne	92	5	9,249.00	3,630.61	1,604.46	422.51	363.32	465.26	8,374.04	194.13	5,364.86					907.41	2,388.22	1,131.98	146.07			425.76		6,489.43	41,157.06	20,502.97	222.86	18.57
Webster	47.7	3	4,222.56	1,417.88	115.75	683.82	93.90	74.05	690.80			129.79		25.79		155.40	53.90	926.11				254.21		3,966.79	12,710.75	7,798.95	163.50	13.63
Wheeler	34	7	801.51	49.50		626.04	15.03	86.30	1,576.76	175.81		80.71		1.25		297.20	1,247.58	389.78						1,283.12	6,630.59	3,770.71	110.90	9.24
York	115	4	8,344.54	2,246.57	1,535.03	127.86	368.55	589.65	600.00		246.54	88.32				437.45	37.30	1,554.72			147.89	483.49		3,857.40	20,665.30	15,477.88	134.59	11.22
TOTAL	5,648.46		$438,505.49	$184,463.30	$ 85,046.50	$ 26,941.67	$ 27,466.31	$ 18,517.58	$111,903.63	$ 7,295.68	$ 25,825.60	$ 19,910.39	$178,511.25	$ 2,358.03	$ 4,891.81	$132,308.09	$ 68,904.34	$ 49,391.31	$ 10,402.39	$ 77,826.94	$ 25,971.54	$ 39,593.90	$ 13,513.38	$475,208.98	$2,019,758.10	$1,085,574.80	$ 192.19	$ 16.02

* Feed.

‡ This total is .6175 per cent. of maintenance for Seward County. .3825 per cent. of maintenance for County Roads.

NOTE—The maintenance costs are based on the Grand Total less amounts expended for large equipment (trucks, etc.), new culverts, new bridges, new guard rail, patrol station construction, license plates, 1922 claims, heavy maintenance and graveling construction.

Amounts deducted are listed in columns indicated by †.

State and Federal Aid Gravel Surfacing----As of November 28, 1924

YEAR 1919

Project	COUNTY	Length in Miles 2"	Length in Miles 3"	Length in Miles 4"	Cost Per Square Yard Local 2"	Cost Per Square Yard Local 3"	Cost Per Square Yard Local 4"	Cost Per Square Yard Shipped 2"	Cost Per Square Yard Shipped 3"	Cost Per Square Yard Shipped 4"	Total Square Yards Local 2"	Total Square Yards Local 3"	Total Square Yards Local 4"	Total Square Yards Shipped 2"	Total Square Yards Shipped 3"	Total Square Yards Shipped 4"	Total Cost	REMARKS
3	Hall			12.360			0.336						130,578				43,868.78	Contr. Cu. Yds. + haul and manipul.
10	Lincoln	2.992		16.091	0.163 —		0.325+				31,600		169,920				60,434.28	Contr. Cu. Yds. + haul and manipul.
27	Saunders	4.488		6.439	0.220 +		0.303—				47,400		68,000				31,026.23	Contr. Cu. Yds. + haul and manipul.
Total		7.480		34.890							79,000		368,498				135,329.29	
Average					0.197 +		0.325—											

YEAR 1920

Project	COUNTY	Length in Miles 2"	Length in Miles 3"	Length in Miles 4"	Cost Per Square Yard Local 2"	Cost Per Square Yard Local 3"	Cost Per Square Yard Local 4"	Cost Per Square Yard Shipped 2"	Cost Per Square Yard Shipped 3"	Cost Per Square Yard Shipped 4"	Total Square Yards Local 2"	Total Square Yards Local 3"	Total Square Yards Local 4"	Total Square Yards Shipped 2"	Total Square Yards Shipped 3"	Total Square Yards Shipped 4"	Total Cost	REMARKS
52-A	Phelps	2.979			0.416 +						27,964.4						11,645.88	Contr. Cu. Yds. + haul.
21	Box Butte	3.193						0.222						37.468			8,569.20	
Total		6.172									27,964.4			37,468			20,215.08	
Average					0.416 +			0.222										

YEAR 1921

Project	COUNTY	Length in Miles 2"	Length in Miles 3"	Length in Miles 4"	Cost Per Square Yard Local 2"	Cost Per Square Yard Local 3"	Cost Per Square Yard Local 4"	Cost Per Square Yard Shipped 2"	Cost Per Square Yard Shipped 3"	Cost Per Square Yard Shipped 4"	Total Square Yards Local 2"	Total Square Yards Local 3"	Total Square Yards Local 4"	Total Square Yards Shipped 2"	Total Square Yards Shipped 3"	Total Square Yards Shipped 4"	Total Cost	REMARKS
39	Dawson			11.886			0.375						126,821.0				47,557.87	
107-B	Saunders			1.354						0.55						16,603	9,131.65	
135	Merrick			9.886			0.515—						104,399.4				53,735.98	
Total				23.126									231,220.4			16,603	110,425.50	
Average							0.438+			0.55								

YEAR 1922

Project	COUNTY	Length in Miles 2"	Length in Miles 3"	Length in Miles 4"	Cost Per Square Yard Local 2"	Cost Per Square Yard Local 3"	Cost Per Square Yard Local 4"	Cost Per Square Yard Shipped 2"	Cost Per Square Yard Shipped 3"	Cost Per Square Yard Shipped 4"	Total Square Yards Local 2"	Total Square Yards Local 3"	Total Square Yards Local 4"	Total Square Yards Shipped 2"	Total Square Yards Shipped 3"	Total Square Yards Shipped 4"	Total Cost	REMARKS
79-A	Morrill		12.51			0.200						132,237					26,447.40	
143-B	York			11.480						0.45						108,421	48,789.45	
170-A	Lincoln			19.096			0.360						224,064.0				67,219.20	
177	Buffalo			16.900			0.340						184,290.0				70,071.54	2,422.53 Cu. Yds. extra gravel at 3.06 included in total cost.
180	Platte			1.330			0.450						18,821.0				8,469.45	
196	Kearney			2.760			0.360						32,444.2				11,679.91	
Total			12.51	51.566								132,237	459,619.2			108,421	232,676.95	
Average						0.200+	0.343—			0.45								

YEAR 1923

Project	COUNTY	Length in Miles 2"	Length in Miles 3"	Length in Miles 4"	Cost Per Square Yard Local 2"	Cost Per Square Yard Local 3"	Cost Per Square Yard Local 4"	Cost Per Square Yard Shipped 2"	Cost Per Square Yard Shipped 3"	Cost Per Square Yard Shipped 4"	Total Square Yards Local 2"	Total Square Yards Local 3"	Total Square Yards Local 4"	Total Square Yards Shipped 2"	Total Square Yards Shipped 3"	Total Square Yards Shipped 4"	Total Cost	REMARKS
17	Lancaster			9.67			0.367									136,381.3	50,051.94	
Total				9.67												136,381.3	50,051.94	
Average							0.367											

YEAR 1924

Project	COUNTY	Length in Miles 2"	Length in Miles 3"	Length in Miles 4"	Cost Per Square Yard Local 2"	Cost Per Square Yard Local 3"	Cost Per Square Yard Local 4"	Cost Per Square Yard Shipped 2"	Cost Per Square Yard Shipped 3"	Cost Per Square Yard Shipped 4"	Total Square Yards Local 2"	Total Square Yards Local 3"	Total Square Yards Local 4"	Total Square Yards Shipped 2"	Total Square Yards Shipped 3"	Total Square Yards Shipped 4"	Total Cost	REMARKS
2-C	Otoe		9.780			0.270						121,000.0*					32,670.00	
4	Cedar		17.330			0.172						214,500.0*					36,894.00	
5	Platte			9.050			0.276						106,386*				29,362.54	
5	Madison	8.500			0.1650						105,225*						17,362.13	
7-B	Clay	13.868						0.1830						178,992.0			32,755.54	Final.
7-C	Adams	21.567						0.1830						278,366.0			50,940.98	Final.
7-D	Kearney	16.230			0.1270						98,500*						25,603.00	
					0.1290						101,500*							
18	Lancaster		6.712						0.2480						205,900.3		51,063.27	Final.
19	Lancaster		3.941						0.2600						55,495.5		14,428.83	Final.
21	Box Butte	6.180						0.1985						64,979.0			12,898.33	Final.
25	Gage		2.400						0.2870						29,565.7		8,485.38	Final.
25	Jefferson		7.040						0.1700						87,200.0*		14,824.00	
27-1	Saunders		5.970						0.2800						73,600.0*		20,608.00	
27-2	Saunders			5.820			0.200						68,750*				13,750.00	
28	Otoe		7.710			0.150						96,000.0*					14,400.00	
31	Dixon		10.730			0.185						132,400.0*					24,494.00	
39	Dawson	14.550			0.1770						189,000*						33,453.00	
39	Dawson			0.700			0.210						8,265*				1,735.65	
45-A	Sioux			(6"-3.290)			(6"-0.289)						6"-40,483*				11,699.59	
49-E	Dakota			1.867						0.360						21,907.0	7,886.52	Final.
55-B	Saline	3.998						0.1890						52,006.0			9,866.93	Final.
55-B	Saline		4.926						0.2835						61,462.0		17,424.47	Final.
56	York		12.810						0.2022						158,350.0*		32,018.37	
60-B	Howard	5.340						0.1540						69,400.0*			10,687.60	
67-A	Furnas			4.509			0.130						52,907				6,877.91	Final.
68-B	Red Willow	0.530			0.1200						6,844*						821.28	
68-B	Red Willow			7.050			0.240						80,600*				19,344.00	
72-A	Cedar		7.614			0.143						93,811.7*					13,415.07	Final.
73	Buffalo		12.530			0.235						154,305.0*					36,261.68	
79-B	Morrill		3.000			0.135						35,151.0*					4,745.39	
79-B	Morrill			4.020			0.170						47,153*				8,016.01	
91-A	Washington		4.690						0.2636						58,000.0*		15,288.80	
95-A	Chase	1.004			0.0650						12,956						842.14	Final.
95-A	Chase		1.080			0.145						13,305.0					1,929.23	Final.
98-B	Saline			1.119						0.449						13,140.0	5,899.86	Final.
98-D	Saline		1.240						0.2435						15,940.0*		3,881.39	
107-A	Cass		8.980						0.2060						109,610.0*		22,579.66	
107-B	Saunders			1.990						0.277						23,500.0*	6,509.50	
107-C	Sarpy			3.580			0.248						42,210*				10,468.08	
107-D	Saunders			0.870						0.277						10,400.0*	2,880.80	
110-A	Boyd			4.726			0.135						55,580				7,503.30	Final.
117-A	Garden			2.077			0.230						24,459				5,625.57	Final.
117-B	Garden	2.170			0.1475						26,853*						3,960.82	
117-B	Garden			1.530			0.260						18,000*				4,680.00	
118-B	Jefferson		5.530			0.170						68,500.0*					11,645.00	
121-A	Perkins	11.11			0.1600						143,414*						22,946.24	
122-A	Gage		3.960						0.2870						48,815.3		14,009.99	Final.
130-A	Cheyenne		7.070			0.129						87,200.0*					11,248.80	
133-A	Otoe			8.129			0.360						96,600				34,776.00	Final.
134-A	Seward		9.723						0.2600						120,363.0		31,294.38	Final.
139-B	Madison	7.173						0.1500						89,076.0			13,361.40	Final.
143-C	Polk		3.070						0.2150						38,200.0*		8,213.00	
145-A	Phelps	21.810						0.1484						272,200.0*			40,394.48	
149-A	Cheyenne			1.810			0.180						21,213*				3,818.34	
156-B	Hamilton			1.080						0.277						13,000.0*	3,601.00	
156-C	Hamilton			1.630			0.264						11,395*				3,008.28	
169	Adams	6.535						0.1830						84,344.3			15,435.00	Final.
172	Cuming			13.915						0.344						163,266.0	56,163.50	Final.
174	Buffalo			3.220			0.145						37,640*				5,457.80	
186-A	Kimball		9.610			0.100						107,724.0*					10,772.40	
206	Chase	7.640			0.0960						98,600*						9,465.60	
213	Colfax			8.230			0.275						96,270*				26,474.25	
214	Otoe			1.743						0.390						20,694.5	8,070.85	Final.
216-A	Merrick			5.660			0.238						66,378*				15,797.96	
225	Lancaster		4.360						0.2280						54,000.0*		12,312.00	
227	Buffalo			18.040			0.174						211,620*				36,821.88	
228-A	Hall			3.470			0.180						40,710*				7,327.80	
231	Dawson		2.080			0.140 Est.						26,125.0*					3,657.50	
231	Dawson			3.470			0.180 Est.						41,270*				7,428.60	
232	Clay		8.973						0.2190						111,050.0		24,319.95	Final.
236-A	Scottsbluff		4.590			0.120						52,500.0*					6,300.00	
Total		148.205	199.909	118.585							782,892	1,202,321.7	1,127,406	1,089,363.3	1,227,551.8	265,907.5		
Average					0.1460+	0.173+	0.220+	0.1710	0 2360+	0.342+			6"-40,483					

* Estimated quantities of uncompleted projects.

114,454.21	2"—Local.
208,433.07	3"—Local.
248,273.97	4"—Local.
186,340.26	2"—Shipped.
290,751.49	3"—Shipped.
91,012.03	4"—Shipped.
11,699.59	6"—Local.
Grand Total....	$ 1,150,964.62

STATUS OF STATE-FEDERAL AID PROJECTS—Continued

COST Other Funds	Earth	Paving	Gravel 2"	Gravel 3"	Gravel 4"	Sand Clay	Date Contracted
....	0.66		......	......	......	......	11-28-22
....	17.14		......	......	......	......	2-28-24
....	21.982		......	......	......	22.05	8-15-24
....	10.046		......	......	......	......	4-15-24
....	6.541		......	......	......	......	4-15-24
772.53	7.64		7.64	......	......	5.15	2-28-24
....	4.839		......	......	......	......	9-26-24
....	....		......	......	......	......	4-18-24
9,099.03	2.609	1.34 Conc.	......	......	......	0.38	2-26-24
4,380.50	11.478		......	......	......	......	8-15-24
5,442.45	3.541		......	......	......	......	4-17-24
5,442.46			......	......	......	......	
....	8.23		......	......	8.23	1.52	2-27-24
12,937.06	2.43	0.68 Conc.	......	......	1.743	......	4- 8-24
36,527.40	....		......	......	......	......	4- 1-24
....	5.663		......	......	5.66	1.98	4-16-24
7,907.91	....		......	......	......	......	10-21-23
....	2.015		......	......	......	......	4-15-24
104.11	....		......	......	......	......	4-15-24
38,745.45	2.578	2.578 Asph.	......	......	......	......	5-29-24
....	15.497		......	......	......	4.12	10-14-24
4,809.12	1.608		......	......	......	......	8-15-24
....	14,013		......	......	......	2.654	4-18-24
....	1.282		......	......	......	0.38	4-18-24
....	4.36		......	4.36	......	......	4-15-24
6,861.64	6.027		......	......	......	......	8-15-24
14,615.43	....		......	......	18.04	......	7-15-24
5,032.39	....		......	......	3.47	......	8-15-24
....	....		......	2.08	3.47	......	12- 2-24
....	....		......	8.973	......	......	7-16-24
Co. 21,470.58	....		......	......	......	......	
St.Br. 10,735.30	....		......	......	......	......	10-31-24
Co. 21,470.58	....		......	......	......	......	
St.Br. 10,735.29	....		......	......	......	......	
7,603.64	4.595		......	4.59	......	0.37	9-19-24
941,878.53	671.407	21.002	140.666	196.369	101.652	102.003	

6"-3.29 Mi.

FINANCIAL STATUS OF COUNTIES

Dec. 1, 1924.

COUNTY	Total Appr. State & Fed	Expended	Balance	Surplus Fed. Aid	Expended	Balance
Adams	$ 192,953.33	$ 194,808.25	$ * 1,854.92	$ 58,540.36	$ 10,000.00	$ 48,540.36
Antelope	185,798.69	206,539.33	* 20,740.64	56,369.70		56,369.70
Arthur	72,302.73	40,958.74	31,343.99	21,936.02		21,936.02
Banner	72,137.09	81,819.45	* 9,682.36	21,885.76		21,885.76
Blaine	64,359.92	45,352.85	19,007.07	19,526.24		19,526.24
Boone	160,311.45	166,745.06	* 6,433.61	48,637.10		48,637.10
Box Butte	108,938.33	77,072.93	31,865.40	33,050.94	6,332.15	26,718.79
Boyd	107,129.98	107,129.98	0.00	32,502.30	5,208.78	27,293.52
Brown	133,459.76	129,245.07	4,214.69	40,490.53		40,490.53
Buffalo	234,227.03	232,521.46	1,705.57	71,062.44	31,843.32	39,219.12
Burt	138,955.17	119,325.65	19,629.52	42,157.79		42,157.79
Butler	167,742.63	166,258.51	1,484.12	50,891.65		50,891.65
Cass	183,338.00	193,217.71	* 9,879.71	55,623.15	4,639.11	50,984.04
Cedar	182,897.78	186,264.52	* 3,366.74	55,489.59	29,156.78	26,332.81
Chase	96,818.38	98,098.72	* 1,280.34	29,373.86	5,530.19	23,843.67
Cherry	497,368.05	545,510.27	* 48,142.22	150,897.13		150,897.13
Cheyenne	115,984.48	117,462.98	* 1,478.50	35,188.68		35,188.68
Clay	178,889.89	180,442.34	* 1,552.45	54,273.63		54,273.63
Colfax	121,328.18	143,933.40	* 22,605.22	36,809.92		36,809.92
Cuming	162,263.54	169,761.10	* 7,497.56	49,229.34	1,134.86	48,094.48
Custer	399,130.99	411,196.18	* 12,065.19	121,092.87		121,092.87
Dakota	70,891.63	78,067.95	* 7,176.32	21,507.90		21,507.90
Dawes	147,663.25	145,597.11	2,066.14	44,799.74		44,799.74
Dawson	193,152.15	203,707.17	* 10,555.02	58,600.68	8,000.00	50,600.68
Deuel	52,194.99	45,692.23	6,502.76	15,835.50		15,835.50
Dixon	125,161.16	128,349.63	* 3,188.47	37,972.81	19,427.48	18,545.33
Dodge	177,141.56	129,378.05	47,763.51	53,743.20	83,300.57	* 29,557.37
Douglas	744,826.60	608,139.63	136,686.97	225,973.90	536,063.72	* 310,089.82
Dundy	108,355.05	91,611.86	16,743.19	32,873.97		32,873.97

FINANCIAL STATUS OF COUNTIES—Continued

COUNTY	Total Appr. State & Fed	Expended	Balance	Surplus Fed. Aid	Expended	Balance
Fillmore	175,334.99	147,544.56	27,790.43	53,195.11	2,545.44	50,649.67
Franklin	128,760.22	93,718.20	35,042.02	39,064.73		39,064.73
Frontier	145,696.51	91,174.86	54,521.65	44,203.05		44,203.05
Furnas	154,199.13	159,090.22	* 4,891.09	46,782.67	2,000.00	44,782.67
Gage	291,490.00	266,960.69	24,529.31	88,435.53	16,752.95	71,682.58
Garden	135,726.66	132,160.28	3,566.38	41,178.29		41,178.29
Garfield	73,266.22	71,112,95	2,153.27	22,228,33		22,228.33
Gosper	89,020.75	85,553.88	3,466.87	27,008.12		27,008.12
Grant	62,913.83	33,528.37	29,385.46	19,087.51		19,087.51
Greeley	99,371.18	102,721.10	* 3,349.92	30,148.35	2,923.98	27,224.37
Hall	177,702.79	177,702.79	0.00	53,913.48	41,559.80	12,353.68
Hamilton	162,588.77	145,869.04	16,719.73	49,328.02	2,612.00	46,716.02
Harlan	122,815.37	109,012.82	13,802.55	37,261.11	916.61	36,344.50
Hayes	76,123.72	56,716.52	19,407.20	23,095.27		23,095.27
Hitchcock	94,981.79	91,304.13	3,677.66	28,816.65		28,816.65
Holt	310,262.71	309,015.20	1,247.51	94,131.00		94,131.00
Hooker	63,398.73	45,192.78	18,205.95	19,234.62		19,234.62
Howard	116,146.93	111,207.95	4,938.98	35,237.97	5,654.81	29,583.16
Jefferson	178,248.18	177,888.37	359.81	54,078.95		54,078.95
Johnson	120,950.73	140,612.28	* 19,661.55	36,695.40		36,695.40
Kearney	121,873.16	100,149.65	21,723.51	36,975.25		36,975.25
Keith	97,168.52	100,188.15	* 3,019.63	29,480.08		29,480.08
Keya Paha	76,115.33	72,098.89	4,016.44	23,092.73		23,092.73
Kimball	90,249.87	93,006.02	* 2,756.15	27,381.02		27,381.02
Knox	236,743.78	248,219.90	* 11,476.12	71,826.00	13,082.98	58,743.02
Lancaster	455,191.16	520,704.91	* 65.513.75	138,101.03	71,963.34	66.137.69
Lincoln	294,375.56	291,896.35	2,479.21	89,310.98		89,310.98
Logan	54,048.52	55,751.66	* 1,703.14	16,397.85	803.11	15,594.74
Loup	63,017.52	35,599.50	27,418.02	19,118.97		19,118.97
Madison	174,093.00	182,655.49	* 8,562.49	52,818.30	16,920.53	35,897.77
McPherson	75,341.60	71,423.18	3,918.42	22,857.99		22,857.99

FINANCIAL STATUS OF COUNTIES—Continued

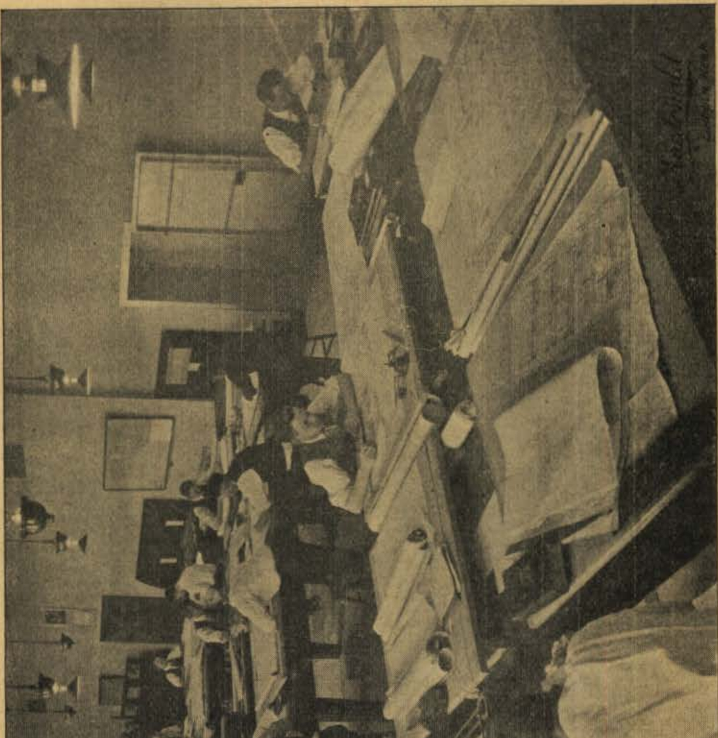
COUNTY	Total Appr. State & Fed	Expended	Balance	Surplus Fed. Aid	Expended	Balance
Merrick	127,015.91	134,571.49	* 7,555.58	38,535.52		38,535.52
Morrill	130,429.44	128,015.48	2,413.96	39,571.16	35,000.00	4,571.16
Nance	102,160.69	112,474.66	* 10,313.97	30,994.66		30,994.66
Nemaha	132,734.20	129,014.42	3,719.78	40,270.40	9,185.18	31,085.22
Nuckolls	149,688.23	158,792.84	* 9,104.61	45,414.10	9,099.03	36,315.07
Otoe	195,660.67	202,185.55	* 6,524.88	59,361.74	53,083.83	6,277.91
Pawnee	127,908.02	101,886.64	26,021.38	38,806.18		38,806.18
Perkins	69,599.62	74,092.47	* 4,492.85	21,115.92		21,115.92
Phelps	131,465.51	125,886.60	5,578.41	39,885.49	5,352.06	34,533.43
Pierce	124,566.92	130,147.62	* 5,580.70	37,792.52	6,087.46	31,705.06
Platte	190,086.60	189,555.59	531.31	57,670.62	16,064.99	41,605.63
Polk	132,418.32	141,983.24	* 9,564.92	40,174.56		40,174.56
Red Willow	152,341.25	154,610.74	* 2,269.49	46,209.01	5,010.37	41,208.64
Richardson	190,484.86	172,309.59	18,175.27	57,791.45		57,791.45
Rock	108,177.11	204,009.27	* 95,832.16	32,819.99		32,819.99
Saline	186,052.80	189,109.82	* 3,057.02	56,446.80	17,482.85	38,963.95
Sarpy	83,613.43	83,708.63	* 95.20	25,367.59		25,367.59
Saunders	227,336.83	224,671.41	2,665.42	68,972.01	66,392.62	2,579.39
Scotts Bluff	126,535.33	185,967.96	* 59,432.63	38,389.72	7,603.64	30,786.08
Seward	176,627.58	188,522.81	* 11,895.23	53,587.27	22,302.85	31,284.42
Sheridan	241,708.32	229,356.89	12,351.43	73,332.20		73,332.20
Sherman	112,834.77	118,271.95	* 5,437.18	34,233.09	34,976.06	* 742.97
Sioux	172,900.73	175,906.65	* 3,005.92	52,456.57		52,456.57
Stanton	87,909.15	78,713.17	9,195.98	26,670.87		26,670.87
Thayer	169,349.76	178,699.47	* 9,349.71	51,379.24	2,585.11	48,794.13
Thomas	56,383.13	45,185.93	11,197.20	17,106.15		17,106.15
Thurston	90,626.87	101,702.89	* 11,076.02	27,495.40		27,495.40
Valley	122,715.81	115,089.83	7,625.98	37,230.91	8,251.01	28,979.90
Washington	122,742.70	118,851.47	3,891.23	37,239.06	8,408.84	28,830.22
Wayne	115,193.38	100,745.84	14,447.54	34,948.67		34,948.67

FINANCIAL STATUS OF COUNTIES—Concluded

COUNTY	Total Appr. State & Fed	Expended	Balance	Surplus Fed. Aid	Expended	Balance
Webster	131,219.39	102,990.97	28,228.42	39,810.82		39,810.82
Wheeler	62,876.42	38,556.73	24,319.69	19,076.16		19,076.16
York	193,980.03	195,681.52	* 1,701.49	58,851.85	6,200.00	52,651.85
Totals	$14,258,282.80	$13,995,258.96		$ 4,325,838.76	$ 1,231,458.41	

NOTE—The Column "Total Appropriation" shows the total of all State Aid Road Appropriations plus a like amount of Federal Aid. Federal Aid not met is listed in Column under "Surplus Federal Aid." The Column under "Expended" shows the total expenditures of State and Federal Aid Funds allotted to a County, but does not show additional County or local Funds expended in meeting Federal Aid. The total Appropriation does not include the deficit upheld by the Supreme Court which must be appropriated by the next Legislature. This deficit appropriation will increase each County's Allottment from $1,300 to $15,000, so the overdrafts, with two exceptions will be cancelled.

* indicates overdrafts.



Division of Design, Maps and Plans Drafting Room

STATE AID BRIDGES

The State Aid Bridge law has made it possible for counties to build permanent structures across the larger streams in this state. Without State Aid it would be an unjust burden to these counties. The cost on these larger structures should be borne to some extent by the State at large thus relieving the local community unfortunately situated.

The law originally provided that the minimum width of stream over which a bridge under which State Aid could be allowed was 175 feet. The 1921 Legislature reduced this length to 100 feet so that more counties could avail themselves of this aid.

The following tabulations show all State Aid Bridges completed to date, and those contracted this Biennium, also expenditures for repairs this Biennium and applications remaining on file. Lack of county funds to meet State Aid when State Aid was available is the reason why many applications have remained on file for several years.

SUMMARY STATE AID BRIDGE REPAIRS
1923-1924

STATE AID BRIDGE	County	Amount
Red Bird	Holt	$ 2,438.06
Red Bird	Boyd	2,438.09
Broadwater	Morrill	360.00
Pischelville	Knox	385.75
Bartley	Red Willow	13,157.13
Oshkosh	Garden	833.38
Silver Creek	Polk	617.47
Silver Creek	Merrick	619.13
Hall County	Hall	175.00
Fremont Bridge	Dodge	173.61
Cozad	Dawson	1,112.23
Brady	Lincoln	599.34
Yutan	Saunders	330.50
Yutan	Douglas	330.53
Ashland Bridge	Saunders	949.15
Louisville	Cass	5.32
Louisville	Sarpy	5.32
Genoa	Nance	2,742.15
		$27,272.16

LIST OF STATE AID BRIDGES

Constructed 1911-1922 Inclusive.

COUNTY	Name of Bridge	Stream	Application Made	Contracted
Boyd-Holt	Parshall	Niobrara	5- 4-1911	3-11-1916
Boyd-Holt	Red Bird	Niobrara	5-25-1916	6-30-1916
Colfax	Schuyler	Platte	9- 2-1915	2-12-1916
Cuming	West Point	Elkhorn	3-24-1917	1-25-1918
Dawson	Lexington	Platte	2-13-1912	9-11-1914
Dawson-Phelps	Overton	Platte	2-14-1914	9-11-1914
Dodge-Saunders	Fremont	Platte	4-25-1912	5-25-1912
Dodge-Saunders	North Bend	Platte	4-25-1912	5-25-1912
Furnas	Cambridge	Republican	2- 2-1913	2-26-1914
Garfield	Burwell	Loup	6-25-1918	6-12-1922
Hall-Hamilton	Grand Island	Platte	6-12-1917	9-17-1919
Hamilton-Merrick	Central City	Platte	4-23-1913	9-17-1919
Howard	St. Paul	Middle Loup	8-13-1912	9- 3-1915
Jefferson	Fairbury	Little Blue	6-16-1921	6-12-1922
Kearney-Buffalo	Kearney	Platte	5-29-1915	5-23-1916
Knox	Verdigre	Verdigre Creek	3- 7-1916	1-24-1918
Lincoln	North Platte 1915	Platte, North	11-28-1913	3-17-1915
Lincoln	North Platte 1918	Platte, South		1918
Lincoln	Sutherland 1914	Platte, North	5-10-1912	4- 7-1914
Lincoln	Sutherland 1916	Platte, South		2-15-1916
Morrill	Bayard	Platte, North	5-21-1911	2-20-1912
Morrill	Bridgeport	Platte, North	5-21-1911	2-20-1912
Nance	Genoa	Loup	5- 4-1912	7-16-1912
Nuckolls	Superior	Republican	10-20-1913	3- 3-1915
Platte	Monroe	Loup	9-22-1911	5-17-1912
Polk-Merrick *	Havens	Platte	11- 6-1916	2-20-1917
Red Willow	Bartley	Republican	8-10-1911	1-28-1918
Rock-Keya Paha	Carns	Niobrara	7-11-1911	5- 7-1912
Rock-Keya Paha	McCulley	Niobrara	7-31-1911	5- 7-1912
Sarpy	Gretna	Platte	10-16-1915	2-10-1916
Saunders *	Ashland	Platte	2- 5-1919	8- 1-1919
Scottsbluff	Henry	Platte, North	7-12-1916	9-19-1919
Scottsbluff	McGrew	Platte, North	1- 6-1912	5-28-1912
Scottsbluff	Minatare	Platte, North	7-12-1916	9-16-1919
Scottsbluff	Mitchell	Platte, North	7-14-1916	1-21-1918
Scottsbluff	Mitchell Valley	Platte, North	7-14-1916	1-21-1918
Scottsbluff	Morrill	Platte, North	7-12-1916	9-16-1919
Sherman	Loup City	Middle Loup	1-10-1912	6- 4-1912
Washington	Arlington	Elkhorn	6-14-1911	4-30-1912

* Indicates Bridges purchased after Construction.

NOTE: The Burwell and the Fairbury Bridges were built with Federal and State Aid Road Funds.

LIST OF STATE AID BRIDGES CONTRACTED

1923-1924 Inclusive

COUNTY	Bridge	Stream	Application Made	Contracted	Contract Price	REMARKS
Dawson	Cozad	Platte	5-10-1915	5-31-1924	72,381.00	
Garden	Oshkosh	Platte	7-22-1916	5- 5-1924	74,820.00	
Hall	Grand Island	Platte		4- 1-1924	118,880.00	No State Aid Bridge funds.
Lancaster	Havelock	Salt Creek	5-31-1921	4-15-1924	27,962.70	No State Aid Bridge funds.
Lincoln	Brady	Platte	4-14-1917	11-13-1924	32,018.37	
Merrick-Polk	Silver Creek	Platte	7- 6-1916	5-20-1924	94,200.00	
Morrill	Broadwater	Platte	10- 4-1921	3-28-1924	74,200.00	No State Aid Bridge funds.
Sarpy-Cass	Louisville	Platte		12- 1-1924	17,020.17	Purchased from Platte River Bridge Co.
Saunders-Douglas	Yutan	Platte	12-31-1914	10-31-1924	117,112.28	19,518.72 State Aid Bridge funds.

Biennium Appropriation $200.000.00.

Expenditures, Contracts, and Repairs .... $ 191,569.17

Balance .... $ 8,430.83

APPLICATIONS FOR STATE AID BRIDGES REMAINING ON FILE

November 30, 1924.

COUNTY	Bridge	Stream	Applications Made
Merrick	Prairie Island	Platte	3- 7-1913
Douglas	Valley	Elkhorn	3-19-1913
Dawson	Willow Island	Platte	2-11-1914
Holt	Ewing	Elkhorn	7- 2-1915
Hitchcock	Trenton	Republican	12-21-1915
Greeley	Greeley	North Loup	1-20-1916
Brown	McLain	Niobrara	3-28-1916
Garden	Lewellen	Platte	7-22-1916
Cass	Plattsmouth	Platte	8- 6-1917
Platte	Columbus	Loup	9-26-1918
Platte-Polk	Duncan	Platte	11-21-1918
Stanton	Stanton	Elkhorn	5- 8-1919
Polk	Clarks	Platte	11-20-1919
Custer	Sargent	Middle Loup	1-23-1920
Red Willow	McCook	Republican	2- 4-1920
Garden	Lisco	Platte	4-15-1920
Madison	Tilden	Elkhorn	5-28-1920
Cuming	Wisner	Elkhorn	4-18-1921
Knox	Pischelville	Niobrara	4-28-1921
Rock-Keya Paha	Houden	Niobrara	5-18-1921
Boyd	Naper	Keya Paha	6- 6-1921

Cozad State Aid Bridge, Platte River, Dawson County

Alternate designs were drawn up as follows:

"A"—12 eighty foot low riveted trusses, 16 ft. roadway, concrete floor, 15 ton capacity with three alternate foundations, steel, wood and concrete piling from 40 to 55 feet long.

"B"—15 sixty-three foot steel transverse joist thru girders, 16 foot roadway, creosoted gum wood floor, 15 ton capacity on 55 foot steel pile foundations incased in concrete.

Bids were received at Lexington May 31st, 1924 on the above types and contract was awarded to the Economical Bridge Association of Lincoln, Nebraska for $50,773.05 on transverse joist girders, which was less than $55 per lineal foot of bridge. Approach fills, Jetties, guard rail and mattress were awarded to Thomas Gass of Kearney, Nebraska, for $21,607.95. The high bid was $65,060.00 on truss and steel pile type.

Oshkosh State Aid Bridge, Platte River, Garden County

Plans were made for seven 100 ft. low riveted trusses, 16 ft. roadway, concrete floor, 15 ton capacity with three alternate types of foundations, steel, wood and concrete piles. The steel pile design consisted of 8 inch Beth. Hs 50 to 55 feet long extending to the bridge seat and encased in concrete. Bids were received at Oshkosh, Nebraska, May 5, 1924 on the different designs. Contract was awarded the Western Bridge and Construction Company of Omaha on the steel pile foundation on a lump sum bid of $74,820.00 including jetties, mattresses, guard rail and approach fills. The high bid was $97,860.00 on truss and steel pile type.

Grand Island Bridge Known as Federal Aid Project No. 215-A.

The Grand Island Bridge located on the highway between Grand Island and Hastings is not a State Aid Bridge, but was originally intended to be State Aid before the plan of using County and Federal Aid funds was considered. It is being constructed with State Highway funds, Federal Funds and County funds. This bridge was built in four sections spanning four different channels of the Platte River. This construction consists of six 80 foot, one 80 ft., three 80 ft., and three 80 ft. low riveted trusses, 18 ft. roadway, concrete floor, 15 ton capacity making a total of 1040 feet in length. Bids were received on alternate types of foundations, using wood, steel and concrete piling at Grand Island, Nebraska on April 1, 1924. Contract was awarded on the wood pile type to the Allied Contractors Inc., of Omaha, Nebraska for $118,880.00 including approach fills, jetties, mattress and guard rail. The high bid was $134,997.40 on steel pile foundation.

Havelock Bridge Located on Project 155-A Across Salt Creek in Lancaster County.

Application was made for State Aid Bridge funds May 31, 1921 but due to the necessity of a new bridge before funds would be available it was built with County and Federal Aid funds. This structure consisted of four 50 ft. concrete girders, 24 ft. roadway, 20 ton capacity on wood piling 20 feet long. Bids were received at Lincoln, April 15, 1924, and contract awarded to Martin Day and Company of Lincoln, Nebraska for $27,962.70.

Brady State Aid Bridge, Platte River, in Lincoln County.

Plans were drawn for six, 63 foot span transverse joist girders, 16 foot roadway, creosoted gum wood floor, 15 ton capacity. The foundations consisted of 8 and 10 in. Beth Hs. 50 ft. long extending up to bridge seat and incased in concrete. Bids were received at North Platte, Nebraska, November 13, 1924. The contract was awarded to the General Construction Company of Omaha, Nebraska for $26,740.00 which included only the bridge proper. The approach fills, jetties, mattress and guard rail was awarded to David Scott and Sons of North Platte, Nebraska, for $6,827.70.

Silver Creek State Aid Bridge, Platte River, Between Merrick and Polk Counties.

Plans were drawn for ten 100 ft. low riveted trusses, 16 ft. roadway, concrete floor, 15 ton capacity with alternate foundation of steel, wood and concrete piling. Bids were received at Central City Nebraska, May 20, 1924, and contract was awarded to the Western Bridge and Construction Company of Omaha, Nebraska, for $94,200.00 on steel pile foundation including approach fills, jetties, mattress and guard rail.

Broadwater Bridge Knokn as Federal Aid Project 79-C, Across the Platte River in Morrill County.

Application for State Aid Bridge funds was made Oct. 4, 1921. As funds from this source would not be available for some time, the county voted bonds to meet Federal Aid for the construction of this bridge. Plans were made for seven 100 ft. low riveted trusses, 18 ft. roadway, concrete floor, 15 ton capacity. The design called for two alternate types of foundations, steel or wood piling.

Bids were received at Bridgeport, Nebraska, March 28, 1924 and contract was awarded to the Western Bridge and Construction Company of Omaha on steel piling for $74,200.00 including approach fills, jetties, mattress, and guard rail.

Louisville State Aid Bridge Between Cass and Sarpy Counties Across the Platte River.

This bridge is a wood pile trestle 2,090 ft. long built by the Platte River Bridge Company and used as a toll bridge. It was purchased by the state and counties of Sarpy and Cass for $17,020.17. Toll is to be collected until one-half this amount is on hand to pay the counties' share of the purchase price, the one-half share having been already paid from State Aid Bridge funds.

Yutan State Aid Bridge Across the Platte River Between Douglas and Saunders Counties, Known as Federal Aid Project No. 235-A.

Alternate designs were drawn up on this bridge as follows:

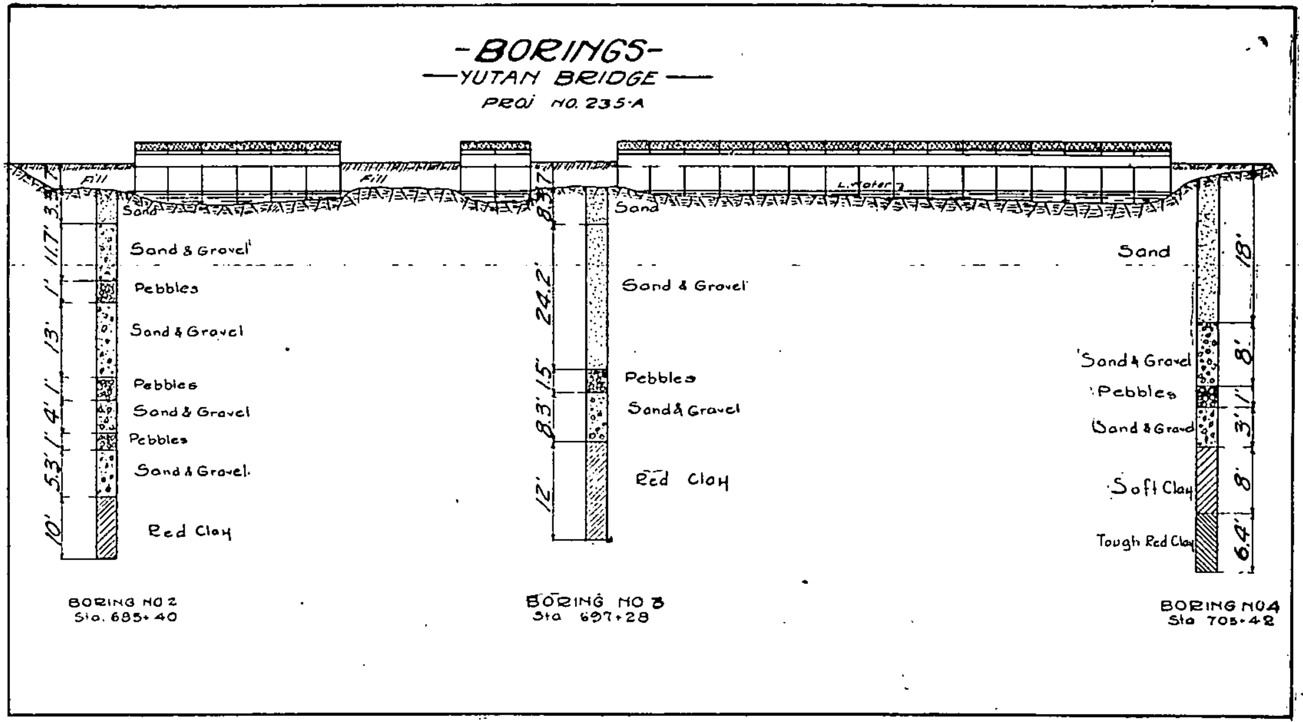
(1)—12 100 ft. low riveted steel trusses, 20 ft. roadway concrete floor, 20 ton capacity in three sections of 3 100 ft., 1 100 ft., and 8 100 ft. spans with three alternate types of foundations, steel, wood and concrete piling.

(2)—24 50 ft. span transverse joist steel girders, 20 ft. roadway, concrete floor, 20 ton capacity with steel pile foundations consisting of 8 in. Beth Hs. from 50 to 55 ft. long extending up to the bridge seat and incased in concrete. To be built in three sections as follows: 6 50 ft., 2 50 ft., and 16 50 ft. spans.

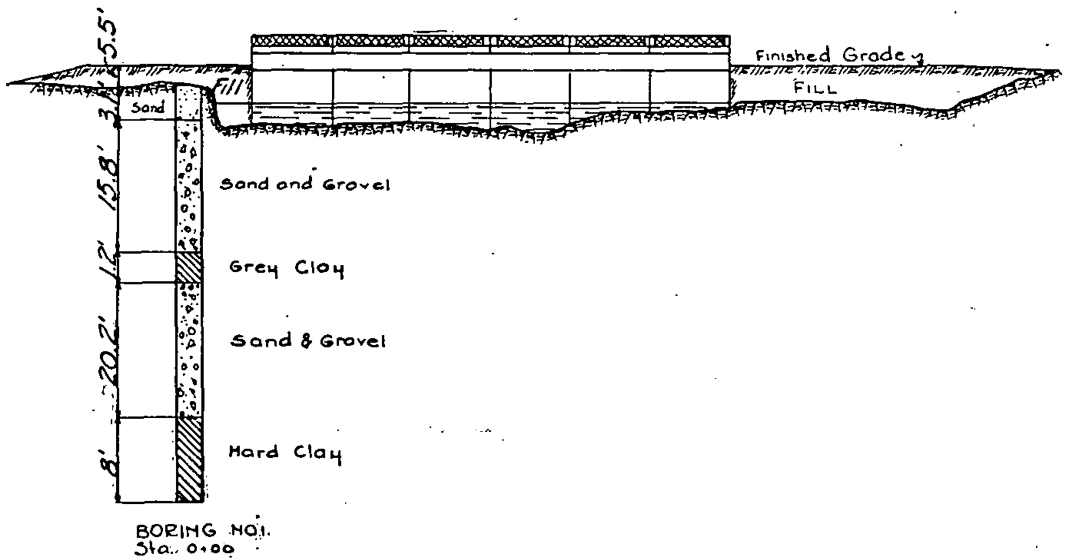
The division of this bridge in three sections reduced the cost of protection by using the natural toe-heads as jetties.

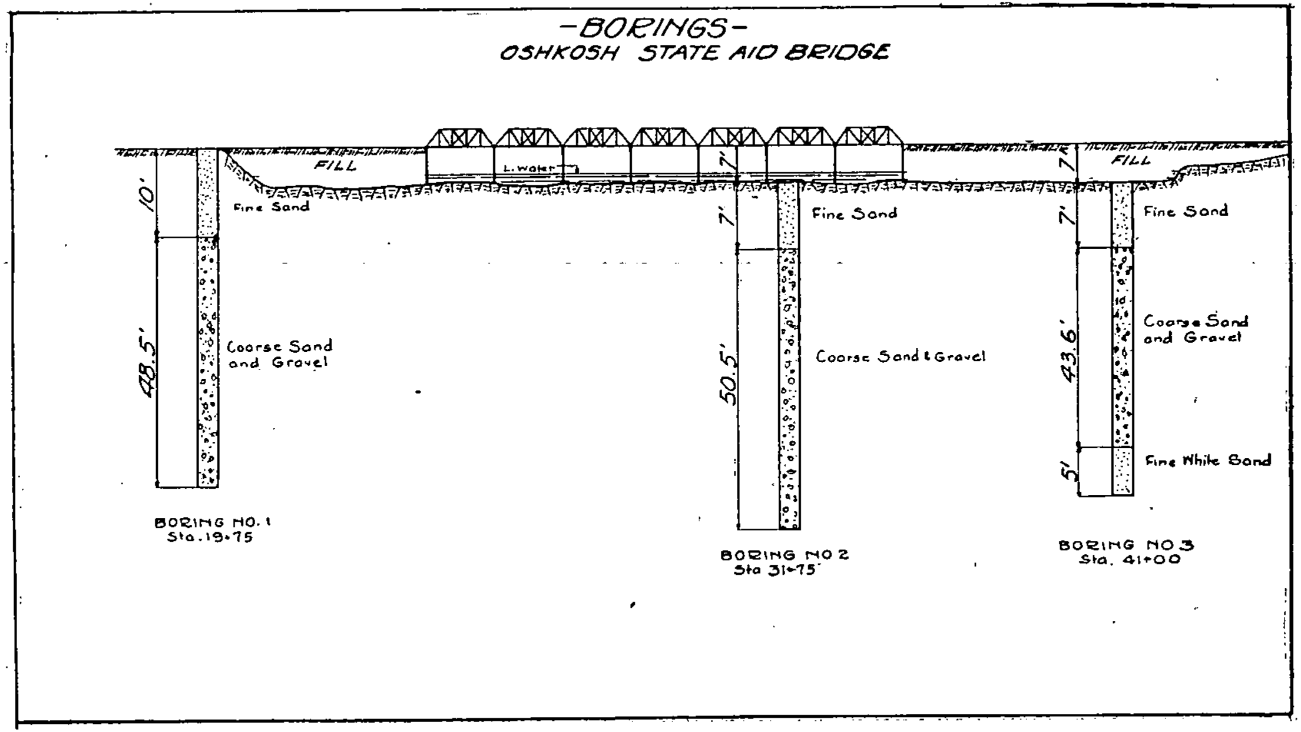
Bids were received at Wahoo, Nebraska, Oct. 31, 1924 and contracts were awarded on the transverse joist girder type to the Allied Contractors Inc., of Omaha, Nebraska, for $98,014.88. The approaches, mattress and guard rail were awarded to the Central Bridge and Construction Company of Wahoo for $19,097.40. One sixth of the cost of this bridge is to come from the State Aid Bridge fund, one-sixth from each county and one-half Federal Aid.

Other bids ranged as follews: Transverse joist type up to $124,133.30, steel truss type from $107,796.29 up to $154,352.72. A total of seventeen bids were received from seven bidders.

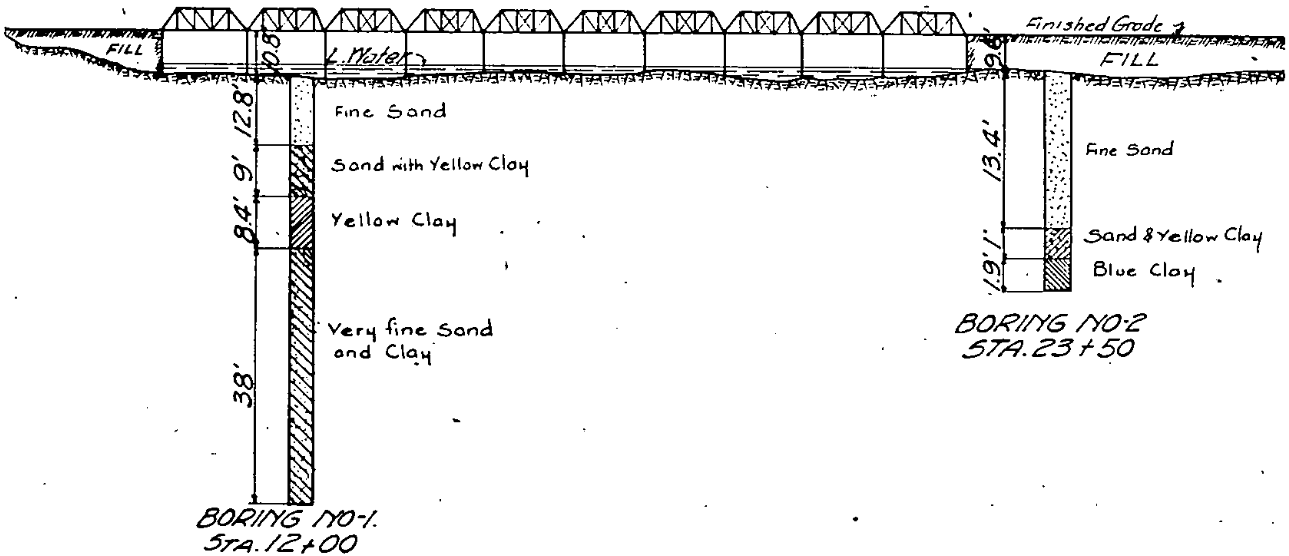

-BORINGS-
YUTAN BRIDGE
PROJ NO. 235-A
Fill
Fill
Sand
Sand & Gravel
Pebbles
Sand & Gravel
Pebbles
Sand & Gravel
Pebbles
Sand & Gravel
Red Clay
Sand
Sand & Gravel
Pebbles
Sand & Gravel
Red Clay
Sand
Sand & Gravel
Pebbles
Sand & Gravel
Soft Clay
Tough Red Clay
BORING NO 2
Sta. 685+40
BORING NO 3
Sta 697+28
BORING NO 4
Sta 705+42

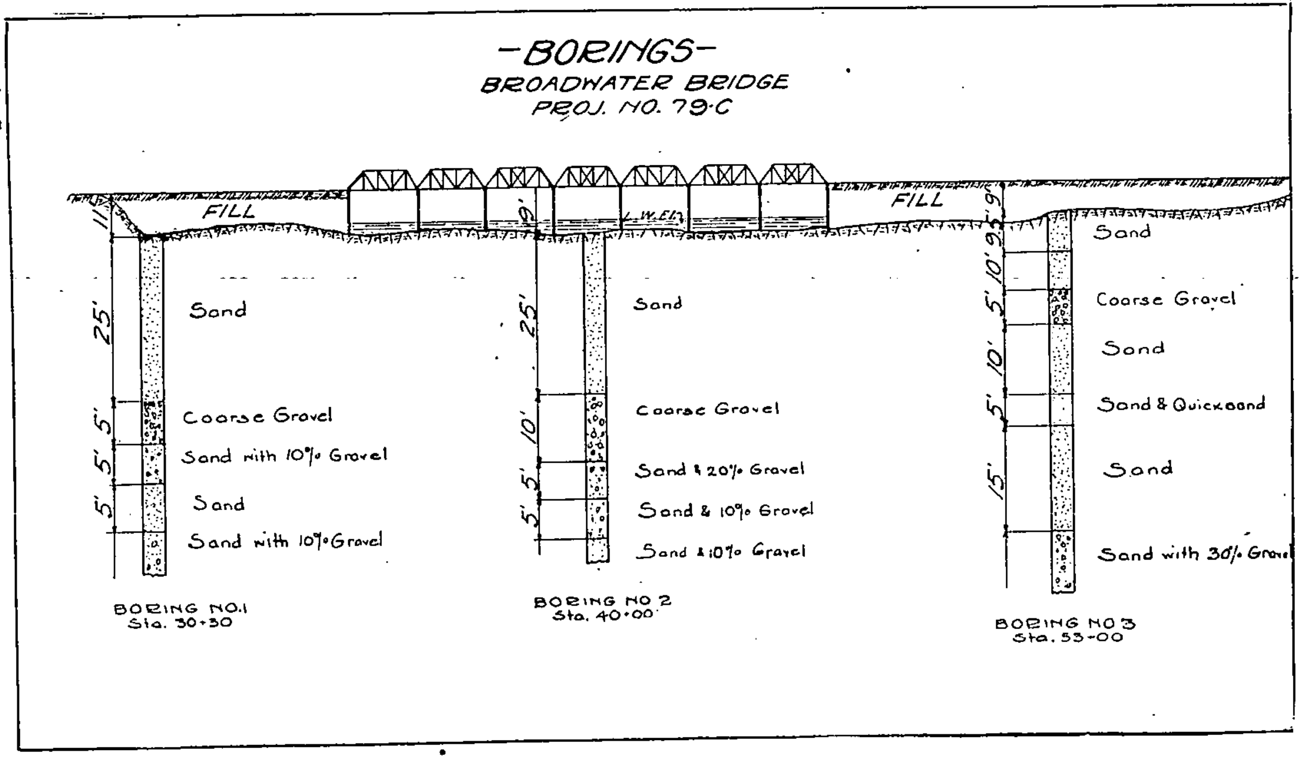
-BORINGS-
BRADY STATE AID BRIDGE

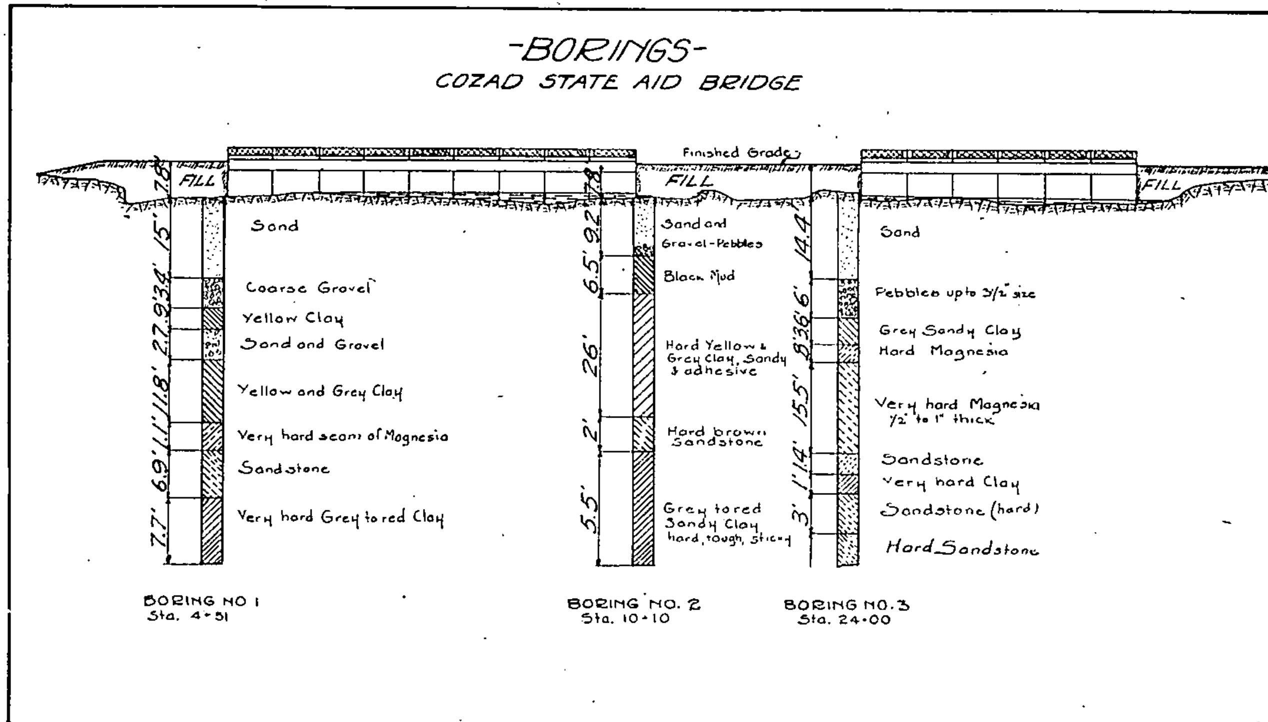



-BORINGS-
OSHKOSH STATE AID BRIDGE
FILL
L. Water
FILL
10'
Fine Sand
48.5'
Coarse Sand and Gravel
BORING NO. 1
Sta. 19+75
7'
7'
Fine Sand
50.5'
Coarse Sand & Gravel
BORING NO 2
Sta 31+75
7'
7'
Fine Sand
43.6'
Coarse Sand and Gravel
5'
Fine White Sand
BORING NO 3
Sta. 41+00

-BORINGS-
SILVER CREEK STATE AID
-BRIDGE-

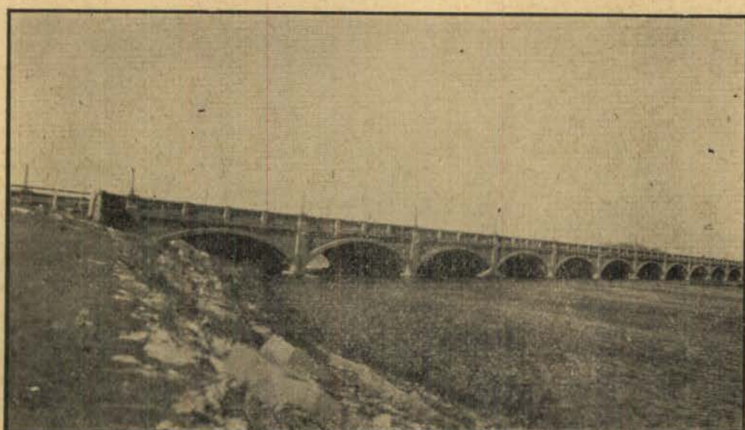



-BORINGS-
BROADWATER BRIDGE
PROJ. NO. 79-C
FILL
L.W.El.
FILL
Sand
Coarse Gravel
Sand with 10% Gravel
Sand
Sand with 10% Gravel
BORING NO.1
Sta. 30+30
Sand
Coarse Gravel
Sand & 20% Gravel
Sand & 10% Gravel
Sand & 10% Gravel
BORING NO 2
Sta. 40+00
Sand
Coarse Gravel
Sand
Sand & Quicksand
Sand
Sand with 30% Gravel
BORING NO 3
Sta. 53+00


-BORINGS-
COZAD STATE AID BRIDGE
Finished Grade
FILL
FILL
FILL
Sand
Coarse Gravel
Yellow Clay
Sand and Gravel
Yellow and Grey Clay
Very hard seam of Magnesia
Sandstone
Very hard Grey to red Clay
Sand and
Gravel-Pebbles
Black Mud
Hard Yellow & Grey Clay, Sandy & adhesive
Hard brown Sandstone
Grey to red Sandy Clay hard, tough, sticky
Sand
Pebbles up to 3/2" size
Grey Sandy Clay
Hard Magnesia
Very hard Magnesia 1/2" to 1" thick
Sandstone
Very hard Clay
Sandstone (hard)
Hard Sandstone
BORING NO 1
Sta. 4+51
BORING NO. 2
Sta. 10+10
BORING NO. 3
Sta. 24+00

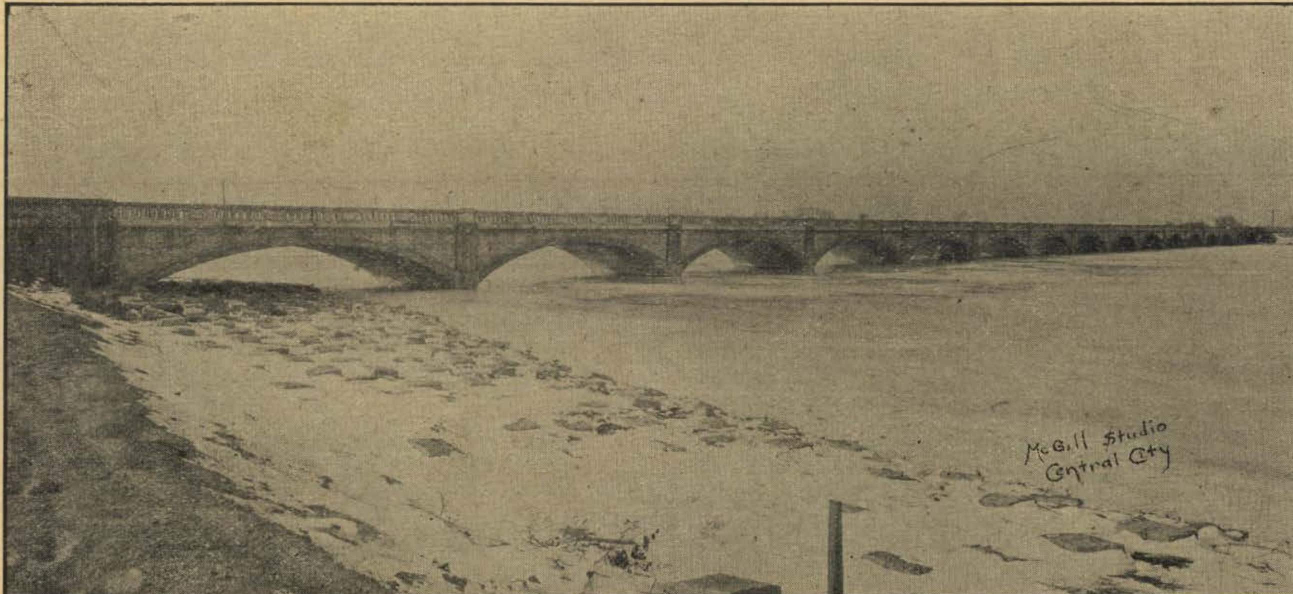
The Platte River is peculiar in several respects. As Mark Twain so ably described it, it is during several months of the year "A mile wide and an inch deep." At flood periods the discharge may exceed 35,000 cubic feet per second. The river bed is fine sand and gravel. This gravel bed generally extends down far below any depth desirable for piling support with an occasional seam of sandstone or hard clay through which a piling will penetrate. Experience has proven that the river varying from a quarter of a mile to a mile in width can be bridged satisfactorily without undue hazard with 500 feet to 1,200 feet of bridge. The balance of the river is spanned by a sand fill surfaced with clay and gravel, and protected against wave action or stream wash by rip rap and jetties. A rather careful study is being made to determine the most economical type of bridge design for general use on the Platte as conditions across the State are much the same varying only in width of stream or natural island formations determining the location of spans.

The following pictures are indicative of the general types of State Aid Bridges placed over the Platte River. The present tendency of design is toward steel truss or transverse joist type with concrete floor and foundations in place of the heavier multiple concrete arches.



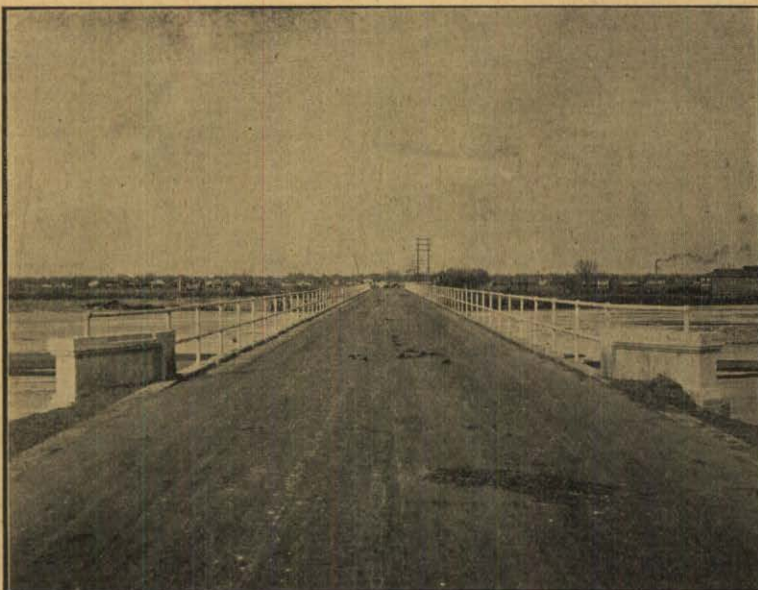
Scottsbluff Bridge on North Platte River.

Consists of twelve 50 foot concrete arches, 24 foot roadway, and 4 foot sidewalk on one side. Overall length 644 feet with about 2600 feet of earth approach fills.



Central City Bridge over Platte River.

Consists of sixteen 50 foot concrete arches, 15 foot roadway. Overall length 860 feet with over 3,000 feet of approach fills. Note the bank protection consisting of willow mattress weighted by concrete blocks.



North Platte Bridge over South Platte River.

Consists of ten 50 foot concrete arches with overall length of 536 feet and about 1,000 feet of approach fills. This bridge originally carried a 16 foot roadway and massive concrete hand rails but was later widened to 20 foot roadway and steel hand rail substituted. A sheet asphalt surface has recently been placed over this bridge in connection with the State Aid Paving project to the State Experimental Farm.

Bartley Bridge over the Republican River.

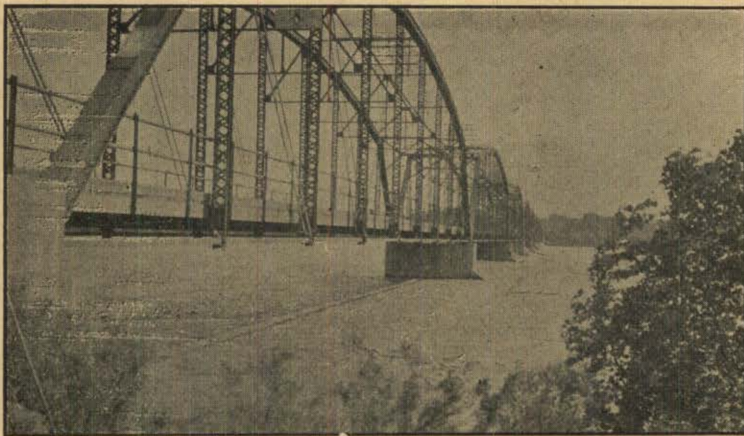
Consists of 5 63.5 foot steel spans transverse joist through girders, 16 foot roadway. This bridge replaced a concrete arch design built several years ago but which failed following a record breaking flood. The two original abutments were used in place for the new bridge.

This same type of bridge is now being constructed over the Platte River as State Aid projects at Yutan near Omaha, Nebraska, at Cozad, Nebraska, and at Brady, Nebraska.

The Yutan Bridge consists of 24 50-foot steel spans transverse joist through girder, 20 foot roadway, concrete floor, pier and abutments on steel piling 50 feet to 55 feet long with 2,000 feet of earth approach fills.

The Cozad bridge consists of 15 63-foot steel transverse joist through girders, 16 foot roadway creosoted gum wood floor, concrete piers and abutments on steel piling 55 feet long with 2,200 feet of earth approach fills.

The Brady Bridge consists of 6 63-foot spans transverse joist through girders, 16 foot roadway with 4 inch creosoted gum wood floor, concrete abutments and piers on steel piling with 1,000 feet of approach fills.



Fremont Bridge Over the Platte River.

Consists of 9 182 foot spans high pin connected trusses with 16 foot roadway.

STATE AID PAVING

The State Aid Paving bill became a law April 17, 1919. The 1919 Legislature made an emergency appropriation of $100,000 for State Aid Paving.

During the Biennium of 1919-20 the following expenditures were made:

Town	Institution	Expenditures
Peru	Peru Normal	$ 23,753.86
Beatrice	State Institution for Feeble Minded	26,000.55
Lincoln	State Hospital for Insane	32,000.04
Grand Island	Old Soldiers Home	18,000.00
	Total	$ 99,754.45

During the Biennium of 1921-22 the following expenditures were made out of the $100,000 appropriation:

Town	Institution	Expenditures
Wayne	Wayne Normal	$ 23,000.00
Chadron	Chadron Normal	20,000.00
Lincoln	State Hospital for Insane	57,000.00
	Total	$100,000.00

A balance of $3,800.35 plus interest still remaining is to be paid if the 1925 Legislature recognizes the deficiency.

The Legislature of 1923 appropriated $48,000 for State Aid Paving to Institutions which was expended as follows:

Town	Institution	Expenditures
Nebraska City	Nebraska City School for the Blind	$ 8,700.00
North Platte	North Platte Experimental Farm	35,000.00
	Total	$ 43,700.00

The final estimate on the North Platte Paving has not been campleted, however, the State Aid share will be slightly in excess of $35,000 leaving a balance in the appropriation on November 30, 1924 of about $4,000.00.

A deficiency of $10,750.61 exists for payment of the State's share in paving to the State School for the Deaf in Omaha.

DIVISION OF ACCOUNTS AND RECORDS

The Accounting Engineer of this Division has general supervision of payrolls, expense vouchers, and requisitions of the Bureau of Roads and Bridges, the Bureau of Irrigation, Water Power and Drainage, and the Equipment Division; the checking of bids and contracts on roads and bridges and making of necessary copies of same; payment of estimates to contractors on construction work on roads and State Aid Bridges; cost data on maintenance work done by the Counties on the State Highway System throughout the State; and all filing and stenographic work.

For the purpose of controlling expenditures, this Division takes the various appropriations made by the Legislature for the Department of Public Works and subdivides them into quarterly estimates. These quarterly estimates are then distributed among the various accounts in each fund and a careful check made each month to see that the expenditures are not being made in excess of the appropriation. Under the existing system of financing the Department of Public Works, the appropriations of the Legislature control the funds available, and all work is carried on with that fact in mind. Following is a list of the appropriations made by the Legislature for the use of this Department during the biennium of 1923-24:

State Aid Road—Administration and Engineering.			
H. R. 672	181	Salaries and wages	$ 121,500.00
H. R. 672	182	Maintenance	45,000.00
Bureau of Irrigation.			
H. R. 672	183	Salaries and Wages	23,480.00
H. R. 672	184	Maintenance	23,005.48
Road Maintenance and Administration.			
H. R. 672	186	Motor Vehicle registration from 3 1-2 per cent of total registration fees, estimated	55,000.00
Special Funds.			
H. R. 672	189	For State Aid Construction to meet Federal Aid	1,500,000.00
H. R. 672	192	Paving State Institutions	48,000.00
H. R. 672	193	State Aid Bridges	200,000.00
Federal Funds.			
H. R. 672	194	All Federal Aid Road Moneys received during the biennium, etc., estimated	1,500,000.00

Revolving Funds.

H. R. 672	710	State Equipment and Material Fund, estimated	660,000.00

Functions of This Division

The functions of this Division as a part of the Department of Public Works group themselves as follows:

(a) Relation to the contractors (practically all construction work is done by contract).

(b) Relation to the Federal Government (the larger part of the construction work, is carried on with the assistance of Federal Aid Funds.)

(c) Relation to the employees of the Department (the State pays all engineering costs and all engineers are employees of the State).

(d) Clerical work, requisitions and cost data work.

Sec. A. Notice to Contractors are mailed from this office and arrangements for the legal publication of the same are made. At the time of the letting of the contracts, all tabulations of bids are checked by this Division, the contracts checked and the Minutes of the Meeting taken. These are checked, one against the other and the following copies are made and distributed: four copies of the Minutes, four copies of the tabulation of the bids and ten copies of each contract. As there are often five contractors receiving contracts on one project, it means as high as fifty copies of the contracts are made on a project. The handling of the certified checks and arrangements for bonds are made in this office.

Estimates on construction work are sent in by the Project Engineer each month, after they have been approved by the District Engineers and the Chief of the Bureau, they are presented to this Division for payment. These estimates are placed on vouchers that distribute the cost of construction as it appears on the estimate and are sent to the Contractor for signature. On some estimates, this requires as many as six vouchers. After these vouchers have been properly signed by the contractor, they are placed on file and as funds become available, this Division requests the Finance Department to pass them through for payment. All details of payment such as claims against the contractor, the assignment of funds due him and etc., are handled by this Division.

Sec. B. When the Department desires to make any piece of construction a Federal Aid project, a Project Statement is made up and three copies forwarded to the Federal Government, together with the necessary copies of preliminary estimates and all information required by the Government before they will approve a project and sign a Project Agreement with the State.

The estimates handed in by the Construction Division are made the basis of a voucher to the Federal Government in which the Federal Government's share of the cost of construction on that particular project is claimed. On each project, the Federal Government enters into an agreement with the State as to the extent that they will participate in the cost thereof, this is known as the Project Agreement. Accompanying the Project Agreement is a Project statement and estimate, or as it is called, a PS&E. This PS&E limits the extent to which the Federal Government may be vouchered as to the various items of construction on the project. If an overrun is necessary in the cost of the construction, a modified project agreement is requested from the Government.

Whenever a Project Agreement is entered into with the Government, it is necessary to show that funds are available to meet the balance of the construction costs, that are not to be paid by the Federal Government. This is usually met by the appropriation of the State Legislature known as the "Appropriation of State Aid Construction to Meet Federal Aid" however, in some cases, the Counties and various sub-divisions of the State agrees to furnish the necessary funds to meet Federal Aid. In cases such as these, this Division bills the county and collects the share of the cost of construction that is charged to the county.

Sec. C. All payrolls and expense vouchers for employees in the Department are made up from the various report sheets handed in. Salary and expense warrants are drawn on the different funds according to the Division employed under, the location and the character of the work as follows:

Bureau of Roads & Bridges —
- Division of Accounts and Records.
  Funds—No. 181 and No. 182.
- Division of Location, Const. & Maintenance.
  Funds—No. 194, 193, 192, 189, 186, 182 and 181.
- Division of Maps and Plans.
  Funds—No. 181 and 182.

Bureau of Irrigation, Water
Power & Drainage--------Fund No. 183, Fund No. 184.

Division of Road Equipment -Fund No. 710.

Division of Motor Vehicle
Registration -------------Fund No. 186.

After the expenditure has been charged to the proper Bureau, Division and Fund, it is distributed among the different accounts under the fund as follows:

Salaries and wages.

Supplies

Expenses
Repairs
Equipment
Lands and Building
Public Improvements
Fixed Charges
Revolving Funds

Monthly payrolls for employees in the Lincoln office are made up from daily report sheets and salary warrants drawn on the different funds according to Division employed under.

The Equipment Division "Temporary Help" payrolls are paid twice a month and are paid on an hourly basis.

Preliminary Engineering payrolls are made up from Daily survey cards of Preliminary Engineers and their helpers. Project Engineers and helpers payrolls are made from monthly reports of the Project Engineer and charged to the different projects worked on. Division Engineer payrolls are made up from weekly reports. All salaries are figured on a monthly basis. Project Engineers and Perliminary Engineers and helpers are allowed in addition to their salaries a subsistence allowance. Project Engineers hand in monthly statements known as R19s, showing distribution of their time and expenses. These are combined on, what is known as the Distribution sheet and this in turn is made the basis of a payroll voucher, which is passed through for payment of the cost of the engineering on the various projects.

Heads of the different Divisions while away from Headquarters are allowed a flat subsistence rate, covering their meals. Receipts are not required to cover same. For all other expenses incurred, they are required to have receipts, same to be attached to expense voucher. Project Engineers are required to make up one set of expense vouchers, monthly for expenses of self and helpers and these are prorated to different projects, according to amount spent on same. These vouchers are checked by District Engineers in charge of the District worked in and then are forwarded to Lincoln office for final check and approval.

Warrants to cover estimates, payrolls and expenses are issued by the State Auditor and mailed out by this Division.

Sec. D. All stenographic work, including correspondence and filing with reference to road and bridge work is taken care of by this Division.

All requisitions for all Divisions of the Department of Public Works are made by this Division, checked, and sent to the Purchasing Agent of the Department of Finance. The Purchasing Agent then makes up the purchase orders and vouchers covering these requisitions and we again check and forward them for payment as soon as equipment and supplies are received. When this Department acts as contractor and does construction work, all requisitions from the different construction camps go through this Division for checking.

Cost data of maintenance done by the counties on the State Highway System throughout the entire state, is kept by this Division. This data is kept separately for each patrol in the different counties.

All miscellaneous expenses as light, heat, rent and supplies of all kinds are vouchered and paid for through this division.

During the year 1924, the Department of Public Works placed under contract over four million dollars worth of work. There is every indication that this amount will increase rather than decrease, and along with it, the duties of the Department. In order that the Department may function economically, a unified system of the accounts and records is a necessity. This should include a continuous audit of accounts, revealing expenses and costs in detail to be used as a working guide in keeping the various items of expense to a minimum, together with a comprehensive and intelligent set of records that could be used as a basis for planning work in the future.

REPORT OF THE DIVISION OF ROAD EQUIPMENT

On February 28th, 1918, Congress passed an amendment to the original Federal Aid Road Bill designated as Section Seven which provided for the transfer by the Secretary of War of all surplus war equipment materials and supplies not needed by the War Department, but suitable for use in the improvement of highways, to the highway departments of the several states, to be used on roads constructed entirely or in part with Federal Aid Funds; such distribution to be made upon a value basis, the same as provided for by the Federal Aid Road Act.

The Department, realizing the importance of such equipment in building and maintaining roads, immediately gave definite instructions to the War Department for shipment of Nebraska's share, and at the same time organized an Equipment Division which should have direct control and supervision of such materials.

The Equipment Division's store room, garage, and general equipment yard is located at Sixth and South Street, Lincoln, Nebraska, where all supplies are stored, issued, and shipped. The yard, covering eleven acres, is fenced and a spur railroad track, used for loading, runs the full length of ane side. A large "A" frame derrick which facilitates greatly the loading of cars stands on this track.

The store room in which all parts are kept is located in the garage building. Doors are locked except when storekeeper is shipping or receiving supplies. As equipment parts are received they are placed in bins or on shelves, with quantity, description, and location entered upon store record cards, which give detailed information concerning each article. A system of duplicate receiving and shipping tickets has been installed as a check upon all supplies on hand. Shipments are checked in on the receiving sheets, the duplicate being kept by the storekeeper and the original filed in the office. The shipping tickets show the consignee, quantity, and description of the article, and just how the shipment is made. The duplicate of this form is sent to the consignee, but the original is filed.

Before securing a piece of equipment, a requisition must be made to the storekeeper on a standard requisition form, the classes of requisition are: (1) The shop for repair and overhaul; (2) From the yard for gas and oil; (3) From the office for state or office use. After filing a requisition, the storekeeper changes the store record card to register the parts sent out and the balance remaining in stock. By this method a perpetual invoice is kept and may be had at all times from the store record cards.

During the past several years gasoline has been purchased in carload lots and delivered into the ten thousand gallon storage tank in the general equipment yard. Lubricating oil and transmission grease were also bought under a carload contract which assured a uniformly high grade oil for use in all state equipment.

Much of the equipment received from the Government was in very poor condition, and it was necessary in most instances to overhaul, repair and provide new parts in order to properly place them in first class mechanical shape. When this equipment is repaired to first class condition, it is sold to the counties at cost plus handling charges.

Each piece of machinery is stenciled with a State number, the serials starting anew for each different type of equipment. A daily time record is kept for each man, and the time spent in improving each separate piece of machinery is noted, all labor, costs, gas and oil being charged directly to the repaired car, truck or tractor.

Equipment Division's Inventory

(Corrected to Jan. 1, 1925)

1.	Shop Supplies	$ 14,049.82
2.	Stores Supplies, Misc.	32,238.53
	Cards	311,173.23
3.	Mobile Equipment & Supplies	68,612.22
4.	Grand Total	$426,072.80

DIVISION OF MOTOR VEHICLE REGISTRATION

The Automobile Department was organized in 1913 with a registration of 25,617 cars, increasing as follows to 1924 with percentage of increase based upon 1913 registration.

Year	Number	Total % Increase	% Increase Annually
1913	25,617	0.	0.
1914	40,929	59.8	59.8
1915	59,140	130.9	44.5
1916	100,534	292.4	70.0
1917	148,101	478.1	47.3
1918	175,409	584.7	18.4
1919	210,000	719.8	19.7
1920	221,000	762.7	05.2
1921	238,704	831.8	08.0
1922	256,654	901.9	07.5
1923	286,053	1,016.7	11.5
1924	Approx 310,000	1,110.1	08.4

Below is the Divisions Annual report for 1923 showing number of cars registered by counties and total fees collected.

ANNUAL REPORT MOTOR VEHICLE DEPARTMENT

January 1st—December 31st, 1923. **(A)**

Line No.	COUNTY	Regular Fees	Regular No.	Trucks Fees	Trucks No.	Motorcycles Fees	Motorcycles No.	Lost Plates Fees	Lost Plates No.	Dealers Fees	Dealers Pl't's
1	Adams ....$	49,501.25	4531 $	5,499.00	341 $	122.50	27 $	63.00	63 $	859.50	77
2	Antelope	33,674.20	3278	3,370.75	180	47.50	11	28.00	28	210.50	1[illegible]
3	Arthur	1,853.50	190	477.50	25	....	....	....	....	....	...
4	Banner	3,001.75	305	2,100.67	86	....	....	5.00	5	....	...
5	Blaine	2,321.00	243	795.50	41	....	....	....	....	34.00	[illegible]
6	Boone	33,794.30	3332	4,549.85	243	45.00	12	55.00	55	186.80	1[illegible]
7	Box Butte	16,428.90	1587	2,135.50	111	27.50	7	40.00	40	376.00	3[illegible]
8	Boyd	14,976.25	1463	1,440.75	87	22.50	5	18.00	18	117.75	1[illegible]
9	Brown	9,764.40	950	1,071.10	56	5.00	1	3.00	3	80.00	[illegible]
10	Buffalo	53,909.50	5185	5,759.50	319	52.50	14	110.00	111	667.75	5[illegible]
11	Burt	30,462.75	2864	6,202.22	346	37.50	8	25.00	25	352.75	2[illegible]
12	Butler	35,721.75	3306	4,972.75	290	67.50	15	46.00	47	393.00	34
13	Cass	39,685.00	3740	6,758.75	389	87.50	19	60.00	60	422.00	3[illegible]
14	Cedar	38,224.25	3634	5,032.50	263	40.00	10	51.00	51	518.00	3[illegible]
15	Chase	10,746.25	1045	3,379.75	157	22.50	5	9.00	9	133.00	1[illegible]
16	Cherry	12,869.34	1267	1,960.69	103	10.00	2	9.00	9	263.00	2[illegible]
17	Cheyenne	20,017.78	1908	7,973.95	436	45.00	11	42.00	44	332.50	2[illegible]
18	Clay	32,236.00	3040	3,036.00	204	35.00	8	15.00	15	302.50	2[illegible]
19	Colfax	27,325.00	2535	5,984.75	299	30.00	6	50.00	50	294.50	2[illegible]
20	Cuming	34,512.83	3251	9,015.75	445	15.00	4	42.00	47	435.75	3[illegible]
21	Custer	53,190.63	5184	9,612.29	515	77.50	18	76.00	76	772.50	5[illegible]
22	Dakota	17,058.50	1673	3,066.50	180	65.00	14	23.00	23	220.50	2[illegible]
23	Dawes	15,742.72	1465	2,319.27	121	35.00	9	1.00	1	177.75	1[illegible]
24	Dawson	37,716.25	3606	5,308.25	280	45.00	10	41.00	41	353.25	3[illegible]
25	Deuel	7,759.25	713	2,389.00	145	5.00	1	7.00	7	59.00	[illegible]
26	Dixon	25,982.75	2591	3,811.50	182	10.00	2	60.00	60	219.00	1[illegible]
27	Dodge	57,078.55	5365	13,819.75	753	155.00	35	95.00	95	819.00	7[illegible]
28	Douglas	348,832.75	31593	116,590.25	5300	2,101.00	477	845.00	852	6,460.25	50[illegible]
29	Dundy	10,182.00	1028	2,566.50	117	5.00	1	10.00	10	92.25	[illegible]
30	Fillmore	32,401.75	3015	2,815.50	164	71.00	17	19.00	20	283.50	2[illegible]
31	Franklin	21,750.75	2062	2,298.75	116	12.50	3	2.00	2	218.00	1[illegible]
32	Frontier	18,682.63	1839	2,861.20	132	17.50	5	11.00	11	188.00	1[illegible]
33	Furnas	27,937.25	2737	3,462.50	171	25.00	7	27.00	27	339.75	3[illegible]
34	Gage	63,591.80	5962	8,135.25	502	197.50	47	85.00	85	594.00	5[illegible]
35	Garden	8,528.75	855	1,890.75	122	....	....	15.00	15	108.50	[illegible]
36	Garfield	6,178.75	601	443.50	25	....	....	....	....	80.50	[illegible]
37	Gosper	10,915.50	1073	1,465.50	74	10.00	2	9.00	10	44.00	[illegible]
38	Grant	2,320.50	212	333.00	14	....	....	2.00	2	54.50	[illegible]
39	Greeley	15,819.65	1543	1,080.75	64	17.50	4	5.00	5	71.00	[illegible]
40	Hall	53,172.00	4968	9,571.00	636	265.00	60	100.00	101	692.00	6[illegible]
41	Hamilton	33,583.00	3121	3,281.50	193	50.00	11	27.00	27	333.50	2[illegible]
42	Harlan	21,247.75	2063	1,581.00	77	35.00	8	28.00	28	188.25	1[illegible]
43	Hayes	7,307.00	715	2,802.25	128	....	....	2.00	2	14.00	[illegible]
44	Hitchcock	13,146.50	1282	2,163.00	106	12.50	3	3.00	3	141.00	1[illegible]
45	Holt	28,330.25	2824	3,829.25	188	10.00	2	15.00	15	210.00	1[illegible]
46	Hooker	2,029.75	188	541.75	29	....	....	1.00	1	60.00	[illegible]
47	Howard	23,308.00	2224	2,768.25	195	45.00	10	19.00	19	242.00	1[illegible]
48	Jefferson	35,069.00	3417	4,500.00	283	45.00	10	56.00	56	413.00	4[illegible]
49	Johnson	21,506.75	2060	2,975.50	166	30.00	6	17.00	17	257.75	2[illegible]
50	Kearney	20,314.25	1886	1,217.00	69	7.50	2	17.00	17	305.75	2[illegible]

ANNUAL REPORT MOTOR VEHICLE DEPARTMENT

(B) **January 1st—December 31st, 1923.**

Line No.	Dealers App..	Trailers Fees	Trailers No.	Transfers Fees	Transfers No.	Lost Certif. Fees	Lost Certif. No.	Refund Amount	Refund No.	TOTALS Plates	TOTALS Fees
1	47	$ 32.50	7	$ 1,067.50	713	$ 44.00	44	$ 109.75	23	5773	$ 57,189.25
2	19	2.50	1	401.25	265	15.00	16	....	....	3798	37,749.70
3	....	....	....	26.00	15	....	....	....	....	230	2,357.00
4	....	5.00	1	41.75	26	1.00	1	....	....	424	5,155.17
5	3	....	....	14.00	14	....	....	....	....	301	3,164.50
6	18	....	....	381.75	232	2.00	2	....	....	3894	39,014.70
7	19	12.50	3	259.45	138	7.00	7	2.00 overchg		1912	19,286.85
8	12	15.00	3	228.25	169	11.00	11	50.38	9	1768	16,829.50
9	6	5.00	1	124.00	65	4.00	4	....	....	1086	11,056.50
10	46	100.00	24	941.00	577	82.00	83	....	....	6359	61,622.25
11	23	45.00	10	637.25	405	25.00	26	22.75	4	3707	37,787.47
12	27	65.00	14	477.25	322	....	....	....	....	4021	41,743.25
13	39	7.50	2	907.50	597	....	....	49.50	11	4846	47,928.25
14	32	5.00	1	540.50	392	28.00	28	25.75	5	4411	44,439.25
15	10	13.00	1	108.50	90	5.00	5	11.75	1	1322	14,417.00
16	22	2.50	1	96.20	59	6.00	8	....	....	1471	15,216.73
17	24	5.00	1	372.48	239	20.00	20	13.75	2	2683	28,808.71
18	25	27.50	7	576.00	410	24.00	26	37.50	8	3735	36,252.00
19	24	7.50	2	495.50	338	27.00	27	10.00	2	3281	34,214.25
20	27	....	....	454.87	346	39.00	39	11.50	1	4159	44,515.20
21	47	47.50	12	928.75	640	34.00	39	15.00	2	6531	64,739.17
22	18	25.00	4	267.50	185	3.00	30	10.00	2	2127	20,729.00
23	14	....	....	121.60	64	....	2	23.00	4	1676	18,397.34
24	30	125.00	27	610.00	362	24.00	24	....	....	4380	44,222.75
25	4	....	....	76.25	48	....	....	....	....	918	10,295.50
26	14	2.50	1	314.25	235	22.00	22	45.00	6	3107	30,422.00
27	35	40.00	7	1,403.10	855	89.00	89	24.00	1	7234	73,499.40
28	224	433.50	18	11,161.25	6105	2,181.00	2233	....	....	46802	488,605.00
29	8	....	....	106.00	76	1.00	1	....	....	1241	12,962.75
30	22	40.00	9	484.00	389	16.00	19	32.00	4	3655	36,130.75
31	18	27.50	6	191.75	124	....	....	5.00	1	2331	24,501.25
32	15	2.50	1	189.00	158	19.00	19	....	....	2180	21,970.83
33	21	32.50	8	500.25	333	33.00	40	15.00	3	3344	32,357.25
34	48	57.50	13	1,308.50	809	84.00	84	80.00	17	7550	74,053.55
35	7	....	....	166.00	98	4.00	4	40.75	8	1101	10,713.00
36	6	5.00	1	108.50	56	....	....	....	....	689	6,816.25
37	3	10.00	2	113.50	89	4.00	6	....	....	1259	12,571.50
38	5	....	....	14.00	7	4.00	2	....	....	242	2,728.00
39	7	....	....	133.50	95	2.00	2	....	....	1720	17,129.40
40	40	30.00	7	1,047.75	658	59.00	59	149.12	23	6529	64,936.75
41	23	82.50	18	686.55	446	35.00	56	102.25	18	3875	38,079.05
42	12	47.50	11	226.25	172	....	....	....	....	2371	23,353.75
43	1	....	....	102.50	81	....	....	15.00	2	927	10,227.75
44	12	....	....	117.25	105	1.00	1	....	....	1512	15,584.25
45	17	....	....	309.75	211	21.00	26	20.00	2	3283	32,725.25
46	4	....	....	11.75	10	3.00	3	....	....	235	2,647.25
47	17	5.00	1	250.25	175	14.00	14	....	....	2655	26,651.50
48	31	32.50	9	677.00	454	3.00	3	33.50	8	4263	40,795.50
49	24	10.00	2	276.50	212	26.00	26	10.00	1	2513	25,099.50
50	22	15.00	4	257.00	186	16.00	19	33.50	8	2205	22,149.50

ANNUAL REPORT MOTOR VEHICLE DEPARTMENT—Concluded

January 1st—December 31st, 1923. **(A)**

Line No.	COUNTY	Regular Fees	Regular No.	Trucks Fees	Trucks No.	Motorcycles Fees	Motorcycles No.	Lost Plates Fees	Lost Plates No.	Dealers Fees	Dealers Pl't's
51	Keith	11,245.00	1082	3,151.25	178	32.50	7	16.00	16	182.00	17
52	Keya Paha	5,456.25	565	805.00	41	....	....	6.00	6	30.00	2
53	Kimball	7,664.75	746	3,890.25	249	5.00	1	9.00	9	34.50	3
54	Knox	41,407.75	3861	6,454.75	333	62.50	14	38.00	38	377.00	23
55	Lancaster	199,599.00	17826	35,753.75	2098	1,305.00	312	599.00	602	1,909.00	166
56	Lincoln	41,598.54	3989	6,658.15	359	72.50	17	75.00	76	440.05	37
57	Logan	4,096.35	404	386.75	22	5.00	1	5.00	5	36.50	3
58	Loup	2,790.00	280	517.75	25	....	....	1.00	1	....	....
59	Madison	55,936.92	5231	9,407.00	457	95.00	23	84.00	85	644.00	56
60	McPherson	1,798.75	182	711.50	43	....	....	3.00	3	33.50	3
61	Merrick	24,712.50	2366	3,726.75	204	50.00	11	25.00	25	221.50	18
62	Morrill	15,665.00	1606	1,803.50	101	12.50	3	41.00	41	234.00	22
63	Nance	20,181.25	1953	2,360.30	144	37.50	10	25.00	25	224.25	21
64	Nemaha	27,767.25	2667	4,143.75	255	40.00	10	33.00	34	276.50	24
65	Nuckolls	29,588.75	2813	2,607.00	151	42.50	10	25.00	25	321.25	29
66	Otoe	44,296.50	4229	8,427.50	507	50.00	10	36.00	36	623.75	54
67	Pawnee	20,734.50	2017	2,908.25	181	50.00	10	26.00	26	127.50	10
68	Perkins	10,543.25	1013	3,065.25	154	20.00	5	1.00	1	89.50	7
69	Phelps	25,115.00	2371	3,687.25	231	110.00	25	37.00	37	232.00	17
70	Pierce	26,745.00	2519	2,968.00	176	20.00	4	29.00	28	334.00	34
71	Platte	43,688.00	3959	7,593.00	381	147.50	32	31.00	31	479.50	41
72	Polk	27,844.75	2532	4,052.25	222	35.00	8	34.00	34	275.00	26
73	Red Willow..	23,931.50	2339	3,984.75	244	40.00	9	67.00	67	433.25	34
74	Richardson ..	42,335.45	3952	7,057.25	374	40.00	10	57.00	57	411.00	39
75	Rock	5,757.50	609	1,181.75	58	2.50	1	4.00	4	30.00	3
76	Saline	43,384.75	3613	4,840.75	306	37.50	9	33.00	33	369.25	28
77	Sarpy	20,133.25	1979	6,041.25	371	75.00	17	19.00	19	218.00	16
78	Saunders	52,090.25	4833	7,561.55	433	60.00	14	63.00	65	555.50	43
79	Scottsbluff ..	37,803.92	3745	4,801.60	276	75.00	18	154.00	154	496.00	47
80	Seward	39,731.50	3660	5,107.00	329	60.00	14	54.00	54	459.75	42
81	Sheridan	16,168.25	1432	1,870.75	104	12.50	3	6.00	6	293.50	22
82	Sherman	19,123.00	1842	1,632.50	94	20.00	4	24.00	24	221.25	18
83	Sioux	6,216.75	620	1,017.00	60	15.00	4	10.00	10	20.00	2
84	Stanton	19,726.15	1839	4,554.00	215	17.50	4	21.00	21	111.75	12
85	Thayer	32,373.75	3050	3,884.25	244	22.50	5	22.00	22	377.25	36
86	Thomas	2,214.00	229	143.50	10	....	....	4.00	4	32.50	4
87	Thurston	15,767.25	1569	2,968.25	128	22.50	6	28.00	28	206.75	14
88	Valley	20,799.45	1958	3,327.05	197	7.50	2	18.00	18	244.90	20
89	Washington ..	29,246.60	2805	7,878.75	461	57.50	12	24.00	24	253.25	20
90	Wayne	29,009.50	3208	6,859.75	335	17.50	5	30.00	30	350.00	25
91	Webster	22,576.00	2130	2,261.75	130	30.00	6	6.00	6	264.50	24
92	Wheeler	4,142.00	412	1,189.35	60	....	....	....	....	40.00	3
93	York	41,713.75	3828	4,491.50	262	95.00	23	62.00	62	545.00	43
94	Totals	$2,754,430.61	259382	$498,750.99	26671	$6,962.00	1608	$4,174.00	4200	$33,050.50	2771
95	Last Report	....	....	....	....	......	....	......	....	......	....
96	To Date	....	....	....	....	......	....	......	....	......	....

ANNUAL REPORT MOTOR VEHICLE DEPARTMENT—Concluded

(B) **January 1st—December 31st, 1923.**

Line No.	Dealers App.	Trailers Fees	Trailers No.	Transfers Fees	Transfers No.	Lost Certif. Fees	Lost Certif. No.	Refund Amount	Refund No.	TOTALS Plates	TOTALS Fees
51	15	5.00	1	151.55	115	6.00	6	....	....	1420	14,789.30
52	2	5.00	1	64.25	47	2.00	4	10.00	2	666	6,368.50
53	3	....	....	66.25	50	12.00	12	....	....	1070	11,681.75
54	23	30.00	6	543.25	405	37.00	37	85.00	12	4717	48,950.25
55	111	164.50	32	5,566.00	3388	310.00	317	821.09	154	24686	245,206.25
56	27	10.00	2	823.89	486	20.00	20	69.85	11	4976	49,698.13
57	3	....	....	36.00	32	2.00	2	....	....	469	4,567.60
58	....	....	....	34.75	30	....	....	....	....	336	3.343.50
59	46	60.00	15	712.00	464	....	....	....	....	6321	66,938.92
60	3	2.50	1	15.00	15	....	....	....	....	247	2,564.25
61	16	5.00	1	359.75	265	14.00	16	22.25	4	2904	29,114.50
62	21	2.50	1	327.00	252	22.00	22	....	....	2047	18,107.50
63	19	2.50	1	170.00	121	7.00	8	....	....	2281	23,007.80
64	21	2.50	1	563.75	396	18.00	19	15.12	5	3403	32,844.75
65	20	5.00	2	582.75	400	37.00	37	96.00	17	3458	33,209.25
66	51	37.50	8	889.50	656	15.00	15	....	....	5512	54,375.75
67	10	30.00	7	301.75	215	20.00	20	....	....	2486	24,198.00
68	7	....	....	116.25	73	6.00	6	....	....	1259	13,841.25
69	12	222.50	48	327.25	254	1.00	1	30.62	7	2979	29,732.00
70	19	....	....	372.25	274	25.00	25	18.00	3	3045	30,493.25
71	29	15.00	3	368.25	195	29.00	26	5.00	1	4656	52,351.25
72	18	15.00	5	349.25	238	1.00	1	....	....	3058	32,606.25
73	25	10.00	3	363.65	235	45.00	45	31.25	6	2967	28,875.15
74	30	167.50	38	876.55	581	....	....	12.87	2	5042	50.944.75
75	3	5.00	2	78.00	60	1.00	1	5.00	1	738	7,059.75
76	27	35.00	8	450.00	329	10.00	10	26.00	4	4335	49,160.25
77	14	....	....	412.50	293	50.00	53	18.75	2	2746	26,949.00
78	41	35.00	8	775.25	574	37.00	39	....	....	6007	61,177.55
79	47	18.00	3	813.50	543	95.00	101	21.50	5	4887	44,257.02
80	34	92.50	21	635.00	408	10.00	10	32.50	7	4530	46,149.75
81	20	....	....	212.75	101	1.00	1	....	....	1667	18,564.75
82	16	7.50	2	168.70	110	14.00	14	....	......	2106	21,210.95
83	2	....	....	23.00	23	3.00	3	....	....	722	7,304.75
84	11	....	....	196.25	170	15.00	16	....	....	2276	24,641.65
85	33	40.00	9	676.25	513	15.00	16	104.75	13	3892	37,411.00
86	4	....	....	12.00	12	1.00	1	....	....	260	2,407.00
87	13	....	....	232.25	180	23.00	23	24.00	3	1947	19,248.00
88	19	2.50	1	367.73	266	31.00	31	....	....	2492	24,798.13
89	20	15.00	3	620.85	464	1.00	2	2.50	1	3791	38,096.95
90	21	....	....	510.00	350	8.00	9	69.50	14	3958	36,784.75
91	22	....	....	320.25	210	....	....	5.00	1	2504	25,458.50
92	2	....	....	22.10	12	....	....	....	....	486	5.393.45
93	34	180.00	41	863.00	590	24.00	24	....	....	4864	47,974.25
94	2086	$2,644.00	514	$51,681.52	33245	$4,006.00	4143	$2,524.30	453	331849	$3,355,699.62
95	....	....	....	....	......	....	......	Less Refunds		453	2,524.30
96	....	....	....	....	......	....	......	....	....	331396	$ 3,353,175.32

The Department of Public Works appoints the Treasurer of each county to be the agent of the said department for the purpose of registering motor vehicles and granting of licenses to applicants in said county. The license or application granted contains a statement of the name and post office address of the applicant, a description of the motor vehicle, including the name of the maker, number affixed to the motor or engine, character of motive power, the diameter of the cylinder bore and number of cylinders, seating capacity, weight of car, year or model; and for such license the applicant shall pay the required fee as provided in Section 15 of the Motor Vehicle law.

The Counties are given an index number according to number of automobiles registered in each county and prefixes registration number, as follows:

Douglas County prefix number is 1, and licenses will be numbered 1-1, 1-2, etc., and the same applies to every county in the State.

Index No.	County	Index No.	County	Index No.	County
1	Douglas	32	Thayer	63	Boyd
2	Lancaster	33	Jefferson	64	Morrill
3	Gage	34	Fillmore	65	Box Butte
4	Custer	35	Dixon	66	Cherry
5	Dodge	36	Holt	67	Hitchcock
6	Saunders	37	Phelps	68	Keith
7	Madison	38	Furnas	69	Dawes
8	Hall	39	Cheyenne	70	Dakota
9	Buffalo	40	Pierce	71	Kimball
10	Platte	41	Polk	72	Chase
11	Otoe	42	Nuckolls	73	Gosper
12	Knox	43	Colfax	74	Perkins
13	Cedar	44	Nemaha	75	Brown
14	Adams	45	Webster	76	Dundy
15	Lincoln	46	Merrick	77	Garden
16	Seward	47	Valley	78	Deuel
17	York	48	Red Willow	79	Hayes
18	Dawson	49	Howard	80	Sioux
19	Richardson	50	Franklin	81	Rock
20	Cass	51	Harlan	82	Keya Paha
21	Scottsbluff	52	Kearney	83	Garfield
22	Saline	53	Stanton	84	Wheeler
23	Boone	54	Pawnee	85	Banner
24	Cuming	55	Thurston	86	Blaine
25	Butler	56	Sherman	87	Logan
26	Antelope	57	Johnson	88	Loup
27	Wayne	58	Nance	89	Thomas
28	Hamilton	59	Sarpy	90	McPherson
29	Washington	60	Frontier	91	Arthur
30	Clay	61	Sheridan	92	Grant
31	Burt	62	Greeley	93	Hooker

The County Treasurer shall forward all applications to the State Department of Public Works in duplicate where they are filed NUMERICALLY in Counties by registration number and ALPHABETICALLY by name of applicant and also a record of each make or kind, filed according to engine number with cross reference in each instance to the registration number assigned to such motor vehicle. The records are kept by card index and are open to the public during reasonable business hours.

Transfer of Ownership—Transferee.

Upon the transfer of ownership of any motor vehicle, its registration shall expire, and the person in whose name such vehicle is registered, and the person to whom ownership of such vehicle is to be transferred, shall join in a statement of said transfer, indorsed on reverse side of the certificate of registration of said motor vehicle which statement shall be signed by the transferor and likewise by transferee who shall set forth below his signature his post office address. Said certificate shall include an application by the transferee for registration of said vehicle in his name. Said certificate indorsed and bearing signatures of transferor and transferee on reverse side thereof shall be forwarded by the County Treasurer to the Department of Public Works together with a receipt for proper fee for registration as required in Section 15 of the motor vehicle law.

Transfer of Ownership—Transferor.

In case of such transfer of ownership of any motor vehicle or in case of loss of possession thereof, the transferor may have assigned to another motor vehicle the registration number of the motor vehicle so transfered or lost by paying $1.00 transfer fee and 50c per one hundred pounds additional weight.

Provided further, that in case of transfer of Motor Vehicle within a period of ninety days from the time of payment of fee as provided in Section 15, the transferor may by returning the registration certificate, number plates and container receive a refund of one-half the amount of such fee.

Non-Residents

Non-residents coming into the State may retain their foreign license for a period not exceeding thirty days ;Provided the owners thereof have complied with any law requiring the registration of owners of Motor Vehicles in the state, territory, or federal districts of their residence and provided the registration number and the initials of such state, territory, or federal district shall be displayed on such vehicles substantially as provided in this Act.

The Department has published a pamphlet describing in detail the methods of focusing and adjusting headlights. It will be sent to any one free of charge.

The Department of Public Works has approved the following lenses and devices:

No.	Name	Focus	Tilt	Maximum Candlepower Vac.	Maximum Candlepower Nitro.
1	Raydex	1	1 1-3 ft. in 100 ft.	15	21
2	Osgood	2	1 ft. in 100 ft.	15	21
3	Macbeth	1	None	24	24
4	Liberty	1	None	24	24
5	Patterson	1	None	21	24
6	McKee	2	None	22	24
7	Shaler	2	None	23	24
8	Violet Ray	1	None	21	22
9	National	1	None	19	24
10	Bausch & Lomb	1	1 ft. in 100 ft.	18	22
11	Primolite "B"	1	1 ft. in 100 ft.	16	21
12	Ford Green Visor Headlamp	3	1 ft. in 100 ft.	24	....
13	Sun Ray	1	None	21	24
14	Glareless	1	3 ft. in 100 ft.	....	21
15	Lega-lite (New Type)	1	None	22	24
16	Holophone	1	None	24	24
17	Dillon Type "E"	1	None	21	24
18	Conaphone Clear Type No. F.	1	None	21	24
19	Benzer no Glare	1	None	24	24
20	North Star Glare Shield	1	3 ft. in 100 ft.	15	21
21	Right Lens	4	None	19	23
22	Parab-O-Lite Form "A"	1	2 ft. in 100 ft.	17	22
23	Nash Standard Sanded	2	None	18	21
24	Hed-Lite Glare Deflector	2	3 ft. in 100 ft.	24	24
25	Thomas Green Visor	2	None	24	24
26	Sunlight "D" McKee Type	1	1 ft. in 100 ft.	....	21
27	Onlee	2	3 ft. in 100 ft.	19	21
28	Clamert "A"	1	None	15	21
29	Riley Ray Headlamp	2	2 ft. in 100 ft.	24	24
30	Saferlite	2	1 ft. in 100 ft.	15	21
31	Norling no-glare Reflector	1	4 ft. in 100 ft.	15	21
32	Alvo Four Range Light	4	5 ft. in 100 ft.	16	24
33	Type "B" Clear Conaphore	1	1 ft. in 100 ft.	21	24
34	Gibson New Glareless	1	1 ft. in 100 ft.	....	21
35	Ford Type "H" Lens	1	4 ft. in 100 ft.	21	21
36	H-G Lens	2	2 ft. in 100 ft.	16	24
37	Green Moon Lens	1	None	....	21
38	Flat Lite "B" Reflector	....	5 ft. in 100 ft.	....	21
39	Dodge Bros. Lens No. 8	1	4 ft. in 100 ft.	....	21
40	Cor-Co-Lite Type "A" Ref.	....	3 2-3 ft. in 100 ft.	....	21
41	Monogram Lens	1	4 ft. in 100 ft.	15	21
42	Brown Reflector	....	None	22	24
43	Guide Ray Lens	1	None	....	21
44	Smith Lens	2	None	....	21
45	Spreadlight	2	3 1-2 ft. in 100 ft.	....	21
46	McKeelite Lens	2	10 in. in 25 ft.	....	21
47	Standard Lens	....	11 in. in 25 ft.	....	21
48	Spreadlight (MC. Size)	....	11 in. in 25 ft.	....	21
49	Lincoln "H" Lens	....	8 in. in 25 ft.	....	21
50	Paraflex Reflector	....	1-3 ft. in 100 ft.	....	21
51	Johnson Lens	....		....	21

Unlawful Lenses and Devices

Warner Lens	Yellow Conaphore
Perfection	Morelight
Hame Made Lenses	Frosted Bulbs

REPORT OF BUREAU OF IRRIGATION, WATER POWER AND DRAINAGE

Division of Irrigation

Division of Statistics

Division of Water Power and Drainage

Division of Hydrography and Surveys

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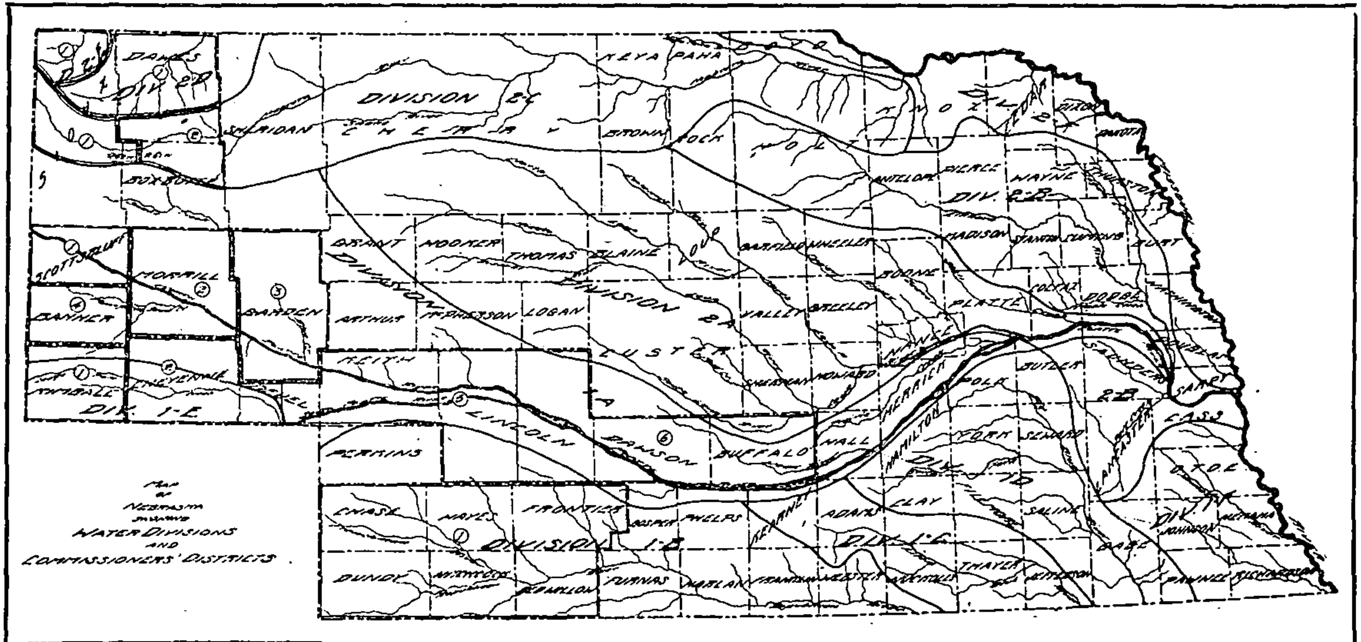
DIVISION OF IRRIGATION



WATER DIVISIONS
AND
COMMISSIONERS' DISTRICTS
DIVISION 2-C
DIV. 2-B
DIVISION 2-A
DIVISION 1-E
DIV. 1-E
DIV. 1-C
DIV. 1-D
DIV. 1-A
DAWES
SHERIDAN
CHERRY
KEYA PAHA
BROWN
ROCK
HOLT
KNOX
CEDAR
DIXON
DAKOTA
ANTELOPE
PIERCE
WAYNE
THURSTON
MADISON
STANTON
CUMING
BURT
BOX BUTTE
SCOTTS BLUFF
MORRILL
BANNER
GARDEN
CHEYENNE
KIMBALL
GRANT
HOOKER
THOMAS
BLAINE
LOUP
GARFIELD
WHEELER
BOONE
PLATTE
COLFAX
DODGE
ARTHUR
McPHERSON
LOGAN
CUSTER
VALLEY
GREELEY
SHERMAN
HOWARD
NANCE
MERRICK
POLK
BUTLER
SAUNDERS
SARPY
KEITH
LINCOLN
DAWSON
BUFFALO
HALL
HAMILTON
YORK
SEWARD
LANCASTER
CASS
PERKINS
OTOE
CHASE
HAYES
FRONTIER
GOSPER
PHELPS
KEARNEY
ADAMS
CLAY
FILLMORE
SALINE
GAGE
JOHNSON
NEMAHA
DUNDY
HITCHCOCK
RED WILLOW
FURNAS
HARLAN
FRANKLIN
WEBSTER
NUCKOLLS
THAYER
JEFFERSON
PAWNEE
RICHARDSON

REPORT OF CHIEF, BUREAU OF IRRIGATION, WATER POWER AND DRAINAGE

Bridgeport, Nebraska, November 30, 1924.

R. L. Cochran, State Engineer,
Lincoln, Nebraska.

Dear Sir:

I have the honor of submitting herewith the report of matters transpired in the Bureau of Irrigation, Power and Drainage during the past biennium.

Water Supply.

Irrigation needs have been amply met during the past biennium in the 1-A watershed. The White River and tributaries in northwestern part of the State were extremely short of water during the season of 1924. Barely enough for stock by closing canals. The conditions experienced were nearly as bad on the Republican and Frenchman Rivers. The South Platte River discharged, into Nebraska at Julesburg, 648,922 acre feet in 1923 and approximately 1,100,000 acre feet in 1924. Notwithstanding the greater amount of water in 1924 there was an insufficient supply, during July and August, for the Western Irrigation District. No projects in Colorado, having subsequent rights to the Western Irrigation District, diverted any of the natural flow during that period.

The discharge records of the river at North Platte are more complete and cover a period of twenty-nine years. The mean annual discharge of the river at North Platte for that period is 2,294,000 acre feet. The annual discharge of the river for 1923 is 93 per cent of the twenty-nine year mean and 95 per cent for 1924. A slight increase notwithstanding that the season of 1924 was an unusually dry one.

During the months of July, August and September, 1924, 626,141 acre feet, 29 per cent of the annual discharge, passed North Platte and 432,997 acre feet passed during the same months in 1924, or 19 per cent of the annual discharge. During the same months 450,000 acre feet, 28 per cent of the annual flow, passed Bridgeport in 1923, and 433,000 acre feet, 20 per cent of the annual flow, in 1924. Approximately the same ratio of discharge as at North Platte. Comparing the flow for the same months in 1922 with 1924 at Bridgeport, 251,000 acre feet, 25 per cent of the annual flow, passed.

The twenty-nine year (1895 to 1924) mean flow of the river at Bridgeport for the months of July, August and September was 384,000 acre feet and at North Platte it was 400,00 acre feet. The fourteen year (1895 to 1908) mean flow for the same months at

North Platte was 339,000 acre feet and the sixteen year (1909 to 1924) mean was 448,000 acre feet, 32 per cent increase. The thirteen year (1896 to 1908) mean flow at Bridgeport for the same months was 296,000 acre feet and the sixteen year (1909 to 1924) was 455,000 acre feet, 54 per cent increase.

In the latter part of August and the first two weeks of September, 1922, all canals in the 1-A watershed, having priority dates later than October 18, 1888, were closed against diverting the natural flow. The rainfall throughout the North Platte Valley, during the irrigation season, was 116 per cent greater in 1923 than in 1922 while the season 1924 had only 3 per cent more rainfall than in 1922. In other words, the rainfall in 1922 and 1924 was practically the same and no canals were closed in 1924. The graphs, published elsewhere in this report, showing the loss and gain between Whalen, Wyoming and Lexington, Nebraska, on the North Platte River for the seasons of 1922 and 1923 should be studied. If these graphs can be accepted as approximately correct it would seem to indicate that rainfall exerts a great influence on the gain or loss.

The water supply of Chadron Creek during the summer of 1924 was rather critical. The average discharge of the stream above the reservoir owned by the City of Chadron was 1.95 second feet during the months of July, August and September and only 0.50 second feet below the intake of their water system. The City has two direct flow appropriations, aggregating 5.50 second feet from Chadron Creek and no storage appropriation. The appropriators on this stream have had considerable conflict over the distribution. There are riparian rights as well as domestic uses to be recognized. The Department disallowed the application, filed for 4.50 second feet, by the City of Chadron for the reason that the stream was over appropriated for direct flow appropriation and not dependable for the intended purpose and in lieu thereof, recommended a storage application. The City appealed to the Supreme Court and a decree was rendered ordering the Department to grant the direct flow appropriation application. The State inadverdently failed to appear before the Supreme Court in this case.

Projects Developed.

Since the publication of the fourteenth biennial report of the State Engineer two projects have been practically completed. The Whitney project, reclaiming 9,792 acres with water diverted from the White River west of Whitney, Nebraska and the Northport project, reclaiming 16,000 acres, with water from the North Platte River.

Irrigation Districts.

Considerable interest was manifest in district organization the past year. However, not all were successful.

Petition signed by eighteen land owners comprising 9,995 acres was filed with County Commissioners of Dawes County and hearing before said board was held November 8, 1921 for the formation of the Whitney Irrigation District. Final action of the board cut the area to 9,945 acres. Election held and votes canvassed December 12, 1921. Twenty-three votes cast, nineteen for and three against. $390,870.00 bonds voted to meet construction cost and first year's interest. Before bond election, 153 acres were set out of the district by the Board of Directors leaving 9,892 acres in the district. Contracts for construction were awarded June 1, 1923. 29,564 feet of pipe line were constructed from a diversion dam in the White River to the reservoir site at a cost of $163,532.00. The Whitney project was not completed in time to store the spring flow of 1924, hence only a small supply was available in the reservoir. Probably one-fourth of the irrigable area was watered in the 1924 season. Project was 95 per cent complete October 31, 1924. The diversion dam cost $9,223.00.

The Northport project was completed and ready to receive water in 1923 for the entire area of 16,000 acres. This project cost $1,-050,000.00 including complete lateral system to each farm unit.

Attempt to place the lands under Docket 687 and 667 into district organizations in the spring of 1923, for the purpose of taking over and rehabilitating an old canal failed and the appropriations were cancelled August 13, 1923. Attempt was made to form the lands under Dockets 621 and 624, known as the Farmers and Platte River projects respectively, but without success and cancellation of the appropriations is pending until hearing can be held on the Dawson County project.

The Gaslin Irrigation District was organized from the lands under Docket 666, sometime in December, 1923 and an election to vote $443,000.00 bond issue was held January 21, 1924. The bond issue failed to carry by a vote of eleven for and thirty against. On February 5, 1924 the appropriation was cancelled for non-use.

An election was held by the land owners under Docket 681 on May 1, 1923. The formation of district carried by seventy-nine votes for and seven votes against. County Commissioners, on May 14, 1923, declared the Gothenburg South Side Irrigation District duly organized. On January 28, 1924 the Department approved an estimate of cost to rehabilitate the old canal, amounting to $382,618.00 to be submitted to the voters of the district at a bond election. The District Court disapproved the bond issue and rendered a decree which reads in part: "IT IS THEREFORE CONSIDERED, ADJUDGED AND DECREED that the canal and water appropriation described herein, and described in the proceedings organizing said district, and described in the proceeding at which said bonds were voted, has been abandoned and forfeited, and had been so abandoned and forfeited many years prior to the organization of said district or the voting of said bonds, and that said irrigation district, gets nothing by the pretended purchase of said pretended canal, water rights and franchises; that the election at which said bonds were voted, was for the reasons heretofore stated, null and void, and that the bonds voted at said election are likewise null and void, and of no force and effect, and the petition of petitioners herein is dismissed at petitioners cost, to all of which said petitioners except, and forty days are allowed from the rising of the court to prepare and settle a Bill of Exceptions. Supersedes as required by law."

Farm Loans.

Irrigation districts bonded indebtedness is viewed by Loan Companies in such manner as to give a difference without a distinction when compared to taxes for other indebtedness. Invariably the bonded indebtedness covers construction cost of projects. This indebtedness is repaid by taxes levied each year by the board of directors of the district. County Commissioners, City Councils and School Boards levy a tax to repay bonded indebtedness to cover the cost of bridges, Court Houses, City Halls, School Houses and other public improvements and money is loaned without giving that indebtedness any thought. But, a tax levy to construct a system of carriers of water to make lands much more productive is "different" for no apparent reason.

Water Administration.

The water supply in the 1-A watershed, during the 1923 and 1924 seasons, was not difficult to administer. Plenty of water being available.

Water Commissioner, O. M. Finley of Scottsbluff was active in the performance of his duties and was very satisfactory. Water Commissioners, C. E. Strong and P. M. Whitehead have always presented rather difficult problems to be solved in the administration of water distribution along the Frenchman and Republican Rivers. However, they have performed their duties with fairness.

The problems of administration along the White River and Niobrara are not so difficult. However, they do require the constant services of the Water Commissioner and Superintendent throughout the irrigation season. John D. Heywood, Superintendent and F. A. Hood, Water Commissioner, have been able to handle the situation satisfactorily.

Hydrography.

Stream measurements have been carried on the past two years covering all streams in Nebraska in 1923 with three hydrographers and on the principal streams with one hydrographer in 1924, with an exception of two months. During July, August and September two hydrographers were employed. From September 30, 1922 to September 30, 1924 the number of gaugings made are as follows:

Year	Streams	Canals	Total
1923	1921	771	2692
1924	1123	622	1744
Total	3043	1393	4436

Results of stream measurements are published elsewhere in this report. Record of canal discharges will not be published but will be kept in the files of the Department for reference.

Hearings.

Hearings were held on a number of projects that failed, for many years, to put to beneficial use the water appropriated. Some of the hearings resulted in cancellation of the entire appropriation and others in a partial cancellation.

The cancellation proceedings of the Deleware-Hickman project in the Republican Valley was appealed to the Supreme Court from the District Court of Dundy County by the State. While nearly all hearings before the Department have been conducted in the past without guidance by representation from the Attorney General's Department, it would seem better practice for the Attorney General to attend all the hearings in the interest of the State. By such practice the appearance of the Department setting as judge and prosecutor would be avoided.

Cooperation.

Cooperation of projects with the Department has not been carried on to the degree of satisfaction that was desired.

There will always be occasions when the records of water used will be needed for some purpose or other, perhaps in a law suit. It is further necessary to have cooperation in order to administer the distribution of the water supply intelligently.

There has been, and will be again, seasons with demands exceeding the supply. It is then necessary to have records for reference by the Water Commissioners. It is impossible for the Water Commissioners to administer the available water supply with any degree of equity unless a complete record is at his disposal, supplied by all project managers through cooperation with the State.

At this time the rights of Nebraska to the use of the water of the North Plattte River are now in the hands of a Commission representing the United States, Colorado, Wyoming and Nebraska. The records of the use of the water, by projects in Nebraska, from this interstate stream are much needed by the Commissioner from Nebraska. The more complete the records are the better equipped will be the Commissioner to protect the rights of the water user.

I wish to thank State Engineer, R. L. Cochran, for the cooperation and substantial advice rendered me during the past biennium; K. I. Ward, Statistician in the Bureau of Irrigation, Water Power and Drainage, for the cheerful compliance to all requests made by me for information and cooperation; Water Commissioners O. M. Finley, C. E. Strong, P. M. Whitehead and F. A. Hood for the faithful performance of duties in their respective districts; John D. Heywood, Superintendent, for his loyal cooperation; Andrew Weiss and corps of assistants in the United States Reclamation office at Mitchell, Nebraska, and H. F. Parsons, Manager of the Farmers Irrigation District, who have supplied me with information, reports and other valuable assistance, courteously, rendered.

The following is a general summary of matters coming before the Department during the past two years:

Stream Measurements	3043
Canal Measurement	1393
Water Appropriations Granted	54
Water Claims Adjudicated	3
Water Appropriations Cancelled	103
Applications Dismissed	17
Hearings Held	94
Maps Filed	72
Deeds Recorded	24
Relocation Permits	5
Extension of Time Permits	11
Irrigation Districts Organized	1
Drainage District Organized	2
Field Investigations	173
Proof of Appropriations	2
Fees Collected:	
Applications, Dam Plans, Power Leases, Deeds Reports, Proof of Appropriations and Copying Records	$1936.50

Recommendations.

I should like to make a few suggestions which I believe will be helpful in the interest of irrigation:

(1) Water Commissioners, Hydrographers and other employees of the Department should have the same authority, by statute, as the Water Superintendent to file verified reports and such reports to be prima facie evidence in all proceedings before the Department.

(2) The actual measurements and daily discharges of all streams in Nebraska, as well as other hydrographical data, should be published in book form, as this material has not been published since 1914. There is now considerable data of value for water power and future irrigation studies on file which should be condensed and published for distribution. There have been constant calls for this data which requires considerable work to copy the records. An appropriation should be made by the next legislature for this purpose.

(3) Hearings coming before the Department effecting the disposal of public water of the State, should have the legal guidance of the Attorney General to protect the economic use of this resource of Nebraska for her citizens.

(4) Requests have been made frequently for records of stream measurements covering long periods. Two or three hydrographers are needed in the summer months to gauge all streams in the State.

Respectfully submitted,

R. H. WILLIS, Chief,

Bureau of Irrigation, Water Power & Drainage.

REPORT OF WATER COMMISSIONER, DISTRICT NO. 1, DIVISION NO. 2-D

Chadron, Nebraska, November 30, 1924.

R. L. Cochran, State Engineer,
Lincoln, Nebraska.

Dear Sir:

There has not been a great deal of work for the Water Commissioner in this territory of late years, on account of the abundance of rain, and the advantages of irrigation have not been felt by those who have been in position to secure it.

A great many projects have fallen into disuse and abandoned and dams have been washed out and not replaced as the rainfall has been sufficient for ordinary crops.

The Whitney Irrigation District, while it is not yet fully completed and in operation, supplied water to some users about the first of August, and two crops of alfalfa were raised after that, whereas the fields up to that time were barren. The wonderful possibilities of irrigation are now demonstrated and dry land farmers are acquiring small tracts of this land for the purpose of insuring an adequate supply of hay.

While this tract has more streams of water than any other part of the state, the stream flow is not sufficient during the season to supply those who could use it for irrigating purposes, and the problem, or rather the program should be to augment the supply by creating numerous storage reservoirs along the creeks. These would take care of the flood waters, minimizing damage and loss from that source, and would stabilize and increase the regular flow, so that the water could be applied to beneficial use.

This year has been exceptionally dry in this district, and numerous complaints have been made that water was being unlawfully diverted from the creek, so that stock water was not available. The complainants were unable to show just where the water was being diverted, and our investigations the two previous years failed to reveal any diversion, and it is our opinion that the shortage of water was due to natural causes.

The opportunities for irrigation here are numerous, and this year has demonstrated its value. It will be our purpose to stimulate our people to action that they may secure for themselves the benefits of water used instead of wasted.

Respectfully submitted,

F. A. HOOD,

Water Commissioner.

REPORT OF WATER COMMISSIONER, DISTRICT NO. 1, DIVISION NO. 1-B

Culbertson, Nebraska, November 30, 1924.

R. L. Cochran, State Engineer,
Lincoln, Nebraska,

Dear Sir:

The irrigation systems of the Frenchman and Republican Valleys are situated peculiarly. Here the rainfall is often quite enough to grow excellent crops without the artificial application of water. This has been the case for the last two seasons.

I understand there was not a ditch which exercised its prior right to water during the year 1923 and during the current year there has been but one ditch which has demanded more water than it was getting. The Culbertson Canal twice dropped below its carrying capacity. The first demand for additional water resulted in the closing of one small ditch for about a day when a freshet supplied the shortage and the closed ditch was enabled again to take water. The second time two or three small ditches were shut off for about a week when nature again supplied the need. This has brought about results inimical to a satisfactory handling of the needs of the water users.

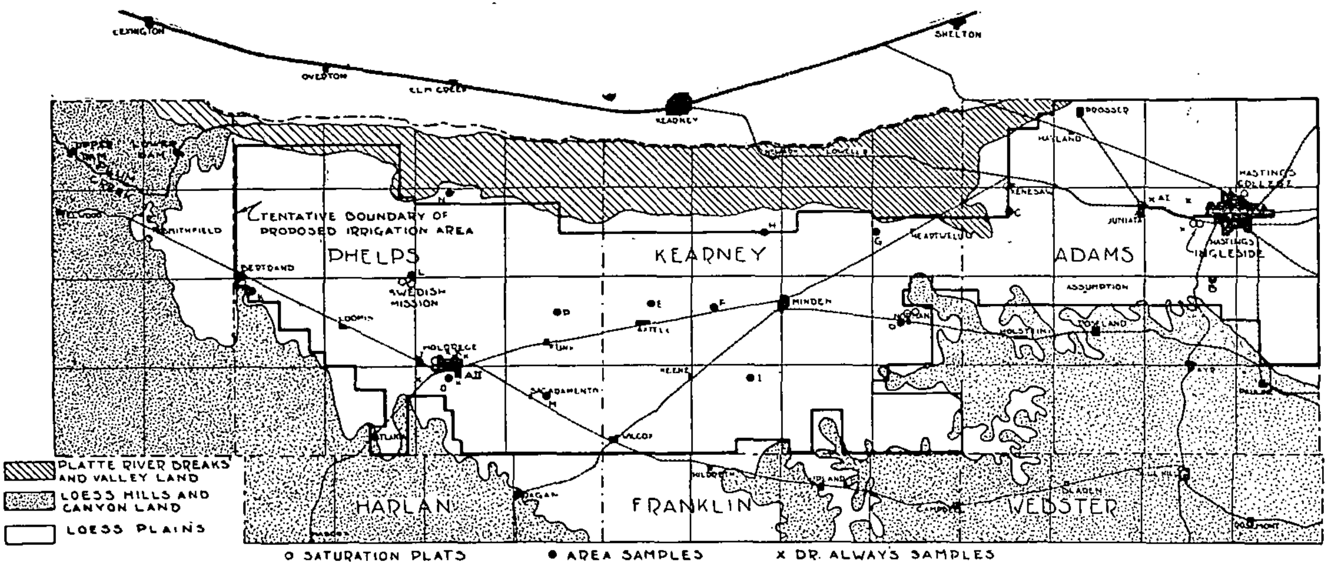
So far as the Water Commissioner knows there are but two ditches which are continuing to maintain automatic recording water gauges. A couple of ditches have their intakes and rating flumes badly clogged with sand and mud. One rather large appropriator has had its rating flume washed away, at least one has no visible means for closing its intake and for one of the best equipped ditches in the district no acreage was reported for the current year.

Perhaps more adequate returns for production will put an end to this laxity and indifference and when a season of shortage comes make the problem of distribution more simple.

Respectfully submitted,

P. M. WHITEHEAD,

Water Commissioner.



Map 1. Location of the Central Nebraska Supplemental Irrigation Project, showing general soil areas, location of points where soil studies were made, and approximate extent of the district to be irrigated. The distribution of the soil areas is based on a reconnaissance map of the region, prepared by the Department of Conservation and Survey, University of Nebraska. The boundaries of the irrigation district are tentative and may or may not include all of the land that will come under the ditch.

REPORT OF CERTAIN INVESTIGATIONS ON THE

CENTRAL NEBRASKA SUPPLEMENTAL IRRIGATION PROJECT*.

W. W. BURR and J. C. RUSSEL.

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In this report are discussed some of the agricultural aspects concerning the feasibility of supplemental irrigation in the area known as the Central Nebraska Supplemental Irrigation Project. This report does not concern itself with the engineering features of the project, which involve the type, manner and cost of construction of laterals, canals, and storage.† Obviously the construction cost is a big factor in determining the feasibility of the project.

The investigations covered by this report were undertaken at the request of Mr. C. W. McConaughy, President of the Central Nebraska Supplemental Water Association and Mr. A. Lincoln Fellows, of the U. S. Bureau of Public Roads, the latter having been assigned by the Secretary of Agriculture to prepare a report for the Secretary of the Interior, setting forth the feasibility of irrigation in this district.

The distinctive feature of this irrigation project is the clear recognition that the rainfall of the district is generally almost sufficient, but seldom quite enough, for the satisfactory production of crops and that what is needed is a supplementing supply that will tend to insure more certain and profitable production. The early contemplation of the project was to meet the deficiency of rainfall thru the storage of water in the subsoil. This project is therefore a departure from the usual custom of establishing irrigation projects under strictly arid conditions. Furthermore the land in the proposed district is not new, but for many years has been under private ownership and much of it has been under cultivation for upwards of fifty years.

The main questions considered in this investigation of the project were, first, the probable average deficiency of rainfall for the satisfactory production of crops thruout the district and, second, the possibilities of meeting this deficiency thru the storage of moisture in the subsoil or by direct application of water in the growing season.

LOCATION OF PROJECT

This project is located in South-central Nebraska, comprising portions of Adams, Kearney, Phelps, and Gosper Counties. It lies between North latitude 40°35′ and 40°40′ and West longitude 99°15′ and 90°

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* This report is in part taken from a previous report made by the same authors to Mr. A. Lincoln Fellows, of the U. S. Department of Agriculture.

† A complete detailed report on the engineering features of the project was made by Mr. F. F. Smith of the U. S. Reclamation Office.

35′. It is bounded on the North by the breaks of the Platte River which are irregular, more or less sandy, and unirrigable; on the South it is bounded by a highly dissected and eroded plain, locally known as Canyon land. On the East it expands into a comparatively level plain of rather heavy textured soil.. It is approximately 65 miles in length, east to west, and from 10 to 20 miles in width, and contains some 500,000 acres of irrigable land.

Topography. The project lies on an extensive unpland table, the surface of which is flat to very slightly undulating. Natural drainage is fairly well established in the eastern portion of the area, but in the western portion the natural drainage is toward depressional areas or basins, which as yet have established no drainage outlet.

Elevation. The elevation is from 1900 feet above sea level in the eastern portion of the area to 2600 feet above sea level in the western portion of the area, the slope to the east being approximately 8 feet per mile, with a less abrupt slope southward, to the Republican River Valley.

Present Development. The land under the proposed project is now and has been for many years under private ownership. The farmers are already on the land which is held in units largely ranging from 160 acres to 320 acres in size. Probably 90 per cent of the land is under cultivation. It is generally quite well improved as to buildings, fences, etc. The farmers have the horses and machinery necessary for farming the land under the present system. There is already invested in this area a tremendous amount of capital, largely resting with the farm owners.

The area has splendid transportation facilities, both as to railroads and highways. There is a highway on almost every section line, generally kept in fairly satisfactory condition. Shipping points are close, no farm having more than a few miles to deliver its products to a shipping point. The area lies relatively close to several important primary markets. It is within 200 miles of Omaha; within 700 miles of Chicago; and within less than 400 miles of St. Joseph and Kansas City. These primary markets afford a ready outlet for all agricultural products.

CLIMATE.

The project lies in what is known as the sub-humid area of the United States, between the humid and arid districts. Of the several climatic factors that influence crop production the rainfall alone thruout this area makes crop production hazardous. Drought, resulting either from an insufficient total supply of rainfall, or from a very unfavorable distribution of the rainfall that does come, is of frequent occurrence. These periods of drought, coupled with the loss of a considerable portion of the virgin fertility of the soil, combine to give quite generally low yields of crops. The crop record for the past 20 years shows that only in one year out of five are satisfactory crops produced.

The temperature ranges from a mean of 24.4° for January to a mean of 75.9° for July, with rare extremes as much as 40° below and 110° above zero. The growing season or frost free period, is sufficient for the production of all crops common to the general territory. The wind velocity is a little higher and the relative humidity a little lower than in eastern Nebraska, which tends to decrease somewhat the efficiency of a given amount of rain. However, it is only during periods of drought and hot winds that these three factors,—temperature, relative humidity and wind velocity, become injurious to crop production. During such periods they combine to greatly increase the rate of transpiration and the consequent demand of the crop for water. If, during such periods, the soil is lacking in moisture, injury results;—the amount of damage depending upon the dryness of the soil and length of time such unfavorable conditions obtain.

Precipitation. Rainfall is the one great limiting factor to crop production within the area. Not only is the total amount generally insufficient for good crop yields, but the distribution is uncertain and frequently very unfavorable. Droughts, of greater or lesser severity are frequent, occurring almost every year, and in the main during the past twenty years have resulted in unprofitably low yields. While the rainfall is probably as favorable as formerly, there has under cultivation been a gradual loss of organic matter from the soil, which has made the rainfall less efficient and has resulted in a gradual decline in crop yields. The difficulty of putting the land to grass or legumes under a limited rainfall makes the maintenance of the organic content of the soil almost impossible.

Annual Precipitation. The mean annual rainfall during the last 20 years—1904 to 1923—at Holdrege, Minden, and Hastings Government Weather Stations is 23.35, 24.05, and 25.42 inches, respectively, an average of 24.27 inches for the three Stations. The annual rainfall together with its monthly distribution for the Holdrege Station is shown in Table 1. While Minden and Hastings have a little more rainfall, its distribution is much the same as for Holdrege.

The average annual rainfall is not a dependable normal, as it varies greatly from year to year. For example, the record at Holdrege shows that during the 20 year period it has varied from a minimum of 13.67 in 1920 to a maximum of 40.73 in 1915. During that time the annual rainfall has been below the average 13 years and above the average 7 years. For six consecutive years, 1909 to 1914, every year was below the average, giving a large accumulated deficit. The average annual rainfall is little more than an index of the probable rainfall and probably less important in crop production than the factor of distribution. It is recognized, of course, that if the total rainfall is so low as to preclude any possibility of crop production distribution is not an important factor, since an insufficient total cannot be so distributed as to meet the crop requirements, but within rather broad limits distribution is more important than the total annual rainfall.. The annual rainfall, yearly variations, and average for Hastings, Minden and Holdrege, are shown graphically in Figure 1.

TABLE 1.—Monthly and Annual Precipitation at Holdrege, Nebraska, 1904-1923.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annu'l
1904	.18	.10	.07	1.93	3.90	3.86	2.82	3.47	1.63	3.43	.10	.20	21.69
1905	.80	1.70	.20	4.80	6.86	11.83	6.21	2.26	3.60	.10	1.85	.0	40.21
1906	.30	.70	1.85	7.90	1.40	.92	4.30	4.46	2.87	3.90	1.04	1.12	30.76
1907	.30	.55	.40	.73	3.99	7.68	2.15	3.20	2.47	.67	.05	.70	22.89
1908	.50	1.25	T	.75	6.75	4.20	3.48	5.45	.52	3.54	.86	.0	27.30
1909	.10	2.20	1.40	1.03	1.53	2.81	3.66	2.28	1.67	1.35	2.58	1.23	21.84
1910	.90	.07	.00	.29	2.50	1.49	3.00	5.73	2.03	1.30	.23	1.10	18.64
1911	.60	.88	.30	1.28	2.62	1.60	4.14	6.19	.96	2.27	.04	1.00	21.88
1912	.55	1.12	2.60	1.80	.30	2.88	2.97	2.09	1.41	.81	1.15	.02	17.70
1913	.25	1.30	1.45	4.12	1.31	2.63	.56	1.05	2.84	T	.32	4.19	20.02
1914	T	.40	.84	.95	2.29	2.21	2.87	2.45	1.44	2.05	.0	.76	16.26
1915	.59	1.15	1.76	3.63	6.99	9.13	7.48	6.20	2.60	.50	.35	.35	40.73
1916	.42	.55	.36	2.63	3.62	4.85	2.32	7.19	.25	1.05	.10	.50	23.84
1917	.27	.23	.32	2.14	5.56	1.53	.53	1.23	3.48	.42	1.75	.08	17.54
1918	1.16	.85	.22	1.23	2.66	.62	4.71	2.73	.87	1.05	2.02	2.22	20.34
1919	.08	1.55	1.40	3.71	2.61	5.44	4.14	.48	1.80	2.17	1.78	.67	25.83
1920	.05	.35	.35	3.91	.80	1.16	1.25	3.16	.07	1.41	.49	.67	13.67
1921	.80	.25	.39	2.88	5.65	2.22	3.21	1.17	2.23	.35	.37	.20	19.72
1922	.60	.01	1.04	2.98	3.22	4.40	2.85	1.34	.42	.33	1.28	.05	18.52
1923	.05	.15	1.13	4.24	7.38	5.72	1.97	2.40	2.50	1.57	.42	.21	27.74
Ave	.42	.77	.80	2.65	3.60	3.86	3.23	3.23	1.78	1.41	.84	.76	23.35

Monthly Distribution of Precipitation. The rainfall in this area is of the continental type, the periods of minimum and maximum rain being in winter and summer respectively. The winters are generally quite dry, the rainfall increasing from April to the maximum monthly

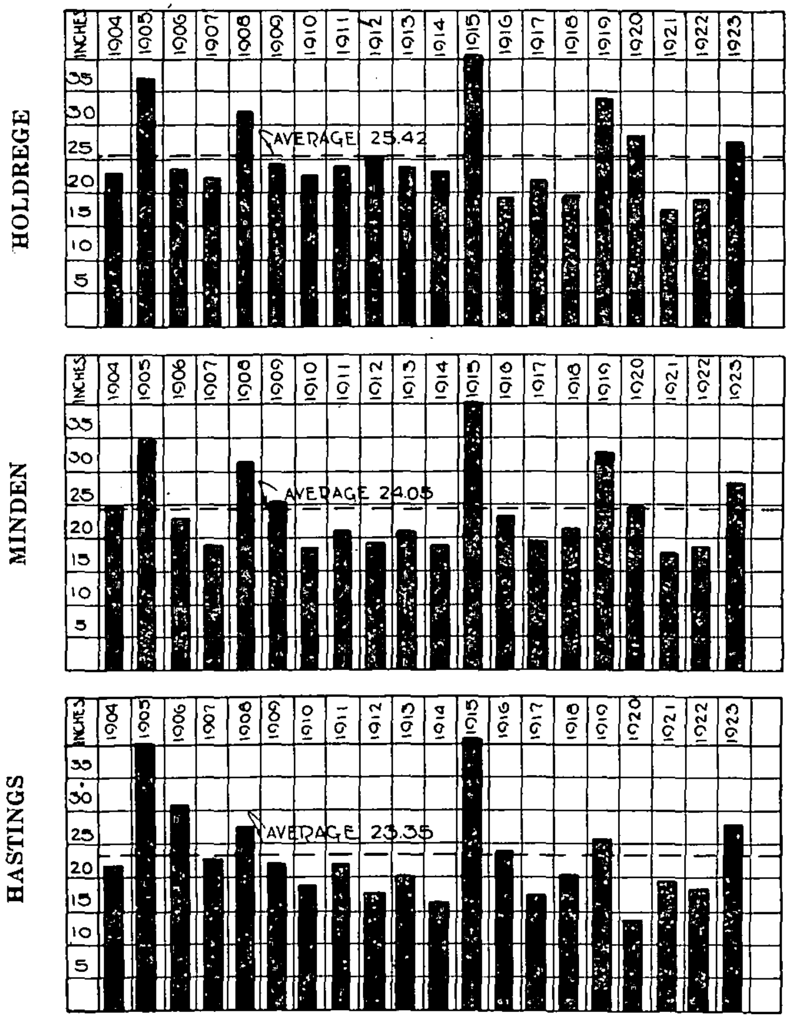


Figure 1. Annual precipitation 1904-1923, at Hastings, Minden and Holdrege.

in June, reaching a minimum generally in November. The rainfall distribution for the three Stations is shown graphically in Figure 2.

Character of the Rain. Not all of the rains that come in a given area are possible of utilization by the crop. If the precipitation is to be most effective, it must be sufficient in amount to penetrate deeply enough in the soil to reach the feeding zone of the plant roots. This is especially important in the Plains country where the rate of

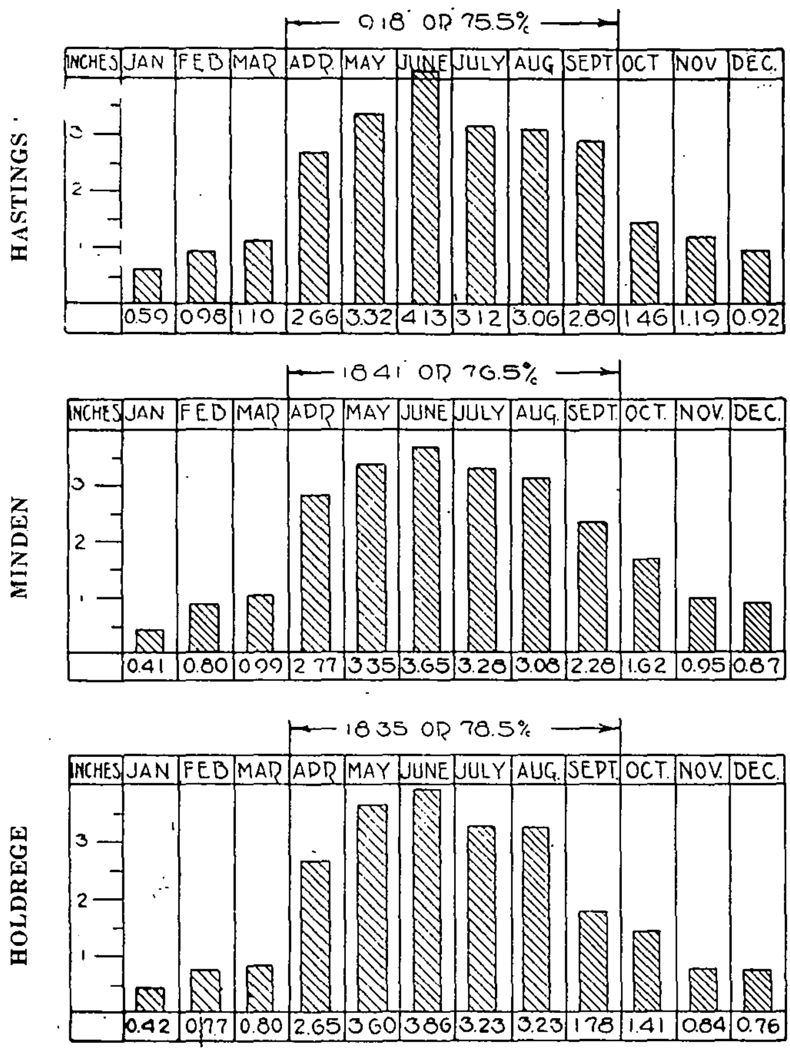


Figure 2. Average monthly distribution of rainfall at Hastings, Minden and Holdrege

evaporation is high and where a light shower that merely moistens the surface inch or two of soil is quickly lost thru evaporation. Such light showers have very little importance so far as the plant being able to utilize them is concerned. They are beneficial in that they tend to hold down the temperature of the soil and make the atmosphere more humid and consequently reduce the direct transpiration from the crops. It is probable, however, that during the warm summer months when the surface of the soil gets very hot that there is little if any feeding roots in the upper surface of the soil. Consequently if a rain is to be highly beneficial it must be sufficient in amount to penetrate several inches into the soil. On the whole it is rains of a half inch or greater that make up most of the effective rainfall. Heavy downpours of rain, however, are apt to puddle and clog the surface and result in a considerable loss thru runoff. In this particular district where the soil is quite level, there should be a little loss thru runoff.

In so far as the character of the rainfall is concerned it is much the same thruout the entire area. In Figure 3 is shown the character and distribution of the precipitation at Holdrege, Nebraska. This is based on the entire 20 years under study. The chart also shows the summer and winter distribution. During the winter months,—October to March inclusive, the rainfall is rather evenly divided in the various sizes. The winter rainfall is never as useful as the summer rainfall because a great deal of it may come when the ground is frozen and consequently does not get into the soil, or it may fall as snow and be blown off of the land so as to give very uneven distribution. At Holdrege 78.6 per cent of the precipitation comes during the six summer months and during that period 13.6 inches of the total 23.35 inches, falls in rains of over half an inch.

Frequency of Drought Periods. One of the peculiarities of the rainfall of the Great Plains area, where this project lies, is the frequent occurrence of more or less prolonged dry periods, during which little or no rain falls. As above mentioned, these periods of drou are the greatest handicap to successful crop production. Quite frequently such periods are terminated by a succession of heavy rains, which makes the average of the rainfall appear favorable, whereas the individual seasons may have been disastrous because of one or more prolonged dry spells.

The periods during which crops are most affected by shortage of moisture may be described as follows:

1. April 1 to May 15. During this period are apt to occur high winds which drift the loose dry soil and uproot small grain crops, and which are often responsible for reduced yields even tho the remainder of the growing season may be favorable. The germination of spring sown small grains may be more or less seriously affected by

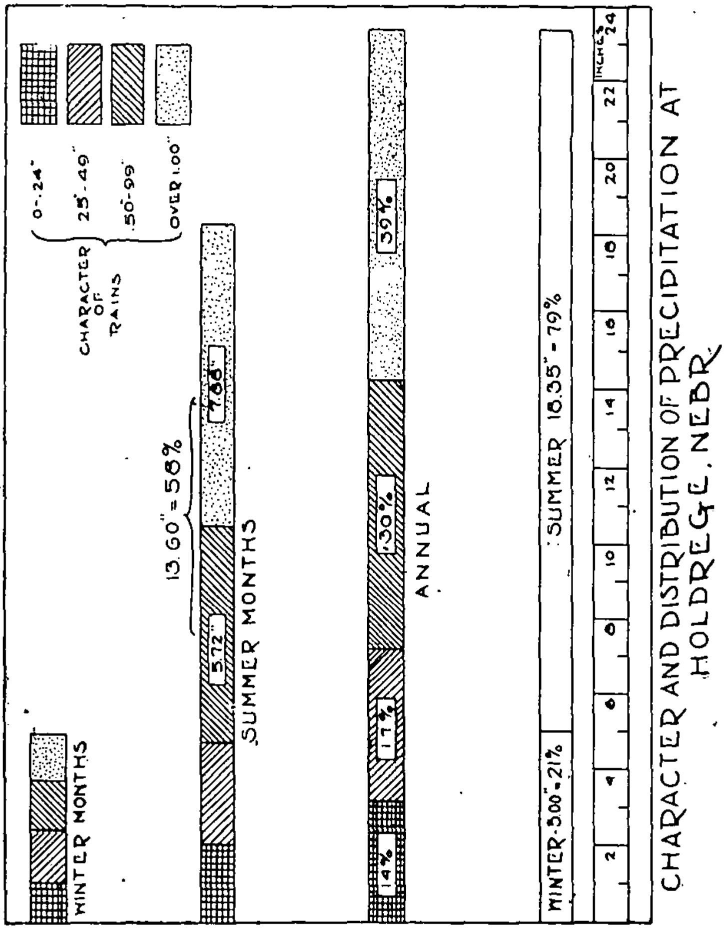


FIGURE 3.

shortage of rain during this period. Unless the soil be well filled with moisture to tide over dry spells the small grain yields are apt to be materially reduced, especially if such dry periods follow a winter that has been unusually open and dry.

2. May 15 to July 1. During this period brisk winds, which tend to increase the rate of evaporation, are frequent. Occasionally high temperatures prevail during the latter part of May or in June. These are apt to cause the small grain to fire and to fill very poorly, unless the soil contains moisture sufficient to carry the crop thru such droughts. It is during this period that oats and other small grains

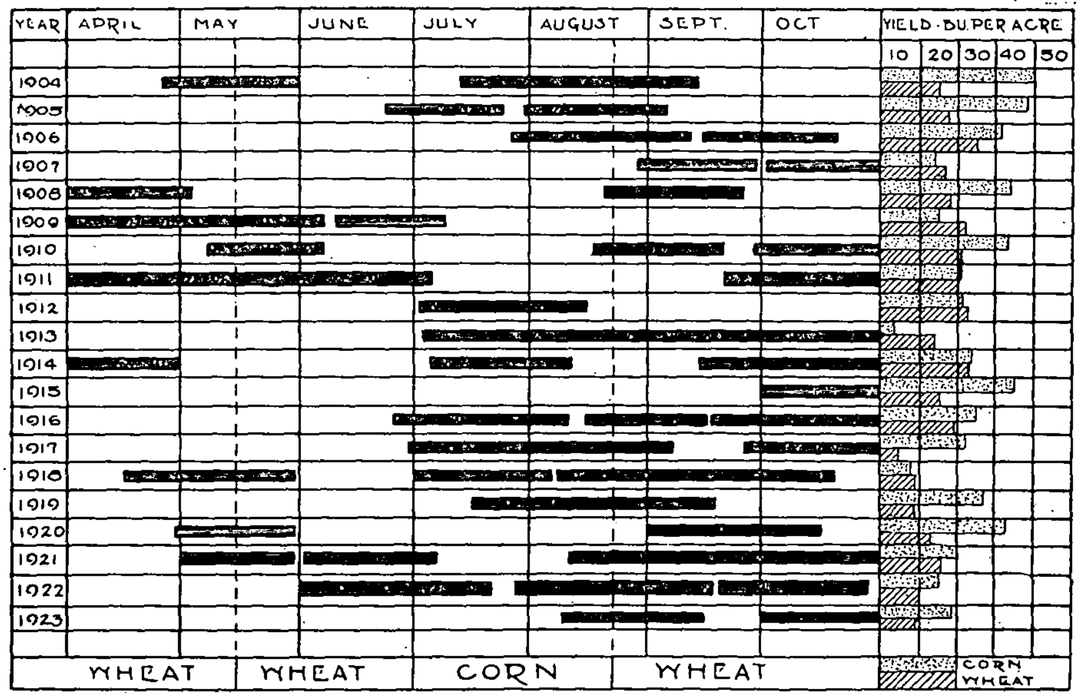
make their heaviest draft on the soil moisture and where there is no reserve supply of water in the soil these drought periods are disastrous for the small grain crops. It is generally during this period that the corn is planted. An unfavorable germination is liable to obtain unless there is reserve moisture in the soil.

3. July 1 to August 21. High temperatures can be expected during this period. Hot winds which usually occur only during periods of drought may do serious damage to corn when it is tasseling or silking, unless there is sufficient reserve moisture so that the crop can obtain water rapidly. At such times corn is making its greatest growth and the demand for water is large. A good growth of corn will use a quarter of an inch of water a day during its periods of maximum demand. A dry period at this time may ruin the corn crop unless the soil has sufficient water stored in it to carry the crop thru.

4. August 21 to October 2. During the first part of this period the land is being prepared for winter wheat. Dry weather may seriously interfere with such preparations, generally resulting in delaying the work and frequently having a poor seed bed for the wheat. Where the soil has been thoroly dried out it is often necessary to postpone all preparations and consequently delay the seeding beyond the proper time. Furthermore, it is important that there be sufficient water in the soil to give a fairly good fall growth and to carry the wheat crop during the winter. It is generally during the dry winters that winter-killing of wheat is serious. During any of the four periods mentioned above, an interval of thirty days or more during which little or no rain falls may be disasterous unless the soil be well filled with water to a depth of several feet.

In this area periods of thirty days or more coming between April 1 and October 31, during which no rain at all falls, are not common but thirty day periods where no effective rain falls occur in about one year in two. As mentioned above, an isolated shower or small rains of less than a half inch, falling on a dry surface, will hardly penetrate into the soil deeply enough to be used by the crop. During a dry period of weather such a rain would not be sufficient to relieve the crop. In this section periods of thirty days or more during which there is less than one inch of effective rainfall are frequent. In fact there has not been a single year in the last twenty years at either Hastings, Minden or Holdredge, in which such dry periods have not occurred from one to four time between April 1 and October 31.

Tables 2, 3, and 4 have been prepared to show the frequency of such dry periods at Hastings, Minden and Holdrege. In the preparation of these tables a dry period is considered as being a period of thirty



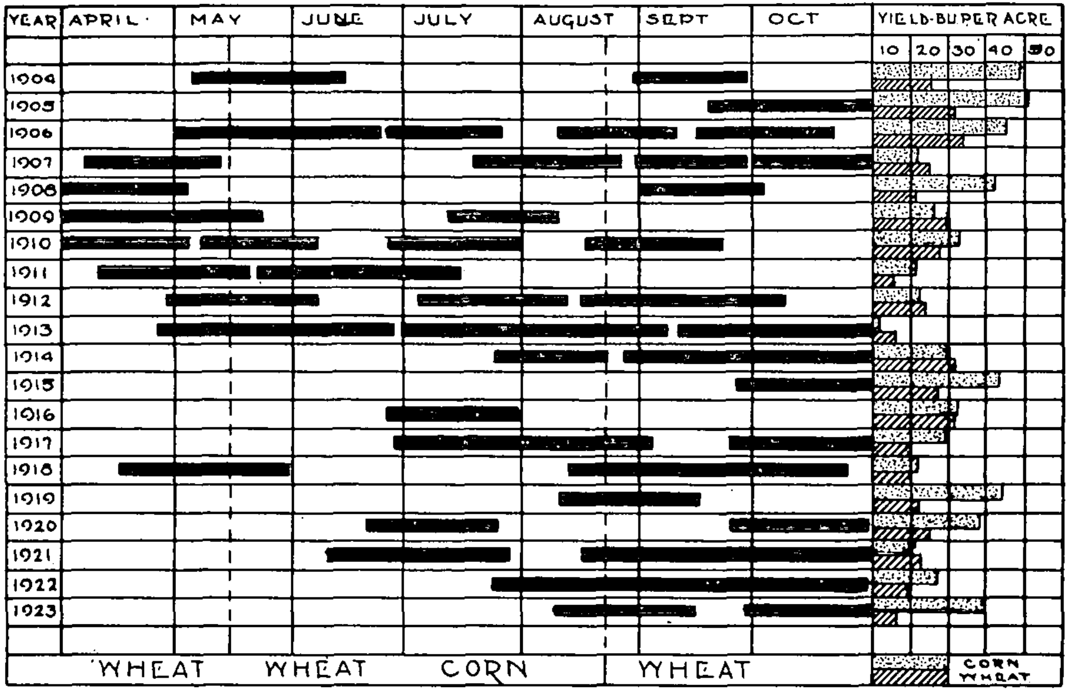
FREQUENCY OF DRY PERIODS AT HASTINGS, NEBR.

Figure 4.

days or longer, during which less than one inch of effective rain has fallen. So many factors are involved that it is impossible to say just what amount of rain is required to be effective. In this study any rain of one-half inch or over, or rains of over one-fourth inch coming on consecutive days, is considered as effective. In the last twenty years 42 dry periods have occurred at Hastings, averaging 46

TABLE NO. 2.—Frequency of Dry Periods at Hastings.

Year	Period	Length Days	Total Rainfall Inches	Effective Inches	Rainfall Date
1904	April 26—May 31	36	1.64	0.85	May 4
1904	July 13—Sept. 12	62	2.42	0.64	Aug. 29
1905	June 24—July 25	32	1.76	0.52	July 1
1905	July 30—Sept. 5	38	2.01	0.74	Aug. 22
1906	July 27—Sept. 11	47	2.22	0.94	Aug. 4
1906	Sept. 16— Oct. 20	35	0.42	0.0	
1907	Aug. 29—Sept. 29	31	1.58	.86	Sept. 27
1907	Oct. 2—Oct. 31	30	0.15	0	
1908	April 1—May 3	33	1.44	0.95	April 17
1908	Aug. 20—Sept. 25	37	0.55	0	
1909	April 1—June 6	67	1.18	0	
1909	June 10—July 9	30	1.94	0.83	July 5
1910	May 8—June 7	31	1.29	0	
1910	Aug. 18—Sept. 20	34	0.76	0	
1910	Sept. 28—Oct. 31	34	1.33	0.98	Oct. 3
1911	April 1—July 5	96	3.27	1.03	May 21
1911	Sept. 22—Oct. 31	40	1.84	0.87	Oct. 5
1912	July 2—Aug. 15	45	1.67	0.75	July 18
1913	July 3—Oct. 31	121	3.80	0.95	Sept. 24
1914	April 1—May 1	31	0.88	0.70	April 27
1914	July 5—Aug. 11	38	1.20	0.90	July 28
1914	Sept. 15—Oct. 31	46	1.42	0.78	Oct. 24
1915	Sept. 30—Oct. 31	32	0.22	0	
1916	June 24—Aug. 9	47	1.32	0.60	July 19
1916	Aug. 16—Sept. 16	32	1.27	0.65	Aug. 30
1916	Sept. 17—Oct. 31	45	1.43	0.90	Oct. 24
1917	June 29—Sept. 6	70	2.12	0.50	Aug. 7
1917	Sept. 26—Oct. 31	36	0.18	0	
1918	April 16—May 30	44	1.90	0.65	May 24
1918	July 1—Aug. 6	37	1.10	0.55	July 17
1918	Aug. 7—Oct. 18	73	2.55	0.57	Aug. 7
1919	July 15—Sept. 16	64	1.02	0.55	July 20
1920	April 20—May 30	31	1.28	0	
1920	Sept. 1—Oct. 15	45	1.45	0.83	Sept. 4
1921	May 1—May 30	30	1.10	0	
1921	June 2—July 17	46	2.65	0.95	July 4
1921	Aug. 12—Oct. 31	80	2.66	0.55	Sept. 19
1922	June 1—July 21	51	1.93	0.80	July 7
1922	July 28—Sept. 17	52	1.36	0.63	Aug. 22
1922	Sept. 18—Oct. 29	42	0.99	0.75	Sept. 18
1923	Aug. 10—Sept. 15	37	1.09	0.80	Aug. 26
1923	Sept. 30—Oct. 31	32	1.00	0	
Average 42 Dry Periods in 20 years.		46	1.51	.56	



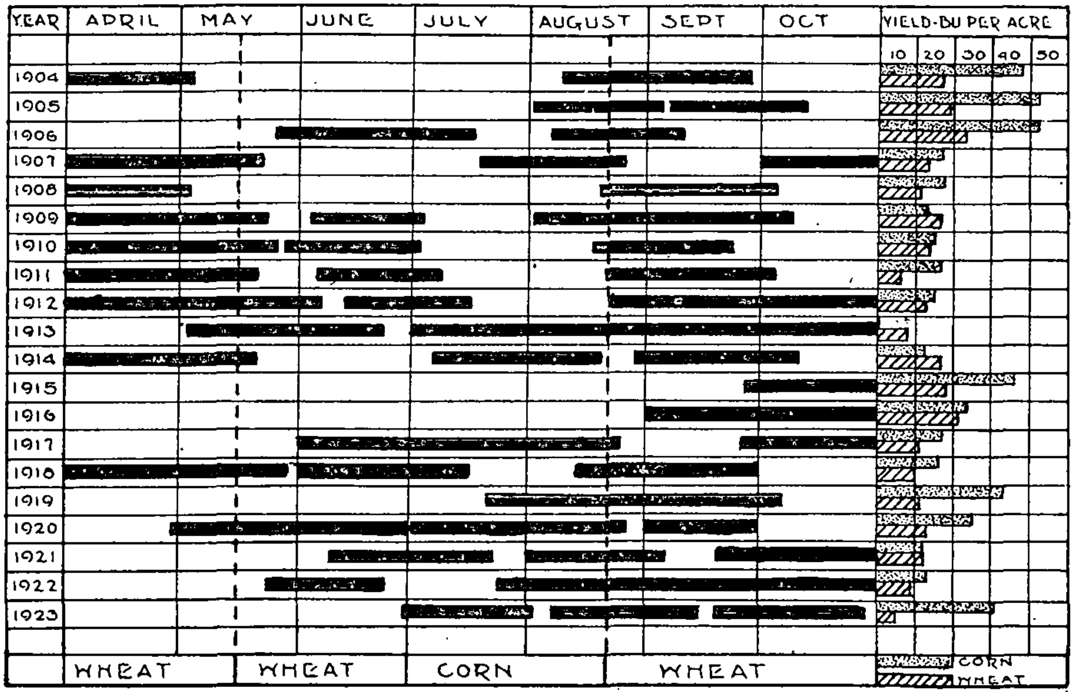
FREQUENCY OF DRY PERIODS AT MINDEN, NEBR

Figure 5.

days in length, during which an average of only .56 of an inch of effective precipitation has occurred. At Minden there were 44 of such periods, averaging 44 days in length, with only .41 of an inch

TABLE NO. 3.—Frequency of Dry Periods at Minden

Year	Period	Length Days	Total Rainfall Inches	Effective Rainfall Inches	Effective Rainfall Date
1904	May 6—June 14	40	1.51	0	
1904	Aug. 30—Sept. 29	30	.70	0	
1905	Sept. 19—Oct. 31	43	.84	0	
1906	Mar. 1—June 23	54	1.56	0	
1906	June 25—July 25	31	1.67	.56	June 30
1906	Aug. 11—Sept. 11	32	.01	.0	
1906	Sept. 16—Oct. 20	36	.64	0	
1907	April 7—May 22	36	1.59	.60	April 25
1907	July 19—Aug. 27	40	.67	0	
1907	Aug. 30—Sept. 29	30	1.17	.64	Sept. 27
1907	Oct. 1—Oct. 31	31	.84	.74	Oct. 3
1908	April 1—May 3	33	.39	0	
1908	Sept. 1—Oct. 3	33	.98	.54	Sept. 26
1909	April 1—May 23	53	1.22	0	
1909	July 13—Aug. 11	30	1.12	.72	July 24
1910	April 1—May 4	34	1.43	.83	April 14
1910	March 7—June 6	31	1.53	.83	May 26
1910	June 26—July 31	36	1.47	.87	July 11
1910	Aug. 18—Sept. 22	36	.65	.52	Sept. 4
1911	April 11—May 20	40	1.53	.50	May 3
1911	May 22—July 14	54	2.37	.81	June 24
1912	April 29—June 7	40	.81	0	
1912	July 5—Aug. 12	39	2.16	.76	July 18
1912	Aug. 17—Oct. 8	53	1.78	.71	Sept. 10
1913	April 26—June 8	64	1.78	.50	June 3
1913	July 1—Sept. 8	70	1.69	.52	July 27
1913	Sept. 11—Oct. 31	51	1.38	.91	Sept. 23
1914	July 24—Aug. 22	30	1.33	.87	Aug. 19
1914	Aug. 28—Oct. 31	65	2.23	.60	Sept. 9
1915	Sept. 26—Oct. 31	36	.47	0	
1916	June 26—July 30	35	.82	.82	July 18
1916	Aug. 31—Oct. 31	62	1.73	.71	Sept. 5
1917	June 28—Sept. 4	38	2.25	.94	Aug. 6
1917	Sept. 25—Oct. 31	37	.32	0	
1918	April 16—May 30	45	1.55	0	
1918	Aug. 14—Oct. 25	73	2.21	.63	Sept. 3
1919	Aug. 11—Sept. 16	37	.70	.70	Aug. 28
1920	May 21—June 24	35	1.30	0	
1920	Sept. 24—Oct. 30	37	.78	.50	Oct. 21
1921	June 10—July 27	48	.59	0	
1921	Aug. 17—Oct. 31	76	2.69	.95	Sept. 18
1922	July 25—Oct. 29	97	1.03	0	
1923	Aug. 10—Sept. 15	37	.15	0	
1923	Sept. 29—Oct. 31	33	1.26	0	
Average 44 dry periods in 20 years.					
		44	1.25	.41	



FREQUENCY OF DRY PERIODS AT HOLDREGE, NEBR

Figure 6.

TABLE NO. 4.—Frequency of Dry Periods at Holdrege

Year	Period	Length Days	Total Rainfall Inches	Effective Rainfall Inches	Effective Rainfall Date
1904	April 1—May 3	33	1.93	1.00	April 24
1904	Aug. 10—Sept. 27	49	.95	0.60	Aug. 29
1905	Aug. 2—Sept. 4	34	1.41	0.89	Aug. 6
1905	Sept. 7—Oct. 31	55	1.40	0.90½	Sept. 16
1906	May 26—July 17	53	1.88	0.52	July 9
1906	Aug. 7—Sept. 10	35	0.90	0.80	Aug. 24
1907	April 1—May 22	52	2.29	0.70	May 3
1907	July 19—Aug. 26	39	0.59	0	
1907	Oct. 1—Oct. 31	31	0.67	0	
1908	April 1—May 3	33	0.75	0	
1908	Aug. 20—Oct. 4	46	0.77	0.52	Sept. 26
1909	April 1—May 23	53	1.11	0	
1909	June 4—July 3	30	1.49	0	
1909	Aug. 2—Oct. 8	68	2.26	0.80	Sept. 2
1910	April 1—May 25	55	1.51	0.72½	May 5
1910	May 28—July 2	36	1.49	0.62	June 8
1910	Aug. 18—Sept. 21	35	0.41	0	
1911	April 1—May 20	50	1.81	0.50	May 3
1911	June 6—July 8	33	0.99	0.65	June 26
1911	Aug. 22—Oct. 4	44	1.30	0.52	Sept. 21
1912	April 1—June 6	67	2.30	0.95	April 21
1912	June 13—July 17	34	1.06	0.54	July 2
1912	Aug. 23—Oct. 31	70	2.24	0.68	Sept. 10
1913	May 3—June 23	52	1.60	0.56	June 3
1913	July 1—Sept. 1	63	1.61	0.70	Aug. 10
1913	Sept. 4—Oct. 31	58	1.69	0.71½	Sept. 28
1914	April 1—May 20	50	1.26	0.70	April 27
1914	July 7—Aug. 20	45	1.39	0.60	July 20
1914	Aug. 29—Oct. 10	43	1.99	0.93	Sept. 14
1915	Sept. 27—Oct. 31	35	0.55	0	
1916	Sept. 1—Oct. 31	61	1.30	0.60	Oct. 19
1917	June 1—Aug. 25	86	2.61	0.85	June 27
1917	Sept. 26—Oct. 31	36	0.42	0	
1918	April 1—May 29	59	1.37	0.77	April 15
1918	June 1—July 16	46	0.71	0.50	June 29
1918	Aug. 15—Sept. 30	47	1.30	0.70	Sept. 3
1919	July 22—Oct. 7	78	2.33	0.93	Sept. 18
1920	April 29—June 30	64	1.96	0.57	June 29
1920	July 1—Aug. 27	58	1.83	0.50	July 6
1920	Sept. 1—Sept. 30	30	0.07	0	
1921	June 10—July 22	43	0.94	0	
1921	Aug. 1—Sept. 6	37	1.17	0	
1921	Sept. 20—Oct. 31	42	0.35	0	
1922	May 24—June 23	31	0.66	0	
1922	July 25—Oct. 31	109	2.10	0.68	Aug. 22
1923	June 30—Aug. 2	34	1.97	0	
1923	Aug. 9—Sept. 16	38	0.14	0	
1923	Sept. 20—Oct. 28	39	1.56	0.57	Sept. 27
Average 48 Dry Periods		48	1.34	.47	

average effective rain. At Holdrege 48 dry periods have occurred, averaging 48 days in length and with an average of .47 inches of effective rain.

The distribution of these dry periods is shown graphically in Figures 4, 5, and 6. These figures also show graphically the yield of corn and wheat during the period of twenty years. The seriousness of a dry period of over 40 days will depend upon the moisture conditions of the soil at the beginning of the drought and the time when the dry periods begin and end. However, when such dry periods come, as frequently they do in central Nebraska, it is probable that some crop damage results from them almost every year. It was to overcome the seriousness of such periods of drought by having water stored in the soil, which would maintain the crop thru the dry period, that this irrigation project was conceived.

Inadequacy of Rainfall for Corn Production.

That period of drought, coming between July 1 and August 21 may ruin a corn crop, is well known to farmers in Central Nebraska. That such a disaster may be avoided or at least mitigated to considerable extent by adequate moisture up to July 1 may not be so well understood. Statistical studies of corn yields and rainfall in Phelps and Adams Counties during the last 20 years offer convincing proof that abundant rain and consequently moisture in the subsoil on July 1 tends to offset dry spells of weather after that date. The evidence indicates that if the subsoil is well filled with water on July 1 as would be the case if rainfall during the preceding spring and fall had been heavy, a fairly good crop of corn can be expected. Only extreme drought or other abnormal conditions would bring about serious damage.

In the last 20 years the yields of corn, as reported in Nebraska crop estimates, has varied from 42.3 and 38.3 bushels per acre in Phelps and Adams County, respectively, in 1905 0.5 and 3.6 bushels per acre in 1913. This wide variation in yield has been due almost entirely to rainfall.

In attempting to correlate the yield of corn with rainfall, only the rains of over .50 inch falling during the preceding fall months,—namely, September, October, and November, and the spring months,—April, May and June, have been considered. Much of the corn in the section is planted in corn land, and the preceding crop is using water up to September 1. Where corn is planted in stubble land, the weeds of the fall before generally use moisture up to September 1 or later. Since the attempt at correlation is to show only the value of stored water, rainfall during July and August of the crop year should not be included.

Table 5 shows the correlation between the effective rainfall up to July 1 and the yield of corn in Adams and Phelps Counties, since 1905. The data is arranged in descending order of yields, not chronologically, and in groups of comparable yields, each group being averaged. The same correlation is shown graphically in Figure 7. While there are many discrepancies, the data as a whole show clearly a correlation between the yield of corn and the effective rainfall up to July 1. There are three exceptional years,—namely 1907, 1913, and 1918, when moisture conditions up to July 1 were generally favorable for good yields, but unusually poor yields were obtained. In the case of the latter two the poor yields were due to unusually hot and dry weather in July and August.

Table 5 also shows the effective rainfall during July and August. The statement has been made (5 p. 151) that it is the rainfall during these two months that determines the yield of corn. While there is no

TABLE 5.—Correlation of the Yield of Corn with Effective Rainfall in Adams and Phelps Counties, Nebraska.

(Effective Rainfall equals Total Rains of over 0.50 inches during months of Sept., Oct., Nov., Apr., May, June and July.)

Year						
Adams Co.	Phelps Co.	Yield per acre Bu.	Effective Rainfall up to July 1 Inches	Effective July Rainfall Inches	Effective August Rainfall Inches	Effective July and Aug. Rainfall Inches
	1905	42.3	24.76	4.86	1.74	6.60
	1906	42.2	13.29	3.91	4.26	8.17
1905		38.3	20.98	2.16	.74	2.90
	1915	36.0	19.20	6.65	5.25	11.90
Average		39.7	19.56	4.40	2.99	7.39
1915		35.1	17.45	4.80	5.07	9.87
1908		34.0	12.54	4.95	4.78	9.73
1920		33.0	19.85	2.83	3.57	6.40
1910		33.0	13.87	1.02	5.72	6.74
Average		33.8	15.93	3.40	4.78	8.18
	1919	33.0	10.87	3.60	0	3.60
1906		31.7	14.39	2.84	.94	3.78
	1923	31.0	14.79	0	1.50	1.50
1923		29.0	14.61	1.77	1.85	3.62
Average		**31.2**	**13.67**	**2.05**	1.07	3.12
1919		27.0	11.40	3.60	0	3.60
	1920	25.0	6.16	.50	2.58	3.08
1916		24.9	9.21	.60	1.65	2.25
1914		24.1	10.14	1.73	5.50	7.23
Average		25.3	9.23	1.61	2.43	4.04
	1916	23.9	10.18	2.32	6.37	8.69
1917		22.0	9.90	.50	.50	1.00
1912		21.2	11.57	1.65	1.60	3.25
1911		20.7	3.68	5.34	5.02	10.36
1921		20.0	8.28	2.95	1.52	4.47
	1908	17.5	9.64	3.36	3.61	6.97
	1917	17.0	7.31	0	0	0
	1911	16.6	6.40	3.62	5.35	8.97
Average		19.9	8.37	2.47	2.99	5.96

CORRELATION OF THE YIELD OF CORN IN ADAMS AND PHELPS COUNTIES SINCE 1905 WITH EFFECTIVE RAINFALL

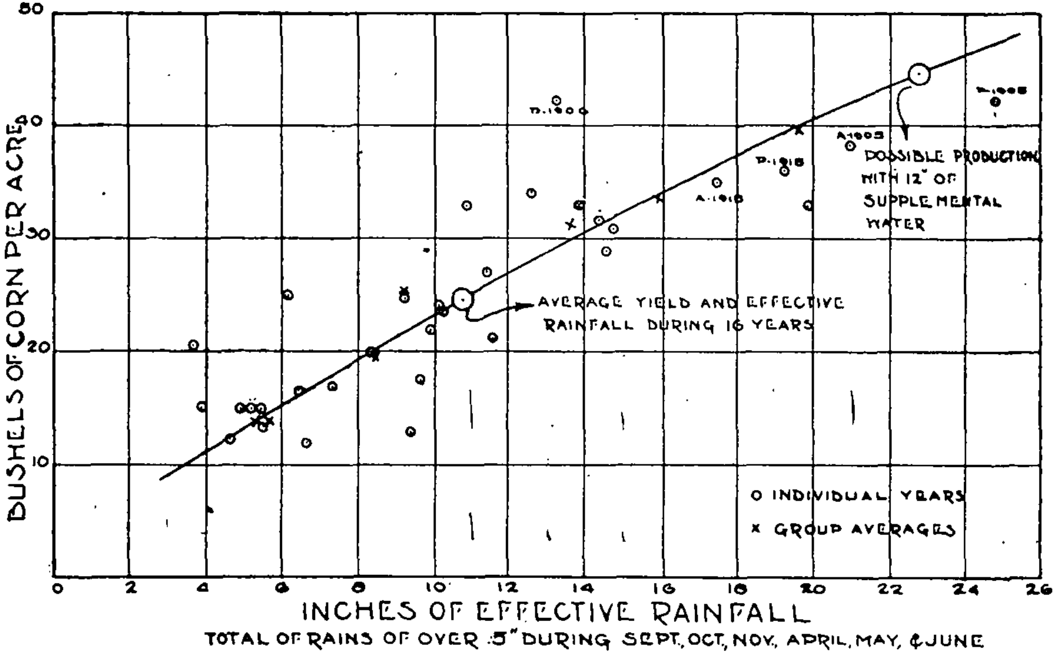


Figure 7.

TABLE 5 (Concluded).—Correlation of the Yield of Corn with Effective Rainfall in Adams and Phelps Counties, Nebraska.

Year: Adams Co.	Year: Phelps Co.	Yield per acre Bu.	Effective Rainfall up to July 1 Inches	Effective July Rainfall Inches	Effective August Rainfall Inches	Effective July and Aug. Rainfall Inches
1909		15.2	3.89	2.82	1.52	4.34
1922		15.0	5.47	1.64	.63	2.27
	1910	15.0	5.22	2.19	4.54	6.73
	1912	15.0	4.91	2.05	.58	2.63
	1909	13.3	5.50	2.86	1.69	4.55
	1922	13.0	9.40	1.71	.68	2.39
	1914	12.3	4.66	2.05	1.37	3.42
	1921	12.0	6.49	2.61	0	2.61
Average		13.8	5.69	2.24	1.38	3.62
Grand Average 16 years. (32 crop years)		24.7	10.81.	2.61	2.50	5.11
Abnormal Years.						
	1907	17.0	16.84	1.95	2.40	4.35
1907		14.2	11.74	1.10	2.15	3.25
	1918	16.0	8.13	4.50	1.55	6.05
1918		8.0	10.04	.55	:57	1.12
1913		3.6	10.99	0	0	0
	1913	0.5	8.35	.95	.70	1.65
Average all years		23.2	10.75	2.44	2.30	4.74

doubt about the importance of rain during these months, the correlation of yield with July and August rainfall is not as close as it is when effective rainfall up to July 1 is considered. In the 32 normal crop years given in the Table, 16 show yields over 24 bushels per acre, averaging 32.5 bushels. In this group are found only three years which had less than the average effective rainfall up to July 1, but 8 years are found which have less than the average July and August rainfall. The other 16 years average 16.9 bushels per acre. In this group is found only one year with effective rainfall up to July 1 greater than the average, but 5 years are found with July and August rainfall greater than the average.

Omitting the three exceptional years, 1907, 1913, and 1918, corn has averaged 24.7 bushels on 10.81 inches of effective rain to July 1. The highest yield group shows an average of 39.7 bushels of corn with 19.56 inches of effective rainfall to July 1, and the lowest yield group an average of 13.8 bushels of corn with 5.69 inches of effective rainfall to July 1.

During the 32 crop years, there are 11 years when the yield of corn has been above 30 bushels per acre, averaging 35.4 bushels; ten years with yields between 20 and 30 bushels, averaging 23.8 bushels; and 11 years with yields below 20 bushels, averaging 14.7 bushels per acre. The effective rainfall up to July 1 for these three groups was 16.54 inches, 9.51 and 6.26 inches respectively. The effective July and August rainfall is 6.47, 4.76, and 4.08 inches respectively.

Considering the 32 crop years the yield is very close to 2 bushels of corn for 1 inch of effective water before July 1. Projecting the curve of average yields and effective rainfall in Figure 7 would indicate that 12 inches of water added to the average supply will increase the yield of corn 20 bushels per acre over the present average.

Inadequacy of the Rainfall for Wheat Production.

The yield of wheat in the last 20 years in Adams, Kearney, and Phelps Counties has varied from 25.2 bushels per acre in Adams' County in 1906, to 5.0 bushels per acre in Phelps County in 1923. For corn, the variation in yields was simply and conclusively shown to be correlated with effective rainfall. In the case of wheat correlation of the yield with effective rainfall during the spring and preceding fall is much more complex than for corn, and cannot be shown on a graph similar to Figure 7. Two seasons must be taken into consideration in the case of wheat. First, the fall during which the seed bed is being prepared, the seed is being sown and early growth is being established. With the hazards of this season should also be included the hazards of drought and wind blowing, up to the beginning of the growing season about April 1. Second, the spring, including April and May. If the fall season be unusually dry, the yield may be low in spite of an unusually wet spring. On the other hand if the spring be unusually dry, a low yield may result in spite of a wet fall. The fall and spring seasons must work together if a good yield is to be obtained.

A complete analysis of wheat yields and rainfall in Adams and Phelps Counties which will not be presented here shows that low yields are obtained when either or both the fall and spring seasons are dry, and high yields are obtained when both fall and spring are wet. Medium to high wheat yields, averaging 18.6 bushels have been obtained in nine cases in ten when the total effective rainfall in fall and spring was 12.66 inches, distributed as approximately 4 inches in fall and 8 inches in spring, or vice versa. Low to medium yields, averaging 10.6 bushels have been obtained in nine cases in ten when either the fall or spring rainfall varied from less than 3 inches in fall with a spring rainfall of over 8 inches, to more than 8 inches in the fall with a spring rainfall under 2 inches. The quantity of water required to supplement seasons of such types of inadequate rainfall and convert them into seasons of adequate rainfall where the chances are nine to ten that yields will be 8 bushels better, is approximately 4 inches. Thus it appears for wheat, just as for corn, that for each inch of supplemental water applied in season, approximately 2 bushels of wheat can be obtained. Years in which either fall or spring precipitation or both are inadequate and will require supplemental water to produce an average yield of 18.6 bushels per acre, have occurred approximately half of the time during the past twenty years.

Supplemental Water.

Supplemental irrigation is the practice of adding to the soil sufficient water to carry the crop thru periods of drought and to make up the difference between the crop requirements and the rainfall. The water may be applied either before the crop is seeded and held in storage in the subsoil, or as a direct application when the crop is growing. The fact that the deficiency of rainfall can in a large measure be met by water in storage was first observed by the farmers themselves. They noticed that in those years when they had a considerable carry-over of water from the previous year, or when spring rains wet a considerable column of soil, they were much more certain of satisfactory yields than in the years when the seeding period found the entire soil dry. This has been the experience of all farmers in the Great Plains region.

The protection against drought thru water in storage in the soil has been further borne out by the experience of the farmers who are practicing what is called "Dry Farming," when they summer-till and store water in the soil. At North Platte Experiment Station (3), it was found that an "abundance of water in the subsoil is a great protection to the crop against drought. The protection to the crop against drought is in almost exact proportion to the total available soil water within reach of the crop." This was found particularly true for the small grains in the drier years. During the 16 years that the Station has been under operation the water stored by summer-tillage has more than doubled the yield of winter wheat as compared with winter wheat following small grain. Many years during the 16 only enough water was accumulated to moisten two or three feet of soil. It is not claimed that water in storage will completely produce a crop, but it will tend to carry it thru a drought. There are very few years when there is not sufficient rainfall so that with moisture in storage in the soil satisfactory crops are obtained. L. L. Zook, in Nebraska Experiment Station Bul. 192, (8, p. 2.) says: "Average yields per acre of all crops were higher on fallow than under any system of continuous cropping. Yields of grain on fallow were frequently more than double those of grain after grain. Of crops grown on fallow the largest gains were made by winter wheat and the smallest by corn."

In Circular No. 72, Kansas State Agricultural College (4), George S. Knapp reports: "Experiments at the Garden City Branch Experiment Station, covering a period of five years, have shown that sufficient water can be stored in the soil by winter irrigation alone to produce good crops of corn, kafir, milo, and certain row crops. The soil on which these experiments were made is a deep silt loam, representative of most of the upland in the western part of the state. Good yields have been obtained each year with all crops grown on the winter irrigated land. At the same time with the exception of the wet season of 1915, unirrigated land produced practically nothing."

Abundant evidence as to the value of water either stored or as a direct application, might be presented but it seems hardly necessary to do it in view of the fact that it is now so generally recognized that water is the limiting factor in crop production in the area known as the Great Plains. The question now comes whether or not the soils of this particular area have the ability to hold the water efficiently when it is applied.

Soils of the Area.

The soil of the proposed irrigation area is all of loessial origin. The loess material below the line of soil development is of general uniform composition and texture and extends to a depth of 100 feet or more without any faults such as rock strata, hard pan, or gravel seams. It lies upon a bed of water bearing sand, which seems to underlie the entire loess plains. Below the sand is the Pierre Shale of Cretaceous age. The only variation thruout the depth of the loess is a red formation called red loess, which is not essentially different from the buff or drab variety.

Soil Types. Four soil series comprise the irrigable land of the area. These are designated by the Bureau of Soils as Grundy, Holdrege, Colby, and Wabash. (6).

Grundy. The Grundy series is characterized by a brownish black surface soil 10 to 12 inches deep, underlain by 6 to 10 inches of slightly lighter brown subsurface a little heavier in texture than the surface. At a depth of 16 to 22 inches this changes quite abruptly to a heavy textured, tenacious, brownish black to brownish drab subsoil. This layer is usually from 9 to 12 inches thick and passes again quite abruptly into a drab colored, floury, friable parent soil material which extends to considerable depth without change. The topography is flat to slightly rolling and the drainage is usually well established.

The only Grundy type in this area is the Grundy loam. It occupies the extreme eastern end of the proposed irrigation area, not extending any further west than Juniata and Prosser. The mechanical analysis of a representative sample is shown in Table 6,—Hansen

TABLE NO. 6.—Mechanical Analysis of the Soil at Five Representative Points Over the Proposed Areas.

Depth Feet	Separate	Hansen	Hartwell	Norman	Minden	Bertrand
1	Sand	46.5	67.3	57.9	50.5	44.2
	Silt	35.4	17.9	25.1	28.3	37.1
	Clay	18.1	14.8	17.0	21.1	18.2
2	Sand	40.0	71.5	46.4	38.5	41.3
	Silt	38.7	13.6	32.2	30.9	32.6
	Clay	21.3	14.9	21.4	30.6	26.1
3	Sand	35.2	76.6	34.7	29.0	43.0
	Silt	36.8	11.5	33.4	33.1	32.9
	Clay	28.0	11.9	31.9	37.8	24.1
4	Sand	38.0	71.6	40.6	37.9	42.6
	Silt	38.0	13.0	38.6	39.3	38.1
	Clay	24.0	15.4	20.7	22.8	19.3
5	Sand	43.4	61.2	42.1	40.8	46.1
	Silt	36.3	18.2	40.8	40.2	38.0
	Clay	20.3	20.6	17.1	19.0	15.9
6	Sand	47.4	45.8	43.3	41.5	49.0
	Silt	37.0	17.4	40.9	41.5	37.2
	Clay	15.6	36.8	15.8	17.0	13.8

area. The surface foot contains 18.1 per cent of clay. This increases to a maximum of 28.0 per cent in the third foot and decreases again to 15.5 per cent in the sixth foot.

Holdrege. The Holdrege series is characterized by a dark brown to black surface soil 12 to 20 inches deep passing into a heavy textured brown to brownish drab, subsoil layer from 18 to 24 inches thick. This grades at varying depth of 30 to 42 inches, into drab colored, friable, floury, parent soil material. The Holdrege series differs from the Grundy in that it has a deeper surface layer, less conspicuous subsurface, and a less perfectly defined heavy textured horizon. The topography is flat to slightly rolling. Drainage is not so well established as in the Grundy, and depressional areas are larger and more numerous.

The Holdrege series covers approximately 70 per cent of the irrigable land of the proposed irrigation area. It extends from the vicinity of Norman on the east to Bertrand on the west, southward to the Canyon Land, and northward to its transition into the Colby series at a distance of about two miles from the Platte River breaks. It is comparatively uniform thruout, no wide variations in texture being found either in surface or subsoil. The types represented in this area are the very fine sandy loam, loam and clay loam, tho the textural differences between these are too little to require distinction. Table 6 shows the mechanical analysis of typical samples from Norman, Minden and Bertrand. The clay content of the surface foot runs from 17 to 21 per cent and increases to a maximum of 31.9 in the third foot at Norman, 37.8 in the third foot at Minden, and 26.1 per cent in the second foot at Bertrand. The clay content of the sixth foot runs from 13.8 to 17.0 per cent.

Colby. The Colby series is characterized by a brown to light brown surface layer 6 to 8 inches deep, underlain by a light brown to drab subsoil passing into floury light drab or buff colored parent soil material at about 36 inches without any distinct occurrence of a heavier textured stratum as in the Grundy and Holdrege series. The topography may be hilly, a dissected plain, or flat, but an undulating or hummocky topography is more characteristic of this section. This soil seems to be of more recent aeolian origin than other loessial soils, as is indicated by its lighter colored and shallower surface, and its freedom from a heavy textured horizon. In many places the soil classified as Colby series seems to be a comparatively recent material drifted over a soil already more or less completely formed. In the vicinity of Kenesaw such a situation exists. A mantle of very fine sandy loam of a thickness of 2 to 5 feet overlies an old soil profile probably continuous with the Holdrege loam to the south and west. At Kenesaw the profile shows a very fine sandy loam subsoil down to 36 inches. At 36 inches a second profile is struck having the same black layer, subsurface and subsoil as is found at Norman and Minden. Table No. 6 shows the mechanical analysis of Colby very fine sandy loam at Hartwell. The clay content decreases and the sand content increases down to the top of the fourth foot where the clay begins to increase and the sand to decrease. The clay content of the sixth foot is about like that of the third foot in the Grundy and Holdrege series.

Wabash. A characteristic feature of the topography from Norman on the east to Bertrand on the west is depressions of a few acres up to one or two square miles in extent. These lie at an elevation of a few feet up to 20 feet lower than the surrounding land. The surface drainage accumulates in these areas and in wet seasons they are filled with water, tho in dry seasons they are usually all dry. Except in the interior of the larger areas, this land is generally all farmed. This soil is classified in the Wabash series. It is a black clay loam at the surface growing heavier and more tenacious in the second or third foot. Uusually it changes in the fourth or fifth foot to the friable silty-like material of the loess. The origin of this is sedimentary. The finer clayey or silty material of the surrounding land has been carried in by the runoff, and deposited. No mechanical analysis has been made of any of this soil but the hygroscopic coefficient and the moisture equivalent of some typical samples are shown in Table 11. According to the Phelps County Soil Survey, about ten per cent of the Plains land in that country consists of such depressions.

Soil Studies.

The information concerning the soils of this area was obtained first hand thru field examinations, and laboratory studies. In addition there is available for correlation the Soil Survey of Phelps County (6), a reconnaissance map by the Department of Conservation and Soil Survey, and studies by Alway et al (1) on this portion of the loess region.

In connection with this report numerous trips were made over one portion or another of the area. Three hundred and twenty-six soil samples were collected at different points. Hygroscopic coefficient determinations were made on all of the samples, moisture equivalents on 206 samples, mechanical analysis on 30 samples, nitrogen on 17 samples, weight per cubic foot, to six feet, at 5 points and profile examinations to six feet in all important soil types. Critical studies on the probable tilth of the soils were made on 25 samples.

Weight per Cubic Foot. In order to convert the moisture data in per cent shown in later tables to inches of water, it is necessary to know the weight per cubic foot of the different soil types in the area, accordingly this determination was made. The "pit method" was used, the six foot pits which were opened being useful in studying the soil profile. The soil was removed in 6-inch sections with a rigid thin walled 4-inch brass cylinder. Weights per cubic foot were determined at Hastings College, Kenesaw, Norman, Holdrege and Bertrand, each in close vicinity to the saturation plats described later. The data obtained are shown praphically in Figure 8.

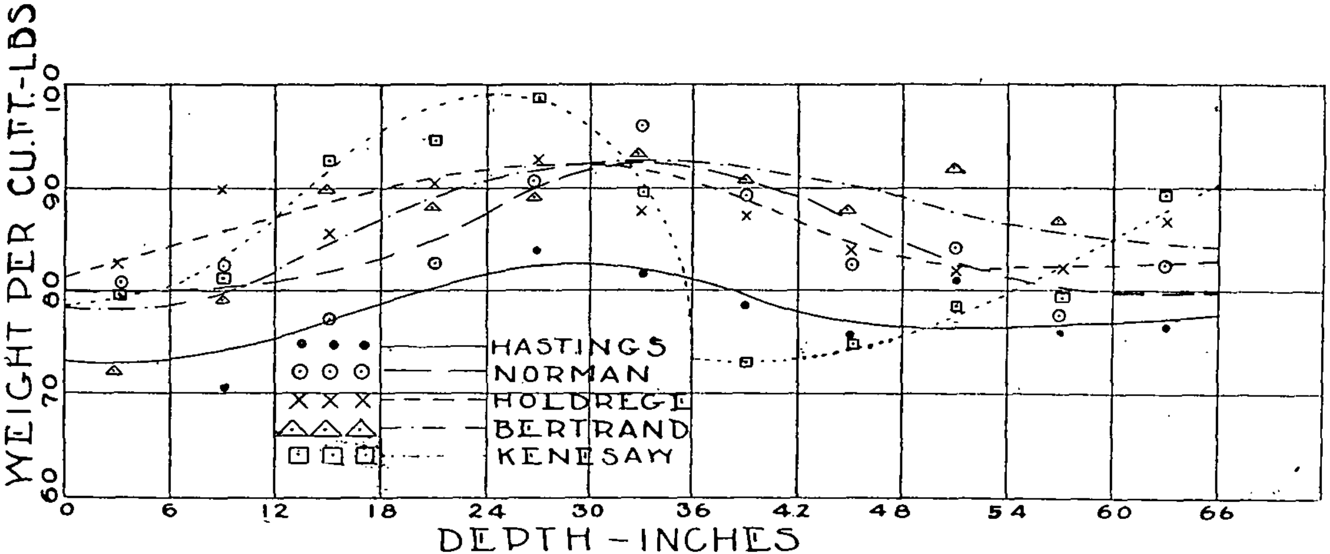


Figure 8. Weight per Cubic Foot of Soil at Five Central Nebraska Points.

Table 7 shows the weights per cubic foot of each foot section of soil to six feet, for the several points where determination was made.

Absolute specific gravities were determined on ten samples and were found to avrage 2.65.

Some Water Relations of Soils. When water is added to land, either as rain or thru irrigation, a portion of it is drawn into the

TABLE NO. 7.—Weight per Cubic Foot, Based On Values Taken from Curve.

Foot	Hastings	Norman	Holdrege	Bertrand	Average Norman Holdrege Bertrand	Kenesaw
1	73.8	80.1	84.2	79.3	81.2	81.6
2	78.6	83.6	89.6	86.7	86.6	94.2
3	82.0	90.9	91.5	91.8	91.4	94.6
4	78.4	88.7	86.7	90.8	88.7	78.9
5	76.6	81.7	82.4	86.6	83.6	80.2
6	77.2	80.0	82.6	84.6	82.3	87.7
Ave.	77.8	84.2	86.2	86.6	85.6	85.4

soil by capillary forces. Another portion may spread over the surface as runoff and immediately a portion is lost thru evaporation. Obviously these amounts vary with each and every factor that affects them, the principale ones being the type of soil and the rapidity with which the water is applied.

After the water is in the soil there is always some loss thru direct evaporation, the water escaping as vapor. If there is sufficient water present and no impervious strata in the soil, some water may penetrate so deeply into the soil that it will be beyond recovery by plant roots. Another portion is held within the soil by the forces of capillarity and is, under ordinary conditions, lost largely by being drawn out of the soil by growing vegetation. It is from the water held by capillarity that the plants obtain their supply for making growth. Not all of the capillary water however is available for crop use. As the soil becomes drier a point is reached when the force exerted by the plant to obtain water is no greater than the capillary power of the soil. The amount of water below this point is non-available and is quite frequently spoken of as hygroscopic. These moisture relations of soils are important in the present study and the factors determining them are quite constant for a given type of soil.

In the proposed irrigation project three questions concerning water relations of the soil are of primary importance. First,—how rapidly will the soil take in water and how effectively can water be spread over a field? Second,—how much water will the soil retain? Third,—how much of the water retained by the soil can be utilized by growing plants?

Saturation Plats Studies. In order to determine accurately the water holding capacity of the soils and to note the rate of water absorption, small plats of land were saturated at a number of points. Duplicate plats were established at Hastings College, Ingleside, Norman, Holdrege and at the Swedish Mission northwest of Holdrege, and single plats at Bertrand and Kenesaw. These points are satisfactorily representative of the soils of the area.

The plats were constructed by building a dike around them with soil taken from the outside of the plat. In each case approximately 15 inches of water was added. Where plats were in duplicate one of them was covered with a mulch usually of straw, in order to check rapid surface evaporation. It was thought that the mulched plat would more nearly represent the actual condition from fall irrigation since in the fall and winter the rate of evaporation is relatively low. Composite samples were taken in the immediate vicinity of the plats in order to determine the amount of water already in the soil at the beginning of the test.

Rate of Water Absorption. The rate at which a soil will absorb water is of practical importance under irrigation. It has a direct bearing on the possibility of spreading water over the land. All soils of this project were found to take water at a rate entirely satisfactory for irrigation purposes. The time required for the soil to take in 5 inches of water varied from approximately 40 minutes to a little more than 80 minutes, depending largely on the soil type and the initial dryness.

Field Carrying Capacity. The field carrying capacity of a soil is that water which it will hold after excess gravitational water has percolated away and the water content has come into equilibrium with the capillary forces of the soil. If more water is added above the amount that will be held by capillary forces, it is free, and will move downward by gravity. This condition was obtained by flooding the soil and by mulching to prevent rapid surface evaporation until equilibrium had been obtained.

It was planned when the saturation plats were established to sample at the end of 2, 5, 10 and 30 days; however, so much rain occurred during the spring and early summer that it was impossible to follow this plan and rather irregular samplings were obtained. Plats from which the field carrying capacity data were obtained were flooded April 18 and 19 and the sampling on June 25 taken as representative of the field carrying capacity of the soil. At that time none of the plats had received more than one inch of rain for a period of ten days, the heaviest being a rain of .82 of an inch on June 22nd at Hastings. In the third and fourth columns of Table 9 is shown the total field carrying capacity of the soil in both percentages and inches of water.

Hygroscopic Coefficient. The hygroscopic coefficient of a soil is the amount of water that an absolutely dry soil will absorb from a saturated atmosphere. It is not available for plant growth and represents quite closely the lower limit of available moisture. Table 8 shows the relation of the hygroscopic coefficient to field dryness in fields sampled April 18, 1923. For the three alfalfa fields at least, the crop during the preceding fall had probably exhausted the soil moisture to the very lowest limit, and as the precipitation during the winter and early spring had been very little, only the upper foot or two had become moist to any degree. The table shows that the subsoil moisture had been exhausted down to or slightly above, the hygroscopic coefficient. It seems safe therefor in this region to use the hygroscopic coefficient as the lower limit of availability.

In the second column of Table 9 are shown the hygroscopic co-

TABLE NO. 8.—Relation of Hygroscopic Coefficient to Field Dryness in Spring Before Much Rain Has Come.

Location	Depth	Percent Water April 18	Hygroscopic Coefficient	Ratio Pct.Water / Hygro. Coef.
Ingleside				
Alfalfa field	1	16.9	9.3	......
	2	18.3	13.2	......
	3	12.1	11.7	1.03
	4	12.7	10.3	1.23
	5	10.1	9.5	1.06
	6	10.4	10.0	1.04
	Average			1.09
Alfalfa field				
near Holdrege	1	13.4	8.3	......
	2	11.2	9.9	......
	3	11.0	10.2	1.08
	4	9.5	9.5	1.00
	5	10.2	9.1	1.12
	6	11.0	9.5	1.16
	Average			1.09
Hanson farm				
Holdrege, Alfalfa	1	17.3	8.9	......
	2	13.7	12.7	......
	3	11.0	11.1	.99
	4	9.9	10.2	.97
	5	9.9	9.7	1.02
	6	9.6	9.6	1.00
	Average			1.00
Stubble field				
Hanson farm	1	14.9	9.4	......
	2	13.0	11.9	......
	3	10.9	10.1	1.08
	4	10.8	9.5	1.14
	5	10.9	9.3	1.17
	6	10.2	....	......
	Average			1.13

TABLE NO. 9.—Field Carrying Capacity in Inches of Water in the Mulched Saturation Pits.

Depth Foot	Weight per cu. ft.	Hygro-scopic Coefficient	Field Carrying Capacity Percent	Field Carrying Capacity Inches	Available Water Capacity Percent	Available Water Capacity Inches
			Hastings College			
1	73.8	10.2	30.4	4.31	20.2	2.87
2	78.6	13.3	26.8	4.05	13.5	2.04
3	82.0	14.1	23.0	3.63	8.9	1.40
4	78.4	11.7	22.0	3.32	10.3	1.55
5	76.6	11.3	21.8	3.21	10.5	1.55
6	77.2	11.2	22.4	3.32	11.2	1.66
Ave	77.8	12.0	24.4	3.64	12.4	1.85
			Ingleside			
1	73.8	9.7	29.6	4.20	19.9	2.82
2	78.6	11.6	26.2	3.96	13.6	2.06
3	82.0	13.0	24.8	3.91	11.8	1.86
4	78.4	13.4	22.2	3.35	8.8	1.33
5	76.6	12.1	21.2	3.12	9.1	1.34
6	77.2	11.4	22.8	3.38	11.4	1.69
Ave	77.8	11.9	24.5	3.65	12.4	1.85
			Kenesaw			
1	81.6	9.4	25.4	3.98	16.0	2.51
2	94.2	7.5	16.6	3.01	9.1	1.65
3	94.6	6.6	14.9	2.71	8.3	1.51
4	73.9	8.6	25.2	3.58	16.6	2.36
5	80.2	10.3	26.2	4.04	15.9	2.45
6	87.7	12.7	25.0	4.22	12.3	2.08
Ave	85.4	9.2	22.2	3.59	12.0	2.09
			Norman			
1	80.1	9.8	30.5	4.70	20.7	3.19
2	83.6	10.4	26.6	4.28	16.2	2.61
3	90.9	12.4	27.2	4.75	14.8	2.59
4	88.7	11.8	24.9	4.25	13.1	2.24
5	81.7	11.8	25.2	3.96	13.4	2.11
6	80.0	12.5	24.2	3.73	11.7	1.80
Ave	84.2	11.5	26.4	4.28	15.0	2.42
			Holdrege			
1	84.2	11.0	31.1	5.04	20.1	3.25
2	89.6	12.2	24.4	4.20	12.2	2.10
3	91.5	10.8	21.9	3.85	11.1	1.95
4	86.7	10.5	22.6	3.77	12.1	2.02
5	82.4	10.4	23.2	3.68	12.8	2.03
6	82.6	9.9	23.3	3.70	13.4	2.13
Ave	86.2	10.8	24.4	4.04	13.6	2.25
			Swedish Mission			
1	84.2	10.4	31.2	5.05	20.8	3.37
2	89.6	10.8	24.5	4.22	13.7	2.36
3	91.5	10.4	20.9	3.68	10.5	1.85
4	86.7	9.4	21.2	3.54	11.8	1.97
5	82.4	8.8	21.4	3.39	12.6	2.00
6	82.6	9.4	21.8	3.46	12.4	1.97
Ave	86.2	9.7	23.5	3.89	13.8	2.25

TABLE NO. 9. (Concluded)—Field Carrying Capacity in Inches of Water in the Mulched Saturation Pits.

Depth Foot	Weight per cu. ft.	Hygro-scopic Coefficient	Field Carrying Capacity Percent	Field Carrying Capacity Inches	Available Water Capacity Percent	Available Water Capacity Inches
			Bertrand			
1	79.3	11.9	29.0	4.42	17.1	2.61
2	86.7	12.5	24.4	4.07	11.9	1.98
3	91.8	12.0	21.2	3.74	9.2	1.62
4	90.8	10.4	21.2	3.70	10.8	1.89
5	86.6	9.8	20.9	3.48	11.1	1.85
6	84.6	9.7	21.0	3.42	11.3	1.84
Ave	86.6	11.0	23.0	3.81	11.9	1.97

efficients of each foot section to six feet of the soils from various points.

Available Water Capacity. The available water of a soil is that portion of the moisture content which can be utilized for plant growth. The available water capacity is obtained by substracting the hygroscopic or nonavailable water from the field carrying capacity. The amount of available water a soil will hold is the important factor from a cropping standpoint. The amounts of available water that various soils of this project will hold in each foot section, together with the averages, are shown in the last two columns of Table 9. The available water is shown in both percentages and inches of water.

Moisture Equivalent. The labor involved in establishing saturation plats and the difficulty of getting sufficient water for saturation limited the number of such studies. It was desirable, therefor, to use some laboratory method for making studies of the field carrying capacities of soils in other regions than those where the saturation plats were located. For this purpose the moisture equivalent of the soils was used.

Table 10 shows the relation by foot sections between the moisture equivalent of a soil and the field carrying capacity, as determined from samples taken from the mulched saturation plats. This relationship is shown for each foot section of soil. It will be noted that the moisture equivalent is always less than the field carrying capacity for the surface foot, but more than the field carrying capacity for the sections of soil below the first foot. The average field carrying capacity for the upper six feet of soil was found to be 91 per cent of the average moisture equivalent of the same samples. While this might not hold for an individual foot section of soil, it does hold within practical limits when the upper six feet are considered.

In order to get data on the moisture holding capacity in various parts of the area, samples were taken on representative soil types thruout the whole project. (See Map 1) Moisture equivalent and hygroscopic coefficient were determined on each foot section of these samples. The average results for the six feet are shown in Table 11, for each point studied. From these determinations there is shown the calculated field carrying capacity of the soil and the available water capacity in inches for the total six feet.

The determinations made thruout the area show that the soils have a uniformly high water holding capacity. The total water capacity in the upper six feet is 22.86 inches. Of this more than half.—12.28 inches,—would be available for the use of the crop. This is a high available water capacity. It means that on the average

TABLE NO. 10.—Relation of Moisture Equivalent to Field Carrying Capacity in Mulched Saturation Pits.

Depth in Feet	Percent Water June 25	Moisture Equivalent	Ratio F. C. C. / M. E.	Percent Water June 25	Moisture Equivalent	Ratio F. C. C. / M. E.
		Hastings College			**Holdrege**	
1	30.4	29.1	1.04	31.1	27.1	1.15
2	26.8	30.6	.88	24.4	26.7	.91
3	23.0	29.3	.78	21.9	26.1	.84
4	22.0	25.8	.85	22.6	26.0	.87
5	21.8	24.9	.88	23.2	25.2	.92
6	22.4	25.4	.88	23.3	26.3	.89
Ave	24.4	27.5	.89	24.4	26.9	.93
		Ingleside			**Swedish Mission**	
1	29.6	26.7	1.11	31.2	27.4	1.14
2	26.2	28.9	.91	24.5	27.1	.90
3	24.8	29.8	.83	20.9	27.5	.76
4	22.2	29.2	.76	21.2	25.8	.82
5	21.2	26.3	.81	21.4	25.0	.86
6	22.8	25.6	.89	21.8	23.5	.93
Ave	24.5	27.8	.90	23.5	26.1	.90
		Norman			**Bertrand**	
1	30.5	25.0	1.22	29.0	24.5	1.18
2	26.6	26.7	1.00	24.4	27.9	.88
3	27.2	29.3	.93	21.2	24.3	.87
4	24.9	29.1	.86	21.2	24.4	.87
5	25.2	29.2	.86	20.9	22.6	.92
6	24.2	27.1	.89	21.0	22.5	.93
Ave	26.4	27.7	.96	23.0	24.4	.94

more than 2 inches of available water can be stored in each foot section of the soil and that it is possible to carry in the soil a total of 12 inches of water within the root zone of most of the farm crops.

The Feeding Depth of Crop Plats.

It will be noted that the water carrying capacity of the soil was determined for a six foot column of soil. This was done in order to include the root zone for the common farm crops. Most of the farm crops feed deeper than is ordinarily supposed and are able to recover any available water within the limit of their root zone, providing it is needed. The development of plant roots depends upon the character of the soil and plant and moisture conditions during the growing season. Where sufficient water is not obtained by the plant near the surface most agricultural plants will root more deeply, providing they can find available water in the subsoil. Investigations by Miller, Weaver, Burr, and others show that the six foot depth represents the practical feeding zone of most of the farm crops in this section and on this type of soil. Alfalfa is an exception as it feeds much more deeply. If the lower subsoil is dry so that the plants can obtain no water from that region the roots will not be extended into it. As an average for five years' observations at North Platte, (2)

TABLE NO. 11.—Field Carrying Capacity and Available Water Capacity of Upper Six Feet of Soil at Various Points in Area.

Soil	Sample	Moisture Equivalent Pct.	Field Carrying Capacity Pct.	Hygro-scopic Coefficient Pct.	Field Carrying Capacity Inches	Available Water Capacity Inches
Grundy	Hastings Col.	27.5	24.4	12.0	21.84	11.10
	Ingleside	27.8	24.5	11.9	21.90	11.10
	A	27.2	24.8	11.7	22.26	11.75
	B	27.7	25.2	12.0	22.62	11.85
	Q	26.7	24.3	11.8	21.81	11.22
	AI	27.2	24.8	11.0	22.26	12.38
Ave.		27.4	24.7	11.7	22.12	11.57
Holdrege	Norman	27.7	26.4	11.5	25.68	14.52
	Holdrege	26.9	24.4	10.8	24.24	13.50
	Swedish Mission	26.1	23.5	9.7	23.34	13.50
	Bertrand	24.4	23.0	11.0	22.86	11.82
	D	27.2	24.8	11.7	24.49	12.94
	E	28.3	25.8	12.1	25.48	13.33
	F	28.0	25.5	12.2	25.18	13.14
	K	26.3	23.9	11.1	23.60	12.64
	L	24.9	22.7	10.6	22.41	11.95
	M	25.3	23.0	10.4	22.71	12.44
	A II	25.7	23.4	10.3	23.10	12.94
Ave.		26.4	24.2	11.0	24.00	12.98
Colby	Kenesaw	24.4	22.2	9.2	21.54	12.54
	C	29.1	26.5	12.4	26.17	13.92
	G	19.9	18.1	8.5	17.87	9.48
	H	23.7	21.6	9.8	21.32	11.65
	N	22.1	20.1	9.2	19.85	10.76
Ave.		23.8	21.7	9.8	21.33	11.67
Wabash	I	26.5	24.1	10.6	21.63	12.12
	J	25.2	22.9	11.6	20.56	10.15
	O	31.7	28.8	13.6	25.87	13.65
	P	29.2	26.6	12.4	23.89	12.75
Ave.		28.2	25.6	12.1	22.99	12.17
Grand Average		26.4	24.6	11.1	22.86	12.28

crops grown on summer tilled land which had moisture stored in the lower subsoil developed their root system to a depth of from 5 to 6 feet. Spring wheat, oats, barley, and corn feed to from 4 to 6 feet, depending upon the season, while winter wheat fed approximately one foot deeper into the soil. The feeding depth of winter wheat is shown graphically in Figure 9. While it is seldom that the soil will be filled with water to a depth of 6 feet, either by irrigation or by summer fallow, yet the data show the possibility of getting a large reserve of moisture in the subsoil within reach of the plant roots

Winter Carry-Over of Water Stored During the Fall

The question will doubtless arise that if water is applied in the fall, will it not be lost during the winter months? There will be

FIGURE 9

USE OF WATER FROM UPPER SIX FEET OF SOIL BY WINTER WHEAT — 1921

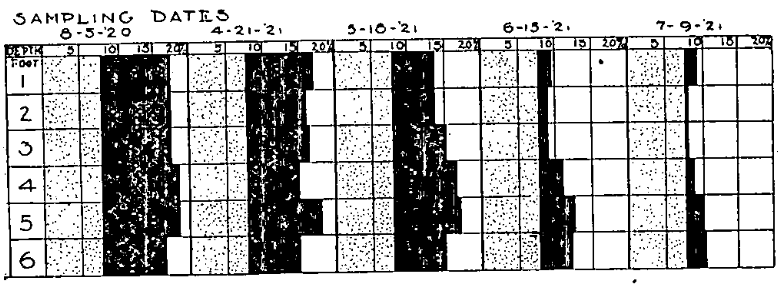


FIGURE 10

SHOWING STORAGE OF WATER BY SUMMER TILLAGE — ITS CARRY OVER THRU THE WINTER AND ITS USE BY SPRING WHEAT — AV 5 YRS.

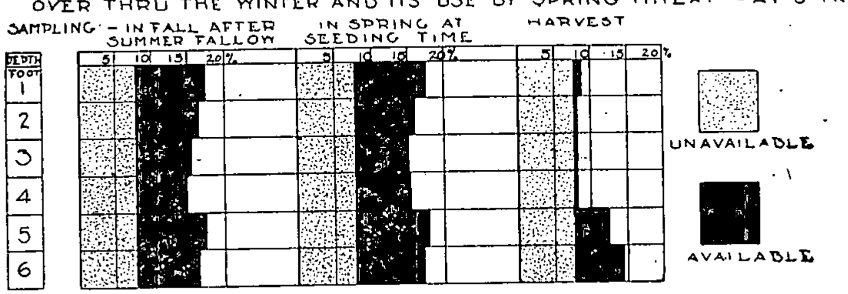


Figure 9-10

some loss thru evaporation, but none thru percolation to lower depths, unless additional water falls. Percolation does not take place except when there is free water, which is only present when the amount is greater than the field carrying capacity of the soil. The loss thru direct evaporation may be as high as 3 or 4 per cent, or even higher for the first foot section of soil, but there is very little loss below the first foot. It is well recognized that during the winter months the rate of evaporation is relatively low and that the loss is not great. This is borne out by consideration of both Figures 9 and 10. Figure 9 shows the soil well filled with water at the time of the fall sampling and shows further that there has not been a great loss up to the sampling of April 21, the following year. Figure 10 is a composite or an average of 5 years' results. Taking the last sampling in the fall as showing the maximum accumulation of water by summer tillage, we find on the average that the soil has been filled with water to 6 feet. The spring sampling does not show any loss having occurred during the winter. There was, however, some loss from the first foot and perhaps a little from the second foot. Out of the 5 years, three show a loss of 2 to 4 per cent in the first foot and two show a small loss in the second foot. In two of the 5 years spring rains came that completely covered up the loss as shown in the average. It is safe to assume therefore, that on this type of soil there will be very little loss of water during the winter, the greatest loss being in the first foot section. Water can be applied to the land in the fall and carried thru the winter if desirable.

Fertility.

The question of soil fertility is everywhere of vital importance to crop production. Under irrigation it is especially important because maximum efficiency of water cannot be realized unless the fertility of the soil is maintained. If the fertility of the land is low, attention must be given to crop rotations, legumes and barnyard manure, in order to obtain the best use of the water.

Virgin Soils High in Fertility. A complete study of the fertility of the soils under this particular project has not been made, excepting on the virgin soils. Of the fertility of the virgin soils of the proposed irrigation area there is no question. Farmers who have lived in the area for years know that the virgin soil is capable of producing big yields of all adapted crops when rainfall is sufficient. Chemical analysis bears out this experience. Table 12 shows the chemical analysis of the soils at Hastings and Holdrege. These analyses are by F. J. Alway, et al. (1) The samples analyzed were composites of ten cores in each of five virgin fields in the vicinity of the two cities mentioned. (See Map 1 for location of Dr. Alway's samples.) The phosphoric acid and potash contents are as high as are found in any section of the loess region in Nebraska. The lime content is high. Inorganic carbonates, i. e., calcium carbonate, is practically absent in the first two feet of soil at Hastings and in the first foot at Holdrege, but the surface soil is not acid, and an abundance of calcium carbonate is found at both places below the second foot. Liming is not required for the successful growing of legumes anywhere in the proposed irrigation area.

Table 13 shows the nitrogen content of the virgin soils from representative points in the proposed irrigation area. The organic content has not been determined, but it is roughly twenty times the nitrogen content. With the exception of the soils of the Colby series, the nitrogen content may be considered adequate. The Colby series are generally below the average in nitrogen content. Special importance should be attached to the nitrogen and organic content of

TABLE NO. 12.—Composition of Representative Soils of the Proposed Area. Total Constituents, according to Alway et al.

Depth Feet	Nitrogen Pct.	Phosphoric Acid Pct.	Potash Pct.	Lime Pct.	Inorganic Carbonates Pct.	Organic Matter Pct.
			Hastings			
1	.174	.107	2.49	1.13	.01	3.55
2	.098	.107	2.45	1.16	.02	1.81
3	.057	.116	2.51	1.45	.10	.98
4	.041	.108	2.56	1.75	.36	.60
5	.033	.135	2.67	1.80	.38	.41
6	.029	.147	2.65	1.72	.41	.31
Ave.	.072	.120	2.55	1.50	.21	1.28
			Holdrege			
1	.182	.140	2.40	1.18	.01	3.90
2	.101	.113	2.46	1.33	.03	1.86
3	.064	.131	2.56	1.60	.13	1.01
4	.045	.151	2.67	2.15	.75	.66
5	.034	.130	2.64	2.30	1.00	.41
6	.034	.108	2.66	2.19	1.05	.36
Ave	.077	.129	2.56	1.79	.49	1.37
General Average	.075	.125	2.56	1.65	.35	1.33

soil under irrigation, as these constituents are more apt to be low than are the mineral elements,—phosphoric acid and lime, and are more quickly depleted.

Fertility of the Cultivated Soils. While the fertility of the virgin soils of this region is ample for a large production, yet not more than ten per cent of the irrigable land is at present in its virgin state, either as meadow or pasture. Ninety per cent of this land has been cultivated for 20 to 50 years and during this period the virgin fertility has been greatly depleted, as is evidenced by the experience of farmers in the region. Many farmers with long experience in this section report a steady decrease from the maximum yields obtained when the land was new, and report also that the land is harder to work than it formerly was. However, the depletion has not gone so far that the soil has been made in any respect inferior for irrigation.

While complete physical and chemical studies of the cultivated land of this area have not been made, such studies have been made on similar soils in other parts of the state and there is little doubt but that the decrease in crop yields found in this area is directly correlated with the decrease in the organic and nitrogen content of the soils. Studies made farther east in the state indicate the loss of approximately one-third of the total nitrogen and organic content of the soil thru 30 years of farming. A realization of the importance of both organic matter and nitrogen of the soils shows this loss to be serious.

TABLE NO. 13.—Nitrogen Content of the Surface Foot of Virgin Soils from Representative Points in the Area.

Sample	Type	Nitrogen Contents 0-6" Pct.	7-12" Pct.	0-12" Pct.
Q	Grundy loam	.259	.189	.224
A I	Grundy loam	.220	.143	.181
D	Holdrege loam	.191	.138	.165
E	Holdrege loam	......	......	.187
F	Holdrege loam	.205	.184	.195
K	Holdrege loam	......	......	.159
L	Holdrege loam	......	......	.168
M	Holdrege loam	......	......	.128
A II	Holdrege loam	.231	.140	.186
G	Colby very fine sandy loam	.180	.150	.165
G	Colby	.174	.101	.138
H	Colby	.167	.009	.088
N	Colby	......	......	.092
	Average	......	......	.160

Organic matter in addition to being the carrier of soil nitrogen and the food of bacteria that make nitrogen available to plants, has profound physical effects on soil. It makes soil more porous and spongy and makes it take up water readily. It keeps the soil from baking, cracking, and clodding and therefore facilitates the formation of a mulch which conserves water. It provides easy tilth and makes for the most effective work with moisture conserving machinery. It binds the soil together and keeps it from blowing. All these functions are highly important in any region like the proposed area where moisture is a limiting factor in crop production. As organic matter has decreased, the problem of moisture conservation has become more acute, the effectiveness of the rainfall has become less and the general level of yields has declined.

Nitrogen is an organic element, the supply of which is closely correlated with the supply of organic matter in the soil. If the nitrogen supply is limited it will of itself limit crop production. The most practical means of maintaining both the organic and nitrogen content of the soil is thru proper rotation of crops, the growing of legumes and the application of barnyard manure. On account of moisture conditions in this section the growing of legumes has met with many discouraging failures and is not widely practiced. Furthermore, the use of manure has frequently resulted in decreased rather than increased yields,—due directly or indirectly to shortage of water. Where the manure is plowed under it often leaves the land so loose that it dries out quicly and furthermore the stimulation due to increased fertility frequently starts more growth than there is moisture to maintain later in the season. The practices for maintaining soil fertility under humid conditions are far from satisfactory under conditions where rainfall is the limiting factor. Under such conditions the problem of the maintenance of soil fertility is still unsolved.

With a sufficient water supply as is generally available under irrigation, the maintenance of fertility on a soil inherently productive is not a serious question. With the big problems of water supply removed, adequate systems of rotation including the growing of more leguminous crops and the keeping of more livestock with the consequent production of a greater amount of barnyard manure can be easily put into effect. Instead of continuously decreasing yields the land can be brought back a long way toward its virgin fertility.

Alkali.

In every irrigation area the prospects of alkali sooner or later arising either in irrigated fields or in lower lying adjacent lands thru seepage, must be taken into consideration. Table 14 shows the water soluble constituents in soils from Hastings and Holdrege, and from Lincoln, Nebraska, for comparison. These data are by Upson and Calvin (7) and are on the same samples collected by Alway. The possibility of alkali developing in irrigated fields of this area seems to be remote; indeed the possibility of alkali developing at Holdrege and Hastings would seem from analyses to be even more remote than the development of alkali on the uplands at Lincoln. Furthermore, water has been draining into and evaporating from the depressional areas or basins in Phelps and Kearney County for years, yet no alkali has seemed to accumulate, and salt grass or other alkali indicating vegetation are not found.

Probable Tilth.

The occurrence of a subsoil containing 25 to 35 per cent of clay in the third foot over a considerable portion of the area, coupled with the fact that some leveling may be done, raises a question concerning the probable tilth of the soil if irrigation is practiced. Considerable laboratory studies, to determine the probable tilth under such conditions were made with the soils of the various localities. There is very little doubt, that if the toughest section of the profile were exposed in either the Grundy or Holdrege soils, therewould be some difficulty experienced at first in the cultivation of the soil. It would have a tendency to puddle and bake if worked when too wet and would break up in extremely hard clods when too dry. It is recognized however that organic matter is probably the biggest factor in tilth. As the strata of heavy soil begin to accumulate organic matter, as it would if brought to the surface, any tilth difficulties

TABLE NO. 14.—Water-Soluble Constituents from Representative Soils Expressed in Parts per Million.

Depth Foot	Total Solids	In-organic	HCO_3	Cl	K	PO_4	So_4	Ca	Mg
				Holdrege Area					
1	613	202	107	52	51	17	19	22	10
2	390	145	62	18	36	16	38	14	5
3	370	238	244	9	49	21	27	22	13
4	308	175	188	15	53	26	6	29	6
5	313	168	178	12	41	22	29	22	5
6	313	213	177	16	56	23	36	18	4
				Hastings Area					
1	730	140	95	54	60	10	9	29	12
2	365	83	47	20	31	8	39	15	6
3	440	210	328	13	52	7	29	31	17
4	370	235	261	18	53	8	30	26	11
5	353	185	210	17	49	6	29	21	8
6	293	170	202	21	44	6	28	16	6
				Lincoln Area					
1	1188	265	113	36	38	22	41	24	23
2	565	140	54	18	20	13	45	14	11
3	360	95	57	19	18	11	51	10	6
4	425	250	165	28	18	6	83	20	16
5	343	208	194	23	18	6	42	15	12
6	320	205	170	21	20	7	43	12	9

would tend to disappear. Except for small areas where leveling might expose a tough strata of soil which would require careful handling for a few years, the soil is generally entirely satisfactory for irrigation purposes.

Amount of Water Required for Supplemental Irrigation.

The amount of water required for the satisfactory production of crops in any district is hard to determine. Many factors both theoretical and practical must be taken into consideration. The establishment of a supplemental water requirement in this proposed irrigation area in complicated by these many factors, and also by the fact that the land is now under cultivation and the settlers are establishing on non-irrigated farm units. They have machinery and implements for cropping systems which run largely to cereals. However the water holding capacity of the soil, the character of the subsoil, and the soil fertility are indicative that the supplemental water requirement in this area will be rather low for cereal crops, but higher for alfalfa.

With favorable distribution the dependable precipitation of the proposed area is sufficient to produce satisfactory yields of corn and spring small grain. Unfavorable distribution, however, frequently causes extreme dryness of the soil early in the planting season that results in delayed germination and thin stands. Furthermore, hot winds and prolonged dry seasons during critical periods, as when corn is tasseling or in the milk, are frequent—in fact a common occurrence. While water in storage in the soil will probably quite satisfactorily meet the requirements of small grain, experience indicates that it it not complete insurance against damage to a corn crop. A small amount of water available at the right time seems to be all that is required for corn and spring sown cereals.

Mr. A. Lincoln Fellows, in a detailed report on this project, has recommended 12 inches of supplemental water, as the necessary amount to meet agricultural requirements. While the cereals and corn will seldom if ever require this amount, the full amount would be required for such crops as potatoes and sugar beets and perhaps even more than that amount for alfalfa, making an average of a 12 inch supplemental water requirement.

Effect of Irrigation.—The question may arise as to what will be the effect of irrigation on the agriculture of this area. The effect, of course, is problematic, depending largely upon the degree of intensity of the agriculture that would follow irrigation. It is safe to assume however, that a more permanent and profitable form of diversified agriculture would follow irrigation than is possible without it.

It was mentioned above that the organic content of the soil is being depleted and that there is a consequent decline in yields. Organic matter, while not itself a plant food, is essential to proper soil conditions. A sufficient supply of organic matter makes the soil more receptive of water from rains and makes all tillage operations easier. It is the greatest factor in the fertility and management of the soil. The lower yields and increased labor co-incident with the depletion of the organic content of the soil have made farming less and less profitable. Under present moisture conditions the situation will grow worse. Soil maintenance under limited rainfall is difficult. Getting stands of grass or legumes is frequently impossible because of drought. The keeping of more livestock is curtailed by the problems of dependable pastures and adequate feed supplies. While there is no question as to the permancy of some form of agriculture in this section, it is evident that a far greater development can be brought about with additional water.

Mr. Fellows suggests that production in general should be doubled in the district by the application of direct flow water to the extent of supplying the entire root zone, once annually, with the full field carrying capacity of water.

Summary.

In summary, we found that the soils of this area have a high water carrying capacity, not only in total water, but in the water available for crop growth. The soils run remarkably uniform in profile. There is nothing in the soil profile to interfere with water penetration and with its recovery thru the development of the plant roots. The rate of penetration is satisfactory on all of the soils and unless water is applied very rapidly there should be little loss thru runoff. There is nothing in the soil profile to indicate that there will be much, if any, lateral seepage, as frequently occurs in soils that have an impervious layer not far distant from the surface. Drainage problems therefore, will be confined largely to those originating from surface water. There is no evidence that alkali formation will ever become a problem in this area. The surface soils are generally of friable nature and easily tilled and experience has shown that in their present state of fertility they are capable of producing large crops when there is sufficient available moisture and climatic conditions in general are favorable. The engineering features of putting water on the land and the very important feature of cost, have in no way been considered in this report.

NOTE—The authors wish to express their appreciation of the co-operation of Mr. A. Lincoln Fellows and of the material assistance given by the Central Nebraska Supplemental Water Association,—in particular Mr. C. W. McConaughy, President, of Holdrege; Mr. Geo. A. Kingsley, of Minden, and Mr. I. N. Johnson, of Hastings.

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ORIGIN OF SAND HILL LAKES

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The sandhill lakes of Nebraska are causing much speculation regarding their origin and fluctuation in depth and in area. The ranchmen are deeply concerned. Those interested in fishing, duck-shooting, and trapping are asking about the future of the habitats of the animals on which these activities are based, and the irrigation farmers along the North Platte especially, believe that the lakes have some relation to the return flow of the river.

The Conservation and Survey Division of the University has studied and mapped more than one thousand sand hill lakes during the past fifteen years, and other studies of the lakes began at an earlier date. Inquiry has been made of ranchmen who lived in the region since the Texas trail days, so considerable information is available upon which to base the conclusion reached in this paper.

The lakes change markedly in area and depth. They invade hay flats and grazing land. Most of them are bordered in whole or in part by marsh areas. Trails, hay producing and grazing areas shift position with the appearance and disappearance of the lakes. There are a good many fishing lakes where hay was produced; duck ponds occur where potatoes were grown, muskrat houses and fences stand in water which has invaded dry land. This change has affected the economics of the sand hills.

Popular Assumptions

Several theories have been advanced to account for the lakes and their appearance and growth during the past few years. Some of these theories are based on faulty observation. About all they do is correlate some phenomenon with an observation made at the lakes. A good may people suppose that irrigation in the North Platte Valley is in some way the cause. Some of them think that irrigation has caused an increase in rainfall, and others believe that the Pathfinder Dam, big canals, and the storage reservoirs of Scottsbluff County had some effect. A study of the rainfall data shows that there has been no appreciable change in precipitation since the installation of irrigation in the North Platte Valley; also, irrigation cannot have a direct bearing on the lake problem because the Pathfinder Dam is built between granite walls from which there is very little leakage. The water being released from the reservoir flows on the bed of the Platte to near Nebraska where it is diverted through canals and reservoirs which are at a lower elevation than those parts of the sandhills which which would receive intake from the irrigation water. It should be noted also that a comparatively impervious formation, the Brule clay, forms the lower sides and slopes of the North Platte Valley and that it holds the irrigation water within the valley, i. e., the water of the canals and reservoirs cannot escape to the sandhills. In fact, the water tables slope from the hills to the valley and determine the direction of undeflow.

It has been claimed that the lakes are fed by shallow underflow from the mountains, and with more water than formerly. There is lack of foundation for such claim so far as it pertains to the shallow water of the sand hills. The Brule clay and other impervious layers are exposed in the valleys both north and south of the sand hills and their outcrop areas join in Wyoming west of the sand hills, which means that the surface run-off west of the sand hills is directed towards the Platte, Niobrara, and Cheyenne valleys, as is also the comparatively shallow underflow. Only small, high-lying table land drainage is tributary to the sand hills and most of this is by Snake Creek of Box Butte county.

It has been claimed too that the sand hill lakes are fed from deepseated sources, i. e., from water originating in the mountains. Three things seem to discredit this claim. First, the sandhills and the Tertiary beds below them are underlain throughout by impervious shale formations which prevent the upward movement of water from the older beds. Second, there is not enough pressure to force the water to this height, third, the composition of the lake and shallow ground water is different from that in the deeper horizons. It is observed, however, that the shallow flowing wells in the lake region tap the Tertiary beds which overlie the shale formations.

A few poorly informed oil and gas promoters have claimed that the new lakes were caused by heavy pressure of gas below. This has gained some credence among the ranchmen, especially where scum resembling oil is observed on the seepage sides of the lakes. A little thought concerning the nature of oil, gas and water and their mode of occurrence will serve to show the fallacy of this claim. Gas escapes through water and does not press it to the surface as lakes. Then too, the problem is to account for the water in the lakes. So far as the scum in concerned, it differs from oil in chemical composition. All told, the above named suppositions, postulations or theories are not very satisfactory. They are weak on the fact side and we are forced to look for a technical explanation of the lake phenomena which will relate to climatic, drainage and ground water conditions as they actually maintain in the region.

Physical Conditions

The general surface of the Sandhill Region stands quite high above the Platte and Niobrara valley bottoms. Sandhills proper oc-

Sandhill lake in Northeastern Morrill County. This lak e was formed by water table rising over the hay flat. It lifted enough to form surface drainage to the next low point on the flat.

cupy about two thirds of the area and most of the rest is rolling valleys, hay flats, marshes and lakes. At most places much of the soil and upper part of the bedrock is formed of loose-textured sandy materials extending to a depth of 100 to 500 feet. Next below are formations of silty clay and shale, the upper part of which is near or above the elevation of the Platte and Niobrara floors. The region is saturated or nearly filled with ground water above the clay-shale beds. This saturation is broken in its lower part by relatively impervious layers, making zones of ground water having enough pressure at places for flowing wells. Above this, however, is the general water table which comes to the surface in many basins and valleys.

The water table has considerable relief. Its contour is somewhat like that of the topography of the region but flatter. The general slope is eastward and southward but with many steeper gradients toward the lakes and drainage ways. The surface drainageways of the country are poorly defined. They have been nearly obliterated at places by drifting sands. Parts of the valleys have been choked or damned with these sands, leaving stretches with live streams and underflow, but the main drainage valleys have remained open. The whole of the drainage pattern has been obliterated at some points. There are areas of considerable size where all the dainage is underground.

Origin of Ground Water and Lakes.

The topographic position and the structural relations cited above show that the primary source of this water cannot be from deep-seated sources, from irrigation systems, or from shallow underflow originating in the mountains, A small amount of it drains to the hills from table lands of Box Butte and north eastern Sheridan county and is lost to the underflow. There are many small drainages like these, but they can account for only a fractional part of the water in the region. In fact, many times this amount is being lost to drainage from the region. So, from the physical nature of the region and as a matter of observation, there is only one primary source of water supply —the rainfall.

The sand hill region is a broad and comparatively deep ground water storage area underlain by thick impervious beds. The rainfall is nearly all absorbed at once by the sandy soil and loose bed rock next below. The underlying impervious layers prevent the loss of water to deep-seated formations. Most of the water is stored in the ground and not on the surface of the land. It is being lost to streams, also generally by evaporation as on hay flats and lakes especially. Loss of water from storage is continuous and somewhat variable in quantity although the frequency and distribution of the rainfall is rather irregular.

The rainfall finds its way to the ground water storage. The water table thus becomes more elevated at times of heavy or protracted rainfall. Then during the weeks and months following there is a slow adjustment or flatting of the water table. The general water level of the sand hill region changes little, but in relatively small areas it fluctuates twenty feet or more after a period of heavy rainfall as at Hañey Lake northeast of Hyannis. In places where there is no outward surface drainage, lakes of considerable size are formed, especially where water drains to them from large hay flats. In general, however, the elevation of the lakes and of the water table is limited by natural drainage or by artificial drainage. Elsewhere it is determined by a slow adjustment between rainfall, underflow and evaporation.

The lakes vary much in shape, size and stage of development, depending upon the nature of the surface on which they are formed and upon the fluctuations in elevation of the water table. They expand rapidly on hay flats, but become deep and bordered by steep slopes where formed in basins. So they are changing all the time—from new to old stages or towards their disappearance in which for a time at least only a dry basin is left subject to wind erosion. Furthermore, these changes affect the plant and animal life of the lakes, also the economic relations.

The lakes do not all rise and fall at the same time and at the same rate throughout the region. Those of one area may rise and expand while those of another may drop and contract. The direct and most noticeable cause of this is the unevenness of rainfall, but the structural, topographic and drainage conditions are the most important factors and would require too much space to explain in this paper.

Although the lakes as a whole have during the past four or five years reached their highest known stage, a period of recession probably has set in at least in some areas. If history repeats itself, we may expect them to go through cycles of water stage elevation in the future, and through other corresponding changes as in the past, unless artificially controlled. This is the third time since the early settlement in Nebraska in which the lakes of the sand hills have developed marked features.

Although most of the sand hill lakes are largely developed from ground water, those surrounded by heavier soil and fairly hard land receive a considerable amount of surface run-off. For example, the Robert Graham lake of Morrill County was greatly enlarged in this way after a single heavy rain fall in 1919. Later ,it was further enlarged from the ground water, after which it has decreased somewhat in area.

Relation to Run-off and Irrigation

Streams heading in the sandhills have a very uniform flow compared with those on hard lands. There is some variation with seasons and it has been observed that the small streams carrying water from the areas at or near the lakes may have become a little larger the past few years. Blue, Ash, Birdwood, Pine and many other creeks are among those which seem to show a higher stage at this time. The change in the streams, if there is such, has resulted from the increased gradients of the water table, but probably should not be regarded as permanent because the run-off should fluctuate between the mean and maximum.

Some of the water used in irrigating the broad benches and slope land of the North Platte Valley has percolated through the soil and subsoil to the saturated zone and thus contributed to the elevation of the water table under those areas. This has been manifest by the development of seepage along the edge of the flood plain proper and along the small tributaries. It is the source of the return water proper. Although this return water has resulted from irrigation, there are places from Morrill County eastward in which it has been augmented to some extent by the increased discharge of the sandhill streams and through underflow from the sandhills as described above. To evaluate the amount of return water proper and what has increased from the sandhill sources along this lower course of the North Platte will call for further investigation.

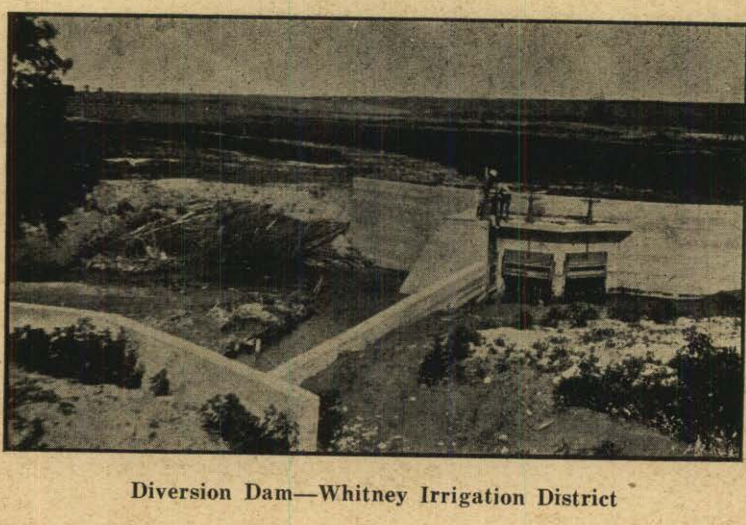
Conservation Problems.

The more permanent lakes are bordered more or less by marshland vegetation. They also have the lower forms of plant and animal life that serve well as fish and game feed. They form a good habitat for muskrats and have more importance than the less permanent lakes for hunting.

To further determine the possibilities of the principal sandhill lakes and what means and methods should be used to hold them to the desired stages, to decide which of them can and should be drained in order to use the land for agriculture, and to work out a plan for the utilizations of them for other purposes is a very big conservation problem. This will require much additional investigation and study.

Pipe Line—Whitney Irrigation District

Measuring Wier—Whitney Irrigation District



Diversion Dam—Whitney Irrigation District

THE GUERNSEY DAM.

The Guernsey Dam is one of the features of the North Platte Project which has been under consideration for over twenty years. It was one of the important items which were investigated at the initiation of the North Platte Project in 1903 in connection with the Goshen Hole Division of this project. Then it was intended to function as a diversion dam for the so-called Highline Canal which it was proposed should divert from the North Platte River in The Narrows about one mile above the Town of Guernsey. The earlier preliminary surveys showed that this portion of the project would have to give preference in point of time to more acceptable propositions such as the Interstate Division and later to the Fort Laramie and Northport Districts.

In 1910 the Board of Army Engineers made a careful study of the possible project extensions, particularly with reference to further development on the south side of the river. Preliminary surveys were under way at the time this Board made its inspection trip and after carefully viewing the topography and soil conditions, the location of the canal, and the various construction features connected therewith, the Board recommended strongly that the Fort Laramie division should be given preference to the proposed Highline Canal in point of time. The question of the sufficiency of the water supply for this Highline Division was also a serious desideratum, and it was recommended that this feature be given further study and determination before undertaking the construction of the Fort Laramie Division.

Altogether, the reasons were compelling for the postponement of the Guernsey Dam at that time. In later years, it developed that the diversion duty on the Interstate Canal was such as to cause apprehension and it was decided that the building of the Guernsey Dam as a storage feature presented a problem that would have to be met sooner or later. In addition, there are as yet a number of private canals which are not protected by any supplemental storage and the time may arrive when it will be necessary to provide for these to avoid shortage and crop losses.

It is also known that there occurs occasionally a succession of short run-off years when the storage will be entirely depleted and consequent shortages and crop losses may result. At any rate, the provision for further storage appears to be a needful measure to take care of such contingencies as will doubtless arise in the future in connection with the further development of the irrigation interests in the valley.

Primarily the Guernsey Dam is a storage feature. For this purpose, it is strategically located in a narrow canyon about two miles above the Town of Guernsey. At this point and for some distance up and down the stream the river is about 250 feet wide at the low water line. A number of promising dam sites were investigated by borings and a most suitable one was found at this location. The dam is planned to be about 100 feet in height measured from the present river bottom. Only rough preliminary designs have so far been made so that it is premature to outline any definite description of this structure. Tentative plans so far considered contemplate the building of either an earth fill or part earth and part rock fill dam, 20 feet top width, upstream slope three to one and downstream slope two to one. Both the upstream face as well as the downstream toe will be well protected by rock rip rap and paving to insure safety against destructive wave action and back wash. Type and size of spillway have not been definitely decided upon, but the Reclamation Bureau has in mind the necessity of making specially ample provisions here to take care of such floods as may be experienced from a combination of the most adverse conditions. This might happen when both reservoirs might be filled to overflowing and at the same time a cloudburst spread over the portion of the catchment basin below Pathfinder which might be further swelled by heavy snowfall run-off from the upper reaches of the stream. It has been estimated that such a combination might possibly result in a total overflow of approximately 100,000 second feet.

The storage capacity of this reservoir is estimated at about 70,000 acre feet. This represents only a part of the annual savings that may be effected by this reservoir because of its strategic location which enables it to serve as an equalizing reservoir and, as such, it may be filled twice or more in any year depending upon seasonal conditions.

In connection with the storage feature, it has always been planned to develop such power facilities as the situation may offer and justify. No definite figures can be given at this writing concerning the size of this power installation more than to state that it is planned to supply the neighboring towns of Guernsey, Wheatland, Fort Laramie, as well as Hartville and Sunrise and the C. F. & I. Company works at the latter place. Power service has also been furnished for the past three years to the several valley towns east of Lingle, Wyoming, down to and including Mitchell, Nebraska. It is proposed to interconnect this plant with the Lingle plant of the Reclamation Bureau whereby suitable exchange service may be established and the efficiency of both plants thereby greatly increased. For example, the water passing the Guernsey Dam through the entire summer season will carry whatever load may be developed in the vicinity of both the Lingle and Guernsey plants, thereby making it unnecessary during such part of the year to draw upon the Lingle plant, thereby utilizing the entire canal flow for irrigation during such period. Conversely, during the winter months when the flow is necessarily low, both plants may be operated and thereby their combined capacity may be utilized to whatever extent may be necessary to supply the existing market.

The necessary right of way for this reservoir was purchased during the summer of 1922 at a cost of approximately $100,000. The Second Deficiency Bill which became a law December 6, 1924, has provided a further sum of $800,000 for beginning work on this Dam. This fund will be utilized for the purpose intended, as soon as conditions will permit.

SOUTH PLATTE RIVER COMPACT.

Compact Between States of Colorado and Nebraska. The compact concluded and signed on the 27th day of April, A. D., 1923, by Commissioners for the States of Colorado and Nebraska, acting under appointment by the Governors of said States respectively, providing for the use and disposition of the waters of the South Platte River, is hereby ratified and approved by the Legislature of the State of Nebraska, which said Compact is in words and figures as follows:

SOUTH PLATTE RIVER COMPACT BETWEEN THE STATES OF COLORADO AND NEBRASKA

The State of Colorado and the State of Nebraska, desiring to remove all causes of present and future controversy between said States, and between citizens of one against citizens of the other, with respect to waters of the South Platte River, and being moved by consideration of interstate comity, have resolved to conclude a compact for these purposes, and, through their respective Governors, have named as their Commissioners:

Delph E. Carpenter, for the State of Colorado; and Robert H. Willis, for the State of Nebraska; who have agreed upon the following articles:

ARTICLE I.

In this compact:

1. The State of Colorado and the State of Nebraska are designated, respectively, as "Colorado" and "Nebraska."
2. The provisions hereof respecting each signatory State, shall include and bind its citizens and corporations and all others engaged or interested in the diversion and use of the waters of the South Platte River in that State.
3. The term "Upper Section" means that part of the South Platte River in the State of Colorado above and westerly from the west boundary of Washington County, Colorado.
4. The term "Lower Section" means that part of the South Platte River in the State of Colorado between the west boundary of Washington County and the intersection of said river with boundary line common to the signatory States.
5. The term "Interstate Station" means that stream gaging station described in Article II.
6. The term "flow of the river" at the Interstate Station means the measured flow of the river at said station plus all increment of said flow entering the river between the Interstate Station and the diversion works of the Western Irrigation District in Nebraska.

ARTICLE II.

1. Colorado and Nebraska, at their joint expense, shall maintain a stream gaging station upon the South Platte River at the river bridge near the town of Julesburg, Colorado, or at a convenient point between said bridge and the diversion works of the canal of The Western Irrigation District in Nebraska, for the purpose of ascertaining and recording the amount of water flowing in said river from Colorado into Nebraska and to said diversion works at all times between the first day of April and the fifteenth day of October of each year. The location of said station may be changed from year to year as the river channels and water flow conditions of the river may require.

2. The State Engineer of Colorado and the Secretary of the Department of Public Works of Nebraska shall make provisions for the cooperative gaging at and the details of operation of said station and for the exchange and publication of records and data. Said state officials shall ascertain the rate of flow of the South Platte River through the Lower Section in Colorado and the time required for increases or decreases of flow at points within said Lower Section to reach the Interstate Station. In carrying out the provisions of Article IV of this compact, Colorado shall always be allowed sufficient time for any increase in flow (less permissible diversions) to pass down the river and be recorded at the Interstate Station.

ARTICLE III.

The waters of Lodgepole Creek, a tributary of the South Platte River flowing through Nebraska and entering said river within Colorado, hereafter shall be divided and apportioned between the signatory States as follows:

1. The point of division of the waters of Lodgepole Creek shall be located on said creek two miles north of the boundary line common to the signatory States.

2. Nebraska shall have the full and unmolested use and benefit of all waters flowing in Lodgepole Creek above the point of division and Colorado waives all present and future claims to the use of said waters. Colorado shall have the exclusive use and benefit of all water flowing at or below the point of division.

3. Nebraska may use the channel of Lodgepole Creek below the point of division and the channel of the South Platte River between the mouth of Lodgepole Creek and the Interstate Stations for the carriage of any waters of Lodgepole Creek which may be stored in Nebraska above the point of division

and which Nebraska may desire to deliver to ditches from the South Platte River in Nebraska, and any such waters so carried shall be free from interference by diversions in Colorado and shall not be included as a part of the flow of the South Platte River to be delivered by Colorado at the Interstate Station in compliance with Article IV of this compact; provided, however, that such runs of stored water shall be made in amounts of not less than ten cubic feet per second of time and for periods of not less than twenty-four hours.

ARTICLE IV.

The waters of the South Platte River hereafter shall be divided and apportioned between the signatory States as follows:

1. At all times between the fifteenth day of October of any year and the first day of April of the next succeeding year, Colorado shall have the full and uninterrupted use and benefit of the waters of the river flowing within the boundaries of the State, except as otherwise provided by Article VI.
2. Between the first day of April and the fifteenth day of October of each year, Colorado shall not permit diversions from the Lower Section of the river, to supply Colorado appropriations having adjudicated dates of priority subsequent to the fourteenth day of June, 1897, to an extent that will diminish the flow of the river at the Interstate Station, on any day, below a mean flow of 120 cubic feet of water per second of time, except as limited in paragraph three (3) of this Article.
3. Nebraska shall not be entitled to receive and Colorado shall not be required to deliver, on any day, any part of the flow of the river to pass the Interstate Station, as provided by paragraph two (2) of this Article, not then necessary for beneficial use by those entitled to divert water from said river within Nebraska.
4. The flow of the river at the Interstate Station shall be used by Nebraska to supply the needs of present perfected rights to the use of water from the river within said State before permitting diversions from the river by other claimants.
5. It is recognized that variable climatic conditions, the regulation and administration of the stream in Colorado, and other causes, will produce diurnal and other unavoidable variations and fluctuations in the flow of the river at the Interstate Station, and it is agreed that, in the performance of the provisions of said paragraph two (2), minor or compensating irregularities and fluctuations in the flow at the Interstate Station shall be permitted; but where any deficiency of the mean daily flow at the Interstate Station may have been occasioned by neglect, error or failure in the performance of duty by the Colorado

water officials having charge of the administration or diversions from the Lower Section of the river in that state, each such deficiency shall be made up, within the next succeeding period of seventy-two hours, by delivery of additional flow at the Interstate Station, over and above the amount specified in paragraph two (2) of this article, sufficient to compensate for such deficiency.

6. Reductions in diversions from the Lower Section of the river, necessary to the performance of paragraph two (2) of this Article by Colorado, shall not impair the rights of appropriators in Colorado (not to include the proposed Nebraska canal described in Article VI), whose supply has been so reduced, to demand and receive equivalent amounts of water from other parts of the stream in that State according to its Constitution, laws, and the decisions of its courts.

7. Subject to compliance with the provisions of this Article, Colorado shall have and enjoy the otherwise full and uninterrupted use and benefit of the waters of the river which hereafter may flow within the boundaries of that State from the first day of April to the fifteenth day of October in each year, but Nebraska shall be permitted to divert, under the subject to the provisions and conditions of Article VI, any surplus waters which otherwise would flow past the Interstate Station.

ARTICLE V.

1. Colorado shall have the right to maintain, operate, and extend, within Nebraska, the Peterson Canal and other canals of The Julesburg Irrigation District which now are or may hereafter be used for the carriage of water from the South Platte River for the irrigation of lands in both States, and Colorado shall continue to exercise control and jurisdiction of said canals and the carriage and delivery of water thereby. This Article shall not excuse Nebraska water users from making reports to Nebraska officials in compliance with the Nebraska laws.

2. Colorado waives any objection to the delivery of water for irrigation of lands in Nebraska by the canals mentioned in paragraph one (1) of this Article, and agrees that all interests in said canals and the use of waters carried thereby, now or hereafter acquired by owners of lands in Nebraska, shall be afforded the same recognition and protection as are the interests of similar land owners served by said canals within Colorado; provided, however, that Colorado reserves to those in control of said canals the right to enforce the collection of charges or assessments, hereafter levied or made against such interests of owners of the lands in Nebraska, by withholding the delivery of

water until the payment of such charges or assessments: Provided, however, such charges or assessments shall be the same as those levied against similar interests of owners of lands in Colorado.

3. Nebraska grants to Colorado the right to acquire by purchase, prescription, or the exercise of eminent domain, such rights of way, easements or lands as may be necessary for the construction, maintenance, operation, and protection of those parts of the above mentioned canals which now or hereafter may extend into Nebraska.

ARTICLE VI.

It is the desire of Nebraska to permit its citizens to cause a canal to be constructed and operated for the diversion of water from the South Platte River within Colorado, for irrigation of lands in Nebraska; that said canal may commence on the South bank of said river at a point southwesterly from the town of Ovid, Colorado, and may run thence easterly through Colorado along or near the line of survey of the formerly proposed "Perkins County Canal" (sometimes known as the "South Divide Canal") and into Nebraska, and that said project shall be permitted to divert waters of the river as hereinatefr provided. With respect to such proposed canal it is agreed:

1. Colorado consents that Nebraska and its citizens may hereafter construct, maintain, and operate such a canal and thereby may divert water from the South Platte River within Colorado for use in Nebraska, in the manner and at the time in this article provided, and grants to Nebraska and its citizens the right to acquire by purchase, prescription, or the exercise of eminent domain such rights of way, easements or lands as may be necessary for the construction, maintenance, and operation of said canal; subject, however, to the reservations and limitations and upon the conditions expressed in this Article which are and shall be limitations upon and reservations and conditions running with the rights and privileges hereby granted, and which shall be expressed in all permits issued by Nebraska with respect to said canal.

2. The net future flow of the Lower Section of the South Platte River, which may remain after supplying all present and future appropriations from the Upper Section, and after supplying all appropriations from the Lower Section perfected prior to the seventeenth day of December, 1921, and after supplying the additional future appropriations in the Lower Section for the benefit of which a prior and preferred use of Thirty-five thousand acre feet of water is reserved by subparagraph (a) of this article, may be diverted by said canal between the

fifteenth day of October of any year and the first day of April of the next succeeding year subject to the following reservations, limitations and conditions:

(a) In addition to the water now delivered from the Lower Section to the river by present perfected appropriations, Colorado hereby reserves the prior, preferred and superior right to store, use and to have in storage in readiness for use on and after the first day of April in each year, an aggregate of thirty-five thousand acre feet of water to be diverted from the flow of the river in the Lower Section between the fifteenth day of October each year and the first day of April of the next succeeding year, without regard to the manner or time of making such future uses, and diversions of water by said Nebraska canal shall in no manner impair or interfere with the exercises of Colorado of the right of future use of the water hereby reserved.

(b) Subject at all times to the reservation by subparagraph (a) and to the other provisions of this Article, said proposed canal shall be entitled to divert five hundred cubic feet of water per second time from the flow of the river in the Lower Section, as of priority of appropriation of date December 17th, 1921, only between the fifteenth day of October of any year and the first day of April of the next succeeding year upon the express conditions that the right to so divert water is and shall be limited exclusively to said annual period and shall not constitute the basis for any claim to water necessary to supply all present and future appropriations in the Upper Section or present appropriations in the Lower Section and those hereafter to be made therein as provided in subparagraph (a).

3. Neither this compact nor the construction and operation of such a canal nor the diversion, carriage and application of water thereby shall vest in Nebraska, or in those in charge or control of said canal or in the users of water therefrom, any prior, preferred or superior servitude upon or claim or right to the use of any water of the South Platte River in Colorado from the first day of April to the fifteenth day of October of any year or against any present or future appropriator or user of water from said river in Colorado during said period of every year, and Nebraska specifically waives any such claims and agrees that the same shall never be made or asserted. Any surplus waters of the river, which otherwise would flow past the Interstate Station during such period of any year after supplying all present and future diversions by Colorado, may be diverted by such a canal, subject to the other provisions and conditions of this Article.

4. Diversions of water by said canal shall not diminish the flow

necessary to pass the Interstate Station to satisfy superior claims of users of water from the river in Nebraska.

5. No appropriations of water from the South Platte River by any other canal within Colorado shall be transferred to said canal or be claimed or asserted for diversion and carriage for use on lands in Nebraska.

6. Nebraska shall have the right to regulate diversions of water by said canal for the purposes of protecting other diversions from the South Platte River within Nebraska and of avoiding violations of the provisions of Article IV; but Colorado reserves the right at all times to regulate and control the diversions by said canal to the extent necessary for the protection of all appropriations and diversions within Colorado or necessary to maintain the flow at the Interstate Station as provided by Article IV of this compact.

ARTICLE VII.

Nebraska agrees that compliance by Colorado with the provisions of this compact and the delivery of water in accordance with its terms shall relieve Colorado from any further or additional demand or claim by Nebraska upon the waters of the South Platte River within Colorado.

ARTICLE VIII.

Whenever any official of either State is designated herein to perform any duty under this compact, such designation shall be interpreted to include the State official or officials upon whom the duties now performed by such official may hereafter devolve, and it shall be the duty of the officials of the State of Colorado charged with the duty of the distribution of waters of the South Platte River for irrigation purposes, to make deliveries of water at the Interstate Station in compliance with this compact without necessity of enactment of special statutes for such purposes by the General Assembly of the State of Colorado.

ARTICLE IX.

The physical and other conditions peculiar to the South Platte River and to the territory drained and served thereby constitute the basis for this compact and neither of the signatory States hereby concedes the establishment of any general principle or precedent with respect to other interstate streams.

ARTICLE X.

This compact may be modified or terminated at any time by mutual consent of the signatory States, but, if so terminated and Nebraska or its citizens shall seek to enforce any claims of vested rights in the waters of the South Platte River, the statutes of limitation shall not run in favor of Colorado or its citizens with reference to claims of the Western Irrigation District to the water of the South Platte River from the sixteenth day of April, 1916, and as to all other present claims from the date of the approval of this compact to the date of such termination and the State of Colorado and its citizens may be made defendants in any action brought for such purpose shall not be permitted to plead the Statutes of limitation for such periods of time.

ARTICLE XI.

This compact shall become operative when approved by the Legislature of each of the signatory States and by the Congress of the United States. Notice of approval by the Legislature shall be given by the Governor of each State to the Governor of the other State and to the President of the United States, and the President of the United States is requested to give notice to the Governors of the signatory States of the approval by Congress of the United States.

IN WITNESS WHEREOF, the Commissioners have signed this compact in duplicate originals, one of which shall be deposited with the Secretary of State of each of the signatory States.

DONE at Lincoln, in the State of Nebraska, this 27th day of April, in the year of our Lord, One Thousand Nine Hundred Twenty-three.

(Signed) DELPH E. CARPENTER.
ROBERT H. WILLIS.

Not to Bind State Until Approved by Other State. That said Compact shall not bind either of the signatory States unless and until the same shall have been approved by the Legislature of each of the signatory States and the Congress of the United States shall have given its consent thereto and approval thereof.

The Governor to Notify Governor of Colorado. The Governor of the State of Nebraska shall notify the Governor of the State of Colorado and the President of the United States of the passage of this Act and the President is requested to notify the Governors of said States of the consent to and approval of said Compact by the Congress and to make proclamation thereof.

Emergency. WHEREAS, an emergency exists, this Act shall take effect and be in force from and after its passage and approval.

Approved May 3, 1923.

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DIVISION OF STATISTICS

DIVISION OF STATISTICS

OPERATION AND MAINTENANCE COST UNDER DISTRICT SYSTEMS

1923-1924

Name	Year	Valuation Per Acre in $	Acreage	Mill Levy O.& M.	Bond	Int.
Alliance	1923	10-20-25-30-40	5545	40	5	20
Alliance	1924	10-20-25-30-40	5545	20	15	25
Alfalfa	1923	100	4140	3	12	5
Alfalfa	1924	100	4140	3	12	5
Birdwood	1923	10	5513	18	48	9
Birdwood	1924	10	5507	20	80	7
Brown's Creek	1923	35-40-45-50	6333	20	....	....
Brown's Creek	1924	10-15-20-25	6333	44	....	....
Bridgeport	1923	10-15-20-25-30	14000	50	....	15
Bridgeport	1924	10-15-20-25-30	14295	25	....	15
Blue Creek	1923	10	2971	75	....	....
Blue Creek	1924	10	2971	75	....	....
Chimney Rock	1923	10-15-20-25	5630	60	....	40
Chimney Rock	1924	30-35-40-45-50	5630	60	54	40
Central	1923	10-15-20-25-30	2295	99	* 51	31
Central	1924	10-15-20-25-30	2295	110	....	30
* To pay off judgment						
Castle Rock	1923	10-15-20-25	5800	16	14	20
Castle Rock	1924	10-15-20-25	5780	10	14	20
Enterprise	1923	20	7220	20	50	10
Enterprise	1924	20	7220	20	50	10
Frenchman	1923	22-26-50	9760	33	5	3
Frenchman	1924	22-26-50	9760	39	5	2
Farmers	1923	10-20-25-30	62306	60	40	....
Farmers	1924	35-45-50	62306	55	45	....
Gering	1923	10-13-17-20	14719	90	60	50
Gering	1924	10-13-17-20	14719	90	80	30
Kimball	1923	50	6820	15	25	45
Kimball	1924	50	6820	20	30	45
Lisco	1923	10-15	2300	70	....	....
Lisco	1924	10-15	2300	70	....	....
North River	1923	50	6053	5	....	30
North River	1924	50	6053	5	....	30
Nine Mile	1923	10-15-20-25	5630	45	....	5
Nine Mile	1924	30-35-40-45	5630	41	46	4
Northport	1923	10-17-24-30	16334	$ 2.00 per acre.		7 Mills*
Northport	1924	30-50-70-90	15904	1.90 per acre.		3 Mills
Oshkosh	1923	30-60	2888	4	....	16
Oshkosh	1924	30-60	2888	4	....	11
Ramshorn	1923		2734	60c per acre.		
Ramshorn	1924		2575	75c per acre.		
Surburban	1923	10	8694	50	....	....
Surburban	1924	10	8694	50	....	....
Steamboat	1923	100	452	10	....	15
Steamboat	1924	100	450	10	....	15
Western	1923	10	13570	25	....	....
Western	1924	10	13570	25	....	....
Whitney	1923	40-50-60	9771	10	....	50
Whitney	1924	40-50-60	9771	10	....	50

* Mill levy for Operation & Maintenance in addition to the flat charge per acre.

CLAIMS AND APPLICATIONS GRANTED AND PENDING.

The following tables give a complete list of all claims and applications for water granted by the Department of Public Works and which have never been cancelled; also all claims of records, and applications pending.

In these tables the claims and applications have been arranged in each water division by streams in alphabetical order, and appropriations on each stream are arranged in order of their priority on that stream.

Appropriations having docket numbers are claims made covering rights acquired under the law prior to April 4, 1895, and those having application numbers are applications for permits to appropriate water made under the law of 1895.

Source	Name of Claimant	Post Office	Carrier	Use to which appl'd	Sec. Feet gr'ted	Location of Headgate S	T	R	County	Date of Priority Month	D	Yr.	Doc. No.	App. No.
Akers Draw ... North Platte	Enterprise Irr. District	Scottsbluff	Nelson Canal	O. D.	10.00	13	23	57	Scotts Bluff	May	21	1913	920	1290
Atkins Drain .. North Platte	Atkins, A. W.	Bridgeport	Atkins Canal	O. D.	2.80	15	19	49	Morrill	March	27	1916	828	1450
Ash Creek	Gilliard, George	Lewellen	Gilliard Canal	Irrig.	1.43	3	16	42	Garden	Dec.	31	1899	812	....
Beaver Creek	C. B. & Q. R. R.	Lincoln	C. B. & Q. Water Supply	Steam	1.00	8	12	14	Buffalo	July	26	1919	......	1550
Birdwood Cr'k	Birdwood Irr. Dist.	No. Platte	Birdwood Canal	Irrig.	100.00	35	15	33	Lincoln	Oct.	21	1893	646	....
Birdwood Cr'k	Northouse, Ed	Sutherland	West Birdwood Canal	Irrig.	8.57	22	15	33	Lincoln	Jan.	16	1894	652	....
Birdwood Cr'k	Saxson, Bert	Sutherland	Beaucamp Canal	Irrig.	3.00	15	15	33	Lincoln	Sept.	19	1894	677	....
Birdwood Cr'k	Lower Platte Irrigation Association	Lexington	Birdwood Reservoir	Stor.		10	15	33	Lincoln	Jan.	12	1922	......	1634 *
Blue Creek	Union Irr. & Water Power Co.	Lewellen	Union Canal	Irrig.	20.00	18	16	42	Garden	May	16	1890	763	....
Blue Creek	Iowa Irr. & Imp. Co.	Lewellen	Hooper Canal	Irrig.	12.86	6	16	42	Garden	Sept.	7	1893	781	....
Blue Creek	Blue Creek Irr. Dist.	Lewellen	Blue Creek Canal	Irrig.	39.00	33	17	42	Garden	Dec.	27	1893	785	....
Blue Creek	Meeker Ditch Co.	Lewellen	Graf Canal	Irrig.	33.00	19	16	42	Garden	April	2	1894	788	....
Blue Creek	Winterer, Jacob H.	Lewellen	Blue Creek Canal	Irrig.	3.79	21	17	42	Garden	Sept.	27	1894	795	....
Blue Creek	Paisley Irr. Dist.	Lewellen	West Side Canal	Irrig.	15.55	28	17	42	Garden	Nov.	20	1894	800	....
(No. Platte)	Robinson, A. A.	Gering	Paisley Canal	O. D.	1.45	2	16	44	Garden	Nov.	20	1894	800	1742
Blue Creek	Paisley Irr. Dist.	Lewellen	Paisley Canal	Irrig.	1.00	28	17	42	Garden	July	14	1899	......	515
Blue Creek	Eggers, J. E.	Lewellen	Blue Creek Canal	Irrig.	.42	33	17	42	Garden	Jan.	4	1912	......	1154
Blue Creek	Paisley Irr. Dist.	Lewellen	West Side Canal	Irrig.		28	17	42	Garden	Feb.	25	1924	......	1738
Brown's Creek	Haxby, George H.	Bridgeport	Haxberry Canal	Irrig.	.43	19	20	48	Morrill	July	17	1903	......	717
Buckham Sp'gs	Maddox, P. P.	Maddox	Maddox Canal	Irrig.	2.28	8	14	36	Keith	Oct.	3	1908	......	918

*Denotes application not approved.

Source	Name of Claimant	Post Office	Carrier	Use to which appl'd	Sec. Feet gr'ted	Location of Headgate S	T	R	County	Date of Priority Month	D	Yr.	Doc. No.	App. No.
Buffalo Creek	Savins, Richard T.	Lexington	Savins Canal	Irrig.	2.28	22	10	21	Dawson	Aug.	18	1917	......	1495
Buffalo Creek	Doughty, Wm. T. & R. H.	Lexington	Doughty Canal	Irrig.	.90	21	10	21	Dawson	March	24	1922	......	1648
Camp Creek	Wehn, J. W.	Alliance	Camp Creek Canal	Irrig.	1.43	13	18	49	Morrill	March	16	1892	866	......
Carter Creek	Gardner, Wm. E.	Gering	Carter Canal	Irrig.	3.70	27	21	56	Scotts Bluff	Oct.	13	1922	......	1691
Cedar Creek	Radcliffe, Mack	Sidney	Nelson-Radcliffe Canal	Irrig.	2.77	28	18	48	Morrill	June	1	1882	1034a	......
Cedar Creek	Radcliffe, Mack	Sidney	Radcliffe Canal No. 2	Irrig.	1.23	34	18	48	Morrill	July	1	1885	1034b	......
Cedar Creek	Radcliffe, Mack	Sidney	Radcliffe Canal No. 3	Irrig.	.76	27	18	48	Morrill	Feb.	14	1890	1034c	......
Cedar Creek	Bridgeport Irr. Dist.	Bridgeport	Belmont Feeder	Irrig.	5.00	23	18	48	Morrill	Jan.	7	1915	......	1397
Clear Creek	Hooper, D. C.	Lewellen	Clear Creek Canal	Irrig.	2.86	32	16	41	Keith	July	1	1888	748	......
Clear Creek	Bairn, John	Lewellen	Barber Canal	Irrig.	1.14	29	16	41	Keith	Jan.	1	1891	756	......
Clear Creek	Clear Creek Irr. Co.	Lewellen	Barber Canal	Irrig.	14.57	29	16	41	Keith	May	30	1893	754	......
Clear Creek	Bairn, John	Lewellen	Barber Canal	Irrig.	1.14	29	16	41	Keith	June	1	1893	745	......
Clear Creek	Clark, Wesley and Bairn, John	Lewellen	Williams Canal	Irrig.	1.00	28	16	41	Keith	May	18	1894	747	......
Clear Creek	Barber, Frank H.	No. Platte	Finch Canal	Irrig.	1.43	4	15	41	Keith	June	30	1895	964	......
Clear Creek	Clear Creek Irr. Co.	Lewellen	Barber Canal	Irrig.	1.14	31	16	41	Garden	July	5	1911	......	1111
Cold Water Cr.	Lisco Irr. District	Lisco	Cold Water Canal	Irrig.	4.29	26	18	46	Deuel	Sept.	28	1894	796	......
Coon Creek	Winterer, William H.	Keystone	Coon Creek Canal	Irrig.	.71	34	15	37	Keith	July	3	1895	......	69
Coon Creek	Winterer, William H.	Keystone	Coon Creek Canal	Irrig.	1.42	34	15	37	Keith	Sept.	16	1911	......	1225
Crescent Lake	Lake Water Carrying Co.	Lewellen	Crescent Lake Proj.	Supple		21	20	44	Garden	Jan.	30	1920	......	1575

Source	Name of Claimant	Post Office	Carrier	Use to which appl'd	Sec. Feet gr'ted	Location of Headgate S	T	R	County	Date of Priority Month	D	Yr.	Doc. No.	App. No.
Crescent Lake.. (Blue Creek)....	Lake Water Carrying Co.	Lewellen	Union Canal	Irrig.	20.00	18	16	42	Garden	May	16	1890	763	1575
(Blue Creek)....	Lake Water Carrying Co.	Lewellen	Hooper Canal	Irrig.	12.86	6	16	42	Garden	Sept.	7	1893	781	1575
(Blue Creek)....	Lake Water Carrying Co.	Lewellen	Blue Creek Canal	Irrig.	39.00	33	17	42	Garden	Dec.	27	1893	785	1575
(Blue Creek)....	Lake Water Carrying Co.	Lewellen	Graf Canal	Irrig.	33.00	19	16	42	Garden	April	2	1894	788	1575
(Blue Creek)....	Lake Water Carrying Co.	Lewellen	Blue Creek Canal	Irrig.	3.79	21	17	42	Garden	Sept.	27	1894	795	1575
(Blue Creek)....	Lake Water Carrying Co.	Lewellen	West Side Canal	Irrig.	17.00	28	17	42	Garden	Nov.	20	1894	800	1575
(Blue Creek)....	Lake Water Carrying Co.	Lewellen	Paisley Canal	Irrig.	1.00	28	17	42	Garden	July	14	1899		515
(Blue Creek)....	Lake Water Carrying Co.	Lewellen	Blue Creek Canal	Irrig.	.42	33	17	42	Garden	Jan.	4	1912	......	1154 (1575)
(Blue Creek)....	Lake Water Carrying Co.	Lewellen	West Side Canal	Irrig.		28	17	42	Garden	Feb.	25	1924	......	1738 (1575)
Deep Cold Cr...	Finn, J. L.	Dalton	Finn Bros. Canal	Irrig.	.50	28	18	49	Morrill	July	1	1890	836	....
Deep Holes Cr.	Hanway, F. P.	Broadwater	Emma Canal	Irrig.	1.40	3	18	49	Morrill	March	17	1924	......	1740
Dougout Creek Lower	Hagerty, M. H.	Bridgeport	Cooper Canal	Irrig.	.86	4	19	48	Morrill	Aug.	15	1892	872	....
Dougout Creek Lower	Mulloy, Francis C.	Broadwater	Mulloy Canal	Irrig.	1.00	27	27	48	Morrill	July	18	1907	......	865
Dougout Creek Lower	Hagerty, M. H.	Bridgeport	Hagerty Canal	Irrig.	1.00	4	19	48	Morrill	Oct.	26	1912	......	1238

Source	Name of Claimant	Post Office	Carrier	Use to which appl'd	Sec. Feet gr'ted	Location of Headgate S	T	R	County	Date of Priority Month	D	Yr.	Doc. No.	App. No.
Dougout Creek Lower	Hagerty, M. H.	Bridgeport	Klondyke Reservoir	Stor.	34.00 A.F.	4	9	48	Morrill	July	11	1919	......	1547
Fawcus Spr'gs.	Cundall, H.	Glendo, Wyo.	Cundall Canal	Irrig.		19	20	51	Morrill	April	7	1924	......	1739
Golden Creek	Theis, M. J.	Ogallala	Theis Canal	Irrig.	2.71	25	15	39	Keith	Sept.	17	1895	......	160
Greenwood Cr.	Keenan, Mary K.	Fond Du Lac, Wis.	Coulter Canal	Irrig.	4.00	15	18	50	Morrill	Feb.	3	1890	830	....
Greenwood Cr.	Keenan, Mary K.	Fond Du Lac, Wis.	Trinnier Canal	Irrig.	6.29	28	18	50	Morrill	April	6	1891	849	....
Greenwood Cr.	Keenan, Mary K.	Fond Du Lac, Wis.	Nelson Canal	Irrig.	3.00	33	18	50	Morrill	April	1	1892	845	....
Greenwood Cr.	Shannon Bros.	Bridgeport	Capron Canal	Irrig.	2.00	15	18	50	Morrill	Jan.	1	1893	890	....
Greenwood Cr.	Meglemre, C. E.	Bridgeport	Meglemre Canal	Irrig.	.59	10	18	50	Morrill	May	6	1896	......	294
Greenwood Cr.	Meglemre, C. E.	Bridgeport	Meglemre Canal	Irrig.	1.14	10	18	50	Morrill	March	11	1907	......	853
Greenwood Cr.	Keenan, Mary K.	Fond Du Lac, Wis.	Trinnier Canal	Irrig.	1.65	28	18	50	Morrill	Aug.	18	1919	......	1551
Horse Creek	Mihan, John, Est.	Morrill	State Line Canal	Irrig.	3.07	33	23	58	Scotts Bluff	Sept.	10	1897	......	407
Horse Creek	Braziel-Marsh	Morrill	Marsh-Braziel Canal	Irrig.	7.19	4	22	60	Wyoming	Nov.	24	1908	......	921
Horse Creek	Gilmore Ditch Ass'n.	Morrill	Gilmore Canal	Irrig.	9.00	33	23	58	Scotts Bluff	Feb.	21	1910	......	983
Horse Creek	Mihan, John, Est.	Morrill	State Line Canal	Irrig.	2.00	33	23	58	Scotts Bluff	April	21	1910	......	994
Horse Creek	Casteel & Husted	Henry	Jackson Extension	Irrig.	1.00	27	23	58	Scotts Bluff	May	19	1910	......	1000
Horse Creek	Marsh & Braziel	Morrill	Marsh-Braziel Ext.	Irrig.	13.00	4	22	60	Wyoming	Sept.	18	1911	......	1126
Hoth Draw (No. Platte R.)	O'Holloran, James	Bayard	O'Holloran Canal	O.D.	1.00	28	21	52	Morrill	Jan.	26	1917	918	1473
Hoth Draw	Gr. West. Sugar. Co.	Scottsbluff	Pump Line Bayard Fac.	Mfg.	15.00	34	21	52	Morrill	Oct.	4	1920	......	1593
Huntington Sp.	Card, Fred	Hull	Card Canal	Irrig.	1.43	9	20	58	Scotts Bluff	Dec.	23	1904	......	778

Source	Name of Claimant	Post Office	Carrier	Use to which appl'd	Sec. Feet gr'ted	Location of Headgate S	T	R	County	Date of Priority Month	D	Yr.	Doc. No.	App. No.
Kiowa Creek....	Currie, Edw. A.	Mitchell..........	Currie Canal	Irrig.	9.14	13	21	57	Scotts Bluff	March	23	1892	938	....
Kiowa Creek....	Kellums, John H.	Morrill............	Kellums Canal	Irrig.	2.43	11	22	58	Scotts Bluff	Oct.	18	1901	......	641
Kiowa Creek....	Kellums, John H.	Morrill............	Kellums Canal No. 2..	Irrig.	.57	1	22	58	Scotts Bluff	Nov.	29	1907	......	880
Lawrence Fork	Simms and Postal	Bridgeport......	Laing Canal	Irrig.	.50	28	18	52	Morrill	Dec.	31	1886	825	....
Lawrence Fork	Gilman, Byron & Crigler, E.S.	Redington......	Redington Canal	Irrig.	.57	36	19	52	Morrill	Oct.	9	1889	820	....
Lawrence Fork	Lindburg, Fred R.	Bridgeport......	E. S. Crigler Canal	Irrig.	.57	1	18	52	Morrill	Sept.	11	1891	861	....
Lawrence Fork	Neihus, J. W.	Redington......	Spring Ranch Canal..	Irrig.	1.00	11	18	52	Morrill	Oct.	23	1891	862	....
Lawrence Fork	Neihus, J. W.	Redington......	Redington Canal	Irrig.	.50	11	18	52	Morrill	May	1	1893	893	....
Lawrence Fork	Lindburg, Fred	Bridgeport......	Crigler Extension	Irrig.	1.43	1	18	52	Morrill	Nov.	25	1898	......	486
Lawrence Fork	Neihus, Dora	Redington......	Neihus Canal	Irrig.	.86	11	18	52	Morrill	March	23	1900	......	550
Lawrence Fork	Neihus, J. W.	Redington	Harper Canal	Irrig.	1.43	11	18	52	Morrill	May	27	1902	......	669
Lawrence Fork	Simms and Postal	Henry..............	Randall Canal	Irrig.	2.57	21	18	52	Morrill	May	15	1911	......	1100
Lawrence Fork	King, Wm. O.	Kearney..........	King's Canal	Irrig.	4.00	15	18	52	Morrill	Dec.	8	1915	......	1440
Lawrence Fork	King, Wm. O.	Kearney..........	King's Canal	Irrig.	1.00	15	18	52	Morrill	July	3	1920	......	1587
Lonergan Cr.....	Soehl, Herman A.	Lemoyne.........	Soehl Canal	Irrig.	2.00	17	15	39	Keith	May	10	1889	697a	....
Lonergan Cr.....	Jacobs, Lee	Lemoyne.........	East Lonergan Canal	Irrig.	9.14	17	15	39	Keith	May	25	1889	699	....
Lonergan Cr.....	Soehl, Herman A.	Lemoyne.........	Soehl Canal	Irrig.	.86	17	15	39	Keith	April	27	1893	697b	....
Lonergan Cr.....	Harris, F. H.	Lemoyne.........	Haney Canal	Irrig.	1.14	17	15	39	Keith	July	1	1893	719	....
Mathews Creek	Mathews, Benj. G.	Keystone.........	Mathews Canal	Irrig.	1.14	28	15	37	Keith	April	1	1893	750	....
Nine Mile Draw (No. Platte R.)	Nine Mile Irr. Dist.....	Bayard............	Nine Mile Canal	O. D.	79.00	10	21	53	Morrill	Aug.	19	1915	925	1431
No. Platte Riv.	Platte Val. Irr. Dist...	Hershey	No. Platte Canal	Irrig.	300.00	13	14	34	Lincoln	May	31	1884	635	....
No. Platte Riv.	Farmers Irr. District	Scottsbluff......	Farmers Canal	Irrig.	1142.86	3	23	58	Scotts Bluff	Sept.	16	1887	918	....
(Sheep Creek)..	Sheep Cr. Lateral Co.	Morrill............	Sheep Creek Lateral..	O. D.	5.00	8	23	57	Scotts Bluff	Sept.	16	1887	918	1176

Source	Name of Claimant	Post Office	Carrier	Use to which appl'd	Sec. Feet gr'ted	Location of Headgate				Date of Priority			Doc. No.	App. No.
						S	T	R	County	Month	D	Yr.		
No. Platte Riv. (Dry Sp'tt'd Tl)	Pool, Ella B.	Lincoln	Robert's Canal	O. D.	2.00	16	23	56	Scotts Bluff	Sept.	16	1887	918	1241
No. Platte Riv.	Farmers Irr. Dist.	Scottsbluff	Ramshorn Canal	Irrig.	3.07	13	23	58	Scotts Bluff	Sept.	16	1887	918	"R"
(Hoth Draw)	O'Holloran, James	Bayard	O'Holloran Canal	O. D.	1.00	28	21	52	Morrill	Sept.	16	1887	918	1473
No. Platte Riv.	Minatare Mut. Canal & Irrigation Co.	Minatare	Minatare Canal	Irrig.	249.43	32	22	54	Scotts Bluff	Jan.	14	1888	919	....
No. Platte Riv.	Winter Creek Irr. Co.	Scottsbluff	Winter Creek Canal	Irrig.	124.29	17	22	55	Scotts Bluff	Oct.	18	1888	952	....
(Winter Creek)	Winter Creek Irr. Co.	Scottsbluff	Winter Creek Canal	O. D.	70.00	19	22	54	Scotts Bluff	Oct.	18	1888	952	1446
No. Platte Riv.	Enterprise Irr. Dist.	Scottsbluff	Enterprise Canal	Irrig.	173.71	27	23	57	Scotts Bluff	March	28	1889	920	....
(Akers Draw)	Enterprise Irr. Dist.	Scottsbluff	Enterprise Canal	O. D.	10.00	13	23	57	Scotts Bluff	March	28	1889	920	1290
No. Platte Riv.	Castle Rock Irr. Dist.	McGrew	Castle Rock Canal	Irrig.	82.57	4	21	54	Scotts Bluff	April	18	1889	921	....
No. Platte Riv.	Logan Irr. Company	Bridgeport	Logan Canal	Irrig.	5.71	19	20	50	Morrill	Oct.	17	1889	821	....
No. Platte Riv.	Bridgeport Irr. Dist.	Bridgeport	Belmont Canal	Irrig.	270.00	18	20	51	Morrill	Dec.	19	1889	828	....
(Atkins Drain)	Atkins, A. W.	Bridgeport	Atkins Canal	O. D.	2.80	15	19	49	Morrill	Dec.	19	1889	828	1450
No. Platte Riv.	Central Irr. Dist.	Gering	Central Canal	Irrig.	36.00	27	22	55	Scotts Bluff	June	23	1890	926	....
No. Platte Riv.	Sheridan, J. Wake, Est.	Paxton	Sheridan-Wilson Canal	Irrig.	10.00	20	14	35	Keith	Oct.	9	1890	710	....
No. Platte Riv.	Chimney Rk. Irr. Dist.	Chimney Rock	Chimney Rock Canal	Irrig.	60.00	1	20	53	Morrill	Dec.	3	1890	844	....
No. Platte Riv.	Chimney Rk. Irr. Dist.	Chimney Rock	Chimney Rock Canal	Irrig.		1	20	53	Morrill	Dec.	3	1890	1031	....
No. Platte Riv.	Empire Canal Co.	Bridgeport	Empire Canal	Irrig.	28.57	18	20	51	Morrill	June	25	1891	858	....
No. Platte Riv.	Jurgens, Otto (Adm. Est of D. Kah)	Minatare	Kah Canal	Irrig.	4.57	11	21	54	Scotts Bluff	Nov.	1	1891	944	....
No. Platte Riv.	Brown Cr. Irr. Dist.	Bridgeport	Browns Creek Canal	Irrig.	188.71	20	20	50	Morrill	Jan.	20	1892	867	....
No. Platte Riv.	Brown Cr. Irr. Dist.	Bridgeport	Brown Creek Canal	Irrig.		20	20	50	Morrill	Jan.	20	1892	1033	....
No. Platte Riv.	Alliance Irr. District	Bridgeport	Alliance Canal	Irrig.	86.00	5	20	52	Morrill	Dec.	26	1892	874	....
No. Platte Riv.	Alliance Irr. District	Bridgeport	Alliance Canal	Irrig.		5	20	52	Morrill	Dec.	26	1892	1035	....
(Red Willow)	Alliance Irr. District	Bridgeport	Alliance Canal	O. D.	60.00	6	20	51	Morrill	Dec.	26	1892	874	1429
No. Platte Riv.	Ramshorn Irr. Dist.	Morrill	Ramshorn Canal	Irrig.	45.71	13	23	58	Scotts Bluff	March	20	1893	945	....

"R" Denotes Relocation.

Source	Name of Claimant	Post Office	Carrier	Use to which appl'd	Sec. Feet gr'ted	Location of Headgate S	T	R	County	Date of Priority Month	D	Yr.	Doc. No.	App. No.
(Sheep Creek)..	Ramshorn Irr. Dist.....	Morrill..............	Ramshorn Canal	O. D.	13.00	21	23	57	Scotts Bluff	March	20	1893	945	1465
No. Platte Riv.	Short Line Irr. Dist...	Bayard..............	Short Line Canal	Irrig.	65.57	25	21	53	Scotts Bluff	May	1	1893	946	....
No. Platte Riv.	Lisco Irr. District......	Lisco..................	Lisco Canal	Irrig.	32.86	14	18	47	Morrill	July	1	1893	856	....
No. Platte Riv.	Nine Mile Irr. Dist.....	Bayard..............	Nine Mile Canal	Irrig.	100.00	18	21	53	Scotts Bluff	Dec.	6	1893	925	....
(9 Mile Draw)..	Nine Mile Irr. Dist.....	Bayard..............	Nine Mile Canal	O. D.	79.00	10	21	53	Morrill	Dec.	6	1893	925	1431
No. Platte Riv.	Cody Land & Cat. Co.	No. Platte........	Cody-Dillon Canal	Irrig.	127.00	9	14	31	Lincoln	Dec.	29	1893	649	....
No. Platte Riv.	Keith-Lincoln Co. Irr. District	Sutherland......	Keith-Lincoln Canal..	Irrig.	95.00	18	14	36	Keith	Feb.	2	1894	722	....
No. Platte Riv.	Paxton-Hershey Wat. Company	Hershey...........	Paxton-Hershey Canal	Irrig.	130.00	18	14	33	Lincoln	Feb.	12	1894	653	....
No. Platte Riv.	Lisco Irr. District	Lisco..................	Lisco Canal	Irrig.	4.00	14	18	47	Morrill	March	27	1894	787	....
No. Platte Riv.	No. River Irr. Dist. ..	Oshkosh...........	No. River Canal	Irrig.	16.00	14	18	47	Morrill	March	27	1894	787	"R"
No. Platte Riv.	Suburban Irr. Dist.....	No. Platte........	Surburban Canal	Irrig.	124.00	12	14	33	Lincoln	May	22	1894	662	....
No. Platte Riv.	Roberts, C. F.	Oshkosh...........	Midland Canal	Irrig.	12.00	2	16	44	Garden	June	9	1894	789	....
No. Platte Riv.	Countryman, Chas.	Lewellen..........	Overland Canal	Irrig.	20.00	2	16	44	Garden	Aug.	14	1894	791	"R"
No. Platte Riv.	Hannah Irr. Co.	Lisco..................	Hannah Canal	Irrig.	5.71	29	18	47	Morrill	Sept.	24	1894	886	....
No. Platte Riv.	Oshkosh Irr. District	Oshkosh...........	Oshkosh Canal	Irrig.	40.00	33	17	44	Garden	Oct.	5	1894	797	....
(No. Platte R.)	No. Riv. Irr. Dist.	Oshkosh...........	Oshkosh Canal	Irrig.	2.29	33	17	44	Garden	Feb.	24	1896	......	243R
No. Platte Riv.	Beerline Canal Co.......	Broadwater....	Beerline Canal	Irrig.	30.00	24	19	49	Morrill	Oct.	13	1894	887	....
No. Platte Riv.	Spohn, William	Oshkosh...........	Spohn Canal	Irrig.	13.14	13	17	45	Garden	Dec.	6	1894	801	....
No. Platte Riv.	Rush Cr. Irr. Co.	Lisco..................	Rush Creek Canal	Irrig.	9.64	2	17	46	Garden	Dec.	11	1894	802	....
No. Platte Riv.	Lyons Irr. Dist.	Oshkosh...........	Lyons Canal	Irrig.	42.14	30	17	44	Garden	Dec.	22	1894	803	....
No. Platte Riv.	West'n Land & Cat. W. R. Taylor	Omaha.............	Signall Bluff Canal	Irrig.	30.13	16	16	43	Garden	Jan.	16	1895	807	....
No. Platte Riv.	Alfalfa Irr. Dist.	Ogalalla...........	Alfalfa Canal	Irrig.	100.00	1	15	42	Keith	March	25	1895	738	....
No. Platte Riv.	Steamboat Irr. Dist...	Melbeta............	Steamboat Canal	Irrig.	6.20	4	21	54	Scotts Bluff	Oct.	27	1895	......	186
No. Platte Riv.	No. Riv. Irr. Dist.	Oshkosh...........	No. River Canal	Irrig.	64.71	14	18	47	Morrill	Feb.	24	1896	......	243
No. Platte Riv.	No. Riv. Irr. Dist.	Oshkosh...........	Oshkosh Canal	Irrig.	2.29	33	17	44	Garden	Feb.	24	1896	......	243R
No. Platte Riv.	Lisco Irr. Dist.	Lisco..................	No. River Canal	Irrig.	9.00	14	18	47	Morrill	Feb.	24	1896	......	243

"R" Denotes Relocation.

Source	Name of Claimant	Post Office	Carrier	Use to which appl'd	Sec. Feet gr'ted	Location of Headgate S	T	R	County	Date of Priority Month	D	Yr.	Doc. No.	App. No.
No. Platte Riv.	Remick Duer Co.	Broadwater	Lamore Canal	Irrig.	20.00	34	19	48	Morrill	July	18	1896	......	327
No. Platte Riv.	Steamboat Irr. Dist.	Melbeta	Steamboat Canal	Irrig.	.71	4	21	54	Scotts Bluff	July	22	1896	......	350
No. Platte Riv.	Gering Irr. Dist.	Gering	Gering Canal	Irrig.	208.62	4	23	58	Scotts Bluff	March	15	1897	......	365
No. Platte Riv.	Schermerhorn, A. D.	Omaha	Schermerhorn Canal	Irrig.	29.71	16	20	51	Morrill	Oct.	25	1897	......	418
No. Platte Riv.	Farmers Irr. Dist.	Scottsbluff	Columbia Canal	Irrig.	600.00	3	23	58	Scotts Bluff	April	14	1902	......	660
No. Platte Riv.	Sec. of Int., U.S.R.S.	Mitchell	Interstate Canal	Irrig.		19	29	83	Wyoming	Sept.	19	1904	......	768
No. Platte Riv.	Northport Irr. Dist.	Bridgeport	Tri-State Canal	Irrig.	250.00	3	23	58	Scotts Bluff	Sept.	19	1904	......	768
No. Platte Riv.	Bridgeport Irr. Dist.	Bridgeport	Belmont Canal	Irrig.	115.70	18	20	51	Morrill	March	28	1907	......	902
No. Platte Riv.	Liebhardt Bros.	Denver	Empire Extension	Irrig.	1.00	18	20	51	Morrill	July	20	1907	......	866
No. Platte Riv.	Lisca Irr. Dist.	Lisco	Lisco Canal	Irrig.	3.00	14	18	47	Garden	April	6	1910	......	991
No. Platte Riv.	French, John	Henry	French Canal	Irrig.	11.00	9	23	60	Wyoming	Dec.	21	1911	......	1149
No. Platte Riv.	Dobson, W. A.	Carrolton, Mo.	Dobson Lateral	Irrig.	3.14	5	20	52	Morrill	Feb.	28	1912	......	1181
No. Platte Riv.	Stone, Myron K.	Lisco	Stone Canal	Irrig.	1.00	28	18	46	Morrill	Jan.	19	1915	......	1401
No. Platte Riv.	French, John E.	Henry	French Canal	Irrig.	3.00	9	23	60	Wyoming	Sept.	11	1915	......	1433
(Rd Will'w Cr)	Dobson, W. A.	Carrolton, Mo.	Dobson Lateral	Irrig.	.25	5	20	52	Morrill	Nov.	3	1915	......	1436
No. Platte Riv.	Liebhardt Bros.	Denver, Colo.	Liebhardt Lateral	Irrig.	2.90	6	20	52	Morrill	March	1	1916	......	1448
No. Platte Riv.	Intermountain Ry. L. & Pwr. Co.	Colo. Springs	Gering Hydro Elec. Plant	Power	250.00	10	23	60	Wyoming	April.	15	1916	......	1452
No. Platte Riv.	U. P. Ry. Co.	Omaha	Locomotive Water Supply	Power	1.00	29	14	30	Keith	Jan.	19	1917	......	1472
No. Platte Riv.	French, John E.	Henry	French Canal Ext.	Irrig.	.60	9	23	60	Wyoming	March	20	1920	......	1581
No. Platte Riv.	Lower Platte Irrig. Association	Lexington	South Canal	Irrig.		18	14	36	Keith	Jan.	12	1922	......	1633A*
No. Platte Riv.	Lower Platte Irrig. Association	Lexington	Sutherland Reservoir	Stor.		13	34	33	Keith	Jan.	12	1922	......	1635*
No. Platte Riv.	Overland Irr. Canal Company	Omaha	Overland Canal	Irrig.		2	16	44	Garden	Feb.	25	1924	......	1737
No. Platte Riv.	Robinson, A. A.	Gering	Paisley Canal	O. D.	1.45	2	16	44	Garden	March	31	1924	800	1742

"R" Denotes Relocation.

* Denotes application not approved.

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No. Platte Riv. (Spr'g Cr Trib)	U. P. Ry. Co.	Omaha	Frazier Lake	Ice	4.00	35	14	30	Lincoln	Sept.	6	1907	......	868
No. Platte Riv. (Spr'g Cr Trib)	Gatch, Charles	Melbeta	Gatch Canal	Irrig.	.93	25	21	54	Scotts Bluff	Aug.	21	1912	......	1220
No. Platte Riv. (Barrow Pit, Trib)	Taylor, A. O.	Minatare	Barrow Pit Canal	Irrig.	.29	19	21	52	Scotts Bluff	April	23	1904	......	751
Otter Creek	Fairchild, Louis F.	Lemoyne	Cascade Canal	Irrig.	3.30	4	15	40	Keith	April	1	1891	1032	......
Otter Creek	Nissen, Pete & Co.	Belmar	Otter Canal	Irrig.	10.29	5	15	40	Keith	May	24	1912	......	1198†
Otter Creek	Peterson, E. J.	Lemoyne	Holcomb Canal	Irrig.	15.49	5	15	40	Keith	Nov.	6	1912	......	1
Otter Creek	Peterson, E. J.	Lemoyne	Peterson Canal	Irrig.	1.32	5	15	40	Keith	Nov.	6	1912	......	1240
Owl Creek	Kellums, John H.	Morrill	Sunflower Canal	Irrig.	.79	12	22	58	Scotts Bluff	Sept.	17	1897	......	411
Owl Creek	Kellums, John H.	Morrill	Sunflower Canal	Irrig.	1.14	12	22	58	Scotts Bluff	Oct.	10	1904	......	770
Owl Creek	Kellums, John H.	Morrill	Sunflower No. 2	Irrig.	1.14	12	22	58	Scotts Bluff	Nov.	29	1907	......	879
Owl Creek	Kellums, John H.	Morrill	Sunflower No. 1	Irrig.	.57	12	22	58	Scotts Bluff	Nov.	29	1907	......	881
Pawnee Creek	Kent-Burke Co.	Omaha	Kent-Burke Canal	Irrig.	8.00	13	13	28	Lincoln	Oct.	18	1890	636†	......
Pawnee Creek	Kent-Burke Co.	Omaha	Kent-Burke Canal	Irrig.	5.85	18	13	27	Lincoln	Nov.	16	1922	......	1694
Platte River	Central Power Co.	Gr. Island	Kearney Canal	Irrig. Power	22.00 140.00	3	8	16	Buffalo	Sept.	10	1882	1023	......
Platte River	Gothenburg L.&P. Co.	Gothenburg	Gothenburg Canal	I. & P.	200.00	29	12	26	Lincoln	July	5	1890	645a	......
Platte River	Farmers Irr .Co.	Lexington	Farmers Canal	Irrig.	114.00	25	10	23	Dawson	June	14	1894	621	......
Platte River	Dawson Co. Irr. Co.	Lexington	Dawson Canal	Irrig.	1142.86	18	10	23	Dawson	June	26	1894	622	......
Platte River	Platte Riv. Irr. Co.	Lexington	Platte Riv. Canal	Irrig.	400.00	13	9	22	Dawson	Sept.	15	1894	624	......
Platte River	Gothenburg L.&P. Co.	Gothenburg	Gothenburg Canal	I. & P.	240.00	29	12	26	Lincoln	Sept.	22	1894	645b	......
Platte River	Six Mile Ditch Co.	Gothenburg	Six Mile Canal	Irrig.	40.00	11	11	26	Lincoln	Oct.	22	1894	680	......

† Denotes part of appropriation cancelled.

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Platte River	Gothenburg So. Side Irr. Dist.	Gothenburg	Gothenburg S. S. Canal	Irrig.	357.14	30	12	26	Lincoln	Oct.	26	1894	681	....
Platte River	Cozad Irr. Co.	Cozad	Cozad Canal	Irrig.	614.29	15	11	25	Dawson	Dec.	28	1894	626	....
Platte River	So. Side Irr. Co.	Cozad	Orchard-Alfalfa Canal	Irrig.	300.00	9	10	24	Dawson	Jan.	23	1895	627	....
Platte River	Central Power Co.	Gr. Island	Central Power Plant	Power	485.00	3	8	16	Buffalo	Feb.	12	1920	......	1577
Platte River	Central Power Co.	Gr. Island	Central Power Company Steam Plant	Steam	925.00	29	11	8	Merrick	Aug.	12	1920	......	1588
Platte River	Steele, Charles	Elm Creek	Cottonwood Canal	Irrig.	5.33	7	8	18	Phelps	Dec.	15	1921	......	1629
Platte River	Lower Platte Irr. Association	Lexington	North Canal	Irrig.		8	13	29	Lincoln	Jan.	12	1922	......	1633*
Platte River	Lower Platte Irr. Association	Lexington	Rotan Reservoir	Stor.		14	12	24	Lincoln					
			Buffalo Reservoir	Stor.		5	11	22	Dawson					
			Elm Cr. Reservoir	Stor.		1	9	19	Dawson	Jan.	12	1922	......	1636*
			Dry Fork Res.	Stor.		5	11	20	Dawson					
Platte River	Central Neb. Supplemental Water Ass'n.	Hastings	Tri-County Project	Irrig.		14	12	28	Lincoln					
						2	8	21	Gosper	Nov.	29	1922	......	1696*
						36	9	21	Dawson					
						17-20	8	15	Buffalo					
Platte River	Central Neb. Supplemental Water Ass'n.	Hastings	Plum Creek Reservoir	Stor.		14	12	28	Lincoln	Nov.	15	1923	......	1727*
Platte River	Central Neb. Supplemental Water Ass'n.	Hastings	Tri-County Power Plant	Power		14	12	28	Lincoln	Nov.	15	1923	......	1728*
Platte River	Peaker, Howard	Kearney	Kearney Tail Race	O. D.		11	8	16	Buffalo	May	8	1924	1023	1744
Plum Creek	Roblee, D. S.	Lewellen	Plum Cr. Reservoir	Irrig.	1.14	23	16	42	Garden	Jan.	12	1914	......	1344
Pumpkins'd Cr.	Kelley, Wm. J.	Harrisburg	Kelley Canal	Irrig.	1.43	5	19	54	Banner	May	10	1886	915	....

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Pumpkins'd Cr.	Zingg, Henry N.	Pl. Center	Heard's' Canal Nos. 1 and 2	Irrig.	1.29	14	19	54	Banner	June	1	1887	916	......
Pumpkins'd Cr.	Olson, Albert H.	Harrisburg	Logan Canal	Irrig.	4.00	7	19	55	Banner	July	16	1890	902	......
Pumpkins'd Cr.	Court House Rock Co.	Bridgeport	Court House Rock Canal	Irrig.	30.50	30	19	50	Morrill	Oct.	8	1890	840	......
Pumpkins'd Cr.	Court House Rock Co.	Bridgeport	Court House Rock Canal	Irrig.		30	19	50	Morrill	Oct.	8	1890	1028	......
Pumpkins'd Cr.	Mutual Ditch Co.	Redington	Mutual Canal	Irrig.	8.57	33	19	52	Morrill	Nov.	1	1890	843	......
Pumpkins'd Cr.	Sweet, C. A.	Omaha	Meredith-Ammer Canal	Irrig.	18.86	23	19	50	Morrill	Feb.	20	1893	876	......
Pumpkins'd Cr.	Finn & Trott	Bridgeport	Last Chance Canal	Irrig.	6.33	27	19	50	Morrill	April	12	1894	883	......
Pumpkins'd Cr.	Loy, Mrs. E. P.	Bridgeport	Round House Rk. Canal	Irrig.	3.00	28	19	51	Morrill	May	29	1894	884	......
Pumpkins'd Cr.	Quinn, T. E.	Bridgeport	Bird Cage Canal	Irrig.	1.00	20	19	51	Morrill	June	1	1895	892	......
Pumpkins'd Cr.	Smith, E. & Wheeler, Chas.	Sidney	Smith-Wheeler No. Canal	Irrig.	.71	26	19	51	Morrill	June	1	1896	842	......
Pumpkins'd Cr.	Cluck, Millard	Harrisburg	Peters Canal	Irrig.	2.57	34	20	56	Banner	July	1	1902	913	......
Pumpkins'd Cr.	Airedale Ranch & Cattle Co.	Scottsbluff	Airedale Canal No .1	Irrig.	5.52	2	19	55	Banner	Jan.	24	1903	......	698
Pumpkins'd Cr.	Airedale Ranch & Cattle Co.	Scottsbluff	Airedale Canal No. 2	Irrig.	3.22	1	19	55	Banner	Jan.	24	1903	......	699
Pumpkins'd Cr.	Simon, Lincoln G.	Sidney	Res. Nos. 1, 2, and 3	Irrig.	1.31	7	19	55	Banner	June	24	1903	......	711
Pumpkins'd Cr.	Swanger, R.	Bridgeport	Swanger Canal	Irrig.	.43	29	19	50	Morrill	Feb.	28	1909	......	851
Pumpkins'd Cr.	Airedale Ranch & Cattle Co.	Scottsbluff	Airedale Canal No. 2	Irrig.	1.57	1	19	55	Dawes	Oct.	26	1911	......	1133
Pumpkins'd Cr.	Airedale Ranch & Cattle Co.	Scottsbluff	Airedale Canal No. 1	Irrig.	.51	2	19	55	Banner	Sept.	4	1914	......	1380
Pumpkins'd Cr.	Airedale Ranch & Cattle Co.	Scottsbluff	Airedale Canal No. 3	Irrig.	4.41	2	19	55	Banner	March	15	1918	......	1508

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Pumpkins'd Cr.	Quinn, T. E.	Bridgeport	Quinn Canal	Irrig.	.25	20	19	51	Morrill	Oct.	15	1919	......	1561
Pumpkins'd Cr.	Seeley & Waitman	Milford	Seeley & Waitman Canal	Irrig.		29	15	52	Morrill	June	24	1924	......	1746
Red Willow Cr	Alliance Irr. Dist.	Bridgeport	Alliance Canal	O. D.	60.00	6	20	51	Morrill	Aug.	5	1915	874	1429
Red Willow Cr	Dobson, W. A.	Carrolton, Mo.	Dobson Lateral	Irrig.	2.00	12	20	51	Morrill	Sept.	10	1915	......	1432
Sand Creek	Dudley, W. H.	Lemoyne	Patrick Canal	Irrig.	2.43	10	15	40	Keith	May	31	1891	725	....
Sand Creek	Nissen, Peter	Lemoyne	Nissen Canal	Irrig.	3.07	10	15	40	Keith	March	18	1901	......	606
Sand Creek (Gravel Cr.)	Maddox, P. P. and Sillasen, S. J.	No. Platte	Sand Creek Canal	Irrig.	1.84	9	14	36	Keith	Jan.	3	1910	......	974†
Seep from Lake	Huffman, M. J.	Gering	Huffman Canal	Irrig.	6.43	26	21	54	Scotts Bluff	March	19	1909	......	937
Scheutz Spr'gs.	Scheutz, Louis	Bridgeport	Scheutz Canal	Irrig.	.21	28	18	50	Morrill	May	10	1892	881	....
Sheep Creek	Nash, Charles A.	Henry	Little Moon Canal	Irrig.	1.00	10	24	58	Sioux	March	23	1904	......	745
Sheep Creek	Covert, Pitt	Cheyenne, Wyo.	Nebraska Reservoir	Irrig.	3.57	36	27	58	Sioux	May	18	1907	......	859
Sheep Creek	West Fork Ditch Co.	Exeter	West Fork Canal	Irrig.	5.14	1	26	58	Sioux	Sept.	21	1907	......	871
Sheep Creek	Cunningham, H. B.	Exeter	Lower Canal	Irrig.	.37	11	25	58	Sioux	Nov.	2	1907	......	875
Sheep Creek	Sturdevant, Mrs. Addie	Henry	Horse Camp Res.	Irrig.	.43	36	27	58	Sioux	Jan.	20	1908	......	885†
Sheep Creek (No. Platte)	Sheep Cr. Lateral Co.	Morrill	Sheep Cr. Lateral	O. D.	5.00	8	23	57	Scotts Bluff	Feb.	26	1912	918	1176
Sheep Creek	Sheep Cr. Lateral Co.	Morrill	Sheep Cr. Lateral	Irrig.	.92	8	23	57	Scotts Bluff	Jan.	12	1915	......	1398
Sheep Creek (No. Platte)	Ramshorn Irr. Dist.	Morrill	Ramshorn Canal	O. D.	45.57	21	23	57	Scotts Bluff	Sept.	12	1916	945	1465

† Denotes part of appropriation cancelled.

Source	Name of Claimant	Post Office	Carrier	Use to which appl'd	Sec. Feet gr'ted	Location of Headgate S	T	R	County	Date of Priority Month	D	Yr.	Doc. No.	App. No.
Sheep Cr. Draw Trib, to	Sheep Cr. Lateral Co.	Morrill	Sheep Cr. Lateral	Irrig.	.28	8	23	57	Scotts Bluff	Feb.	20	1915	......	1403
Slough, Warm	Johnson, Abram M.	Gibbon	Johnson Pumping Plant	Irrig.	.50	30	9	13	Buffalo	Feb.	20	1923	......	1707
Skunk Creek	Knight, H. H.	Keystone	Miller Canal	Irrig.	2.29	1	14	37	Keith	April	1	1895	740	......
Skunk Creek	Maddox, P. P.	No. Platte	Skunk Creek Canal	Irrig.	3.36	6	14	36	Keith	Nov.	5	1909	......	968
Snake Creek	Kilpatrick Bros.	Beatrice	Oasis Canal	Irrig.	54.86	6	24	51	Box Butte	June	6	1894	567	......
Snake Creek	Kilpatrick Bros.	Beatrice	Kilpatrick Res. No. 1	Stor.	6500.00 A.F.	1	24	52	Box Butte	June	7	1911	......	1104
Snake Creek (Res.A.1104)	Kilpatrick Bros.	Beatrice	Kilpatrick Res. No. 2	Irrig.	200.00	6	24	51	Box Butte	Jan.	25	1912	......	1159
So. Platte Riv.	Hollingsworth, A.	Ogalalla	Hollingsworth Canal	Irrig.	30.00	12	13	39	Keith	June	5	1894	723	......
So. Platte Riv.	Miller & Kimball Co.	Big Springs	Miller-Warren Canal	Irrig.	53.86	7	12	42	Deuel	Jan.	5	1895	805	......
So. Platte Riv.	Myer, Henry	Brule	Myer Canal	Irrig.	1.46	22	13	40	Keith	April	14	1896	......	283
So. Platte Riv.	Western Irr. Dist.	Big Springs	Western Canal	Irrig.	180.29	14	12	43	Deuel	June	14	1897	......	393
So. Platte Riv.	Beal, Orvill	Brule	Beal's Power Plant	Power	17.60	21	13	40	Keith	Sept.	20	1921	......	1619
So. Platte Riv.	Beal, Orvill	Brule	Beal's Canal	Irrig.	5.00	21	13	40	Keith	Sept.	20	1921	......	1620
So. Platte Riv.	Goodall, Robt., Et Al.	Ogalalla	......	Stor.	......	...	...	...	......	Dec.	17	1921	......	1630*
Spotted Tail Cr.	Stewart, H. G.	Mitchell	......	Irrig.	1.00	10	23	56	Scotts Bluff	May	2	1898	......	449
Spotted Tail Dry	Pool, Ella B.	Lincoln	Robert's Canal	O. D.	2.00	16	23	56	Scotts Bluff	Nov.	6	1912	918	1241
Spotted Tail Dry	Gr. West. Sugar Co.	Scottsbluff	Mitchell Factory	Mfg.	15.00	21	23	56	Scotts Bluff	March	24	1920	......	1582
Spotted Tail Wet	Wallace, Wm. E.	Mitchell	Stewart Reservoir	Irrig.	1.43	2	23	56	Scotts Bluff	March	2	1904	......	743

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Spotted Tail Wet	Wallace, Wm. E.	Mitchell	Brown's Canal	Irrig.	2.28	2	23	56	Scotts Bluff	March	17	1911	......	1072
Spring Branch	Brogan Bros.	Keystone	Brogan Bros. Canal	Irrig.	.57	35	15	37	Keith	Sept.	24	1897	......	410
Spring Creek	Peterson, E. J.	Lemoyne	Spring Creek Canal	Irrig.	.57	12	15	40	Keith	June	18	1894	724	....
Spring Creek, Lit.	Keystone Irr. Co.	Keystone	Little Spring Canal	Irrig.	.57	29	15	37	Keith	April	1	1903	......	659
Spring Creek, Lit.	Beatty, Wallace D.	Scottsbluff	Shramek Canal	Irrig.	1.50	22	22	55	Scotts Bluff	June	9	1913	......	1295
Spring Creek, Lit.	Gilchrist, M. B.	Scottsbluff	....	Irrig.	.14	22	22	55	Scotts Bluff	July	29	1913	......	1310
Spring Creek, Lit.	McClenahan, E.	Scottsbluff	Shramek's Extension	Irrig.	.57	22	22	55	Scotts Bluff	July	30	1917	......	1492
Spring Creek, Lit.	Nelson, Martin	Scottsbluff	Shramek's Extension	Irrig.	.14	22	22	55	Scotts Bluff	June	3	1918	......	1515
Springs, Trib to Middle Cr.	Bartling, Henry	Redington	Bartling Canal	Irrig.	.29	28	18	51	Morrill	July	31	1891	870	....
Springs, Trib to Middle Cr.	Bartling, Henry	Redington	Bartling Canal No. 2	Irrig.	.29	28	18	51	Morrill	June	1	1894	891	....
Wh. Horse Cr.	Lamplough, Harry	No. Platte	Lamplough's Lake	Irrig.	2.86	8	14	30	Lincoln	Dec.	31	1883	658	....
Wh. Horse Cr.	Bratt, John	No. Platte	John Bratt's Canal	Irrig.	6.00	9	14	30	Lincoln	Aug.	25	1913	......	1316
White Tail Cr.	McCarthy J. M.	Keystone	McCarthy Canal	Irrig.	1.00	36	15	38	Keith	July	15	1890	749	....
White Tail Cr.	Keystone Irr. Co.	Keystone	Halloway-Phelps Canal	Irrig.	3.86	36	15	38	Keith	June	1	1892	717	†
White Tail Cr.	Keystone Irr. Co.	Keystone	Foster-Keystone Canal	Irrig.	13.86	26	15	38	Keith	Oct.	30	1894	730	†
White Tail Cr.	Noble, Bert A.	Keystone	Reed Canal	Irrig.	.57	15	15	38	Keith	May	15	1895	751	....

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White Tail Cr.	Keystone Irr. Co.	Keystone	Keystone Canal	Irrig.	39.00	26	15	38	Keith	April	26	1902	......	662b †
White Tail Cr.	Keystone Irr. Co.	Keystone	Keystone Canal	Irrig.	4.30	26	15	38	Keith	Nov.	30	1906	......	843
White Tail Cr.	Keystone Irr. Co.	Keystone	Keystone Canal	Irrig.	7.13	27	15	38	Keith	May	27	1910	......	1003†
Wh. Tail, Trib to Spring Cr.	Young, Thos. H.	Mitchell	Spring Cr. Reservoir	Ice	160.00 A.F.	27	23	56	Scotts Bluff	Feb.	6	1922	......	1642
Willow Creek	Cross, John H.	Harrisburg	Willow Springs Canal No. 1	Irrig.	.57	16	19	56	Banner	Jan.	21	1902	......	650
Willow Creek	Cross, John H.	Harrisburg	Willow Springs Canal No. 2	Irrig.	.86	16	19	56	Banner	Jan.	21	1902	......	651
Willow Creek	Cross, John H.	Harrisburg	Willow Springs Canal	Irrig.		16	19	56	Banner	Oct.	16	1924	......	1724*
Willow Creek	Stafford, J. D., Et Al	Paxton	Willow Creek Canal	Irrig.		15	14	35	Keith	July	7	1924	......	1747
Winters Cr.	Bouton, Chas. A.	Gering	Bouton's Canal	Irrig.	1.00	3	22	54	Scotts Bluff	Aug.	17	1889	923	....
Winters Cr. (No. Platte)	Winters Cr. Irr. Co.	Scottsbluff	Winter Creek Canal	O. D.	70.00	19	22	54	Scotts Bluff	Feb.	2	1916	952	1446
Winters Cr.	Gr. West. Sugar. Co.	Scottsbluff	Main Water Supply Scottsbluff Factory	Mfg.	15.00	19	22	54	Scotts Bluff	Oct.	4	1920	......	1592
Wood River	Ashburn, J. N.	Gibbon	Ashburn Canal	Power	40.00	13	9	14	Buffalo	Nov.	1	1873	993	....
Wood River	Shelton M. & Gr. Co.	Shelton	Shelton Canal	Power	40.00	1	19	13	Buffalo	Oct.	16	1873	994	....
Wood River	Bearss, Guy S.	Kearney	Bearss Canal	Power	25.40	13	9	16	Buffalo	May	1	1881	995	....
Wood River	Klein, J. J.	Kearney	White Bridge Park	Irrig.	.03	8	9	15	Buffalo	March	14	1900	......	545a
Wood River	Klein, J. J.	Kearney	White Bridge Park	Power	10.00	8	9	15	Buffalo	March	14	1900	......	545b
Wood River	Jacobson, C. A.	Riverdale	Jacobson's Canal	Irrig.	.50	31	10	16	Buffalo	Nov.	10	1910	......	1038
Wood River	Kimbrough, Cora	Shelton	Kimbrough Canal	Irrig.	4.00	36	10	13	Buffalo	Sept.	21	1912	......	1227
Wood River	Jacobson, C. A.	Riverdale	Jacobson's Canal	Stor.	9000.00 A.F.	31	10	10	Buffalo	Feb.	3	1920	......	1576
Wood River	Haug, James	Shelton	Haug's Project	Irrig.	.64	7	9	13	Buffalo	Sept.	7	1920	......	1590
Wood River	Peterson, C.	Shelton	Peterson's Pumping Plant	Irrig.	1.07	10	9	13	Buffalo	July	11	1921	......	1611

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Wood River	Nutter, M. D.	Shelton	Nutter Pumping Pl.	Irrig.	2.28	8	9	13	Buffalo	Aug.	29	1921	......	1616
Wood River	Rodgers, J. H.	Gibbon	Rodger's Canal	Irrig.	.30	14	9	14	Buffalo	Feb.	4	1922	......	1641
Wood River	Neb. Conf. Assn. of Seven Day Adv't'ts	Shelton	Shelton Academy Project	Irrig.	2.28	31	10	12	Hall	Feb.	16	1922	......	1643
Wood River	Haug, James	Shelton	Haug's Canal No. 2	Irrig.	.92	9	9	13	Buffalo	Feb.	28	1922	......	1644
Wood River	Hallen, Hjalmar	Kearney	Hallen's Reservoir	Stor.	2.00 A.F.	5	9	16	Buffalo	April	4	1922	......	1654
Wood River	Hallen, Hjalmar	Kearney	Hallen's Dam	Irrig.		5	9	16	Buffalo	April	17	1922	......	1656
Wood River	Hallen, Hjalmar	Kearney	Hallen's Power Pl.	Power		5	9	16	Buffalo	April	17	1922	......	1657 *
Wood River	Durtschi, Rudolph	Wood River	Durtschi Pumping Plant	Irrig.	1.11	18	10	11	Hall	May	22	1922	......	1668
Wood River	Howe, Lloyd M.	Wood River	Howe's Pumping	Irrig.	.54	17	10	11	Hall	July	14	1922	......	1679
Wood River	Wilson, C. C.	Omaha	Wilson's Pumping Plant	Irrig.	1.21	14	9	15	Buffalo	Nov.	15	1922	......	1693
Wood River	Smith, Evan T.	Shelton	Smith's Pumping Plant	Irrig.	1.09	1	9	13	Buffalo	Jan.	12	1923	......	1702
Wood River	Ross, W. M.	Gibbon	Ross Pumping Plant	Irrig.	.26	13	9	14	Buffalo	April	28	1924	......	1743

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Arickaree Riv.	Jenkins, Chas. T.	Haigler	Haigler Reservoir & Irr. Canal	Irrig.	171.00	15	1	42	St. of Colo.	Jan.	21	1910	......	979
Buffalo Creek	Allen, Frank B., et al	Haigler	Allen-Larned Canal	Irrig.	6.00	18	1	40	Dundy	Oct.	16	1890	117	....
Buffalo Creek	Porter, J. R. & Son	Haigler	Porter Canal	Irrig.	2.86	1	1	41	Dundy	Nov.	26	1890	171	....
Buffalo Creek	Jenkins, Chas. T.	Haigler	Jenkins Canal No. 1	Irrig.	4.29	18	1	40	Dundy	Dec.	12	1908	......	924
Buffalo Creek	Porter L'd & Inv. Co.	Haigler	J. R. Porter Canal	Irrig.	3.32	1	1	41	Dundy	June	23	1913	......	1298
Buffalo Creek	Bowen Inv. Co.	Denver	Meadow View Res.	Stor.	....	1	2	40	Dundy	May	19	1922	......	1666*
Buffalo Creek	Bowen Inv. Co.	Denver	Meadow View Canal, Ext. of J. R. Porter's Canal	Irrig.	....	1	2	40	Dundy	May	19	1922	......	1667*
Brush Creek	Lofton, Frank S.	McCook	Brush Cr. Reservoir	Stor.	3.50	3	2	29	Red Willow	June	1	1912	......	1201
Canyon No. 10	Wacker, George	Culbertson	Wacker Canal	O. D.	.70	17	3	31	Hitchcock	Dec.	19	1893	10	1523
Canyon No. 10	Farmers Canal Co.	Culbertson	Farmers Canal	O. D.	2.21	17	3	31	Hitchcock	Dec.	19	1893	10	1573
Center Creek	Gregory, A. B. and P. C.	Franklin	Gregory Canal	Irrig.	4.00	1	1	15	Franklin	Aug.	11	1894	182	....
Cook Creek	Haskell, W. G.	Alma	Cook Creek Canal	Irrig.	1.42	33	2	18	Harlan	July	21	1917	......	1491
Cook Creek	Shaffer, Frank	Alma	Shaffer Canal	Irrig.	1.08	33	2	18	Harlan	July	10	1918	......	1517
Cook Creek	Shaffer, Frank	Alma	Shaffer Canal	Stor.	....	33	2	18	Harlan	Aug.	24	1918	......	1522
Cottonwood, Big	Morlan, Henry	Bloomington	Bloomington Canal	Irrig.	.50	25	2	16	Franklin	Dec.	31	1881	185	....
Cottonwood, Big	Siegel, Lewis A.	Bloomington	Bloomington Mill	Power	6.00	25	2	16	Franklin	Nov.	23	1898	......	483
				Irrig.	1.57	....	....	....	....				......	....
Cottonwood, Little	Gardner, C. D.	Bloomington	Gardner Canal	Irrig.	1.14	6	1	15	Franklin	March	20	1922	......	1647

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Cottonwood, Little	Bradshaw, Geo. F.	Bloomington	Home Irr. Plant	Irrig.	.23	6	1	15	Franklin	April	27	1922	......	1661
Crooked Creek	Kaley, C. H.	Red Cloud	Fish Pond	Fish	1.00	1	1	11	Webster	May	7	1902	......	665
Crooked Creek	Slawson, E. R.	Red Cloud	Slawson Ice Pond	Stor.	.75	1	1	11	Webster	Aug.	8	1912	......	1213
Crystal Spr'gs	Newbold ,W. G.	Riverton	Crystal Spgs. Canal	Irrig.	.28	10	2	13	Franklin	Aug.	17	1921	......	1615
Driftwood Cr.	Schmitz, Mrs. J. A.	McCook	Schmitz Irr. Works	Irrig.	1.50	12	2	30	Red Willow	May	3	1913	......	1287
Driftwood Cr.	Hesterworth, John T.	McCook	Hesterworth Irrig. Works	Irrig.	1.00	14	2	30	Red Willow	Nov.	17	1913	......	1332
Driftwood Cr.	Wasson, Monroe A.	McCook	Sylvan Dell Canal	Irrig.	2.80	1	2	30	Red Willow	Dec.	6	1913	......	1340
Elk Creek	Murray, Esther	Arapahoe	Murray Irr. Works	Irrig.	2.85	11	4	23	Furnas	Aug.	13	1913	......	1315
Frenchman R.	Athey, H. E.	Waunetta	Wauneta Mills	Power	35.00	11	5	36	Chase	July	31	1886	178	....
Frenchman R.	Daschosifsky, G.	Lamar	Lamar Rolling Mills	Power	30.00	18	6	40	Chase	Dec.	30	1887	1013	....
Frenchman R.	Est. of M. H. Yaw	Champion	Champion Mills	Power	28.30	21	6	39	Chase	Dec.	31	1887	179	....
Frenchman R.	Sheridan, R. B.	McCook	Aberdeen Canal	Irrig.	2.00	3	5	38	Chase	July	1	1888	50a	....
Frenchman R.	McGillen, W. J.	Imperial	Harlem Canal	Irrig.	2.00	1	5	38	Chase	July	1	1888	56	....
Frenchman R. and Stinking Water Cr.	Frenchman Valley Irrigation District	Culbertson	Culbertson Canal	Irrig.	215.00	31	5	3	Hayes	May	16	1890	24-25	....
											....	....	29-30	....
Frenchman R.	Kilpatrick Bros.	Beatrice	Champion Canal	Irrig.	24.00	23	6	40	Chase	Dec.	23	1890	47*	....
Frenchman R.	Sheridan. R. B.	McCook	Aberdeen Canal	Irrig.	.50	3	5	38	Chase	Feb.	2	1891	50b	....
Frenchman R.	Farmers Canal Co.	Culbertson	Farmers Canal	Irrig.	10.00	11	3	32	Hitchcock	Dec.	19	1893	10	....
Frenchman R. (Canyon No.10)	Wacker, Geo.	Culbertson	Wacker's Canal	O. D.	.70	17	3	31	Hitchcock	Dec.	19	1893	10	1523

* Amount affirmed by Supreme Court.

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Frenchman R. (Canyon No.10)	Farmers Canal Co.	Culbertson	Farmers Canal	O. D.	2.21	17	3	31	Hitchcock	Dec.	19	1893	10	1573
Frenchman R.	Fuller, C. D.	Imperial	Fuller Canal	Irrig.	25.00	4	5	36	Chase	June	12	1894	62	....
Frenchman R.	Riverside Irr. Co.	Culbertson	Riverside Canal	Irrig.	12.00	33	4	32	Hitchcock	July	28	1894	18	....
Frenchman R.	Dissmore, Geo. A.	DesMoines, Ia.	Frenchman Val. Can'l	Irrig.	10.00	32	5	33	Hayes	Aug.	23	1894	38	....
Frenchman R.	Groesback, Rose	Wauneta	Gould Canal	Irrig.	2.00	1	5	38	Chase	Oct.	9	1894	67	....
Frenchman R.	Sheridan, R. B.	McCook	Grant-Aberdeen Can'l	Irrig.	2.00	3	5	38	Chase	Oct.	16	1894	68	....
Frenchman R.	Maranville, E., et al.	Champion	Maranville Canal	Irrig.	6.00	12	6	41	Chase	Dec.	8	1894	70-71	....
Frenchman R.	Wise, J. S.	Palisade	Wise Canal	Irrig.	2.00	15	5	35	Hayes	Dec.	28	1894	42	....
Frenchman R.	Woods, John, and Francis	Wauneta	N. Gurnsey Canal	Irrig.	5.00	3	5	37	Chase	Jan.	14	1895	74	....
Frenchman R.	Woods, John, and Francis	Wauneta	S. Gurnsey Canal	Irrig.	24.00	10	5	37	Chase	Jan.	14	1895	75	....
Frenchman R.	Inman, Norton	Champion	Inman Canal	Irrig.	1.50	17	6	40	Chase	Feb.	28	1895	79	....
Frenchman R.	Kilpatrick Bros.	Beatrice	North Side Canal	Irrig.	.79	21	6	39	Chase	Feb.	25	1896	......	246
Frenchman R.	Shallenberger, Geo.	Elwood	Shallenberger Canal	Irrig.	1.77	25	6	39	Chase	Dec.	21	1897	......	423
Frenchman R.	Inman Irr. Co.	Imperial	Inman Canal	Irrig.	6.43	17	6	40	Chase	Feb.	10	1898	......	436
Frenchman R.	Hoke, J. A.	Champion	Creamery Canal	Power	34.40	21	6	39	Chase	Dec.	12	1900	......	591
Frenchman R.	Follett-Krotter	Palisade	Follett-Krotter Canal	Irrig.	4.29	35	5	34	Hayes	April	30	1903	......	705
Frenchman R.	Follett-Krotter	Palisade	Follett-Krotter Canal	Irrig.	2.57	35	5	34	Hayes	Aug.	11	1903	......	720
Frenchman R.	Hagerman, Wm.	Hamlet	Hagerman Canal	Irrig.	.86	19	5	34	Hayes	March	11	1909	......	935
Frenchman R.	Krotter, F. C.	Palisade	Follett-Krotter Canal	Irrig.	10.46	35	5	34	Hayes	Jan.	15	1910	......	975
Frenchman R.	Krotter, F. C.	Palisade	Krotter Power Plant	Power	55.00	35	5	34	Hayes	Aug.	17	1910	......	1021
Frenchman R.	Krotter, F. C.	Palisade	Krotter Power Plant No. 3	Irrig.	2.42	35	5	34	Hayes	Dec.	15	1910	......	1047
Frenchman R.	Hoke, J. A.	Champion	Hoke's P. & P. Plant	Irrig.	2.28	21	6	39	Chase	May	1	1911	......	1094
Frenchman R.	Kilpatrick Bros.	Beatrice	Kilpatrick Res. No. 1	Stor.	1000.00 AF	23	6	40	Chase	June	22	1911	......	1108
Frenchman R.	Sheridan, R. B.	McCook	Ext. Aberdeen Canal	Irrig.	1.57	2	5	38	Chase	July	29	1911	......	1117
Frenchman R.	Theobald & Athey	Wauneta	Wauneta Pow'r Plant	Power	75.00	11	5	36	Chase	Nov.	16	1911	......	1136

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Frenchman R...	Arteburn, E. E.	Lincoln	Arteburn Storage Res	S. & I.	160.00	11	6	41	Chase	Nov.	28	1911	......	1142
Frenchman R...	Bishop, Stephen S.	Lincoln	Inman Storage Res..	Stor.	125.00	17	6	40	Chase	Dec.	8	1911	......	1145
(Res. A. 1108)..	Kilpatrick Bros.	Beatrice	Kilpatrick Res.	Irrig.	17.00	30	6	39	Chase	Jan.	25	1912	......	1160
Frenchman R...	Dougherty, Geo.	Wauneta	Oliver Bros. Power Plant	Power	50.00	7	5	35	Hayes	April	28	1913	......	1284
Frenchman R...	Dougherty, Geo.	Wauneta	Oliver Bros. Canal	Irrig.	3.20	7	5	35	Hayes	April	28	1913	......	1285
Frenchman R...	Krotter, F. C.	Palisade	Krotter Power Plant..	Power	65.00	35	5	34	Hayes	Dec.	2	1913	......	1339
Frenchman R...	Village of Imperial	Imperial	Imperial Power Plant	Power	55.00	25	6	39	Chase	Feb.	7	1917	......	1474
Frenchman R...	Shallenberger, O. P.	Imperial	Lake Imperial	Irrig.	4.57	25	6	39	Chase	May	14	1917	......	1487
Frenchman R...	Frenchman Valley Irrr. District	Culbertson	Harvey Reservoir	Stor.	15,000 A.F.	3	5	38	Chase	June	8	1921	......	1607
Frenchman R...	Knottwell & Newton..	Imperial	Hamlet Roller Mills....	Power	96.00	24	5	35	Hayes	March	20	1922	......	1646
Frenchman R...	Riverside Ditch Co.	Culbertson	Riverside Canal	Irrig.	2.90	33	4	32	Hitchcock	July	3	1922	......	1674
Horse Creek	Nesbit, J. M., et al	Parks	Horse Creek Canal	Irrig.	1.86	23	1	39	Dundy	Aug.	31	1885	159	....
Horse Cr. Sp'g. Trib. to	Pringle, Esther L.	Parks	Pringle Canal	Irrig.	.57	11	1	39	Dundy	Jan.	12	1897	173	364
Horse Cr. Sp'g. Trib. to	Pringle, Geo. N.	Parks	Pringle Canal	Irrig.	1.57	14	1	39	Dundy	May	11	1906	......	824
Indian Creek ..	Thompson & Van Sickle	Benkleman	Thompson-Van Sickle Canal	Irrig.	.93	8	2	37	Dundy	June	20	1895	......	237
Indian Creek ..	Chamberlain, J. C.	Mt. Sterling, Ill	Chamberlain Canal....	Irrig.	.06	18	2	36	Dundy	Oct.	4	1895	......	240
Indian Creek ..	Foster, Chas.	Max	Wilson Canal	Irrig.	1.42	23	2	36	Dundy	June	22	1895	......	268
Indian Creek ..	Stonberg, Sanford	Max	Stonberg Canal	Irrig.	1.00	2	2	37	Dundy	March	13	1911	......	1070

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Mauer Springs	C. B. & Q. R. R.	Lincoln	Burlington Pipe Line	Irrig.	1.48	23	2	11	Chase	Nov.	28	1911	......	1143
Medicine Cr.	Cambridge Milling Co.	Cambridge	Cambridge Canal	Power	68.00	29	4	25	Furnas	Dec.	31	1878	92, 93	....
Medicine Cr.	Sanders, John L.	Stockville	Sanders Irr. Plant	Irrig.	1.43	27	7	27	Frontier	Feb.	8	1895	83	....
Medicine Cr.	Crete Mills	Curtis	Curtis Lake	Power	......	32	8	28	Frontier		....	....	364*	....
Medicine Cr.	Maywood Milling Co.	Maywood	Maywood Mills	Power	11.88	16	8	29	Frontier	May	4	1907	......	858
Red Willow Cr.	Moore, Wm. H.	Indianola	Red Willow Mill	Power	......	16	3	28	Red Willow	Jan.	1	1886	181	....
Red Willow Cr.	Holland, L J.	Indianola	Holland Canal	Irrig.	35.00	16	3	28	Red Willow	Jan.	23	1891	96	....
Red Willow Cr.	Helm, John F.	McCook	Helm Canal	Irrig.	2.00	17	3	28	Red Willow	Feb.	18	1895	111	....
Red Willow Cr.	Clark, A. R.	Indianola	Red Willow Val. Mound	Irrig.	14.29	31	4	28	Red Willow	Feb.	27	1905	......	781
Red Willow Cr.	Helm, John F.	McCook	Helm Canal	Irrig.	10.00	8	3	28	Red Willow	Dec.	15	1910	......	1042
Red Willow Cr.	Masters, Charles	Indianola	Master's Canal	Irrig.	1.14	6	3	28	Red Willow	July	29	1912	......	1212
Red Willow Lk.	Cooper, Jas.	Wallace	Red Willow Canal	Irrig.	2.00	36	9	33	Lincoln	Dec.	20	1893	647	....
Republican R.	Arapahoe Flour Mills	Arapahoe	Arapahoe Star Mill	Power	196.00	27	4	23	Furnas	July	24	1879	1029	....
Republican R.	Carson, A.	McCook	Carson Canal No. 1	Irrig.	1.43	27	3	30	Red Willow	July	1	1888	103	....
Republican R.	Pioneer Irr. Co.	Haigler	Haigler L. & C. Co. Canal	Irrig.	77.00	2	1	43	Dundy	April	4	1890	1025	....
Republican R.	Brown, W. A.	Haigler	Sand Point Canal	Irrig.	11.00	11	1	42	Dundy	Sept.	25	1890	115	....
Republican R.	Dundy Co. Irr. Co.	Benkelman	Dundy County Canal	Irrig.	45.00	24	1	39	Dundy	Nov.	22	1890	118	....
Republican R.	Trites, W. H., et al	Culbertson	Trites-Davenport Canal	Irrig.	7.00	20	3	31	Hitchcock	Dec.	18	1890	3	....
Republican R.	McCook I. & W. P. Co.	McCook	Meeker Canal	Irrig.	143.00	15	3	31	Hitchcock	Dec.	22	1890	4-9	....
													8-7	....
Republican R.	Trenton Farmers Irr. Ass'n.	Trenton	Trenton Farmers Can.	Irrig.	32.00	10	2	34	Hitchcock	Dec.	24	1890	6	....
Republican R.	Carson, A.	McCook	Carson Canal No. 2	Irrig.	18.00	27	3	30	Red Willow	May	5	1891	102	....
Republican R.	Neighbors, E. G.	Benkelman	Neighbors Canal	Irrig.	2.86	24	1	39	Dundy	Mar.	18	1891	133	....

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Republican R...	Cambridge & Arapahoe Irr. & Imp. Co.	Arapahoe	Cambridge & Arapahoe Canal	Irrig.	170.00	28	4	25	Furnas	Aug.	26	1891	89	....
Republican R...	Republican Irr. Co.	Benkelman	Republican Riv. Can'l	Irrig.	30.00	29	1	38	Dundy	May	2	1892	147	....
													148	....
Republican R...	Larned, W. H. et al	Haigler	White-Larned Canal	Irrig.	3.00	22	1	40	Dundy	April	29	1893	150	....
Republican R...	Marr, Lorenzo	Culbertson	Marr Canal	Irrig.	4.29	16	3	31	Hitchcock	Jan.	22	1894	11	....
Republican R...	Anderson, Anders	Benkelman	Anders Anderson Canal	Irrig.	1.90	1	1	37	Dundy	Jan.	26	1894	151	....
Republican R...	Thomas, A. J.	Haigler	Thomas Canal	Irrig.	2.00	24	1	40	Dundy	June	5	1894	154	....
Republican R...	Ballard, Henry L.	Oxford	Ballard Canal	Irrig.	8.00	8	3	21	Furnas	June	9	1894	91	....
Republican R...	Wilcox, F. S.	McCook	Wilcox Canal	Irrig.	4.50	32	3	29	Red Willow	Oct.	4	1894	109	....
Republican R...	Deleware-Hickman Ditch Company	Benkelman	Deleware-Hickman Canal	Irrig.	20.00	17	1	37	Dundy	Jan.	7	1895	157	•
Republican R...	Allen, E. M., et al	Arapahoe	Allen Irr. Canal	Irrig.	14.00	2	3	26	Red Willow	Jan.	26	1895	110	....
Republican R...	Spooner, J. A.	Parks	Private Canal	Irrig.	1.00	25	1	40	Dundy	Oct.	7	1897	......	413
Republican R...	Hamilton, Henry L.	McCook	Harmon Canal	Ice	10.00	32	3	29	Red Willow	Jan.	22	1900	......	535
Republican R...	Walsh, Patrick	McCook	Walsh Canal	Irrig.	11.00	35	3	30	Red Willow	Jan.	31	1900	......	537
Republican R...	Rogers, W. N.	McCook	Shadeland Pk. Canal	Irrig.	38.00	26	3	29	Red Willow	Jan.	3	1911	......	1049
Republican R...	McConnell Bros.	Trenton	McConnell Bros. Can'l	Irrig.	180.00	10	2	34	Hitchcock	Jan.	23	1911	......	1055
Republican R...	Hurst, J. C., et al	Trenton	H. D. Canal	Irrig.	7.00	28	2	35	Hitchcock	March	2	1911	......	1068
Republican R...	Cappel, Geo.	McCook	Geo. Cappell Canal	Irrig.	1.57	19	3	30	Red Willow	May	1	1911	......	1093
Republican R...	Rogers, W. M.	McCook	Shadeland Pk. Canal	Irrig.	7.00	25	3	29	Red Willow	Sept.	28	1911	......	1129
Republican R...	Anderson, C., et al	Benkelman	Cottonwood Canal	Irrig.	3.35	6	1	36	Dundy	Feb.	19	1912	......	1172
Republican R...	Rupert Ditch Co.	Culbertson	Rupert Canal	Irrig.	20.00	32	3	32	Red Willow	April	19	1912	......	1192
Republican R...	Pringle, Geo. N.	Parks	Parks Canal	Irrig.	17.00	20	1	39	Dundy	June	18	1912	......	1202
Republican R...	Kirtland, E. S.	Orleans	Orleans M. & E. Co.	Power	....	27	2	19	Harlan		....	....	1043*	....
Republican R...	Bartlett, Wm. C.	Alma	Lake Disappointment	Stor.	5.00	32	2	18	Harlan	Dec.	18	1915	......	1442

Note—Docket 157 Cancelled by Department now pending before Supreme Court.

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Republican R.	Everson, P. M. and Mitchell, J. C.	Alma	Everson Canal	Irrig.	1.07	13	2	18	Harlan	Dec.	18	1915	......	1443
Republican R.	Ham, Roy O.	Benkelman	Ham Canal	Irrig.	3.47	9	1	37	Dundy	Sept.	14	1921	......	1618
Republican R.	Campbell, W. E.	Trenton	Campbell Canal	Irrig.	9.27	9	2	34	Dundy	Nov.	26	1921	......	1627
Republican R. N. F.	Pringle, Geo. N.	Parks	Parks Canal	Irrig.	2.00	20	1	39	Dundy	Dec.	31	1915	......	1444
Republican R. N. F.	Pringle, Geo. N.	Parks	Park's Extension	Irrig.	1.14	20	1	39	Dundy	Sept.	5	1919	......	1555
Republican R. N. F.	Crews, L. E.	Haigler	Crew's Canal No. 2	Irrig.	2.59	21	1	41	Dundy	March	29	1923	......	1709
Republican R. S. F.	Southern Neb. Power Co.	Superior	Guthrie Canal	Power	400.00	34	1	7	Nuckolls	Sept.	1	1877	1036	....
Republican R. S. F.	Karr, J. W.	Benkelman	Karr's Canal	Irrig.	2.00	20	1	37	Dundy	July	28	1894	155	....
Republican R. S. F.	Riverside Ditch Co.	Benkelman	Riverside Canal	Irrig.	13.00	29	1	37	Dundy	Aug.	5	1894	156	....
Republican R. S. F.	McDonald, J. A.	Benkelman	McDonald Canal	Irrig.	.79	36	1	38	Dundy	Nov.	13	1901	......	644
Republican R. S. F.	Bailey, W. J.	Oxford	Bailey Canal	Irrig.	64.00	6	3	21	Furnas	Sept.	8	1913	......	1321
Rock Creek	Phelan, J. R., et al	Parks	Parks Canal	Irrig.	4.29	17	1	39	Dundy	Dec.	31	1883	138	....
Rock Creek	Owens, J. S., et al	Parks	Owen's Canal	Irrig.	36.00	31	2	39	Dundy	June	20	1895	......	265
Rock Creek	Campbell, R. R.	Parks	Rock Creek Canal	Irrig.	33.00	13	2	40	Dundy	Dec.	18	1899	......	526
Rock Creek	Benkelman Light Ass'n.	Benkelman	Benkelman Light Association	Power	20.00	8	1	39	Dundy	Nov.	30	1912	......	1245
Rock Creek	Pringle, Geo. N.	Parks	Park's Extension	Supple	......	17	1	39	Dundy	June	29	1921	......	1609
Sappa Creek	Zulauf, Geo. W.	Stamford	Stamford Mills	Power	......	21	2	20	Harlan	....	...	......	997*	....

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Spring Creek	Carlon, J. C.	Benkelman	Benkelman Canal	Irrig.	1.29	19	1	37	Dundy	Dec.	31	1896	......	373
Stinking Water Creek	Kilpatrick Bros.	Beatrice	Chase Co. L. & L. S. Canal	Irrig.	2.86	10	7	38	Chase	March	10	1894	57	......
Stinking Water Creek	Crandall & Taylor	Imperial	McLain Canal	Irrig.	2.50	28	7	37	Chase	Sept.	24	1894	65	......
Stinking Water Creek	Kilpatrick Bros.	Beatrice	Chase Co. L. & L. S. Canal No. 7	Irrig.	4.57	36	7	37	Chase	Dec.	21	1894	72	......
Stinking Water Creek	Kilpatrick Bros.	Beatrice	Chase Co. L. & L. S. Canal No. 6	Irrig.	2.00	13	7	38	Chase	Jan.	28	1895	175 76	......
Stinking Water Creek	Kilpatrick Bros.	Beatrice	Chase Co. L. & L. S. Canal No. 5	Irrig.	1.50	14	7	38	Chase	Jan.	29	1895	77	......
Stinking Water Creek	Kilpatrick Bros.	Beatrice	Chase Co. L. & L. S. Canal No. 3	Irrig.	1.71	14	7	38	Chase	Jan.	29	1895	78	......
Stinking Water Creek	Kilpatrick Bros.	Beatrice	Chase Co. L. & L. S. Canal No. 4	Irrig.	.91	14	7	38	Chase	June	27	1895	......	56
Stinking Water Creek	Kilpatrick Bros.	Beatrice	Chase Co. L. & L. S. Canal No. 1	Irrig.	.70	4	7	38	Chase	June	27	1895	......	57
Stinking Water Creek	Troutman, A. C.	Palisade	Troutman Pwr. Plant	Power	30.00	30	5	33	Hayes	June	30	1908	......	907
Stinking Water Creek	Krotter, F. C.	Palisade	Krotter Power Plant	Irrig.	3.00	25	5	34	Hayes	Dec.	15	1910	......	1046
Turkey Creek	Wilt and Polly	Naponee	Wilt & Polly Canal	Power	......	4	1	16	Franklin	Dec.	31	1874	183	......

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Little Blue Riv.	Myer Hydro Elec. Power Company	Oak	Oak Mill Race	Power		16	3	5	Nuckolls				991	
Little Blue Riv.	Larkins, H. M.	Hastings	Crystal Lake	Stor.	1.50	27	6	10	Adams	Aug.	17	1912		1219
Little Blue Riv.	Lyon, Geo. Jr.	Nelson	Lyons Little Blue Electric Co.	Power	150.00	29	4	6	Nuckolls	April	26	1915		1410
Little Blue Riv.	Lyon, Geo. Jr.	Nelson	Lyon's Canal	Irrig.	4.00	18	4	6	Nuckolls	April	26	1915		1411
Little Blue Riv.	Myer Hydro Elec. Power Company	Oak	Myer Hydro Power Plant	Power	150.00	16	3	5	Nuckolls	July	27	1916		1467
Little Blue Riv.	Larkins, H. M.	Hastings	Crystal Lake	Irrig.		27	6	10	Adams	Nov.	9	1918		1526
Little Blue Riv.	Bozarth-Carter	Hebron	Hebron Power Plant	Power	216.00	9	2	2	Thayer	March	31	1919		1538
Little Blue Riv.	Campbell, J. T.	Hebron	Blue Valley Power Company	Power	200.00	5	2	W 1	Thayer	May	28	1919		1542
Little Blue Riv.	Larkins, H. M.	Hastings	Larkins & Son Canal	Power	1.50	27	6	10	Adams	Nov.	20	1920		1594
Little Blue Riv.	Hulbert, Chas.	Fairbury	Hulbert Canal	Irrig.	.02	22	2	2	Jefferson	Aug.	7	1922		1685
Little Blue Riv.	Kassebaum, Wm.	Hebron	Kassebaum Power Plant	Power	250.00	29	3	E 2	Jefferson	Nov.	13	1923		1726
Little Blue Riv.	Black Bros. Fl. Mills	Beatrice	Black Bros. Plant No. 4	Power		10	1	E 3	Jefferson	Feb.	5	1924		1734 •
Little Blue Riv.	Fairbury M. & El. Co.	Fairbury	Fairbury Plant No. 2	Power		9	2	E 2	Jefferson	Feb.	7	1924		1735 •
Little Blue Riv.	Fairbury M. & El. Co.	Fairbury	Fairbury Plant No. 3	Power		31	1	E 4	Jefferson	Feb.	7	1924		1736 •
Little Blue Riv.	Dunn, F. J.	Hastings	Blue Val. Yacht Club	Stor.		10	5	E 9	Adams	May	23	1924		1745

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Bear Creek	Public Lds. & Bldgs.	Lincoln	Water Works	Irrig.	1.00	36	4	6	Gage	May	20	1898		455
Beaver Creek	Wright, G. D.	York	Wright's Canal	Power	40.00	7	10	2 W	York	Nov.	1	1878	963	
Big Blue River	Black Bros. Fl. Mills	Beatrice	Black Bros. Plant (Beatrice)	Power	300.00	33	4	6	Gage	Jan.	11	1860	1048	
Big Blue River	Neb. Gas. & Elec. Co.	Omaha	Milford Mills	Power	300.00	2	9	3	Seward			1866	1044	
Big Blue Riv. (See A.1692-1698, 1730, 1732)	Black Bros. Fl. Mills	Beatrice	Black Bros Plant No. 2. (Blue Spgs.)	Power	450.00	17	2	7	Gage			1868	1047	
Big Blue River	Zwonechek & Askamit	Wilber	Mill & Elec. Plant	Power	200.00	19	5	5	Gage	Jan.	1	1875	1046)	
									Raised Dam	Jan.	1	1903	1046)	
Big Blue Riv. (See A.1095)	Neb. Gas. & Elec. Co.	Omaha	Holmesville Power Plant	Power	500.00	29	3	7	Gage	April		1882	1021	
Big Blue River	Blue Riv. Power Co.	Seward	Blue Riv. Pwr. Sta. No. 1	Power	200.00	19	9	4	Seward	July	8	1910		1006
Big Blue River	Neb. Gas. & Elec. Co.	Omaha	Holmesville Power Plant	D Dam	D.1021	29	3	7	Gage	May	3	1911		1095
Big Blue River	Jacobs, E.	Staplehurst	Jacobs Pwr. Plant	Power	41.00	26	12	2	Seward	Nov.	13	1911		1135
Big Blue Riv. (See A.1520)	Blue Riv. Power Co.	Seward	Big Blue Plant No. 2	Power	100.00	32	9	3	Seward	Jan.	3	1912		1153
Big Blue Riv. (See A.1585—A.1741)	Beatrice Power Co.	Barneston	Barneston Pwr. Plant	Power	500.00	13	1	7	Gage	Feb.	18	1913		1262
Big Blue Riv. (See A.1521—1599, 1733, 1751)	Blue Riv. Power Co.	Seward	Blue River Plant No. 3	Power	100.00	5	8	4	Saline	March	13	1913		1265
Big Blue River	Mares, Marketa	Wilber	Mares Canal	Irrig.	2.28	2	6	4	Saline	Aug.	12	1913		1314

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Big Blue River	C. B. & Q. R. R. Co.	Lincoln	C.B.& Q. Pipe Line	Irrig.	.50	2	9	3	Seward	April	30	1914		1366
Big Blue River	C. B. & Q. R. R. Co.	Lincoln	Pipe line at Wymore	Irrig.	.50	21	2	7	Gage	Dec.	24	1914		1394
Big Blue River	C. B. & Q. R. R. Co.	Lincoln	Pipe line at Seward	Irrig.	.50	21	11	3	Seward	Dec.	14	1914		1395
Big Blue Riv. (See A.1752)	Blue Riv. Power Co.	Seward	Hydro-Elec. Plant	Power	100.00	32	9	4	Seward	Aug.	14	1916		1463
Big Blue River	Blue Riv. Power Co.	Seward	Power Plant No. 5	Power	100.00	11	8	3	Seward	Feb.	13	1917		1476
Big Blue River	Babson, H. B.	Chicago	Shestak Power Plant	Power	200.00	35	7	4	Saline	Feb.	6	1918		1506
Big Blue Riv. (See A.1153)	Blue Riv. Power Co.	Seward	Big Blue Plant No. 2	R dam	A. 1153	32	9	3	Seward	Aug.	21	1918		1520
Big Blue River (See A.1265)	Blue Riv. Power Co.	Seward	Blue River Plant No. 3	R dam	A. 1265	5	8	4	Saline	Aug.	21	1918		1521
Big Blue River	Steinmeyer, J. H.	Beatrice	Barneston Plant	Power		13	1	7	Gage	Feb.	24	1919		1534 *
Big Blue River	Babson, Henry B.	Chicago	Wilber Power Plant	Power	200.00	12	5	4	Saline	Dec.	17	1920		1597
Big Blue River	Babson, Henry B.	Chicago	DeWitt Power Plant	Power	200.00	3	4	5	Gage	Dec.	17	1920		1598
Big Blue River	Blue Riv. Power Co.	Seward	Blue River Plant No. 3	R dam	A. 1265	5	8	4	Saline	Dec.	28	1920		1599
Big Blue River	Babson, Henry B.	Chicago	Hoag Power Plant	Power		24	4	5	Gage	July	3	1922		1673 *
Big Blue Riv. (See A.1731)	Black Bros. Fl Mills	Beatrice	Black Bros. Plant No. 3	Power	400.00	2	3	6	Gage	Oct.	7	1922		1690
Big Blue River	Black Bros. Fl Mills	Beatrice	Black Bros. Plant No. 2	Drdg.	D. 1047	17	2	7	Gage	Nov.	7	1922		1692
Big Blue River	Black Bros. Fl Mills	Beatrice	Black Bros. Plant No. 2	Drdg.	D. 1047	17	2	7	Gage	Dec.	15	1922		1698
Big Blue River	Anderson, Jonas A.	Stromsburg	Anderson's Dam	Ice		18	3	2	Polk	March	29	1923		1708
Big Blue River	Black Bros. Fl Mills	Beatrice	Black Bros. Plant No. 4	Power		19	4	6	Gage	April	10	1923		1713 *
Big Blue River	Boyes, Hulshizer & Company	Seward	Ruby Power Station	Power		15	10	3	Seward	April	17	1923		1715 *
Big Blue River	Conlee-Steinmeyer	Beatrice	Hoag Power Plant	Power		12	4	5	Gage	April	24	1923		1717 *

* Denotes application not approved.

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Big Blue River	Black Bros. Fl Mills	Beatrice	Black Bros. Plant No. 2	Drdg.	D. 1047	17	2	7		Nov.	24	1923		1730
Big Blue River	Black Bros. Fl Mills	Beatrice	Black Bros. Plant No. 3	Ddrg.	A. 1690	2	3	6	Gage Gage	Nov.	26	1923		1731 *
Big Blue River	Black Bros. Fl Mills	Beatrice	Black Bros. Plant No. 2	R dam	D. 1047	17	2	7	Gage	Dec.	15	1923		1732 *
Big Blue River	Blue Riv. Power Co.	Seward	Blue River Plant No. 3	Drdg.	A. 1265	5	8	4	Saline	Jan.	30	1924		1733 *
Big Blue River	Beatrice Power Co.	Beatrice	Barneston Pwr. Plant	Drdg.	A. 1262	13	1	7	Gage	March	31	1924		1741
Big Blue River	Blue Riv. Power Co.	Seward	Blue River Plant No. 3	Drdg.	A. 1265	5	8	4	Saline	Nov.	21	1924		1751
Big Blue River	Blue Riv. Power Co.	Seward	Blue River Plant No. 4	Drdg.	A. 1463	32	9	7	Seward	Nov.	25	1924		1752
Big Blue Riv. West Fork	Blue Riv. Power Co.	Seward	Big Bend Plant	Power	100.00	11	8	3	Saline	Dec.	17	1920		1596
Big Blue Riv. West Fork	Blue Riv. Power Co.	Seward	Bow Span Plant	Power	100.00	26	9	2	Saline	Dec.	17	1920		1595
Big Blue Riv. West Fork	Vil. of Beaver Cr's'g.	Beaver Cr'sg.	Municipal Lt. Plant	Power	125.00	2	9	1	Seward	March	27	1922		1650
Big Blue Riv. School Creek	Garbe, Frank	Grafton	Blue Park Dam	Power	66.00	1	8	4	Fillmore	Aug.	7	1917		1494
Turkey Creek	Lane, J. K.	Pleasant Hill		Power		4	7	3	Saline				990*	
Turkey Creek	Lane, J. K.	Pleasant Hill	Lane's Model Canal	Irrig.	0.09	4	7	3	Saline	July	16	1895		81
Turkey Creek	Lane, J. K.	Pleasant Hill	Lane's Model Canal	Irrig.					Saline	July	18	1895		84

* Denotes application not approved.

Source	Name of Claimant	Post Office	Carrier	Use to which appl'd	Sec. Feet gr'ted	Location of Headgate S	T	R	County	Date of Priority Month	D	Yr.	Doc. No.	App. No.
Lodge Pole Cr.	Alfred Forsling	Kimball	Owasco Canal	Irrig.	1.20	29	15	55	Kimball	Dec.	31	1876	347R	
Lodge Pole Cr.	Gieselking, Herman	Altamont, Ill.	Bay State Canal	Irrig.	.30	30	15	55	Kimball	Dec.	31	1876	347	
Lodge Pole Cr.	Johnson, Chas. W.	Potter	Adams-Tobbins Canal	Irrig.	1.14	35	14	50	Cheyenne	Oct.	1	1878	368	
Lodge Pole Cr.	Gunderson, A.	Potter	Gunderson Canal	Irrig.	1.43	1	14	52	Cheyenne	June	1	1879	305	
Lodge Pole Cr.	Fuller, Hubert R.	Sidney	Runge Canal No. 1	Irrig.	1.71	20	14	50	Cheyenne	April	15	1880	339	
Lodge Pole Cr.	Fuller, Hubert R.	Sidney	Runge Canal No. 2	Irrig.	.50	20	14	50	Cheyenne	April	15	1882	338	
Lodge Pole Cr.	Connelly, John	Sidney	Anderson Canal No. 1	Irrig.	2.50	8	14	51	Cheyenne	June	30	1882	373	
Lodge Pole Cr.	Lodgepole Land Co.	Kimball	Circle Arrow Canal	Irrig.	3.71	29	15	55	Kimball	July	1	1882	346	
Lodge Pole Cr.	Fuller, H. R.	Sidney	Urbach Canal	Irrig.	.86	15	14	51	Cheyenne	Sept.	1	1882	308	
Lodge Pole Cr.	Thomas, Elsie O.	Omaha	Hale Canal No. 3	Irrig.	.57	36	14	51	Cheyenne	April	30	1883	320	
Lodge Pole Cr.	Thomas, Elsie O.	Omaha	Hale Canal No. 4	Irrig.	.71	36	14	49	Cheyenne	April	30	1883	321	
Lodge Pole Cr.	Thomas, Elsie O.	Omaha	Hale Canal No. 5	Irrig.	.57	36	14	49	Cheyenne	April	30	1883	322	
Lodge Pole Cr.	Thomas, Elsie O.	Omaha	Lower Whitney Canal	Irrig.	.29	31	14	48	Cheyenne	May	1	1883	317	
Lodge Pole Cr.	Booth, Firth, Est. of	Sunol	Booth's Canal	Irrig.	4.29	29	14	47	Cheyenne	May	31	1883	309) 310)	
Lodge Pole Cr.	McAuliffe, F.	Chappell	McAuliffe Canal	Irrig.	2.29	21	13	45	Deuel	Dec.	31	1884	814	
Lodge Pole Cr.	Webster, Wm.	Riverside, Cal	Kinney Canal No. 2	Irrig.	2.71	33	15	56	Kimball	Dec.	31	1884	348	
Lodge Pole Cr.	Libby, H. H.	Lodge Pole	Libby Canal	Irrig.	2.00	36	14	47	Cheyenne	Dec.	31	1884	312	
Lodge Pole Cr.	Dickinson, Chas. C.	Lodge Pole	Dickinson Canal	Irrig.	1.14	26	14	47	Cheyenne	Jan.	1	1885	969	
Lodge Pole Cr.	Ruttner Bros.	Sidney	Howard Canal	Irrig.	.86	31	14	47	Cheyenne	April	10	1885	336	
Lodge Pole Cr.	Kreuger, R. & F. W.	Sidney	Kreuger Canal No. 3	Irrig.	1.14	32	14	48	Cheyenne	May	1	1885	323	
Lodge Pole Cr.	Wolfe, H. D.	Chappell	Wolf Canal	Irrig.	1.00	18	13	45	Deuel	Dec.	31	1885	813	
Lodge Pole Cr.	Lodge Pole Land Co.	Kimball	McIntosh Canal	Irrig.	3.31	29	15	55	Kimball	April	16	1886	351	
Lodge Pole Cr.	Kreuger, R. & F. W.	Sidney	Kreuger Canal No. 2	Irrig.	2.29	32	14	48	Cheyenne	Oct.	10	1886	324	
Lodge Pole Cr.	Swartzlander, W. E.	Sidney	Borquist Canal	Irrig.	1.29	34	14	49	Cheyenne	April	30	1887	300	
Lodge Pole Cr.	Swartzlander, W. E.	Sidney	Borquist Canal	Irrig.	.71	34	14	49	Cheyenne	April	30	1887	301	
Lodge Pole Cr.	Thomas, Elsie O.	Omaha	Upper Whitney Canal	Irrig.	2.29	36	14	49	Cheyenne	May	1	1887	316	
Lodge Pole Cr.	Dickinson, M. C.	Sidney	McLaughlin Canal	Irrig.	1.00	25	14	48	Cheyenne	May	1	1887	966	
Lodge Pole Cr.	Thomas, Elsie O.	Omaha	Hale Canal No. 1	Irrig.	1.14	36	14	49	Cheyenne	July	1	1887	318	

"R" denotes Relocation.

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Lodge Pole Cr.	Mitchell, J.	Sidney	Mitchell Canal	Irrig.	.86	8	14	51	Cheyenne	Sept.	1	1887	304	
Lodge Pole Cr.	Craig, John	Lodge Pole	Tobin Canal	Irrig.	2.29	28	14	47	Cheyenne	July	31	1888	330	
Lodge Pole Cr.	Keedrick, Mrs. Jessie	Sidney	Bordwell Canal	Irrig.	1.43	35	14	49	Cheyenne	Aug.	1	1888	303	
Lodge Pole Cr.	Wearin, Wm. H.	Carleton	Premier Canal	Irrig.	2.43	3	14	58	Kimball	April	11	1889	340	
Lodge Pole Cr.	Wearin, Wm. H.	Carleton	Smeed Canal	Irrig.	1.43	8	14	58	Kimball	April	12	1889	341	
Lodge Pole Cr.	Keedrick, Mrs. Jessie	Sidney	Bordwell Canal	Irrig.	.86	35	14	49	Cheyenne	April	27	1889	302	
Lodge Pole Cr.	Eubank, Mrs. John	Kimball	Polly Canal	Irrig.	.79	30	15	55	Kimball	May	6	1889	342	
Lodge Pole Cr.	Wearin, Wm. H.	Carleton	Independent Canal	Irrig.	3.14	7	14	58	Kimball	May	6	1889	343	
Lodge Pole Cr.	Atkins, D. K.	Kimball	Atkins Canal	Irrig.	.43	30	15	55	Kimball	May	6	1889	344	
Lodge Pole Cr.	Webster, Wm.	Riverside, Cal	Kinney Canal	Irrig.	2.00	31	15	56	Kimball	May	14	1889	345	
Lodge Pole Cr.	Young, W. T.	Kimball	Young Canal	Irrig.	.50	33	15	57	Kimball	May	28	1889	349	
Lodge Pole Cr.	Lehmkuhl, John	Kimball	Ruttner Canal	Irrig.	1.14	36	15	57	Kimball	June	4	1889	350	
Lodge Pole Cr.	Oberfelder, R. S.	Sidney	Oberfelder Canal	Irrig.	.43	31	14	46	Cheyenne	June	10	1889	333	
Lodge Pole Cr.	Thomas, Elsie O.	Omaha	Hale Canal No. 2	Irrig.	.43	36	14	49	Cheyenne	June	26	1889	319	
Lodge Pole Cr.	Carter, J. G.	Lodge Pole	Bullock Canal	Irrig.	9.14	3	13	46	Deuel	June	25	1889	296	
Lodge Pole Cr.	Persinger, A. B.	Lodge Pole	Persinger Canal	Irrig.	4.57	33	14	46	Deuel	June	25	1889	297	
Lodge Pole Cr.	Kreuger, R. & F. W.	Sidney	Kreuger Canal No. 1	Irrig.	3.00	29	14	48	Cheyenne	June	26	1889	325	
Lodge Pole Cr.	Lodge Pole Land Co.	Kimball	Brady Canal	Irrig.	.71	29	15	55	Kimball	Aug.	16	1889	352	
Lodge Pole Cr.	Gross, Mary E.	Pine Bluff, Wyo.	Hoover Canal	Irrig.	1.43	12	14	59	Kimball	Sept.	4	1889	353	
Lodge Pole Cr.	Bentley, B. M.	Sidney	Ickes Canal	Irrig.	2.50	28	14	50	Cheyenne	March	25	1891	329	
Lodge Pole Cr.	Johnson, Chas. W.	Potter	Adams Canal	Irrig.	1.43	3	14	52	Cheyenne	July	1	1891	371	
Lodge Pole Cr.	Atkins, D. K., et al	Kimball	Hurley-Lily-Polly	Irrig.	2.57	26	15	56	Kimball	Oct.	1	1891	354	
Lodge Pole Cr.	Thortensen, Nels	Potter	Christensen's Canal	Irrig.	.57	7	14	51	Cheyenne	April	15	1893	366	
Lodge Pole Cr.	Thortensen, Nels	Potter	Christensen's Canal	Irrig.	.43	7	14	51	Cheyenne	April	15	1893	367	
Lodge Pole Cr.	Van Aelstyn, Herman	Sidney	Trognitz Canal	Irrig.	1.00	36	14	50	Cheyenne	June	1	1893	365	
Lodge Pole Cr.	Oberfelder, R. S.	Sidney	Oberfelder Canal	Irrig.	2.00	31	14	46	Cheyenne	Dec.	30	1893	306	
Lodge Pole Cr.	Kreuger, R. S.	Sidney	Richard Kreuger Canal	Irrig.	1.00	29	14	48	Cheyenne	May	1	1894	968	
Lodge Pole Cr.	Anderson, Chas.	Sidney	Anderson Canal No. 2	Irrig.	.57	10	14	51	Cheyenne	June	1	1894	372	

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Lodge Pole Cr.	Johnson, Chas. W.	Potter	Adams Canal	Irrig.	1.43	10	14	52	Cheyenne	Sept.	1	1894	370	
Lodge Pole Cr.	Lyngholm, N. P.	Sidney	Lyngholm Canal	Irrig.	.36	14	14	51	Cheyenne	Nov.	1	1894	337	
Lodge Pole Cr.	Johnson, Chas. W.	Potter	Adams Canal	Irrig.	.50	10	14	52	Cheyenne	Aug.	1	1895	369	
Lodge Pole Cr.	Dickinson, F.	Lodge Pole	Dickinson Canal	Irrig.	2.29	33	14	47	Cheyenne	May	10	1896	967	
Lodge Pole Cr.	Persinger, A. B.	Lodge Pole	Bullock Canal	Irrig.	.57	4	13	46	Deuel	Feb.	16	1898		437
Lodge Pole Cr.	Benson Realty Co.	Omaha	Maltese Cross Canal	Irrig.	.21	36	15	57	Kimball	May	16	1898		454
Lodge Pole Cr.	Wearin, Wm. H.	Carleton	Bushnell Canal	Irrig.	3.00	2	14	58	Kimball	April	15	1899		504
Lodge Pole Cr.	Wiegand, Henry G.	Chappell	Wiegand Canal	Irrig.	2.00	17	13	45	Deuel	May	31	1900		563
Lodge Pole Cr.	Brown, G. B.	Chappell	Neuman Canal Nos. 1-2	Irrig.	1.89	36	13	45	Deuel	June	12	1900		565
Lodge Pole Cr.	McHatton, Jas. W.	Chappell	Wertz Bros. Canal	Irrig.	2.86	12	13	46	Deuel	Feb.	14	1901		600
Lodge Pole Cr.	Neuman, A. G.	Chappell	Neuman Canal	Irrig.	1.29	26	13	45	Deuel	April	17	1901		611
Lodge Pole Cr.	Johnson, J. C.	Chappell	Johnson Canal	Irrig.	2.14	23	13	45	Deuel	April	17	1901		612
Lodge Pole Cr.	Libby, H. H.	Lodge Pole	Spring Ranch Canal	Irrig.	1.43	36	14	47	Cheyenne	July	1	1901		623
Lodge Pole Cr.	Lodge Pole Land Co.	Kimball	Bennett Reservoir	Stor.	700.00 A.F.	29	15	55	Kimball	March	13	1902		657
Lodge Pole Cr.	Nasland, J. A.	Chappell	Nasland Canal	Irrig.	.90	1	12	45	Deuel	April	16	1902		661
Lodge Pole Cr.	Clausen, John	Dix	Clausen So. Side Canal	Irrig.	.57	27	15	54	Kimball	July	25	1902		683
Lodge Pole Cr.	Clausen, John	Dix	Clausen No. Side Canal	Irrig.	.57	26	15	54	Kimball	July	25	1902		684
Lodge Pole Cr.	Lodge Pole Land Co.	Kimball	Reservoir Canal	Irrig.	1.87	29	15	55	Kimball	Oct.	2	1902		691
Lodge Pole Cr.	Forsling, Alf.	Kimball	Forsling Canal	Irrig.	1.50	34	15	57	Kimball	April	24	1903		703
Lodge Pole Cr.	Forsling, C. A.	Kimball	Forsling Canal	Irrig.	1.83	33	15	56	Kimball	July	25	1903		718
Lodge Pole Cr.	Gieselking, Herman	Altamont, Ill.	Bickel Canal	Irrig.	.93	30	15	55	Kimball	Aug.	3	1903		719
Lodge Pole Cr.	Thortensen, Finley	Sidney	Pomeroy Canal No. 1	Irrig.	.57	15	14	51	Cheyenne	Aug.	20	1903		723
Lodge Pole Cr.	Atkins, D. K.	Kimball	Faden Canal	Irrig.	.14	30	15	55	Kimball	Sept.	9	1903		724
Lodge Pole Cr.	Geddes, E. W.	Kimball	Owasco Canal	Irrig.	22.28	29	15	55	Kimball	Sept.	12	1903		725
Lodge Pole Cr.	Lehmkuhl, John	Kimball	New Ruttner Canal	Irrig.	.51	36	15	57	Kimball	Sept.	16	1903		727
Lodge Pole Cr.	Lodge Pole Land Co.	Kimball	Owasco Canal	Irrig.	1.75	29	15	55	Kimball	Dec.	15	1903		734

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Lodge Pole Cr.	Forsling, Alfred	Kimball	Forsling Canal	Irrig.	.86	34	15	57	Kimball	Dec.	6	1905		806
Lodge Pole Cr.	Soderquist, Peter	Chappell	Smith's Canal	Irrig.	3.57	12	12	45	Deuel	Aug.	18	1906		850
Lodge Pole Cr.	Soderquist, Peter	Chappell	Ralton Irr. System	Irrig.	19.14	12	12	45	Deuel	Jan.	4	1907		847
Lodge Pole Cr.	Forsling, Clarence	Kimball	Yoder Extension	Irrig.	2.71	36	15	57	Kimball	April	9	1907		857
Lodge Pole Cr.	Walker, I. S.	Kimball	Walker Canal	Irrig.	1.71	31	15	56	Kimball	Sept.	16	1907		869
Lodge Pole Cr.	Gross, Wm. & Chas.	Pine Bluff, Wyo.	Tracy Canal	Irrig.	.50	12	14	59	Kimball	Sept.	21	1907		870
Lodge Pole Cr.	Soderquist, Peter	Chappell	Ralton Canal	Irrig.	12.40	36	13	45	Deuel	Dec.	4	1907		882
Lodge Pole Cr.	Kimball Irr. District	Kimball	Kimball Storage	S. & I.	20,000 A.F.	36	15	57	Kimball	April	15	1908		897
Lodge Pole Cr.	Kinty, J. F.	Lodge Pole	Wild's Canal	Irrig.	1.71	11	13	46	Deuel	June	2	1908		904
Lodge Pole Cr.	Ruttner, Carl	Sidney	Ruttner Canal	Irrig.	.50	30	14	47	Cheyenne	June	25	1908		906
Lodge Pole Cr.	Lodge Pole Land Co.	Kimball	Bennett Canal No. 3	Irrig.	1.00	29	15	54	Kimball	Feb.	17	1909		934
Lodge Pole Cr.	Maginnis, P.	Kimball	Maginnis Ice Pond	Stor.	3.00	26	15	56	Kimball	Sept.	19	1911		1127
Lodge Pole Cr.	Brown, Cyrus, et al	Chappell	Soderquist Canal	Irrig.	2.00	36	12	45	Deuel	Oct.	22	1912		1237
Lodge Pole Cr.	Heming, Howard C.	Chappell	Wiegand Canal No. 3	Irrig.	1.28	16	13	45	Deuel	Sept.	10	1913		1322
Lodge Pole Cr.	Heming, Howard C.	Chappell	Wiegand Canal No. 2	Irrig.	.42	16	13	45	Deuel	Sept.	10	1913		1323
Lodge Pole Cr.	Brown, Cyrus D., et al	Chappell	Soderquist Canal	Irrig.	2.33	36	13	45	Deuel	June	29	1915		1420
Lodge Pole Cr.	Neuman, A. G.	Chappell	Neuman Canal	Irrig.	6.00	26	13	45	Deuel	Jan.	5	1916		1445
Lodge Pole Cr.	Bentley, Bertha M.	Sidney	Bentley Canal	Res.	1.00	34	14	50	Cheyenne	Feb.	14	1917		1478
Lodge Pole Cr.	Sudman, Mrs. Minnie	Chappell	Sudman Canal	Irrig.	.78	22	13	45	Deuel	April	5	1917		1483
Lodge Pole Cr.	Bogle, J. W.	Bushnell	Young Canal	Irrig.	.57	33	15	57	Kimball	June	20	1919		1544
Lodge Pole Cr.	Ruttner Bros.	Sidney	Ruttner Canal	Irrig.	.20	32	14	47	Cheyenne	March	7	1922		1645
Lodge Pole Cr.	Stuht, Fred W.	Sidney	Stuht Canal	Irrig.	.40	32	14	49	Cheyenne	Nov.	22	1922		1659
Lodge Pole Cr.	McIntosh, J. L. and Martin, Paul L.	Sidney	Martin Pumping Pl.	Irrig.	1.23	35	14	50	Cheyenne	Nov.	22	1922		1695
Lodge Pole Spg Cr., Trib to	Oberfelder, R. S.	Sidney	Oberfelder Canal	Irrig.	2.29	31	14	46	Cheyenne	May	29	1889	307	
Lodge Pole, Cr. Spgs. trib to	Chambers, Chas. P.	Sidney	Private Canal	Irrig.	.04	14	13	51	Cheyenne	March	19	1895	335	

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Lodge Pole Spg Branch, trib to	Libby, H. H.	Lodge Pole	Spring Branch Canal	Irrig.	.29	36	14	47	Cheyenne	July	1	1901		623
Flood water from Hill	Fifield, C. M.	Kimball	Fifield Canal	Irrig.	.57	22	15	56	Kimball	April	27	1911		1091

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Weeping Water	Gilmore, Chas.	Weeping Wtr	Gilmore Canal	Ice	8.00	2	10	11	Cass	Aug.	5	1909		955
Nemaha River	C. B. & Q. R. R. Co.	Lincoln	C.B.& Q. Water Sup.	Irrig.	1.00	33	3	12	Pawnee	Aug.	8	1922		1687

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Beaver River	Quackenbush, J. W.	Albion	Pioneer Canal	Irrig.	3.57	22	20	6	Boone	Dec.	8	1894	287	
Beaver River	Long, Wm. M.	Genoa	Windmill Project	Irrig.	.14	14	17	4	Nance	March	31	1896		277
Beaver River	Albion Lt. & Pwr. Co.	Albion	Albion Power Plant	Power	67.00	26	20	6	Boone	Oct.	3	1901		639
Beaver River	Neb. Gas & Elec. Co.	Omaha	St. Edwards Power Plant	Power	134.00	27	19	5	Boone	Feb.	11	1911		1058
Beaver River	The Ravenna Mills	Ravenna	The Ravenna Mills	Power		8	12	14	Buffalo				1037*	
Beaver River	Albion Lt. & Pwr. Co.	Albion	Albion Power Plant	Power	70.00	26	20	6	Boone	Feb.	20	1917		1480
Cedar River	Neb. Gas & Elec. Co.	Omaha	Fullerton Pwr. Plant	Power	200.00	12	16	6	Nance	Sept.	9	1901		636
Cedar River	Erickson Lake Co.	Lincoln	Erickson Pwr. Plant	Power	175.00	25	21	12	Wheeler	May	24	1915		1415
Cedar River, (Sup. A.636)	Neb. Gas & Elec. Co.	Omaha	Fullerton Pwr. Plant	Power	250.00	12	16	6	Nance	Aug.	8	1922		1686
Cow Creek	Price, Ralph B.	Lewanna	Homestead Canal	Irrig.	2.29	7	26	27	Cherry	July	14	1894	194	
Dane Creek	Koupal, Frank	Ord	Koupal Canal	Irrig.	.14	20	19	14	Valley	July	5	1912		1207
Goose Creek	Erickson, P. C. and J. M.	Brewster	Erickson Canal	Irrig.	8.00	18	25	24	Brown	April	3	1895	209	
Goose Creek	Giles, R. P., et al.	Elsmere	Giles Canal	Irrig.	10.00	2	25	25	Cherry	June	1	1895	187	
Goose Creek	Crook, F.	Giles	Crook Canal	Irrig.	8.00	33	25	24	Brown	June	2	1896		345
Gracie Creek	Shoemaker, A. E.	Burwell	Gracie High Line	Irrig.	.29	29	23	17	Loup	July	9	1897		397
Looking Glass Creek	Girrard, E. A. and F. H.	Monroe	Monroe Canal	Irrig.	2.86	1	17	3	Platte	June	12	1894	289	
				Power	400.00	4	19	19	Custer	Aug.	1	1886	1024	
Loup R. M. Br.	Lundy, Jas. W.	Sargent	Lundy M.& P. Plant	Power	125.00	26	17	16	Valley	Fall of		1888	229a	
Loup R. M. Br.	Conger, Jas. W.	Loup City	Sherman Co. Canal											

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Loup R. M. Br.	Middle Loup Valley Irrigation Co.	Sargent	Middle Loup Valley Sherman Co. Canal	Irrig.	560.29	15	21	22	Blaine	June	6	1894	202	
Loup R. M. Br.	Douglas Grove Irr. District	Comstock	Canal	Irrig.	88.57	15	19	18	Custer	Aug.	8	1894	214	
Loup R. M. Br.	Sherman County Irr. Water Pr. & Imp. Co.	Loup City	Westcott Canal	Irrig.	244.00	26	17	16	Valley	Aug.	13	1894	229b	
Loup R. M. Br.	Thedford I. & P. Co.	Thedford	Thedford Canal	Irrig.	43.00	4	23	29	Thomas	Aug.	25	1894	198	
Loup R. M. Br.	Purdum, J. W.	Thedford	Norway Canal	Irrig.	2.86	31	24	29	Thomas	Sept.	8	1894	199	
Loup R. M. Br.	Lillian, P. D. & P. Co.	Gates	Lillian Precinct Canal	Irrig.	140.00	30	21	21	Blaine	Oct.	19	1894	(204 (216	
Loup R. M. Br.	Rieck, Emil	Dunning	Jewett Canal	Irrig.	4.29	30	22	24	Blaine	Aug.	12	1895		113
Loup R. M. Br.	Harris, L. H.	Dunning	Harris Canal	Irrig.	5.71	16	22	25	Blaine	Feb.	21	1896		248
Loup R. M. Br.	Webster Irrig. and Canal Co.	Comstock	Webster Canal	Irrig.	1.71	20	19	17	Custer	March	5	1898		442
Loup R. M. Br.	Longwood Irrig. & Canal Co.	Comstock	Longwood Canal	Irrig.	12.93	20	19	17	Custer	Feb.	21	1912		1175
Loup R. M. Br.	Muhlback, Fred	Mullen	Mullen Grist & Light Plant	Power	124.00	6	24	32	Hooker	March	12	1912		1185
Loup R. M. Br.	St. Paul Electric Lt. Works	St. Paul	St. Paul Pwr. Plant	Power	2000.00	3	14	10	Howard	Aug.	12	1912		1216
Loup R. M. Br.	Lundy, Jas. W.	Sargent	Lundy M. & P. Plant	R dam	D. 1024	4	19	19	Custer	Sept.	16	1912		1224
Loup R. M. Br.	U. S. of America	Halsey	Nursery Canal	Irrig.	1.00	3	22	26	Thomas	Sept.	16	1912		1226
Loup R. M. Br.	Holmes, Eddy	Nemo	Loup Valley Canal	Irrig.	.85	36	20	21	Custer	May	31	1913		1294
Loup R. M. Br.	Lundy, Jas. W.	Sargent	Lundy's Lake Canal	Irrig.	28.31	4	19	19	Custer	June	27	1913		1300
Loup R. M. Br.	Lundy, Jas. W.	Sargent	Lundy's Lake	Stor.	8.00	2	19	19	Custer	July	19	1913		1306
Loup R. M. Br.	Lundy, Jas. W.	Sargent	Lundy's Lake	Irrig.	6.34	4	19	19	Custer	July	19	1913		1307
Loup R. M. Br.	Austin Irrig. Co.	Loup City	Austin Canal	Irrig.	50.00	32	13	14	Sherman	Nov.	6	1913		1330
Loup R. M. Br.	Central Power Co.	Grand Island	Central Power Co.	Power	1000.00	10	13	12	Hall	July	14	1914		1373
Loup R. M. Br.	C. B. & Q. R. R. Co.	Lincoln	Pipe line at Seneca	Irrig.	.50	18	24	30	Thomas	Dec.	28	1914		1396

CLAIMS AND APPLICATIONS BY STREAMS IN DIVISION NO. 2-A—(Continued)

Source	Name of Claimant	Post Office	Carrier	Use to which appl'd	Sec. Feet gr'ted	Location of Headgate S	T	R	County	Date of Priority Month	D	Yr.	Doc. No.	App. No.
Loup R., N. Br.	North Loup Irr. & Improvement Co.	North Loup	North Loup Canal	Irrig.	143.00	27	19	14	Valley	Sept.	30	1893	227) 228) 232)	
Loup R., N. Br.	Lee, J. R.	Brownlee	Lee Canal	Irrig.	40.00	25	27	29	Cherry	Aug.	7	1894	188) 189) 356)	
Loup R., N. Br.	Burwell Irr. Co.	Burwell	Burwell Canal	Irrig.	110.00	27	21	17	Loup	Sept.	7	1894	224	
Loup R., N. Br.	Newton Irr. Dist.	Moulton	Newton Canal	Irrig.	115.14	35	23	21	Blaine	Feb.	5	1895	205	
Loup R., N. Br.	Erickson, P. C.	Brewster	Homestake Canal	Irrig.	51.43	27	23	22	Blaine	Sept.	10	1895		152
Loup R., N. Br.	Loup Valley I. & P. Company	North Loup	No. Loup Pwr. Plant	Power	1000.00	35	19	13	Valley	Nov.	29	1922		1697
Loup R., N. Br.	Loup Valley I. & P. Company	North Loup	Scotia Power Plant	Power	1000.00	27	17	12	Greeley	Dec.	22	1922		1700
Loup R., N. Br.	Steinmeyer, G. W.	Beatrice	Scotia Power Plant	Power		27	17	12	Greeley	June	2	1923		1719 *
Loup R., So. Br.	Tillsen, W. Z.	Poole Siding	Tillson Canal	Irrig.	15.57	29	12	15	Buffalo	Dec.	28	1894	236	
Loup R., So. Br.	Boblitz, E. J.	Oconto	Boblitz Canal	Irrig.	.50	10	14	21	Custer	Jan.	17	1895	219a	
Loup R., So. Br.	Boblitz, E. J.	Oconto	Boblitz Canal	Power	20.00	10	14	21	Custer	Jan.	17	1895	219b	
Loup R., So. Br.	Callaway Mill Co.	Callaway	Callaway Mill	Power		2	15	23	Custer				988*	
Loup R., So. Br.	Brown, A. D.	Milldale	Brown Canal	Irrig.	.86	31	17	24	Custer	Feb.	23	1897		363
Loup R., So. Br.	Hartzell, B. F.	Logan	Hartzell Canal	Irrig.	.37	27	18	26	Logan	May	18	1897		390
Loup R., So. Br.	C. B. & Q. R. R. Co.	Lincoln	Pipe Line at Ravenna	Irrig.	.50	9	12	14	Buffalo	Dec.	24	1914		1393
Loup R., So. Br.	Central Power Co.	Grand Island	Gr. Island Elec. Co.	Power	840.00	35	13	12	Howard	Jan.	18	1915		1400
Loup R., So. Br.	Paine, J. E.	Arnold	Brittan Elec Pwr. Plant	Power	131.00	25	17	25	Custer	July	19	1916		1460
Muddy Creek	Penn, Chas.	Broken Bow	Penn's Canal	Irrig.	.50	33	17	20	Custer	Aug.	14	1894	215	
Muddy Creek	Benson, Wm. C.	Litchfield	Litchfield Mills	Power		33	14	16	Sherman					999 *
Muddy Creek	Mason City Roller Mill & Lt. Plant	Mason City	Mason City M.& P. Plant	Power		31	15	17	Custer					1042 *
Mira Creek	McClellan, M. E.	North Loup	Mira Reservoir	Stor.	1.14	26	18	13	Valley	March	8	1912		1182

* Denotes application not approved.

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Mira Reservoir	McClellan, M. E.	North Loup	Mira Res. Canal	Irrig.	1.32	26	18	13	Valley	Oct.	30	1912		1239
Mira Creek	Hutchins, W. T.	North Loup	Hutchins Dam	Irrig.	.20	26	18	13	Valley	April	18	1916		1453
Oak Creek	Hatt, Hans N.	Dannebrog	Oak Cr. Plant No. 1	Irrig.	2.28	2	13	11	Howard	Jan.	18	1919		1530
Oak Creek	Larson, L. E.	Dannebrog	Dannebrog Reservoir	Stor.		2	13	11	Howard	Sept.	16	1919		1556
Platte River	Fremont Canal and Power Co.	Fremont	Fremont Canal	I & P	2500.00	30	17	4	Butler	June	21	1895		40
Platte River	City of Omaha	Omaha	Fremont-Omaha Canal	Power	2000.00	30	17	4	Butler	March	25	1908		894
Sand Creek	Steger, Phillip	Callaway	Troyer's Pumping Plant	Irrig.	.24	10	15	23	Custer	Feb.	21	1916		1447
Shell Creek	Schmitt, P.	Columbus	Schmitt's Canal	Irrig.	3.00	19	18	1	Platte	Dec.	17	1894	292a	
Shell Creek	Schmitt, P.	Columbus	Schmitt's Canal	Power	30.50	19	18	1	Platte	Dec.	17	1894	292b	
Shell Creek	Gottberg, Max	Columbus	Gottburg's Canal	Irrig.	1.00	24	18	1	Platte	June	6	1895		2
Spring Branch	Milldale F. & L. S. Improvement Co.	Council Bl'ffs	Haskill Canal	Irrig.	7.00	31	17	24	Custer	Feb.	27	1914		1357
Spring Creek	Hendryx, H. J.	Monroe	Hendryx Canal	Irrig.	1.33	2	17	3	Platte	June	25	1894	290	
									Custer	March	17	1894	210	
Victoria Creek	Daily, Gilligan & Co.	Anselmo	Victoria Irr. Plant	Irrig.	2.29	1	19	21					212	
Victoria Creek	Victoria Ditch Ass'n	Gates	Victoria Canal	Irrig.	4.29	1	19	21	Custer	July	17	1894	213	
Victoria Creek	Laughran, T., et al.	New Helena	Laughran & Bell Canal	Irrig.	4.00	3	19	21	Custer	Sept.	22	1894	217	
Victoria Creek	Bishop, E. N.	Gates	Victoria Canal	Irrig.	15.70	1	19	21	Custer	April	2	1912		1189

Source	Name of Claimant	Post Office	Carrier	Use to which appl'd	Sec. Feet gr'ted	Location of Headgate				Date of Priority			Doc. No.	App. No.
						S	T	R	County	Month	D	Yr.		
Battle Creek	Scheerger, George	Battle Creek	Battle Creek Mills	Power	10.67	36	24	3	Madison	Nov.	12	1898		484
Battle Creek	Scheerger, George	Battle Creek	Battle Creek Mills	Power	20.00	36	24	3	Madison	April	20	1906		818
Clear Creek	Lyons Drainage Dist.	Lyons	Main Ditch No. 1	Drain		14	23	8	Burt	March	9	1911		1069
Elkhorn River	Norfolk Cereal Fl. Mills	Norfolk	Norfolk Cereal & Flour Mill	Power	100.00	23	24	1	Madison	March	1	1870	996	
Elkhorn River	Skrida, Joseph	Atkinson	Atkinson Mill	Power	38.50	30	30	14	Holt	Nov.	1	1893	271	
Elkhorn River	Elkhorn Irr. Co.	O'Neil	Elkhorn Canal	Irrig.	131.43	22	29	13	Holt	Feb.	3	1894	259) 263)	
Elkhorn River	Davis, Jos.	O'Neil	Davis Canal	Irrig.	1.43	31	29	11	Holt	Feb.	8	1894	260	
Elkhorn River	Carlon, Thos.	O'Neil	Carlon Canal No. 1	Irrig.	1.00	32	29	11	Holt	Feb.	8	1894	261	
Elkhorn River	Carlon, Thos.	O'Neil	Carlon Canal No. 2	Irrig.	5.00	30	29	11	Holt	Feb.	8	1894	262	
Elkhorn River	Cain, N. E., et al	O'Neil	Cain Canal	Irrig.	5.00	32	29	11	Holt	Feb.	20	1895	283	
Elkhorn River	Ross, Chas. P.	Omaha	Platte Riv. Hydro-Elec Pwr. Plant	Power	500.00	14	15	10	Douglas	Nov.	24	1909		971
Elkhorn River	Neligh, W. T. S.	West Point	West Point Hydro-Elec. Power Plant	Power	400.00	18	22	6	Cumming	Dec.	26	1912		1250
Elkhorn R., So. Br.	Rothleutner, Albert	Ewing	Flouring Mill	Power	33.00	3	26	9	Holt	Aug.	21	1898		464
Middle Creek	Malone, Robert	Lincoln	Malone Ice Plant	Ice	10.00	30	10	6	Lancaster	Dec.	26	1907		883
Oak Creek	Eiche, Herman	Lincoln	Eiche Plant	Irrig.	.71	17	10	6	Lancaster	Jan.	4	1899		489
Oak Creek	Central Reality and Inv. Co.	Lincoln	Capitol Beach Dam	Stor.	50.00	16	10	6	Lancaster	June	5	1918		1516
Platte River	Ross, Chas. P.	Omaha	Platte River Hydro-Elec. Pwr. Co.	Power	2500.00	6	14	10	Douglas	Nov.	24	1909		970

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Platte River	Parmalee & Rawls	Plattsmouth	Plattsmouth Power Co.	Power	2000.00	32	13	13	Cass	Sept.	4	1914		1379
Ryan's Lake	Elk Riv. Drainage District	Fremont	Cutoff "H"	Drain		4	17	9	Dodge	Oct.	16	1909		966
Salt Creek	C. B. & Q. R. R. Co.	Lincoln	C.B.& Q. Water Sup.	Irrig.	2.00	2	9	6	Lancaster	Sept.	20	1923		1722
Springs	Newton Land Co.	Omaha	Spring Branch Canal	Irrig.	.07	13	14	13	Sarpy	June	18	1895		29
Silver Creek	Armour & Co.	So. Omaha	Armour & Co. Res.	Ice	10.00	7	13	9	Saunders	Oct.	18	1897		415
Stevens Creek	Moore, R. E.	Lincoln	Stevens Cr. Canal	Irrig.	1.00	2	10	7	Lancaster	Nov.	19	1913		1335
Union and Taylor Creeks	Bley, Louis G.	Madison	Union Val. Roller Mills	Power		32	22	1	Madison					998 *

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Abitz Creek	Fullerton, J. B.	Atkinson	Fullerton Canal No. 2	Irrig.	.36	18	30	13	Holt	March	23	1896		278
Antelope Creek	Julian, A. R., et al	Gordon	Antelope Canal	Irrig.	.36	21	32	40	Cherry	June	29	1905		798
Ashburn Creek	Zilmer, W. H.	Valentine	Ashburn Canal	Irrig.	.43	27	34	26	Cherry	June	17	1905		676
Bear Creek	Skinner, Thomas	Springview	Skinner Canal	Irrig.	.22	15	32	21	Keya Paha	June	20	1888	609	
Bear Creek	Cedarburg, P.	Springview	Cedarburg Canal Nos. 1 and 2	Irrig.	.02	3	32	21	Keya Paha	Oct.	3	1898		479
Bear Creek	Belsky, Ed.	Eli	Belsky Hereford Canal	Irrig.	11.78	25	34	36	Cherry	May	3	1922		1664
Bear Creek	Belsky, Ed.	Eli	Belsky Canal	Irrig.		25	34	36	Cherry	April	19	1923		1716 *
Beeman Creek	Barnard, C. O.	Springview	Barnard Canal	Irrig.	.43	21	32	20	Keya Paha	June	1	1892	603	
Beeman Creek	Beeman, J. D.	Springview	Beeman Canal	Irrig.	1.00	23	32	20	Keya Paha	May	20	1892	620	
Beeman Creek	Rickman, A. L.	Springview	Beeman & Rickman Canal	Irrig.	.29	23	32	20	Keya Paha	July	25	1895	613	
Big Sandy Cr.	Pickler, W. S.	Cody	Badger Canal	Irrig.	1.14	12	33	14	Holt	May	16	1902		667
Big Sandy Cr.	Johnson, C. A.	Butte	Badger Mill	Power	35.00	12	33	14	Holt	Aug.	28	1902		685
Blackbird Cr.	Mullen, A. F.	O'Neil	Mullen Canal	Irrig.	1.00	29	31	11	Holt	Aug.	18	1894	267	
Blue Bird Cr.	Murphy, P.	O'Neil	Murphy's Canal	Irrig.	1.00	26	30	11	Holt	Sept.	7	1894	273	
Boardman Cr.	Lee, Jos. S.	Chesterfield	Lee Canal	Irrig.	6.86	6	29	33	Cherry	April	25	1895	973	
Boardman Cr.	Bachelor, J. H.	Valentine	Boardman Canal	Irrig.	28.57	33	30	32	Cherry	Jan.	17	1912		1155
Box Butte Cr.	Sandoz, William	Marsland	Billy's Canal	Irrig.	.21	29	29	45	Sheridan	Jan.	13	1900		533
Brush Creek	Nebr. Townsite Co.	Perry	Brush Cr. Power Co.	Power	15.00	23	33	13	Holt	Sept.	28	1898		474

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Brush Cr. E. Br	McCarthy, M. H.	O'Neil	McCarthy Canal No. 1	Irrig.	.50	24	32	14	Holt	July	1	1894	264	
Brush Creek	Nebr. Townsite Co.	Perry	Brush Cr. Pwr. Plant	Power	15.00	23	33	13	Holt	Sept.	28	1898		474
Brush Cr. W.Br	McCarthy, M. H., et al	O'Neil	McCarthy Canal No. 2	Irrig.	.63	26	32	14	Holt	Aug.	15	1894	266	
Burton Creek	Mutz, Otto	Springview	Burton Creek Canal	Irrig.	.57	19	34	19	Keya Paha	June	30	1895	608b	
Burton Creek	Mutz, Otto	Springview	One Trip Canal	Irrig.	.35	2	33	20	Keya Paha	Sept.	2	1895		142
Canyon	Gilmore, Emery	So. Omaha	Gilmore Canal	Irrig.	14.29	36	30	54	Sioux	July	5	1907		863
Cedar Creek	McNamee, K. M.	Wood Lake	Cedar Cr. Canal	Irrig.	.43	4	30	24	Cherry	Sept.	28	1910		1027
Coffee Lakes, et al	Coffey Lake Drainage District	Valentine	Coffey Lk. Drainage District	Drain			33 33	39 38	Cherry	Nov.	22	1923		1729
Cottonwood Cr.	Morrissey, Tim	Dunlap	Morrissey Canal	Irrig.	.71	17	29	48	Dawes	Feb.	16	1895	481	
Cottonwood Cr.	Fendrich & Lichte	Dunlap	Fendrich-Lichte Canal	Irrig.	.64	22	29	48	Dawes	May	9	1896		336
Cottonwood Cr.	Lichte, Hugo	Dunlap	Dunlap Canal	Irrig.	.50	22	29	48	Dawes	July	18	1911		1113
Crooked Cr.	Mutz, Otto	Springview	Mutz Canal	Power	3.00	19	34	19	Keya Paha	Dec.	31	1889	608a	
Crooked Cr.	Mutz, Otto	Springview	Mutz Canal	Irrig.	1.00	19	34	19	Keya Paha	June	30	1895	608b	
Cross Creek	Hutchinson, W. H.	Norden	Hutchinson Canal	Irrig.	.21	8	33	24	Keya Paha	Sept.	1	1888	615	
Cub Creek	Tissue & Patterson	Springview	Tissue-Patterson Canal	Irrig.	.03	16	33	22	Keya Paha	June	30	1894	618	
Cub Creek	Josiassin, S.	Meadville	McComber Canal	Irrig.	.10	28	33	22	Keya Paha	Aug.	15	1894	589	

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Eagle Creek	Bokhof, Wm.	Atkinson	Bokhof Canal	Irrig.	2.86	6	30	13	Holt	Sept.	18	1894	275	
Eagle Creek	Robertson, J. A.	Atkinson	Eagle Valley Canal	Irrig.	2.29	1	30	14	Holt	March	15	1895	280	
Eagle Cr. S. Br.	Becker, Samuel	Atkinson	Becker Canal	Irrig.	1.14	8	30	13	Holt	Nov.	30	1894	274	
Fairfield Cr.	Kuhre, Wm. M.	Johnstown	Kuhre's Pond	Irrig.	.14	31	33	23	Brown	Sept.	1	1893	612a	
Fairfield Cr.	Kuhre, Wm. M.	Johnstown	Kuhre's Canal	Power	25.00	31	33	23	Brown	April	1	1894	612b	
Glencove Spgs.	Bakewell, Geo. C.	Johnstown	Glencove Canal	Irrig.	.86	26	33	24	Brown	March	1	1911		1067
Holt Creek	Schoettger, F. J.	Burton	Schoettger Canal	Irrig.	.14	32	35	20	Keya Paha	Feb.	23	1895	595	
Holt Cr. So. Br.	Akers, J. W.	Springview	Akers Canal	Irrig.	.14	1	34	21	Keya Paha	Aug.	1	1894	611	
Horse Head Cr.	Bruce, A.	Norden	Bruce Canal	Irrig.	.17	16	33	24	Keya Paha	Sept.	7	1895		149
Horse Shoe L. et al	Horseshoe Lk. Drain District	Irwin	Horse Shoe Lake Drainage	Drain		13	34	40	Cherry	June	27	1916		1461
Huggins Creek	Soper, H. K.	Burton	Soper Canal	Irrig.	.14	21	35	20	Keya Paha	Nov.	6	1894	592	
Jewett Creek	Jewett, C. P.	Meadville	B. L. Canal	Irrig.	.71	5	32	21	Keya Paha	Oct.	23	1894	590	
Keya Paha R.	Yocum, J. C.	Butte	Yocum Canal	Irrig.	1.14	23	34	15	Boyd	Sept.	7	1894	573	
Keya Paha R.	Bruce, Andrew & Son	Naper	Bruce Roller Mills	Power	100.00	24	34	16	Boyd	Oct.	5	1903		729
Kibby Creek	Green, Martha J.	Hillside	Green Canal	Irrig.	.01	28	34	16	Boyd	April	1	1904		747
Lewis Spring	Lewis, Ralph	Burton	Lewis Canal	Irrig.	.14	29	35	19	Keya Paha	Aug.	30	1895		139

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Long Pine Cr.	Kyner, S. H.	Long Pine	Long Pine Lt. & Pwr. Plant	Power	48.00	30	30	20	Brown	April	2	1909		941
Middle Cr. E.Br	McGuire, M. W.	Norden	McGuire Canal	Irrig.	.71	32	33	23	Keya Paha	June	1	1884	606	
Middle Cr. E.Br	Allen, M. W.	Norden	Allen Canal	Irrig.	.50	29	33	23	Keya Paha	June	1	1891	616	
Middle Cr. W.Br	Allen, M. W.	Norden	Allen Canal	Irrig.	1.00	29	33	23	Keya Paha	May	2	1904		753
Mile Board L.	Bd. of County Com.	Valentine	Mile Board Drainage Ditch	Drain		5	34	35	Cherry	Sept.	17	1924		1750
Minnechaduza Creek	Gilman, S. F. Mill Co.	Neligh	Pierce Milling Co.	Power	35.00	30	34	27	Cherry	Sept.	12	1896		359
Minnechaduza Creek	City of Valentine	Valentine	Valentine Pwr. Plant	Power	40.00	29	34	27	Cherry	April	16	1913		1279
Newman Cr.	Newman, Philo	Norden	Newman Canal	Irrig.	.21	17	33	24	Keya Paha	July	1	1888	617	
Niobrara Riv.	Richardson, Wiley	Harrison	Lakatoh Canal	Irrig.	7.14	1	30	57	Sioux	Oct.	1	1883	554	
Niobrara Riv.	The Coffee Cattle Co.	Chadron	Earnest Canal No. 1	Irrig.	2.86	9	29	56	Sioux	May	1	1885	514a	
Niobrara Riv.	Bruce, A.	Norden	Bruce's Mill	Power	60.00	16	33	24	Keya Paha	April	1	1886	610	
Niobrara Riv.	Cook, J. H.	Agate	McGinley-Stover Lower North Canal	Irrig.	8.21	25	29	56	Sioux	May	1	1887	513a	
Niobrara Riv.	Furman, Nellie B.	Marsland	Pioneer Canal	Irrig.	7.14	36	29	51	Dawes	Aug.	1	1887	442a	
Niobrara Riv.	McLaughlin, A. H.	Marsland	McLaughlin Canal	Irrig.	7.14	9	28	52	Box Butte	May	1	1888	566	
Niobrara Riv.	Cook, J. H.	Agate	McGinley-Stover Lower South Canal	Irrig.	1.71	25	29	56	Sioux	May	1	1890	513b	
Niobrara Riv.	The Coffee Cattle Co.	Chadron	Earnest Canal No. 1	Irrig.	2.14	9	29	56	Sioux	May	15	1891	514b	
Niobrara Riv.	Cook, J. H.	Agate	Cook Canal No. 1-2	Irrig.	3.54	1	28	56	Sioux	May	31	1891	980	
Niobrara Riv.	Elliott Bros.	Van Tassel Wyoming	Bigelow & Seymour Canal	Irrig.	2.40	19	31	57	Sioux	June	8	1891	510	

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Niobrara Riv.	Buffington-Coleman	Crawford	Harris-Neece Canal	Irrig.	8.57	3	28	55	Sioux	July	1	1892	517	
Niobrara Riv.	Furman, Nellie B.	Marsland	Pioneer Canal	Power	10.00	31	29	50	Dawes	Aug.	1	1893	442b	
Niobrara Riv.	Roll Mill Co.	Marsland	Roll Mill	Power	35.00	5	28	51	Box Butte	Sept.	10	1893	970	
Niobrara Riv.	Green, Frank J.	Hemingford	Meridian Canal	Irrig.	.57	25	29	50	Dawes	Jan.	10	1894	459	
Niobrara Riv.	Taylor, Geo. L.	Marsland	Enterprise Canal	Irrig.	5.71	27	29	50	Dawes	Jan.	27	1894	461	
Niobrara Riv.	Furman, H. G.	Marsland	Furman Canal	Irrig.	3.64	29	29	50	Dawes	Feb.	2	1894	462	
Niobrara Riv.	Warneke, Henry	Harrison	Johnson Canal	Irrig.	2.86	36	31	57	Sioux	May	1	1894	511	
Niobrara Riv.	McMannis, J. T., et al	Hemingford	McMannis-Neeland Canal	Irrig.	.86	29	29	49	Dawes	June	15	1894	463	
Niobrara Riv.	McCully, S. J.	Carns	McCully Canal	Irrig.	8.57	25	32	20	Keya Paha	Aug.	7	1894	583	
Niobrara Riv.	Fienken, Chas.	Dustin	Fienken Canal	Irrig.	1.00	12	33	16	Boyd	Oct.	1	1894	575	
Niobrara Riv.	Wilson, J. A.	Springview	Wilson Canal	Irrig.	5.71	18	32	21	Keya Paha	Oct.	18	1894	591	
Niobrara Riv.	Iodence, W. M.	Dunlap	Lichte Canal	Irrig.	1.43	27	29	48	Dawes	Jan.	24	1895	479	
Niobrara Riv.	Warneke, H.	Harrison	Warneke's Canal	Irrig.	1.57	27	31	57	Sioux	Feb.	13	1895	505	
Niobrara Riv.	Cook, J. H.	Agate	McGinley-Stover Upper Canal	Irrig.	2.86	23	29	56	Sioux	Feb.	25	1895	521	
Niobrara Riv.	Harris, Octave	Marsland	LaBelle Canal	Irrig.	2.00	6	28	54	Sioux	March	12	1895	518	
Niobrara Riv.	Furman, H. G.	Marsland	Snow Canal	Irrig.	2.86	35	29	51	Dawes	March	26	1895	485	
Niobrara Riv.	Hughes, Mary F.	Marsland	Excelsior Canal	Irrig.	2.86	10	28	52	Box Butte	May	15	1895	568	
Niobrara Riv.	Hughes, Est. of Jno.	Marsland	Hughes Canal	Irrig.		1	28	52	Box Butte				987*	
Niobrara Riv.	Mann, John E.	Harrison	Bourett Canal	Irrig.	2.00	33	30	56	Sioux	June	8	1895		4
Niobrara Riv.	Bourett, John S.	Harrison	Bourett So. Canal	Irrig.	1.43	29	30	56	Sioux	June	10	1895		5
Niobrara Riv.	Hughes, Est. of Jno.	Marsland	Hughes Canal	Irrig.	1.00	1	28	52	Box Butte	June	26	1895		53
Niobrara Riv.	Harris, Octave	Marsland	LaBelle Canal	Irrig.	3.14	6	28	54	Sioux	July	3	1895		60
Niobrara Riv.	Bond-Tissot	Peters	Usher Canal	Irrig.	1.16	19	29	46	Sheridan	July	17	1895		82
Niobrara Riv.	Neece, Robert	Marsland	Moore Canal	Irrig.	5.71	9	28	53	Sioux	July	22	1895		88
Niobrara Riv.	Peters, H. A., et al	Hay Springs	Hay Springs Canal	Irrig.	14.29	29	29	47	Dawes	Sept.	27	1895		173
Niobrara Riv.	Sandoz, George	Marsland	Mettlen Canal	Irrig.	10.00	4	28	54	Sioux	April	27	1896		292
Niobrara Riv.	Neeland, Sarah J.	Hemingford	McManus-Neeland Canal	Irrig.	1.93	29	29	49	Dawes	April	9	1898		448

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Niobrara Riv.	Armstrong, T. S.	Butte	Armstrong Canal	Power	150.00	9	33	13	Boyd	May	14	1898		452
Niobrara Riv.	Hunter, Jas. A.	Alliance	Meridian Canal	Irrig.	5.14	25	29	50	Dawes	Aug.	29	1898		469
Niobrara Riv.	Bourett, J. F.	Harrison	Bourett Canal	Irrig.	1.00	29	30	56	Sioux	March	5	1900		542
Niobrara Riv.	Bourett, J. S.	Harrison	J. S. Bourett Canal	Irrig.	1.71	19	30	56	Sioux	March	17	1900		546
Niobrara Riv.	Montague, James	Dunlap	Montague-Lichte Canal	Irrig.	.43	27	29	48	Dawes	Sept.	27	1900		575
Niobrara Riv.	Fendrich, B.	Dunlap	Chladek Canal	Irrig.	.30	26	29	48	Dawes	March	18	1901		607
Niobrara Riv.	Fendrich, G. A.	Dunlap	Fendrich Canal	Irrig.	.29	32	29	48	Dawes	June	1	1901		616
Niobrara Riv.	Fendrich, G. A.	Dunlap	Fendrich Canal	Irrig.	.27	32	29	48	Dawes	June	1	1901		617
Niobrara Riv.	Cornell, C. M.	Valentine	Valentine Pwr. Plant	Power	1600.00	27	34	27	Cherry	Jan.	29	1902		652
Niobrara Riv.	Potmesil Bros.	Dunlap	Potmesil Canal	Irrig.	6.00	26	29	48	Dawes	May	19	1904		757
Niobrara R. & Pepper Cr.	Taylor, D. T.	Hay Springs	Taylor Canal	Irrig.	4.57	28	29	47	Dawes	Aug.	8	1904		766
Niobrara River	Kay, John L.	Marsland	Kay Canal	Irrig.	2.00	6	28	53	Dawes	May	12	1905		791
Niobrara River	Kirk, E. L.	Sioux City	Neb. Power Co.	Power	900.00	34	32	7	Knox	Sept.	24	1909		961
Niobrara River	Kirk, E. L.	Sioux City	Neb. Power Co.	Power	700.00	34	32	7	Knox	Aug.	9	1910		1019
Niobrara River	McCormack, Geo. W.	Harrison	Beiser Canal	Irrig.	.75	4	29	56	Sioux	Jan.	23	1911		1056
Niobrara River	McCormack, Geo. W.	Harrison	Ext. Bourett Canal	Irrig.	1.21	33	30	56	Sioux	Jan.	23	1911		1057
Niobrara River	Iodence, W. M.	Dunlap	Lichte Canal	Irrig.	3.00	27	29	48	Dawes	April	7	1911		1086
Niobrara River	Dierex, Camille	Rushville	Camille Canal	Irrig.	1.53	19	30	43	Sheridan	April	10	1911		1087
Niobrara River	Montague, James	Dunlap	Lichte Canal	Irrig.	.71	27	29	48	Dawes	April	19	1911		1088
Niobrara River	Hopkins, Thomas L.	Hemingford	Potmesil Bros. Canal	Irrig.	.28	25	29	48	Sioux	Jan.	2	1912		1152
Niobrara River	Bourett, John	Harrison	J. Bourett Ext. No. 1	Irrig.	.11	29	30	56	Sioux	March	25	1912		1188
Niobrara River	Wells, Harry E.	Butte	Wells Pumping Sys.	Irrig.	1.64	32	32	40	Sheridan	May	2	1912		1193
Niobrara River	Bourett, John	Harrison	J. Bourett Ext. No. 2	Irrig.	.21	32	30	56	Sioux	July	19	1912		1209
Niobrara River	Davidson, F. B. & C. T.	Hemingford	Mettlen Canal	Irrig.	5.00	4	28	54	Sioux	Dec.	18	1912		1248
Niobrara River	Davidson, F. B. & C. T.	Hemingford	Bennett Canal	Irrig.	4.00	1	28	54	Sioux	Dec.	18	1912		1249
Niobrara River	Fox, Jim	Marsland	Geo. Hitshew's Canal	Irrig.	6.00	6	28	52	Box Butte	Feb.	17	1913		1260

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Niobrara River	Coffee Cattle Co.	Chadron	Coffee Canal No. 3	Irrig.	2.50	15	29	56	Sioux	March	24	1914		1362
Niobrara River	U. S. Forest Reserve	Nenzel	Morton Nursery Canal	Irrig.	.50	30	33	32	Cherry	June	15	1907		1488
Niobrara River	Davison, Fred B.	Marsland	Davison's Canal	Irrig.	.21	12	28	54	Sioux	April	27	1922		1662
Niobrara River	Hubbell, C. J. & Person, A. W.	DeWeese Omaha	Northern Neb. Power Plant No. 1	Power		30	33	11	Boyd	Oct.	30	1923		1725 *
Pine Creek	Colclesser, Henry	Colclesser	Pine Creek Mills	Power	32.00	33	30	44	Sheridan	June	5	1893	415	
Plum Creek	Plum Creek Irr. Co.	Johnstown	Johnstown Canal	Irrig.	26.00	4	29	24	Brown	Dec.	18	1894	405	
Plum Creek	Wilbert, R.	Ainsworth	Wilbert Canal	Irrig.	.43	35	32	23	Brown	May	5	1896		329
Plum Creek	Ainsworth L. & P. Co.	Ainsworth	Plum Creek Plant	Power	150.00	29	32	22	Brown	May	15	1909		947
Pole Creek	Julian, A. R., et al	Gordon	Pole Creek Canal	Irrig.	.57	28	32	40	Cherry	June	29	1905	799	
Rickman Creek	Byington, Lola	Riverview	Byington Canal	Irrig.	1.00	22	32	20	Keya Paha	May	19	1891	582	
Rock Creek	Eastlick, B. J.	Carns	Necessity Canal	Irrig.	.35	29	32	18	Rock	Jan.	17	1895	395	
Rock Creek	Wile, H.	Mariaville	Wile's Canal	Irrig.	.86	9	31	18	Rock	April	3	1895	397	
Rock Creek	Duggar Bros.	Bassett	Duggar Canal	Irrig.	4.57	33	32	18	Rock	April	24	1919		1539
Rock Spgs. Cr.	Van Koten, J.	Springview	Van Koten Canal	Irrig.	.07	25	33	22	Keya Paha	Jan.	1	1885	619	
Rock Spgs. Cr.	Moore, W. S.	Meadville	Moore's Canal	Irrig.	1.43	12	32	22	Keya Paha	June	30	1887	593	
Shobe Branch	Lamb, A. J.	Spencer	Lamb's Canal	Irrig.	.14	30	33	11	Holt	July	6	1896		322
Snake River	Jackson, W. S.	Valentine	Snake Hydro-Elec. Co.	Power	180.00	9	31	30	Cherry	Feb.	16	1914		1352
Snider Creek	Pickler, W. S.	Springview	Old Canal	Irrig.	.01	31	33	19	Keya Paha	May	1	1894	607	
Spring Creek	Kuskie, A. K.	Sparks	Garden Canal	Irrig.	.86	27	34	25	Cherry	March	30	1900		555

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Stream, no name	Grant, C. G.	Long Pine	Grant Canal	Irrig.	.14	4	31	20	Rock	Jan.	1	1895	400	
Stream, no name	Conger, C. K.	Norden	Conger Canal	Irrig.	.11	5	33	24	Keya Paha	Sept.	16	1895		158
Turkey Creek	La Rue, Chas.	Norden	Turkey Creek Canal	Irrig.	.43	35	33	23	Keya Paha	Feb.	9	1900		539
Turkey Creek	La Rue, Chas.	Norden	Turkey Creek Canal No. 2	Irrig.	2.00	35	33	23	Keya Paha	May	11	1904		754
Verdigris Cr.	Hanson, J. W.	Emmetburg, Iowa	Drayton Canal	Irrig.	2.86	8	28	8	Antelope	Aug.	11	1894	248	
Wyman Creek	McCully, R. A.	Carns	McCully Canal	Irrig.	.80	19	32	19	Keya Paha	June	10	1891	604	
Wyman Creek	Horton, I.	Carns	Horton Canal	Irrig.	.14	17	32	19	Keya Paha	June	5	1894	587	
Young Creek	Lamb, A. J.	Spencer	Harvey-Lamb Canal	Irrig.	.21	32	33	11	Holt	June	13	1896		311

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Ash Creek	Compton, W. L.	Whitney	Compton	Irrig.	.03	12	32	51	Dawes	July	15	1893	455	
Ash Creek	Connell, W. D.	Whitney	Connell Canal	Irrig.	.63	6	32	50	Dawes	June	17	1888		459
Ash Creek	Cripps, Fred W.	Whitney	Cripps Canal No. 2	Irrig.	1.00	13	32	51	Dawes	Jan.	10	1899		491
Ash Creek	Cripps, Fred W.	Whitney	Cripps Canal	Irrig.	1.14	13	32	51	Dawes	Dec.	26	1903		735
Ash Creek	Howard, W. C.	Whitney	Cripps Canal	Irrig.	.57	13	32	51	Dawes	Aug.	27	1906		835
Ash Cr., E. Br.	Tomlin, H. B.	Whitney	Ox Yoke Canal	Irrig.	2.86	31	32	50	Dawes	May	31	1880	447	
Ash Cr., E. Br.	Aird, Ada L.	Crawford	Barron Canal	Irrig.	1.14	32	32	50	Dawes	July	1	1888	438	
Ash Cr., E. Br.	Ivins, Orville R.	Crawford	Sheldon Canal	Irrig.	1.43	30	32	50	Dawes	Jan.	26	1899		493
Ash Cr., E. Br.	Vetter, Andrew	Crawford	Todd Canal	Irrig.	.38	5	31	50	Dawes	Sept.	12	1899		520
Ash Cr., E. Br.	Stumph, Nellie	Whitney	Stumph Canal	Irrig.		31	32	50	Dawes				1023½*	
Ash Cr., W. Br.	Wall, C. W.	Whitney	W. Ash Creek Canal	Irrig.	1.62	36	32	51	Dawes	July	4	1893	452	
Ash Cr., W. Br.	Vetter, Andrew	Crawford	Mace Canal	Irrig.	1.00	2	31	51	Dawes	July	31	1884	428	
Ash Cr., W. Br.	Ivins, Orville R.	Crawford	Woodward Canal	Irrig.	.14	25	32	51	Dawes	Feb.	3	1898		434
Ash Cr., W. Br.	Broadhurst, Nathan	Crawford	Broadhurst Res.	Stor.	5.00	35	32	51	Dawes	Nov.	17	1913		1333
Beaver Creek	Braddock, William	Chadron	Braddock Canal	Irrig.	.36	18	34	46	Sheridan	April	15	1895	423	
Beaver Creek	Braddock, J. F.	Chadron	J. F. Braddock Canal	Irrig.	.04	1	34	47	Dawes	April	15	1895	974	
Beaver Creek	Braddock, William	Chadron	Wm. Lockler Canal	Irrig.		34	35	47	Dawes				1017*	
Beaver Creek	Braddock, J. F.	Chadron	J. F. Braddock Canal	Irrig.	.63	1	34	47	Dawes	Nov.	24	1897		463
Beaver Creek	U.R.Land & Cat. Co.	Chadron	Cilek Canal	Irrig.	.36	4	33	46	Sheridan	June	19	1899		513
Beaver Creek	Cavins, J. A.	Chadron	Rickman Canal	Irrig.	1.00	9	33	46	Sheridan	July	2	1902		681
Bordeaux Cr.	Locket, T. E.	Chadron	Locket Canal	Irrig.	.07	11	32	48	Dawes	June	30	1886	494	
Bordeaux Cr.	Naylor, W. W.	Chadron	Richards Canal	Irrig.	.14	36	33	48	Dawes	Sept.	10	1890	430	
Bordeaux Cr.	Bryant, S. A.	Chadron	Bryant's Canal	Irrig.	.29	14	33	48	Dawes	Feb.	3	1891	434	
Bordeaux Cr.	Hall, O. W.	Chadron	Halls Canal	Irrig.	.07	15	33	48	Dawes	March	1	1891	437	
Bordeaux Cr.	Naylor, W. W.	Chadron	Richards Canal	Irrig.	.36	36	33	48	Dawes	Sept.	7	1892	446	
Bordeaux Cr.	Naylor, Charles	Chadron	Mann's Canal	Irrig.	.23	25	33	48	Dawes	Dec.	31	1892	975	

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Bordeaux Cr.	Adams, S. L.	Chadron	Adam's Canal	Irrig.	.14	2	32	48	Dawes	March	5	1893	450	
Bordeaux Cr.	County of Dawes	Chadron	County Canal	Irrig.	.14	23	33	48	Dawes	July	31	1893	983	
Bordeaux Cr.	Kebbard, K. M.	Chadron	Bacon Canal	Irrig.	.21	21	34	48	Dawes	July	1	1894	445	
Bordeaux Cr.	Morrisey, M.	Chadron	Morrissey Canal	Irrig.	.08	15	33	48	Dawes	Aug.	25	1894	491	
Bordeaux Cr.	O'Donnell, John	Chadron	O'Donnell Canal	Irrig.	.14	9	34	48	Dawes	Jan.	17	1898		432
Bordeaux Cr.	Nelson, P. B.	Chadron	Nelson Canal	Irrig.	.36	14	33	48	Dawes	Oct.	19	1898		478
Bordeaux Cr.	Nelson, P. B.	Chadron	Nelson Canal	Irrig.	.14	14	33	48	Dawes	Jan.	28	1899		494
Bordeaux Cr.	Naylor, Chas.	Chadron	Burn's Canal	Irrig.	4.00	36	33	48	Dawes	Nov.	5	1900		584
Bordeaux Cr.	Martens, Wm.	Chadron	Marten's Canal	Irrig.	.57	28	34	48	Dawes	Sept.	22	1902		690
Bordeaux Cr.	Martens, Wm.	Chadron	Marten's Canal	Irrig.	1.14	21	34	48	Dawes	Jan.	14	1907		848
Bordeaux Cr.	Naylor, W. W.	Chadron	Naylor Canal	Irrig.	.42	36	33	48	Dawes	July	22	1918		1519
Bordeaux, Lit.	Schmidt, Elwin	Chadron	Hartzell Canal	Irrig.	.57	13	33	48	Dawes	June	1	1893	448	
Bordeaux, Lit.	Butler, J. A.	Chadron	Butler Canal	Irrig.	.11	33	33	47	Dawes	June	1	1894	443	
Bordeaux, Lit.	Frady, C. H.	Chadron	Frady Canal	Irrig.		30	33	47	Dawes				1009*	
Bordeaux, Lit.	Collin, Jacob	Chadron	Collin's Res.	Irrig.	.31	14	32	48	Dawes	Feb.	27	1905		780
Bordeaux, Lit.	Good, J. W.	Chadron	Good Canal	Irrig.	7.00	29	33	47	Dawes	March	6	1905		783
Bull Creek	Johnson, W. S.	Glen	Johnson Canal No. 1	Irrig.	.29	7	30	53	Sioux	March	13	1895	519	
Butte Cr. Trunk	Chaulk, John J.	Chadron	Chaulk Canal	Irrig.	3.00	25	33	50	Dawes	March	13	1915		1406
Cedar Canyon	Pelren, J. E.	Crawford	Cedar Canyon Canal	Irrig.	.43	16	33	53	Sioux	March	1	1897		380
Chadron Cr.	City of Chadron	Chadron	Chadron Water Wks.	W. S.	1.00	18	32	48	Dawes	Dec.	31	1888	1022	
Chadron Cr.	Gorr, James	Chadron	Gallup's Canal	Irrig.	.08	15	33	49	Dawes	Dec.	20	1890	426	
Chadron Cr.	Wilson, H. M.	Chadron	Tug Wilson Canal	Irrig.	.20	12	32	40	Dawes	July	13	1893	453	
Chadron Cr.	City of Chadron	Chadron	Water Works Ext.	Stor.	4.50	18	32	48	Dawes	April	8	1920		1583
Charcoal Cr.	Weber, M. J.	Glen	Klein Canal	Irrig.	.11	33	31	53	Sioux	Aug.	1	1882	982	

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Cottonwood Cr.	Rasmussen, J. J., & C. M.	Crawford	Rasmussen Canal	Irrig.	2.29	10	33	52	Dawes	March	8	1898		444
Cottonwood Cr.	Rasmussen, J. J., & C. M.	Crawford	Rasmussen Canal	Irrig.	18.00	10	33	52	Dawes	Dec.	26	1899		528
Cottonwood Cr. Ravine, trib to	Carlson, A. A.	Crawford	Carlson Canal	Irrig.	.71	21	33	52	Dawes	Sept.	20	1897		409
Cottonwood, Little	Golden, T. F.	Crawford	Thos. Stuart Canal	Irrig.	.36	8	32	52	Dawes	Dec.	21	1890	425	
Cottonwood, Little	Price, J. A B. and Golden, T. F.	Crawford	Stuart Bros. Canal	Irrig.	2.86	18	32	52	Dawes	June	10	1895		8
Cottonwood, Little	Kusel, Wm. T.	Chadron	Kusel Canal	Irrig.	1.14	9	32	51	Dawes	Oct.	16	1895		183
Cottonwood, Little	Simons, Rayner	Crawford	Simons Canal	Irrig.	1.14	9	32	51	Dawes	Sept.	12	1899		521
Cottonwood, Little	Kusel, William T.	Chadron	Kusel Canal No. 2	Irrig.	.43	8	32	51	Dawes	May	19	1900		560
Cottonwood, Little	Dunn, J. G.	Crawford	Dunn's Canal	Irrig.	1.43	9	32	52	Dawes	Jan.	14	1902		649
Cottonwood, Little	Erickson, John R.	Crawford	Stuart-Maple Canal	Irrig.	.29	3	32	52	Dawes	March	10	1902		656
Cottonwood, Little	Kusel, William T.	Chadron	Kusel-Spean Canal	Irrig.	.71	8	32	51	Dawes	June	30	1902		677
Cottonwood, Little	Lawrence, Thos. E.	Crawford	Broadhurst Canal	Irrig.	3.02	7	32	51	Dawes	Feb.	25	1913		1264
Cottonwood, Little	Dodd & McDowell	Crawford	Dodd-McDowell Canal	Stor.	10.00	13	32	53	Sioux	April	15	1913		1276

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Cottonwood, Little, (Res. A.1276)	Dodd, Calvin H.	Crawford	Dodd-McDowell Res.	Irrig.	2.00	17	32	52	Dawes	Jan.	5	1920		1571
Dead Horse Cr.	Kemery, John	Chadron	Kemery Canal	Irrig.	.01	32	32	49	Dawes	Sept.	1	1890	493	
Dead Horse Cr.	Woodruff, F. B. and E. F.	Chadron	Flag Butte Canal	Irrig.	.03	32	32	49	Dawes	April	10	1891	427	
Dead Horse Cr.	Goff, L. L.	Chadron	Goff Canal	Irrig.	.17	9	31	49	Dawes	Aug.	27	1893	457	
Dead Horse Cr.	Harley, Jas.	Chadron	Harley Canal	Irrig.	.01	32	32	49	Dawes	Aug.	1	1894	488	
Dead Horse Cr.	Geiser, B. A.	Chadron	Geiser Canal	Irrig.	.15	17	32	49	Dawes	March	18	1902		658
Dead Horse Cr.	Slattery, Roy A.	Chadron	Slattery Canal	Irrig.	1.29	32	33	49	Dawes	April	6	1904		749
Deadman Creek	Phillips, W. S.	Crawford	Stewart Canal	Irrig.	.21	19	30	52	Dawes	May	8	1896		334
Deadman Creek	Phillips, W. S.	Crawford	Phillips Canal	Irrig.	.14	18	30	52	Dawes	March	19	1900		547
Deadman Creek	Glendy, Thos. J.	Crawford	Porter-Rassmussen Canal	Irrig.	1.43	1	30	53	Sioux	May	29	1900		562
Deadman Creek	Linderman, Con.	Crawford	Linderman Canal	Irrig.	.14	18	30	52	Dawes	June	11	1900		564
Deep Creek	Barnum, W. E.	Glen	Deep Creek Canal	Irrig.	.06	9	30	53	Sioux	May	1	1887	525	
Deep Creek	McMaster, Wm. A.	Glen	Green Canal	Irrig.	.20	9	30	53	Sioux	Oct.	5	1895		203
Dry Draw	Earnest, Geo. A.	Chadron	Geo. Earnest Canal	Irrig.	3.71	22	35	49	Dawes	Feb.	20	1911		1061
Dry Draw	Glaze, Wm. A., W. E. Heath, Agent	Crawford	Heath Reservoir	Stor.	200.00 A.F.	12	32	53	Sioux	Feb.	7	1917		1475
Dry Draw, (Res. A.1475)	Heath, W. E.	Crawford	Heath Canal	Irrig.	.74	12	32	53	Sioux	July	25	1921		1612
Dry Canon	Betson, Wm. A.	Crawford	Betson Canal	Irrig.	1.00	33	32	51	Dawes	March	22	1917		1481
Dry Run	Campbell, F. J.	Chadron	Campbell Canal	Irrig.	1.00	35	34	49	Dawes	Nov.	9	1908		919

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Dry Run	Guse, Wm.	Crawford	Wm. Guse Reservoir	Stor.	20.00	35	34	52	Dawes	Jan.	13	1914		1345
Dry Run	Harrison & Weston	Whitney	Harsh-Weston Canal	Irrig.	3.00	31	34	51	Dawes	March	11	1914		1361
English Creek	McDowell, E. C.	Crawford	McDowell Stor. Sys.	Irrig.	.87	12	31	52	Dawes	Oct.	24	1904		772
Flood Waters	Lenehan, Delia	Crawford	Lenehan Reservoir	Stor.	4.00	25	34	52	Dawes	April	16	1913		1278
Flood Waters	Arner, Jessie B.	Crawford	Arner Canal	Irrig.	.14	27	33	53	Sioux	May	6	1913		1289
Hooker Creek	Bauerbach, Lena	Crawford	Bauerbach Canal	Irrig.	1.00	7	31	51	Dawes	Dec.	31	1889	492	
Hooker Creek	Hansen, Svend A.	Aurora	Alcorn Canal	Irrig.	1.21	31	32	51	Dawes	Nov.	17	1905		803
Hooker Creek	Souther, Mable G.	Lincoln	Souther Lake	F & I	1.42	30	32	51	Dawes	Sept.	24	1908		915
Indian Creek	Renfro, O. S.	Chadron	Seegrist Canal	Irrig.	.03	3	31	50	Dawes	Nov.	1	1893	489	
Indian Creek	Renfro, O. S.	Chadron	Flood Canal	Irrig.	.07	33	32	50	Dawes	Feb.	13	1894	460	
Indian Creek	Boyer, F.	Whitney	Boyer Canal	Irrig.	.86	28	32	50	Dawes	April	30	1900		559
Indian Creek	Renfro, Oscar S.	Chadron	Renfro Reservoir	Stor.	480.00 A.F.	3	31	50	Dawes	Nov.	29	1919		1568
Indian Creek, (Res. A.1568)	Renfro, Oscar S.	Chadron	Seegrist Extension	Irrig.	6.64	3	31	50	Dawes	Nov.	29	1919		1569
Indian Creek	Norman, Harry	Whitney	Norman Canal	Irrig.	1.92	16	32	50	Dawes	Aug.	3	1921		1614
Indian Creek	Norman, Harry	Whitney	Elmer Canal	Irrig.	.77	16	32	50	Dawes	Jan.	17	1923		1704
Indian Creek, Trib.	Kaiser, Omar A.	Whitney	Kaiser Canal	Irrig.	.57	28	32	50	Dawes	Feb.	15	1900		540
Indian Creek, Trib.	Honnold Bros.	Whitney	Honnold-Wilson Canal	Irrig.	.07	3	31	50	Dawes	May	25	1912		1199
Kane Creek	McConnell, J. S.	Whitney	McConnell Reservoir	Irrig.	4.29	29	34	50	Dawes	Jan.	14	1909		931
Kyle Creek	Sturgeon, Ralph	Crawford	Kyle Creek Canal	Irrig.	.57	3	30	54	Sioux	June	30	1882	522	

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Lone Tree, So. Fork	Thomas, J. C.	Whitney	Thomas Canal	Irrig.	1.00	28	34	51	Dawes	April	29	1905		789
Lone Tree Cr.	Sides, Frank	Whitney	Sides Reservoir	Stor.	3.00	13	34	52	Dawes	Nov.	25	1914		1392
Madden Creek.	Flannigan, T. F.	Chadron	Dams	Irrig.	.57	26	35	49	Dawes	July	11	1904		763
Madden Creek.	Flannigan, O. R.	Chadron	Trier Canal	Irrig.	1.21	6	34	48	Dawes	Aug.	1	1906		830
Madden Creek and No. Creek	Flannigan, O. R.	Chadron	Dams	Irrig.	.57	31	35	48	Dawes	Oct.	17	1904		771
Rush Creek	Braddock, H. T.	Chadron	Braddock Canal	Irrig.	3.00	10	34	49	Dawes	May	4	1903		706
Rush Creek	Braddock, H. T.	Chadron	Braddock Extension	Irrig.	1.57	11	34	49	Dawes	May	31	1906		825
Sand Cr. Trib. to Cottonwood	Everson, Jas. T. and Arner, Lloyd C.	Crawford	Bendix Canal	Irrig.	.57	35	33	53	Sioux	Nov.	19	1895		189
Sand Cr. Trib. to Cottonwood	Jordan, M. D.	Orella	Jordan aCnal	Irrig.	.50	31	33	53	Sioux	April	2	1900		551
Sand Cr. Trib. to Cottonwood	Carlson & Rasmussen	Crawford	C.& R. Sand Creek Canal	Irrig.	30.00	32	33	52	Dawes	April	12	1904		767
Sand Cr. Trib. to Cottonwood	Arner, J. H.	Crawford	Arner Canal	Irrig.	2.57	26	33	53	Sioux	Jan.	12	1905		779
Sand Cr. Trib. to Cottonwood	Rasmussen, K.	Crawford	Rassmussen Canal	Irrig.	17.00	3	32	52	Dawes	Jan.	8	1906		811
Sand Cr. Trib. to Cottonwood	Dunn, John T.	Crawford	Syndicate Canal	Irrig.	27.42	32	33	52	Dawes	April	2	1912		1190

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Sand Cr. Trib. to Cottonwood	Everson, Jas., T., & Arner, Lloyd C.	Crawford	Bendix Extension	Irrig.	.83	35	33	53	Sioux	May	27	1922		1669
Saw Log, East	Stewart, H. E.	Crawford	Little Saw Log Canal	Irrig.	.71	12	30	52	Dawes	Jan.	23	1907		849
Saw Log, East	Stephenson, Chas.	Crawford	Stephenson Canal	Irrig.	1.14	25	31	52	Dawes	March	5	1907		852
Saw Log, East	Baker, A. D.	Crawford	Baker Canals	Irrig.	.29	5	30	51	Dawes	Jan.	3	1908		884
Saw Log, East	Porter, J. E. & Masters, C. E.	Crawford	Van Treek Canal	Irrig.	.37	4	30	51	Dawes	May	8	1911		1098
Saxson Draw	Harris, C. S.	Crawford	Harris Reservoir	Stor.	10.00	32	33	52	Dawes	Sept.	29	1922		1689
Sheridan Cr.	Getchell, G. C.	Pine Ridge	Getchell Canal	Irrig.	.07	27	34	45	Sheridan	Aug.	1	1894	418	
Soldier Creek	Rodgers, J. J.	Crawford	Rodgers Canal	Irrig.	.14	5	31	53	Sioux	April	30	1883	546	
Sp. Br., Trib to White Riv.	Tucker, J. S.	Glen	Tucker Canal	Irrig.	.17	34	31	54	Sioux	June	1	1883	557	
Spring Creek	Swinbank, Sam, et al	Crawford	Mozeter Canal	Irrig.	1.14	13	32	53	Dawes	May	3	1888	1014	
Spring Creek	Forbes, J. B.	Crawford	Forbes Canal No. 1	Irrig.	.57	20	32	52	Dawes	April	28	1902		663
Spring Creek	Swinbank, Samuel	Crawford	Swinbank Reservoir	Stor.	2.00	13	32	52	Dawes	March	3	1914		1358
Sp. Cr., Trib to Lit. Cottonw'd.	Goff, T. L.	Chadron	Goff Canal	Irrig.	.14	30	32	49	Dawes	April	2	1891	441	
Sp. Cr., Trib to Lit. Cottonw'd.	Pinney, B. G.	Crawford	Squaw Creek Canal	Irrig.	.86	13	32	52	Dawes	May	10	1894	466	
Sp. Cr., Trib to Lit. Cottonw'd.	Lawrence, Thos. E.	Crawford	Spring Cr. Canal No.1	Irrig.	2.00	7	32	51	Dawes	Dec.	1	1894	473	

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Sp. Cr., Trib to Dead Horse Cr	Lawrence, Thos. E.	Crawford	Spring Cr. Canal No.1	Irrig.	5.00	13	32	52	Dawes	April	7	1905		788
Squaw Creek	Buffington, Clyde	Crawford	Cooper Canal	Irrig.	2.29	36	32	52	Dawes	May	8	1896		333
Squaw Creek	McDowell, E. C.	Crawford	Squaw Creek Canal	Stor.	3.00	12	31	52	Dawes	Oct.	3	1911		1132
Squaw Creek (Res. A.1132)	McDowell, E. C.	Crawford	Squaw Creek Canal	Irrig.		12	13	52	Dawes	Jan.	4	1922		1631 *
Trunk Butte Cr.	Smock, M.	Whitney	Smock's Canal	Irrig.	.07	26	32	50	Dawes	June	28	1895	465	
White Clay Cr.	Tandy, A. M.	Crawford	McFarland Canal	Irrig.	1.64	35	32	52	Dawes	May	18	1891	960	
White Clay Cr.	Moss, J. H.	Crawford	Hazelton Canal	Irrig.	1.14	13	31	52	Dawes	May	15	1894	475	
White Clay Cr.	White River Irr. Co.	Crawford	White River Canal	Irrig.	8.71	35	32	52	Dawes	Dec.	31	1894	477	
White Clay Cr.	Buffington, Clyde	Crawford	Cooper Canal	Irrig.	3.71	2	31	52	Dawes	June	22	1895		42
White Clay Cr.	Brockway, Maggie	Red Oak, Ia.	Brockway Canal	Irrig.	.71	36	31	52	Dawes	Feb.	27	1896		256
White Clay Cr.	Pine Ridge Agency	Pine Ridge, S. D.	Pine Ridge Canal	Irrig.			35	45	Sheridan				419*	
White Clay Cr.	Hunt, Joe E.	Crawford	Rinicker Canal	Irrig.	.57	11	31	52	Dawes	June	8	1901		618
White Clay Cr.	Moss, J. H.	Crawford	Hutzel Canal	Irrig.	.57	13	31	52	Dawes	April	30	1903		704
White Clay Cr.	Townsend, Chas.	White Clay	Townsend Canal	Irrig.	.80	25	25	35	Sheridan	Jan.	21	1911		1054
White Clay Cr.	Brooks, J. N.	Rushville	Brook's Canal	Irrig.	.42	36	35	45	Sheridan	Aug.	2	1911		1120
White Clay Cr.	Hunt, Joe E.	Crawford	Handschugel Lake	Stor.	1.30	11	31	52	Dawes	Dec.	17	1915		1441
White Clay Cr. East Branch	Stewart, H. E.	Crawford	Little Saw Log	Irrig.	.71	12	30	52	Dawes	Jan.	23	1907		849
Wh. Clay and Squaw Creek	White River Irr. Co.	Crawford	White River Canal	Irrig.	8.00	36	32	52	Dawes	March	3	1902		655
White River	Jacobson, M.	Glen	Jacobson Canal	Irrig.	.14	32	31	53	Sioux	Oct.	1	1882	561	

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White River	Hall, LeRoy	Crawford	Hall's Canal 1, 2	Irrig.	24.83	34	32	52	Dawes	Sept.	10	1885	478a	
White River	Diedrickson, N.	Glen	Diedrickson Canal	Irrig.	.21	1	30	54	Sioux	Sept.	1	1890	562	
White River	City of Crawford	Crawford	Crawford Water Sys	Irrig.	5.00	32	32	52	Dawes	Oct.	1	1890	1026	
White River	Pinney, B. G., et al	Crawford	Harris-Cooper Canal.	Irrig.	16.78	26	32	52	Dawes	March	9	1894	464a	
White River	Pinney, B. G., et al	Crawford	Harris-Cooper Canal.	Irrig.	1.57	26	32	52	Dawes	June	15	1894	464b	
White River	Pinney, B. G., et al	Crawford	Harris-Cooper Canal.	Irrig.	.28	26	32	52	Dawes	Oct.	31	1894	464c	
White River	Est. of Chas. Rasher	Crawford	Rasher Canal	Irrig.	1.14	19	32	51	Dawes	June	20	1894	467	
White River	Est. of N. Welling	Crawford	Welling Canal	Irrig.	.57	17	32	51	Dawes	July	13	1894	469	
White River	Carpenter, E. J. & Co.	Whitney	Carpenter Canal	Irrig.	2.86	1	32	51	Dawes	Dec.	2	1894	487	
White River	White River Irr. Co.	Crawford	White River Canal	Irrig.	8.71	35	32	52	Dawes	Dec.	31	1894	477	
(Wh. Clay Cr.)														
White River	Hall, LeRoy	Crawford	Halls Mill	Power	26.40	34	32	52	Dawes	Jan.	10	1895	478b	
White River	C. B. & Q. R. R. Co.	Lincoln	C.B.& Q. Line at Crawford	Irrig.	.80	3	31	52	Dawes	Sept.	14	1889	1030	
White River	Mecham, S. R., et al	Whitney	Mecham Canal	Irrig.	2.86	17	32	51	Dawes	June	27	1895		500
White River	Mason, J. F.	Glen	Mason Canal	Irrig.	.14	32	31	53	Sioux	May	12	1896		337
(Seepage)														
White River	Coffee, C. F.	Chadron	Lewis Canal	Irrig.	.14	27	31	56	Sioux	May	19	1896		340
White River	Bartlett, A. M.	Chadron	Jones Canal	Irrig.	.71	18	34	48	Dawes	May	21	1897		391
White River	Schwabe, Lena	Chadron	Schwabe Canal	Irrig.	1.14	25	34	49	Dawes	June	24	1897		394
White River	Grant, Cecil	Crawford	Wilkinson Canal	Irrig.	.71	24	32	52	Dawes	Nov.	18	1897		421
White River	Forbes, Jeanette, et al	Crawford	Rasher Canal	Irrig.	.50	19	32	51	Dawes	May	23	1898		456
White River	Zurn, Adam	Crawford	Zurn-Schmelzleh Canal	Irrig.	1.00	19	32	51	Dawes	Oct.	13	1898		475
White River	Shaeffer, Geo., et al	Whitney	Shaeffer-Blust Canal.	Irrig.	3.00	2	32	51	Dawes	Dec.	18	1899		525
White River	Rasher, Frank	Crawford	Rasher Canal	Irrig.	1.43	19	32	51	Dawes	Jan.	16	1900		534
White River	Carlson, John	Whitney	Carlson Canal	Irrig.	1.43	6	32	50	Dawes	Nov.	26	1900		588
White River	Village of Crawford	Crawford	Crawford Pump Station	Power	18.00	3	31	52	Dawes	March	30	1903		702

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White River	Hebbert, Minnie L. and Scott DeForrest	Chadron	Hebert Canal	Irrig.	.29	34	33	50	Dawes	May	11	1903		707
White River	Nance & Simon Irr. Company	Whitney	Simons-Harris Canal	Irrig.	1.00	16	32	51	Dawes	Oct.	26	1903		730
White River	Peterson, Charles R.	Crawford	Ext. to C. Rasher	Irrig.	1.29	20	32	51	Dawes	Feb.	5	1904		740
White River	Schwabe, August	Chadron	Schwabe Canal	Irrig.	.57	24	34	49	Dawes	June	13	1904		758
White River	Schwabe, August	Chadron	Schwabe Power Plant	Power	5.00	24	34	49	Dawes	June	13	1904		759
White River	Wright Bros.	Whitney	Wright's Canal	Irrig.	4.00	16	32	51	Dawes	Dec.	5	1904		775
White River	Schwabe, August	Chadron	Schwabe Canal	Irrig.	.29	24	34	49	Dawes	March	19	1906		815
White River	Roby, I. M.	Crawford	Roby Canal	Irrig.	.33	3	31	52	Dawes	Sept.	13	1906		838
White River	Stephenson, Ira J.	Crawford	Stephenson Power Plant	Power	15.00	34	31	53	Sioux	March	15	1907		854
White River	White River Irr. Co.	Crawford	White Riv. Irr. Co's. South Branch	Irrig.	1.43	25	32	52	Dawes	March	11	1909		936
White River	Schwabe, August	Chadron	Schwabe Canal	Irrig.	3.43	31	34	48	Dawes	July	23	1908		908
White River	Jenson, J. L.	Whitney	Jenson's Canal	Irrig.	1.14	26	33	50	Dawes	June	27	1911		1110
White River	Pinney & Denslow	Crawford	Pinney & Denslow Reservoir	S & I	20.00	26	32	52	Dawes	Aug.	10	1911		1122
White River	Forbees, Wm. T.	Crawford	Forbes Extension	Irrig.	.85	19	32	51	Dawes	Sept.	26	1911		1128
White River	Hebbert, Minnie L., et al	Chadron	Hebbert Canal	Irrig.	.71	34	33	50	Dawes	March	10	1914		1360
White River	Whitney Irr. District	Crawford	Whitney Res. & Pipe Line	Stor.	1000.00 A.F.	26	32	52	Dawes	April	28	1921		1603
White River	Norman, Wm.	Whitney	Norman Irr. Project	Irrig.	3.60	24	32	52	Dawes	May	2	1921		1604
White River	Rasmussen, John	Crawford	Whitney Irr. Dist.	Irrig.	25.00	26	32	52	Dawes	Nov.	7	1921		1625
White River	Simons, Ranor	Whitney	Ranor Simons Canal	Irrig.	2.07	4	32	51	Dawes	Nov.	18	1921		1626
White River	Norman, Wm.	Whitney	Norman Canal	Irrig.	.41	26	32	52	Dawes	April	26	1922		1660
White River	Martens, Wm.	Chadron	Martens Canal	Irrig.	.29	14	34	48	Dawes	Dec.	26	1902		696
Canyons tr. to	T[illegible]													

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White River	Jones, Sarah M. et al.	Crawford	Jones Canal	Irrig.	.29	9	31	51	Dawes	May	20	1907		860
Canyons tr. to Whitsel Dry Draw	Whitsel, A. E.	Chadron	Whitsel Ise Pond	Ice	24.00 A.F.	33	34	47	Dawes	Oct.	27	1921		1622

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Antelope Cr.	Gayhart, M. J.	Montrose	Gayhart Canal	Irrig.	2.43	16	34	55	Sioux	June	18	1904		760
Antelope Cr.	Turner, Sarah A., Est.	Harrison	Turner Reservoir	Stor.	250.00 A.F.	26	34	56	Sioux	July	3	1922		1675
Antelope Cr. (Res. A.1675)	Turner, Sarah A., Est.	Harrison	Turner Canal No. 2	Supple	1.00	26	34	56	Sioux	July	3	1922		1676
Antelope Cr. (Res. A.1675)	Turner, Sarah A.	Harrison	Turner Canal	Irrig.	1.68	26	34	57	Sioux	July	3	1922		1677
Antelope Cr. No. Branch	Story, O. W.	Story	Story Canal	Irrig.	2.00	8	34	56	Sioux	Nov.	11	1895		168
Antelope Cr. Dry	Schnurr, Albert	Harrison	Grammercy Dam	Stor.	10.00 A.F.	13	34	57	Sioux	Sept.	24	1920		1591
Antelope Cr. So. Branch	Turner, Geo. H., Est.	Harrison	Turner Canal	Irrig.	.86	26	34	57	Sioux	Oct.	31	1894	537	
Antelope Cr. So. Branch	Dryer, F. W.	Harrison	Ellis Canal	Irrig.	.29	9	33	57	Sioux	May	17	1896		338
Boggy Creek	Holly, Thos.	Crawford	Holly Canal	Irrig.	.11	30	33	54	Sioux	Dec.	31	1888	956	
Boggy Creek	Smith, J. W.	Harrison	Smith's Canal	Irrig.	.28	31	33	54	Sioux	May	1	1892	526	
Boggy Creek	Readinger, H. Y.	Omaha	Wickersham Canal	Irrig.	3.00	31	33	54	Sioux	Feb.	28	1903		701
Boggy Creek Mid. Branch	Bannon, J. F.	Harrison	Bannon's Canal	Irrig.	.06	7	32	54	Sioux	July	1	1886	560	
Boggy Creek Mid. Branch	Marten, Wm.	Harrison	Marten's Canal	Irrig.	.36	18	32	54	Sioux	May	19	1896		342
Boggy Creek Mid. Branch	Hill, Albert F.	Harrison	Hill Canal	Irrig.	.86	11	32	55	Sioux	Jan.	20	1908		886
Cedar Creek	Knori, Samuel	Harrison	Schelt's Cr. Canal	Irrig.	.57	35	33	56	Sioux	May	15	1885	507	
Cedar Creek	Valdez, M.	Harrison	Valdez Canal	Irrig.	.50	10	32	56	Sioux	April	5	1886	976	
Cedar Creek	Plunkett, John	Harrison	Plunkett Canal	Irrig.	.	4	32	56	Sioux				985*	

Source	Name of Claimant	Post Office	Carrier	Use to which appl'd	Sec. Feet gr'ted	Location of Headgate S	T	R	County	Date of Priority Month	D	Yr.	Doc. No.	App. No.
Cherry Creek	Ruffing, M.	Harrison	Cherry Cr. Canal	Irrig.	.03	29	33	54	Sioux	May	1	1893	549	
Dry Creek	Story, Oscar W.	Story	Story Canal	Irrig.	5.71	9	34	56	Sioux	March	26	1918		1509
Dry Gulch	Child, L. M.	Story	Child's Canal	Irrig.	.57	28	34	56	Sioux	Aug.	14	1914		1376
Hat Creek	Thayer, John A.	Harrison	W. Hat Creek Canal	Irrig.	.43	16	32	55	Sioux	June	1	1880	553a	
Hat Creek	Coffee, Charles S.	Harrison	C. F. Coffee Canal	Irrig.	4.29	26	33	55	Sioux	Sept.	1	1881	512	
Hat Creek	Thayer, John A.	Harrison	W. Hat Creek Canal	Irrig.	.57	16	32	55	Sioux	May	31	1886	553	
Hat Greek	Coffee, J. T., et al.	Harrison	Miller Canal	Irrig.	.37	23	33	55	Sioux	May	19	1896		341
Hat Creek	Haas, Peter	Harrison	Haas Canal	Irrig.	.08	2	33	55	Sioux	May	8	1899		510
Hat Creek	Lyon, E. B.	Harrison	Antrim's Canal	Irrig.	.57	3	32	55	Sioux	Dec.	24	1900		594
Hat Creek	Lyon, E. B.	Harrison	Antrim's Canal	Irrig.	.57	3	32	55	Sioux	Aug.	20	1906		834
Hat Creek	Coffee, Jno. T.	Harrison	Coffee & Son Flood Canal	Irrig.	6.00	14	33	55	Sioux	Oct.	22	1912		1236
Hat Creek	Zerbe, Harry T.	Harrison	Zerbe Reservoir	Stor.	100.00 A.F.	35	33	55	Sioux	March	25	1915		1407
Hat Cr. Can., trib to	Konrath, Jas.	Montrose	Konrath Canal	Irrig.	1.43	17	34	54	Sioux	Dec.	28	1905		803
Indion Cr. Dr. Trib to	Meier, Aug.	Ardmore, S.D.	Meier Dam	Irrig.	2.00	24	35	55	Sioux	Nov.	5	1900		585
Jim Creek	Dout, L.	Harrison	Dout Bros. Canal	Irrig.	.86	7	33	56	Sioux	May	15	1889	981	
Jim Creek	Priddy, Edward	Harrison	Woodruff So. Canal	Irrig.	.34	14	33	57	Sioux	May	1	1890	536	
Jim Creek	Snider, Al	Harrison	Jim Creek Canal	Irrig.	.43	8	33	56	Sioux	Dec.	15	1890	502	
Jim Creek	Slattery, William	Harrison	Slattery Canal	Irrig.	.29	13	33	57	Sioux	May	31	1891	543	
Jim Creek	Coffee, John T.	Harrison	Hunter Canal	Irrig.	.03	26	33	54	Sioux	May	12	1898		451
Jim Creek	Slattery, William	Harrison	Caladonia Dam	Stor.	42.00 A.F.	13	33	57	Sioux	July	20	1922		1680

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Jim Creek (Res. A.1680)	Slattery, William	Harrison	Caladonia Canal	Irrig.	.28	13	33	57	Sioux	July	20	1922		1681
Jim Creek	Slattery, William	Harrison	High Line Canal	Irrig.	.34	13	33	57	Sioux	July	20	1922		1682
Jim Creek (Res. A.1680)	Slattery, William	Harrison	Caladonia Canal	Supple	.35	13	33	57	Sioux	July	20	1922	543	1683
Jim Creek E. Fork	Wassenberger, J.	Montrose	Wassenberger Canal	Irrig.	2.29	29	34	54	Sioux	Oct.	13	1900		581
Lickett Creek	Coffee, S. B.	Chadron	Lickett Canal	Irrig.		27	33	54	Sioux				1005*	
Lickett Creek	Coffee, S. B.	Chadron	Lickett Canal	Irrig.	1.43	27	33	54	Sioux	March	21	1900		549
Little Red Cr.	Plunkett, Thomas	Harrison	Zerbst Canal	Irrig.	.14	25	33	56	Sioux	May	1	1893	551	
Long Branch	Borky, Sol	Ardmore, S.D.	Borky Dam	Irrig.	.64	23	35	54	Sioux	April	14	1900		557
Long Branch	O'Connell, Dennis	Ardmore, S.D.	O'Connell Canal	Irrig.	.20	22	35	54	Sioux	Nov.	10	1900		587
Long Branch	Ebert, L. J.	Ardmore, S.D.	Ebert Canal	Irrig.	.14	19	35	53	Sioux	Aug.	22	1901		635
Monroe Creek	Knori, Samuel	Harrison	Big Monroe Canal	Irrig.	1.43	33	33	56	Sioux	May	1	1888	506	
Monroe Creek	Knori, Samuel	Harrison	Schilt's Monroe Canal	Irrig.	.50	27	33	56	Sioux	July	2	1888	509	
Monroe Creek	Holz, Ferdinand	Harrison	Noreisch Canal	Irrig.	.04	33	33	56	Sioux	July	19	1895		83
Monroe Creek	Jordan, C.	Montrose	Neil Jordan Canal	Irrig.	2.20	13	33	56	Sioux	Nov.	12	1906		841
Monroe Creek	Jordan, C.	Montrose	Cornelius Jordan Canal	Irrig.	2.00	13	33	56	Sioux	July	30	1914		1375
Monroe Creek	Jordan, Richard	Harrison	Wooden Shoe Canal	Stor.	5.00	22	33	56	Sioux	Aug.	24	1914		1377
Monroe Creek	Jordan, Cornelius	Harrison	Neal Jordan Ext. to A. 841	Stor.	4.00	13	33	56	Sioux	Jan.	14	1915		1399
Monroe Creek (Res. A.1399)	Jordan, Cornelius	Harrison	Kite Canal	Supple	2.20	13	33	56	Sioux	Jan.	14	1915		1469
Monroe Creek (Res. A.1399)	Jordan, Cornelius	Harrison	Supplemental to Jordan Canal A 1375	Supple	1.40	13	33	56	Sioux	Jan.	14	1915		1470

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Prairie Dog Cr.	Knorl, Samuel	Harrison	Schilt's Prairie Dog Canal	Irrig.	1.14	35	33	56	Sioux	May	31	1886	508	
Sou Belly Cr.	Schaefer, Nick J.	Harrison	Old Sou Belly Canal	Irrig.	3.00	7	32	55	Sioux	June	1	1887	533	
Sou Belly Cr.	Parson, Con., Adm.	Van Tassel, Wyo.	Montgomery Canal	Irrig.	1.00	21	33	55	Sioux	Dec.	1	1890	559	
Sou Belly Cr.	Jordan, Sarah	Harrison	Jordan Canal	Irrig.	.43	21	33	55	Sioux	June	1	1895	556	
Sou Belly Cr.	Nutto, F.	Harrison	Nutto Canal	Irrig.	.43	24	32	56	Sioux	Sept.	4	1897		404
Sou Belly Cr.	Jordan, Sarah	Harrison	Jordan Canal	Irrig.	.50	21	33	55	Sioux	May	11	1896		424
Sou Belly Cr.	Carroll, M. J.	Harrison	Carroll Canal	Irrig.	.14	7	32	55	Sioux	July	12	1899		516
Sou Belly Cr.	Zimmerman, Irvin S.	Harrison	Zimmerman Canal	Irrig.	.71	34	33	55	Sioux	Jan.	11	1900		532
Sou Belly Cr.	Jordan, S.	Harrison	Jordan Canal	Irrig.	.14	21	33	55	Sioux	May	26	1902		668
Sou Belly Cr.	Barnes, Paul T.	Harrison	Barnes Reservoir	Stor.	10.00	19	32	55	Sioux	March	24	1913		1268
Sou Belly Cr.	O'Connell, M. J.	Montrose	O'Connell Canal	Irrig.	10.00	9	33	55	Sioux	May	5	1913		1288
Sp. Cr., Trib to Sou Belly	Hall, W. S. & F. M.	Harrison	Hall's Spring Canal	Irrig.	.57	6	32	55	Sioux	March	26	1889	550	
Sp. Cr., Trib to Sou Belly	Schaefer, N. J.	Harrison	Spring Creek Canal	Irrig.	.29	7	32	55	Sioux	June	1	1893	532	
Sp. Br., Trib to So. Warbonnet	Biehle, Chas.	Harrison	Biehle Canal	Irrig.	.23	32	33	56	Sioux	April	1	1891	538	
Sp. Br., Trib to So. Warbonnet	Anderson, John A.	Harrison	Garton Canal	Irrig.	1.43	31	33	56	Sioux	Oct.	16	1893	503	
Sp. Br., Trib to So. Warbonnet	Anderson, John A.	Harrison	Kay's Canal	Irrig.	.14	26	33	57	Sioux	May	1	1887	958	
Sp. Br., Trib to Warbonnet Cr.	Priddy, Edouard	Harrison	Nolan Canal No. 1	Irrig.	.01	23	33	57	Sioux	March	15	1887	957	
Sp. Br., Trib to Warbonnet	Priddy, Edouard	Harrison	Nolan Canal No. 2	Irrig.	.29	23	33	57	Sioux	May	1	1888	959	

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Squaw Creek....	Dunn, Thos.	Harrison	Dunn's Canal	Irrig.	.36	15	33	57	Sioux	June	1	1890	552	
Squaw Creek....	Thomas, Sam	Harrison	Hamlin's Canal	Irrig.	.01	10	33	57	Sioux	April	1	1891	555	
Squaw Creek....	Dunn, Thos.	Harrison	Dunn's Res. Canal	Irrig.	.57	10	33	57	Sioux	Aug.	5	1895		100
Squaw Creek....	Dunn, Thos.	Harrison	Thos. Dunn Canal	Irrig.	.19	3	33	57	Sioux	Jan.	22	1897		376
Squaw Creek, West Br.	Thomas, S. M.	Harrison	Thomas Canal	Irrig.	.50	10	33	57	Sioux	July	23	1901		627
Stream, Trib to Jim Creek	Coffee, S. D.	Harrison	Homestead Canal	Irrig.	.22	22	33	54	Sioux	May	31	1890	984	
Warbonnet Cr...	Anderson, John A.	Harrison	Warbonnet Canal	Irrig.	3.63	21	33	56	Sioux	July	31	1880	548	
Warbonnet Cr...	Anderson, John A.	Harrison	Warbonnet Canal No. 2	Irrig.	1.43	20	33	56	Sioux	March	11	1908		892
Warbonnet Cr... No. Br. of S.Br.	Anderson, John A.	Harrison	Daut Canal	Irrig.	.71	30	33	56	Sioux	May	31	1889	539a	
Warbonnet Cr... No. Br. of S.Br.	Anderson, John A.	Harrison	Daut Canal	Irrig.	.29	30	33	56	Sioux	Dec.	31	1891	539b	
Warbonnet Cr... Branch	Zerbst, Carl F.	Harrison	Zerbst Canal No. 1	Irrig.	.03	26	33	57	Sioux	March	6	1915		1405
Warbonnet Cr... Branch	Zerbst, Carl F.	Harrison	Zerbst Canal No. 2	Irrig.	.17	25	33	57	Sioux	March	6	1915		1404
Whitehead Cr...	Harrison, R.	Orella	Harrison Canal	Irrig.	.06	13	33	54	Sioux	May	30	1888	547	

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Bazile Creek	Packard, J. L.	Creighton	Creighton Mill Race	Power		21	29	5	Knox				1002*	
Bazile Creek	Moss, O. H. and Buckler, Fred	Battle Creek	Creighton Mills	Power	30.00	21	29	5	Knox	Sept.	24	1908		914
Jackson Chute	Crystal Lake Co.	So. Sioux City	Crystal Lake Dam	Ice	15.00	26	29	8	Dakota	April	12	1923		1714
Mud Creek	Horan, T. W.	Fort Crook	Horan Canal	Irrig.	.37	34	14	13	Sarpy	Aug.	12	1909		958
Tekamah Cr.	Glasson, Joseph	Tekamah	Tekamah Roller Mills	Power	10.00	19	21	11	Burt	Sept.	17	1906		839
Tekamah Cr.	Glasson, Joseph	Tekamah	Tekamah Roller Mills	Ice	1.00	19	21	11	Burt	Jan.	21	1908		887

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White River	Simons, Raynor	Whitney	Raynor Simons Canal	Irrig.	2.07	4	32	51	Dawes	Nov.	18	1921		1626
Wood River	Barney, R. M.	Kearney	Barney Pumping Pl...	Irrig.		9	16	11	Buffalo	June	22	1922		1672
Frenchman R...	Riverside Ditch Co....	Culbertson	Riverside Canal	Irrig.	2.90	33	4	32	Hitchcock	July	3	1922		1674
Antelope Creek	Est. of Sarah Turner	Harrison	Turner Dam	Stor.	20.00	26	34	56	Sioux	July	3	1922		1675
Antelope Creek	Est. of Sarah Turner	Harrison	Turner Canal No. 2....	Irrig.	1.00	26	34	56	Sioux	July	3	1922		1676
Antelope Creek	Est. of Sarah Turner	Harrison	Turner Canal No. 2....	Irrig.	1.68	26	34	56	Sioux	July	3	1922		1677
Wood River	Howe, Lloyd M.	Wood River....	Howe's Pumping Pl...	Irrig.	.54	17	10	11	Hall	July	14	1922		1679
Jim Creek	Slattery, Wm.	Harrison	Caladonia Dam	Stor.	4.00	13	33	57	Sioux	July	20	1922		1680
Jim Creek	Slattery, Wm.	Harrison	Caladonia Canal	Irrig.	.28	13	33	57	Sioux	July	20	1922		1681
Jim Creek	Slattery, Wm.	Harrison	High Line Canal	Irrig.	.34	13	33	57	Sioux	July	20	1922		1682
Jim Creek	Slattery, Wm.	Harrison	Slattery Sup. Canal....	Supple	.35	13	33	57	Sioux	July	20	1922		1683
Wood River	McGuire, M. J.	Wood River....	McGuire Pumping Plant	Irrig.		27	10	12	Hall	July	29	1922		1684
Nemaha River..	C. B. & Q. R. R. Co...	Lincoln	C.B.& Q. Water Sup...	I & D	1.00	33	3	12	Pawnee	Aug.	8	1922		1687
Big Blue River	Black Bros. Fl. Mills	Beatrice	Black Bros. Plant No. 3	Power	400.00	2	3	6	Gage	Oct.	7	1922		1690
Big Blue River	Black Bros. Fl. Mills	Beatrice	Black Bros. Plant No. 2	Drdg		17	2	7	Gage	Nov.	7	1922		1692
Wood River	Wilson, C. C.	Omaha	Wilson Pumping Pl...	Irrig.	1.21	14	9	15	Buffalo	Nov.	15	1922		1693
Pawnee Creek..	Kent-Burke Co.	Omaha	Kent-Burke Canal	Irrig.	5.85	18	13	27	Lincoln	Nov.	16	1922		1694

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Lodge Pole Cr...	McIntosh & Martin....	Sidney	McIntosh & Martin Canal	Irrig.	1.23	35	14	50	Cheyenne	Nov.	22	1922		1695
North Loup Riv	Loup Valley I & P Co	No. Loup	No. Loup Power Pl.....	Power	1000.00	35	19	13	Valley	Nov.	29	1922		1697
Big Blue River	Black Bros. Fl. Mills	Beatrice	Black Bros. Plant No. 2	Drdg.		17	2	7	Gage	Dec.	15	1922		1698
Cedar River	Nebr. Gas & Elec. Co.	Omaha	Neb. Gas & Elec Co. Power Plant	Power	300.00	1	17	17	Nance	Dec.	21	1921		1699
No. Loup River	Loup Val. I & P Co.	No. Loup	Scotia Plant	Power	1000.00	27	17	12	Greeley	Dec.	22	1922		1700
Little Blue Riv.	Kassebaum, Wm.	Hebron	Kassebaum Pwr. Plt...	Power	250.00	30	3	2	Jefferson	Dec.	26	1922		1701
Wood River	Smith, Evan T.	Shelton	Smith Pumping Plt...	Irrig.	1.09	1	9	13	Buffalo	Jan.	12	1923		1702
Wood River	Durtschi, Rudolph	Wood River....	Durtschi Pumping Plt. No. 2	Irrig.		18	10	11	Hall	Jan.	15	1923		1703
Indian Creek	Norman, Harry	Whitney	Elmer Canal	Irrig.	.77	16	32	50	Dawes	Jan.	17	1923		1704
Lodge Pole Cr...	Dimery, M. W.	Sidney	Dimery Pumping Pl...	Irrig.	1.00	19	14	50	Cheyenne	Jan.	30	1923		1705
Union Creek	Sanders, F. L.	Stanton	Stanton Pwr. Plant....	Power	80.00	1	22	1	Stanton	Feb.	17	1923		1706
Warm Slough ..	Johnson, Abram M....	Gibbon	Johnson's Pumping Plant	Irrig.	.50	30	9	13	Buffalo	Feb.	20	1923		1707
Big Blue River	Anderson, Jonas A...	Stromsburg....	Anderson's Dam	Ice		18	13	2	Polk	March	29	1923		1708
Republican R... North Fork	Crews, L. E.	Haigler	Crew's Canal No. 2....	Irrig.	2.59	21	1	41	Dundy	March	29	1923		1709
Jackson Chute..	Crystal Lake Co.....	So. Sioux City	....	Ice	15.00	26	29	8	Dakota	April	12	1923		1714

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Stinking Water Creek	Krotter, F. C.	Palisade	Krotter Reservoir	Stor.	30.00	23	5	34	Hayes	April	27	1923		1718
Salt Creek	C. B. & Q. R. R. Co.	Lincoln	C.B.& Q. Water Sup.	I & D	2.00	2	9	6	Lancaster	Sept.	20	1923		1722
Little Blue Riv.	Kassebaum, Wm.	Hebron	Kassebaum Pwr. Plt.	Power	250.00	29	3	2	Jefferson	Nov.	13	1923		1726
Coffey, Jarchow Coates and Gregg Lakes	Coffey Lk. Dr'g. Co.	Valentine	Coffey Lake Drainage Ditch	Drain			33 33	39 38	Cherry	Nov.	22	1923		1729
Big Blue River	Black Bros. Fl. Mills	Beatrice	Black Bros. Plant No. 2	Drdg		17	2	7	Gage	Nov.	24	1923		1730
No. Platte Riv.	Overland Irr Canal Company	Lewellen	Overland Canal	Irrig.		2	16	44	Garden	Feb.	25	1924		1737
Blue Creek	Paisley Irr. District	Lewellen	West Side Canal	Irrig.		28	17	42	Garden	Feb.	25	1924		1738
Fawcus Sprgs.	Cundall, H.	Glendo, Wyo.	Cundall Canal	Irrig.		19	20	51	Morrill	April	7	1924		1739
Deep Holes Cr.	Hanway, F. P.	Broadwater	Emma Canal	Irrig.	1.40	3	18	49	Morrill	March	17	1924		1740
Big Blue River	Beatrice Power Co.	Beatrice	Barnston Pwr. Plant	Power		13	1	7	Gage	March	31	1924		1741
No. Platte Riv.	Robinson, A. A.	Gering	West Side Canal	O.D.	1.45	2	16	44	Garden	March	31	1924		1742
Wood River	Ross, W. M.	Gibbon	Ross Pumping Plant	Irrig.	.26	13	9	14	Buffalo	April	28	1924		1743
Platte River	Peaker, Howard	Kearney	Peaker Canal	O.D.		11	8	16	Buffalo	May	8	1924		1744

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Little Blue Riv.	Dunn, H. J.	Hastings	Blue Valley Yacht Club	Dam		10	5	9	Adams	May	23	1924		1745
Pumpkinseed Creek	Seeley & Waitman	Milford	Seeley Waitman Canal	Irrig.		29	15	52	Morrill	June	24	1924		1746
Willow Creek	Stafford, J. D.	Paxton	Willow Cr. Canal	Irrig.		15	14	35	Keith	July	7	1924		1747
Bordeaux Cr.	Thomas Bros.	Chadron	Thomas Bros. Canal	Irrig.		34	34	48	Dawes	Sept.	12	1924		1748
Spring Creek	Benthack ,Peter	Chadron	Benthack Canal	Irrig.		11	33	49	Dawes	Sept.	12	1924		1749
Mile Bd. Lake	Bd. of Co. Com.	Valentine	Mile Board Drainage Ditch	Drain	5 &	8	34	35	Cherry	Sept.	17	1924		1750

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Ash Creek	Vance, Roscoe	Lewellen	Vance Canal	Irrig.	1.14	27	16	42	Deuel	June	14	1890	765	
Ash Creek	McCormick, C.	Lewellen	McCormick Canal	Irrig.		16	16	42	Deuel				1011	
Blue Creek	Slesser, David	Oshkosh	Fair View Canal	Power	62.60	4	18	43	Garden	July	18	1910		1009
Bronco Lake	Irwin, H. C.	Kimball	Bronco Lake Canal	Irrig.	11.42	6	24	48	Box Butte	May	20	1919		1541
Buffalo Creek West	Henry, Absalom	Cozad	Henry Canal	Irrig.	.07	23	11	23	Dawson	July	2	1900		570
Buffalo Creek	Jensen, Anton	Cozad	Jensen's Canal	Irrig.	1.14	23	11	23	Dawson	Oct.	6	1919		1558
Cedar Creek	Banderet, Frank	Paxton	Cedar Cr. Canal	Irrig.	1.57	17	14	35	Keith	Jan.	3	1911		1051
Deep Holes Cr.	Hanway, F. P.	Broadwater		Irrig.	.71	3	18	49	Morrill	April	28	1915		1412
Fremont Creek	Eq. Farm & S. Imp. Company	No. Platte	Fremont Cr. Canal	Irrig.	9.29	15	13	30	Lincoln	Jan.	31	1894	686	
Greenwood Cr.	Dean, H. T.	Bridgeport	Dean Canal	Irrig.	8.86	10	18	50	Morrill	Dec.	5	1906		844
Horse & Owl Creeks	Pizer, H. J.	Mitchell	Horse Cr. Canal	Irrig.	.86	34	23	58	Scotts Bluff	Feb.	29	1904		742
Indian Creek	Mann, John H.	Bridgeport	Wastewater Canal	O.D.	2.30	30	21	50	Morrill	June	2	1916		1455
Kiowa Creek	Lowry, Ellis	Mitchell	Lowry Canal	Irrig.	.52	31	22	57	Scotts Bluff	March	25	1904		746
Lawrence Fork	Harper, John W., Niehus, J. W.	Redington Sidney	Spring Br. Ext. Canal	Irrig.	.57	1	18	52	Morrill	Oct.	13	1898		476

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No. Platte Riv.	Hale, Will A.	Gering	Homestead Canal	Irrig.	11.43	21	22	55	Scotts Bluff	June	29	1892	941	
No. Platte Riv.	Clarke, Henry T.	Bridgeport	H. T. Clarke Canal	Irrig.	9.43	22	20	51	Morrill	Feb.	2	1892	875	
No. Platte Riv.	South Side I & L Co.	No. Platte	So. Side I. & L. Canal	Irrig.	270.00	14	14	34	Lincoln	June	6	1894	667	
No. Platte Riv.	Keith, Morrill C.	No. Platte	Keith Canal	Irrig.	71.00	36	14	30	Lincoln	July	7	1894	657	
No. Platte Riv.	Maycock, Joseph	Morrill	Rooster Canal	Irrig.	5.71	10	23	58	Scotts Bluff	July	29	1894	950	
No. Platte Riv.	Smith, Augustus	No. Platte	Smith Canal	Irrig.	20.00	36	14	30	Lincoln	Aug.	9	1894	676	
No. Platte Riv.	Orr, Geo. B., et al	Lewellen	Orr & Vance Canal	Irrig.	2.93	29	16	42	Garden	Dec.	24	1894	811	
No. Platte Riv.	Williams, E. C., et al	Lewellen	Robbins & Williams Canal	Irrig.	26.57	35	16	42	Garden	Jan.	4	1895	804	
No. Platte Riv.	Gyger, J. C.	Oshkosh	Gyger Canal	Irrig.	10.86	10	16	44	Garden	Jan.	5	1895	806	
No. Platte Riv.	Dikeman, S. F.	No. Platte	Dikeman Canal	Irrig.	30.00	9	14	32	Lincoln	Jan.	14	1895	684	
No. Platte Riv.	Jacobs, Lee	Ogalalla	Hay Land Canal	Irrig.	5.71	29	15	39	Keith	Jan.	19	1895	732	
No. Platte Riv.	Hubartt, E.	No. Platte	Hubart & Hall Canal	Irrig.	65.70	20	14	30	Lincoln	March	3	1895	691	
No. Platte Riv.	Fernstron & Nisson	Ogalalla	Fernstron & Nisson Canal	Irrig.	4.00	25	15	39	Keith	March	23	1895	737	
No. Platte Riv.	Bushnell, H. J. and E. N.	Oshkosh	Bushnell Bros. Canal	Irrig.	7.14	12	16	44	Garden	March	27	1895	809	
No. Platte Riv.	Tetreault, Amedee	Bridgeport	Tetreault Canal No. 2	Irrig.	3.43	1	19	50	Morrill	Aug.	15	1895		353
No. Platte Riv.	Halligan, J. J.	No. Platte	Round House Rock Canal	Irrig.	600.00	4	21	54	Scotts Bluff	April	13	1910		992
Sp. Cr., trib to No. Platte R.	Keystone Irr. Co.	Keystone	Spring Cr. Canal No.1	Irrig.	1.13	19	15	37	Keith	May	27	1910		1002
Pawnee Creek	Murphy, E. D.	Brady Island	Murphy's Canal	Irrig.	8.57	29	13	27	Lincoln	June	9	1894	669	
Pawnee Creek	Plumer, Wm. H.	Maxwell	Plumer Canal	Irrig.	10.00	19	13	27	Lincoln	June	15	1894	672	
Pawnee Creek	Kent-Burke Co.	Omaha	Kent-Burke Co.	Irrig.		18	13	27	Lincoln	April	7	1922		1655
Platte River	Gaslin Irr. Dist.	Lexington	Farmers D. & C. Co. Canal	Irrig.	280.00	17	13	29	Lincoln	June	2	1894	666	
Platte River	Fowles, Russell H.	Maxwell	Maxwell Canal	Irrig.	27.14	29	13	28	Lincoln	July	5	1894	673	

Source	Name of Claimant	Post Office	Carrier	Use to which appl'd	Sec. Feet gr'ted	Location of Headgate S	T	R	County	Date of Priority Month	D	Yr.	Doc. No.	App. No.
Platte River	Appleford, Henry M.	Maxwell	Appleford Canal	Irrig.	10.00	15	13	29	Lincoln	July	7	1894	674	
Platte River	Sides, LeRoy	Lowell	LeRoy Sides Canal	Irrig.	20.00	13	8	14	Kearney	July	23	1894	629	
Platte River	Farmers Mut. Irr. Co.	Kearney	Farmers Canal	Irrig.	180.00	12	8	16	Buffalo	Sept.	24	1894	234, 235, 628	
Platte River	McCullough, John	Maxwell	McCullough Canal	Irrig.	30.00	35	13	28	Lincoln	Oct.	20	1894	679	
Platte River	Booker, H. C.	Gothenburg	Booker Canal	Irrig.	100.00	16	11	25	Dawson	Nov.	9	1894	625	
Platte River	Lincoln & Dawson Co. Irr. District	Gothenburg	Lincoln & Dawson Canal	Irrig.	642.86	9	13	29	Lincoln	Feb.	22	1895	687	
Platte River	Appleford, Henry M.	Maxwell	Appleford Canal	Irrig.	2.86	15	13	29	Lincoln	March	28	1895	690	
Pumpkinseed Creek	Wright, John S.	Harrisburg	Wright Canal No. 1	Irrig.	2.00	5	19	54	Banner	Dec.	31	1882	904	
Pumpkinseed Creek	Wright, John S.	Harrisburg	Wright Canal No. 2	Irrig.	2.86	5	19	54	Banner	Dec.	31	1887	905	
Pumpkinseed Creek	Waitman, P. P.	Redington	Waitman's Canal	Irrig.	2.86	25	19	53	Banner	March	12	1891	847	
Pumpkinseed Creek	Endered, Chas. O., et al	Freeport	Endered Canal	Irrig.	1.00	21	19	53	Banner	May	27	1891	903	
Pumpkinseed Creek	Hampton, R. R. and W. D.	Harrisburg	Hampton Canal	Irrig.	1.29	25	20	57	Banner	April	5	1893	906	
Pumpkinseed Creek	Maxwell, Jos. J.	Redington	Maxwell Irr. Canal	Irrig.	.50	23	19	52	Morrill	June	30	1894	885	
Pumpkinseed Creek	Dunlap, J. P.	Dwight	Dunlap Canal	Irrig.	.36	24	19	51	Morrill	March	1	1895	889	
Pumpkinseed Creek	Willard, Wm. M.	Redington	Wm. M. Willard Canal	Irrig.	1.43	25	19	51	Morrill	March	27	1895	888	

Source	Name of Claimant	Post Office	Carrier	Use to which appl'd	Sec. Feet gr'ted	Location of Headgate S	T	R	County	Date of Priority Month	D	Yr.	Doc. No.	App. No.
Pumpkinseed Creek	Wisner, S. R., et al.	Freeport	Abbott & Wisner Canal	Irrig.		23	19	53	Banner				917	
Pumpkinseed Creek	Johnson, Theo.	Freeport		Irrig.	2.29	2	19	55	Banner	April	20	1906		819
Pumpkinseed Creek	Beatty, D. E.	Harrisburg	Beatty Canal	Irrig.	.84	8	19	55	Banner	Sept.	1	1906		836
Pumpkinseed Creek	Elter & Betebenner	Bridgeport	Pumpkin Cr. Mills	Power	25.00	23	19	50	Morrill	March	26	1907		855
Pumpkinseed Creek	Pierson, A. H.	Harrisburg	Clearfield Canal	Irrig.	1.71	31	20	56	Banner	Jan.	23	1908		888
Pumpkinseed Creek	Beatty, Daisy E.	Harrisburg	Beatty Canal	Irrig.	.19	5	19	55	Banner	June	2	1910		1004
Pumpkinseed Creek	Seeley, W. J.	Milford	Seeley Irr. Canal	Irrig.	.57	28	19	52	Morrill	Jan.	19	1911		1052
Pumpkinseed Creek	Airedale Ranch and Cattle Co.	Scottsbluff	Airedale Canal No. 1	Irrig.	10.00	3	19	55	Banner	June	23	1915		1458
Sand Creek	Holcomb, G. J. et al.	Bremen, Ga.	Holcomb & Smith Canal	Irrig.	7.00	10	15	40	Keith	May	20	1889	698	
Sheep Creek	Speese, R. L.	Empire	Home Ranch Canal	Irrig.	1.79	25	26	58	Sioux	Nov.	2	1907		876
Sheep Creek	Speese, R. L.	Empire	Horse Pasture Res.	Irrig.	1.29	25	26	58	Sioux	Nov.	2	1907		877
Sheep Creek	Cunningham, H. B.	Empire	No. 2 Canal	Irrig.	2.50	2	25	58	Sioux	Feb.	24	1908		890
Draw trib to Sheep Creek	Hovey, Ethel L.	Empire	Favorable Canal	Irrig.	.27	19	26	57	Sioux	Oct.	25	1907		873
Draw trib to Sheep Creek	Woodman, H. J.	Morrill	Gen. Utility Lt. & Pwr. Plant	Power	70.00	17	23	57	Scotts Bluff	Aug.	17	1912		1217

Source	Name of Claimant	Post Office	Carrier	Use to which appl'd	Sec. Feet gr'ted	Location of Headgate S	T	R	County	Date of Priority Month	D	Yr.	Doc. No.	App. No.
So. Platte Riv.	Eaton, John J.	Brule	Eaton & McGrath Canal	Irrig.	20.00	25	13	41	Keith	April	3	1894	755	
So. Platte Riv.	Stebbens, Lucien	No. Platte	Stebins Canal	Irrig.	30.00	32	14	32	Lincoln	Dec.	17	1894	683	
So. Platte Riv.	Searle, E. M.	Ogallala	Riverside Canal	Irrig.	2.86	17	13	39	Keith	Dec.	22	1894	744	
So. Platte Riv.	Newberry, H.	No. Platte	Newberry Canal	Irrig.	1.14	22	14	32	Lincoln	Feb.	25	1895	688	
So. Platte Riv.	Ryan, J. T.	Brule	Home Irr. Canal	Irrig.	3.14	30	13	40	Keith	March	2	1895	736	
So. Platte Riv.	Shireman, W. H.	Ogallala	So. Side Plano Canal	Irrig.	1.43	17	13	39	Keith	April	27	1895	733	
So. Platte Riv.	Kimball, W., et al	Big Springs	Big Springs Canal	Irrig.	8.93	35	13	42	Deuel	April	27	1895	810	
So. Platte Riv.	Brown, C. M.	Kearney	Tail Race Canal	Irrig.	1.28	3	8	16	Buffalo	Jan.	16	1917		1471
Spotted Tail Cr.	Whitehead, Jas. T.	Mitchell	Whitehead Pwr. Plt.	Power	10.00	26	24	56	Sioux	Aug.	10	1912		1215
Sp. Br. trib to Lawr. Fork	Harper, J. W. and	Redington	Harper Canal No. 2	Irrig.	2.00	1	18	52	Morrill	June	16	1902		674
	Niehus, J. W.	Sidney												
Spring Creek	Freiday, Florian F.	Lexington	Freiday Canal	Irrig.	1.00	20	9	20	Dawson	Nov.	25	1910		1040
Sp. Cr. trib to White Tail	Keystone Irr. Co.	Keystone	Spring Cr. Canal	Irrig.	1.57	19	15	37	Keith	June	21	1890	704	
Spring Creek	Cooney, Frank C.	Overton	Cooney Canal	Irrig.		27	9	20	Dawson	May	16	1922		1665
Spgs., Fawcus	Cundall, Harry	Stratton	Cundall Canal	Irrig.	.71	19	20	51	Morrill	Dec.	15	1911		1148
Wh. Tail Cr.	Leonard Bros.	Keystone	Little Dandy Canal	Irrig.	2.00	22	15	38	Keith	Oct.	12	1894	727	
Wh. Tail Cr.	McGinley, Geo.	Keystone		Irrig.	1.42	36	15	38	Keith	Oct.	29	1897		420
Wh. Tail Cr.	Keystone Irr. Co.	Keystone	West Keystone Canal	Irrig.	1.75	26	15	38	Keith	May	27	1910		1001
Wind Springs	Lancomer, Geo. and Chas.	Gering	Wind Sprgs. Canal	Irrig.	1.43	12	24	55	Sioux	March	1	1892	954	
Wind Springs	Smith, Jas. S.	Mitchell	Smith's Canal	Irrig.	2.86	12	24	55	Sioux	March	14	1910		986

Source	Name of Claimant	Post Office	Carrier	Use to which appl'd	Sec. Feet gr'ted	Location of Headgate				Date of Priority			Doc. No.	App. No.
						S	T	R	County	Month	D	Yr.		
Wood River	Quail, T. J.	Miller	Wood River	Irrig.	2.29	14	11	18	Buffalo	May	1	1913		1286
Wood River	Swift, Robt. D.	Alda	Swift's Pump'g. Plt.	Irrig.		18	10	10	Hall	June	12	1922		1671
Wood River	Barney, R. M.	Kearney	Barney's Pump'g. Plt.	Irrig.		9	16	11	Buffalo	June	22	1922		1672
Wood River	McGuire, M. J.	Wood River	McGuire's Pump. Plt.	Irrig.		22	10	12	Hall	July	29	1922		1684
Wood River	Durtschi, Rudolph	Wood River	Durtschi P. P. No. 2	Irrig.		8	10	11	Hall	Jan.	15	1923		1703
Loup River	Nebr. Cen. Irr. Co.	Columbus	Columbus Development	P. & I.	2700.00	27	17	4	Nance	June	10	1903		709
Loup River	Boggs, Chas. T.	Lincoln	Schuyler Development	Power	2000.00	28	17	1	Platte	March	23	1912		1187
Niobrara River	Buhman, Herman P.	Leigh	Bristow-Lynch P. Pl.	Power	900.00	6	32	10	Boyd	Nov.	14	1912		1243
Loup, Platte & Tribs.	Neb. Water Pwr. Dist.	Omaha	Neb. Water Pwr. Dist. Plts. Nos. 1, 2, 3,	Power	4950.00	7 3 36	17 17 18	1 3 7	Platte Colfax Dodge	July	16	1919		1548
Loup River	Brittan, Fred	Arnold	Hydro-Elec. Plant No. 2	Power	62.50	31	17	24	Custer	Aug.	20	1919		1553
Little Blue Riv.	Kassebaum, Wm.	Hebron	Hebron Plant No. 3	Power	200.00	23	3	4	Thayer	Jan.	19	1922		1640
Frenchman R.	Knottwell & Newton	Imperial	Hamlet Roller Mills	Power	96.00	24	5	35	Hayes	March	20	1922		1646
Republican R. No. Fork	Crews, L. E.	Haigler	Crews Canal No. 2	Irrig.		20	1	41	Dundy	March	28	1922		1651
Stinking Water Creek	Krotter, F. C.	Palisade	Krotter Reservoir	Stor.	2000.00 A.F.	15	5	34	Hayes	April	28	1922		1663
Cedar River	Neb. Gas & Elec. Co.	Omaha	Neb. Gas & Elec Co.	Power	300.00	1	17	17	Nance	Dec.	21	1922		1699

Source	Name of Claimant	Post Office	Carrier	Use to which appl'd	Sec. Feet gr'ted	Location of Headgate				Date of Priority			Doc. No.	App. No.
						S	T	R	County	Month	D	Yr.		
Little Blue Riv.	Kassebaum, Wm.	Hebron		Power	250.00	30	3	2	Jefferson	Dec.	26	1922		1701
Lodge Pole Cr.	Dimery, M. W.	Sidney	Dimery Pump. Plt. No. 1	Irrig.	4.50	19	14	50	Cheyenne	Jan.	30	1923		1705
Union Creek	Sanders, F. L.	Stanton	Stanton Pwr. Plant	Power	80.00	1	22	1	Stanton	Feb.	17	1923		1706
Stinking Water Creek	Krotter, F. C.	Palisade	Krotter Reservoir	Stor.	30.00	23	5	34	Hayes	April	27	1923		1718

Source	Name of Claimant	Post Office	Carrier	Use to which appl'd	Sec. Feet gr'ted	Location of Headgate S	T	R	County	Date of Priority Month	D	Yr.	Doc. No.	App. No.
Greenwood Cr.	North, Robinson, Dean Co.	Bridgeport		Irrig.		10	18	50	Morrill	Dec.	14	1910		1045
No. Platte Riv.	McCaffree, F. S.	Scottsbluff	Tri-City Pwr. System	Power	500.00	3	23	58	Scotts Bluff	Oct.	5	1917		1499
Dry Dr. Trib to No. Antelope	Story, Oscar W.	Story	Oscar Story No. 3	Irrig.		13	34	57	Sioux	March	5	1921		1601
Cheyenne Cr.	Cannon, Elmer S.	Benkelman	Cannon Reservoir	Stor.		35	1	37	Dundy	Jan.	13	1922		1637
Cheyenne Cr.	Cannon, Elmer S.	Benkelman	Cannon Canal	Irrig.		35	2	39	Dundy	Jan.	13	1922		1638
Cheyenne Cr.	Cannon, Elmer S.	Benkelman	Cannon Sup. Canal	Supple		35	2	39	Dundy	Jan.	13	1922		1639
Story's Dry Gulch	Story, Geo. L.	Story	Story Canal No. 3	Irrig.		19	34	56	Sioux	March	28	1922		1652
Republican R.	Anderson, Anders	Max	Anders Canal	Irrig.		1	1	37	Dundy	April	20	1922		1658
Wh. Tail Cr.	Coyner, Silas C.	Keystone	Packard Canal	Irrig.		26	15	38	Keith	May	28	1922		1670
White River	Lawrence, Geo. E.	Whitney	Lawrence Reservoir	Stor.		32	33	51	Dawes	Aug.	25	1922		1688
Platte River	Arend, Albert C.	Omaha		Power		16	14	10	Douglas	April	9	1923		1710
Elkhorn River	Arend, Albert C.	Omaha		Power		16	14	10	Douglas	April	9	1923		1711
Wood River	Swift, Robt. D.	Alda	Swift's Pump. Plant	Irrig.		18	10	10	Hall	April	10	1923		1712
Silver Creek	Armour & Co.	Omaha	Armour Ice Pond	Ice		7	13	9	Saunders	June	13	1923		1720
Loup River	Arend, Albert C.	Omaha		Power		27	17	4	Nance	July	3	1923		1721

Source	Name of Claimant	Post Office	Carrier	Use to which appl'd	Sec. Feet gr'ted	Location of Headgate				Date of Priority			Doc. No.	App. No.
						S	T	R	County	Month	D	Yr.		
Calamus River..	Wolfe & Sheets	Ainsworth	Calamus Project	Irrig.		21	27	23	Brown	Sept.	21	1923		1723
White River	City of Crawford	Crawford	City Water Supply	I & D		26	31	53	Dawes	Dec.	3	1923		1731½

RELOCATIONS

Appropriation No. which has carrying right	Stream	Carrier	Amt.	Old Location	S	T	R	New Location	S	T	R	Appropriation No. which covers the land
D. 151	Republican River	Anders Anderson Canal	1.90	SE¼ of NE¼....	1	1	37	SW¼ of NE¼	1	1	37	D. 151
A. 719	Lodge Pole Cr.........	Bickel Canal	1.20	SW¼ of NW¼..	30	15	55	NW¼ of NW¼	29	15	55	D. 347
D. 789	North Platte Riv.	Midland Canal	16.81	SE¼ of SE¼....	1	16	44	NE¼ of SE¼	2	16	44	D. 791
A. 1582	Dry Spotted Tail..	Mitchell Factory	15.00	NW¼ of SW¼..	21	23	56	NE¼ of NE¼	20	23	56	1582
A. 1722	Salt Creek	C. B. & Q. Water Supply	2.00	NW¼ of SW¼..	2	9	6	NE¼ of NE¼	3	9	6	1722

DIVISION OF WATER POWER AND DRAINAGE

DECREES OF COURTS

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WATER POWER AND DRAINAGE CONTROL

Water Power.

Upon the allowance of an application for water power, the applicant shall begin the actual work of excavation and construction within six months from date of approval of said application, and detailed plans of the dam shall be approved by the department before starting construction. The application being in fact, simply a permit to the right of the water and no perfected rights are supposed to have been acquired until the project has been completed and the water beneficially used. The work must be vigorously and uninterruptedly prosecuted to completion and one-tenth of the total work must be completed within one year from date of approval of application. The applicant must file by the 10th of each month, a report under oath, to the department giving the actual amount of money expended on such power development during the preceding calendar month.

Provision is also made that within six months after the approval of an application for water power, the applicant shall enter into a contract with the State of Nebraska, through the Department o Public Works, for leasing the use of all water so appropriated. Such lease shall be upon forms prepared by the department and the time of such lease shall not run for a greater period than fifty years, and for the use of water for power purposes, the applicant shall pay into the State Treasurer, on or before the first day of January each year Ten ($10.00) Dollars for each one hundred horse power for all water so appropriated. A failure to comply with any of the provisions of such lease and the failure to pay any of the fees herein specified, the Department of Public Works, shall cancel such lease and such appropriation. Upon the expiration of any lease, the value of improvements made thereunder by any lessee shall be appraised by the Department. From such appraisement the lessee shall have right of appeal to the district court. The value of said improvements as finally determined shall be paid to the lessee owning them by any subsequent lessee.

Practically all applications, filed during the past two years, were for permits to appropriate the waters of the Big Blue River. Projects between Beatrice and the Kansas State Line have all been completed, and the only feasible improvement left on that portion of the river is the dredging of channel below plants now in operation, applications for which were filed in the Department by the owners of plants where this type of improvements is feasible.

Appropriations in Water Division Number I-D gives a complete list of all water power filings on the Big Blue River and its tributaries.

The section of the State from Barneston North, to Lincoln and West to Grand Island and Boelus, is connected by a system of high voltage transmission lines through which current can be delivered to all the intermediate cities and villages. Future developments between Beatrice and Seward could no doubt be utilized to furnish additional power into this same transmission system.

The system of transmission lines make it possible to deliver current from the Big Blue River into Lincoln, making investment of capital in power developments on the Big Blue River particularly attractive.

DRAINAGE

All plans for proposed drainage districts shall be approved by the Department before any contract is let or work begun. Below is a complete list of Drainage Districts:

County	Name of District	Date of Approval of Plans
Burt-Washington	Burt-Washington Co. Drainage District	Aug. 2, 1915
Burt-Washington	Peterson Bend Protection District	Sept. 2, 1921 (Retards)
Butler	Yanike Drainage District	------------
Butler	Drainage District No. 1	Aug. 5, 1913
Butler	Drainage District No. 2.	July 26. 1917
Cherry	Gay Lake Drainage District	Sept. 1, 1922
Cherry	Boardman Drainage District	June 23, 1923
Cherry	Coffey Lake Drainage District	------------
Colfax	Platte Valley Drainage District	Dec. 28, 1920
Dakota	Drainage District No. 2.	Apr. 18, 1914
Dakota	Homar Drainage District	Jan. 10, 1919
Dakota	Dakota City Drainage District	Apr. 3, 1922
Dixon-Wayne-Thurston	Wakefield Drainage District	Jan. 18, 1917
Dixon-Cedar	Brookey Bottom Drainage District	Sept. 11, 1922 (Retards)
Douglas	East Omaha Drainage District	Oct. 5, 1921
Douglas-Sarpy	Elkhorn Valley Drainage District	June 24, 1919
Frontier	Drainage District No. 1.	Mar. 31, 1915
Knox	Frankfort Bottom Drainage District	Mar. 3, 1923 (Retards)
Lincoln	Lincoln County Drainage District	Mar. 23, 1922
Madison	Norfolk Drainage District	Mar. 18, 1924
Merrick	Drainage District No. 1.	Feb. 17, 1916
Merrick	Drainage District No. 2.	May 10, 1921
Morrill	Minatare Drainage District	------------
Morrill	Gering Drainage District	June 2, 1920
Nemaha	Drainage District No. 3.	July 6, 1916
Nuckolls	Drainage District No. 1.	------------
Otoe-Johnson	Drainage District No. 1.	Oct. 31, 1914
Platte	Holdredge Drainage District	------------
Richardson	Drainage District No. 1.	------------
Richardson	Drainage District No. 3.	Dec. 24, 1921
Richardson	Drainage District No. 4	Apr. 13, 1916.
Richardson	Barada Drainage District	June 6, 1921
Sarpy	Little Papillion Drainage District	Mar. 2, 1920
Sarpy	Western Sarpy Drainage District	Nov. 15, 1917
Sarpy	Bellevue Drainage District	Aug. 14, 1921
Sarpy	Chalco-Portal Drainage District	Mar. 15, 1922
Scotts Bluff	Scotts Bluff Drainage District	Feb. 21, 1918
Stanton	Humbug Drainage District	Mar. 15, 1921
Thurston	Pender Drainage District	Feb. 21, 1918

STATE EX REL CLARKS, v. GERING IRRIGATION DISTRICT

Opinion filed February 15, 1923. No. 23028.

1. An irrigation district is a public corporation; its funds are derived from the taxation of all land within the district, and the main purpose of its organization is to furnish water for the purpose of irrigation to all the land owners within the district upon fair and equitable terms and conditions.

2. Lateral ditches are often necessary portions of the irrigation works of an irrigation district, and, where necessary, should be provided, maintained and supervised by the district, in order that a just apportionment of water to each land owner may be made.

3. Owners of land within the district may provide and control such laterals themselves, if the district fail to do so, and they can agree among themselves as to the proper upkeep of the laterals and the equitable division of the water.

4. If, in the case of such a lateral constructed by the land-owners, it is not kept in repair, and contentions arise between such land owners, some receiving more water from the lateral than their just share, and others little or no water, when entitled to the same, the land owners who are deprived of water may, by writ of mandamus, compel the directors of the irrigation district to take such steps as to provide them with their just share of the water and to supervise the distribution of the same.

Heard before Morrissey, C. J. Letton, Flansburg, Dean and Aldrich, J. J. Troup and Raper, District Judges.

LETTON, J.

The relators are land owners living within the boundaries of the Gering Irrigation District. Their land is situated toward the lower end of a lateral, known as Lateral No. 2, and deriving its supply of water from the main canal belonging to the district. The lateral is about three or four miles long. The lateral was not constructed by the irrigation district, but by the land owners whose lands it was designed to water. For a number of years the land owners toward the lower end of the lateral have been unable to obtain their porper share of the water taken from the main canal. The upper water-users took so much of the water in times of scarcity that little or none could be had near the lower end of the lateral. They also had trouble during a number of years, both with regard to washouts, when there was an excessive flow in the main canal, and scarcity of water, causing loss of crops in some seasons. A number of years ago the owners of lands toward the lower end of the lateral took steps to form a corporation and to take over and control this lateral, but the effort proved abortive and the troubles have continued. Relators have demanded relief from the directors of the irrigation district, asking that the district take over and control the distribution of water along the lateral, but this request was refused. They thereupon brought this proceeding in mandamus, for the purpose of compelling the board of directors of the district to make immediate provision for the repair and enlargement of lateral No. 2, so as to render its capacity sufficient to furnish them their **pro rata** share of the water, and to require the district, through its superintendent, to supervise and measure the distribution of water through the outlets of the lateral, so that each water-user should receive his **pro rata** share.

The respondents deny that the lateral is any part of the irrigation works of the district. They admit that the district has never attempted to maintain or keep the lateral in repair, or supervise or control it; they allege that Highland Lateral Co. No. 2, is the owner of the lateral; that the plan of organization adopted by the district does not include the construction or repairs of any lateral, but only the delivery of water at the bank of its main canal; that it is not required to deliver water to the respective landowners, but complies with the law by delivering water from the main canal at the bank into the laterals, and that no provision has ever been made for delivering water at any other place; that each land owner has built and maintained the necessary laterals for the conveyance of water from the main canal to his individual lands, and that relators and their predecessors in ownership have for more than 20 years acquiesced in their said plan; that the district has exhausted its tax levy and has no funds with which to perform, and no law authorizing the raising of funds for such a purpose.

The facts alleged in the petition as to the condition of the lateral and the deprivation of water supply to relators are undisputably established, and, in fact, not seriously controverted by respondents.

Since the defenses made are legal in their nature, it becomes necessary to examine the statute to ascertain the duties and powers of the directors of an irrigation district, and the rights of the land owners in the district with respect to the distribution and apportionment of water.

Is the lateral a part of the irrigation works of the district, and dose the fact that the district has never construed a lateral excuse its failure to furnish water to residents? Section 2865, Comp. St. 1922, makes it the duty of the directors of irrigation districts "to make all necessary arrangements for right of way for laterals from the main canal to each tract of land subject to assessment, and when necessary the board shall exercise its rights of eminent domain to procure right of way for the lateral and shall make such rules in regard to the payment for such right of way as may be just and equitable." This evidently contemplates that the district shall procure the right of way for the necessary laterals "to each tract of land subject to assessment." That the district has not heretofore furnished water except at head gates upon it main canal is no defense. The fact that it has neglected a plain duty for many years is no reason why it should continue to neglect it. That the plan of the district did not contemplate the construction of laterals is also no defense. If the plan was defective and failed to accomplish the statutory duty of the district to furnish water to each land owner in the district, in Section 2866 it is provided: "The board, its agents and employees, shalll have the right to enter upon any land within the district, to make surveys any may locate the line of any canal or canals and the necessary branches." This language presumes the necessity of surveys and the location of canals and necessary branches after the formation of the district, and assumes that "branches" or laterals may be necessary to carry out the purpose of the organization.

By Section 2865 it is made the duty of the board to "establish equitable by-laws, rules and regulations for the distribution and use of water among the owners of said lands, and generally to perform all such acts as shall be necessary to fully carry out the purpose of this article." This section further provides that water shall be apportioned ratably to each land owner upon the basis of the ratio which the last assessment of said owner for district purposes bears to the whole sum assessed by the district.

An irrigation district is a public corporation. Its funds are derived from the taxation of all land within the district. The very purpose of its organization is to furnish water upon fair and equitable terms and conditions to each and every landowner within the district. Comp. St. 1922 Secs. 2857-2946. This, in the case of some small districts, may perhaps be done by supplying water direct to landowners from the banks of one canal. But this can seldom be done in districts embracing many acres. In such cases there must be laterals to carry the water to the ultimate user. Such laterals are necessary portions of the irrigation works and should be provided, maintained and supervised by the district, so that a just and apportionment of the water may be supplied to each land owner therein. It would be manifestly unjust and unfair to assess a land owner whose property is situated several miles from the main canal without providing him reasonable facilities to obtain the water for the furnishing of which he is taxed. To sustain the position of the respondents would be to hold that the owners of land adjacent to the main canal are entitled to receive water without further initial outlay, while at the same time other land owners, who are also taxed according to valuation, shall be compelled to build and maintain expensive works and furnish supervision for such works in order to obtain that which is supplied without such expense to others who have no greater right. This would be clearly inequitable, unfair and unjust, and such construction of the statute aught not to be adopted. Of course land owners may provide their own laterals if they desire, but where there is more than one water-user taking water from the same lateral, and any dispute arises between the users, the district board should regulate the supply, as in the case of other users of water. Water is as essential to successful and profitable agriculture in arid regions as blood is to the body, and its distribution is as necessary to such pursuit as the circulation of the blood is to animal tissue. The statute, both by express direction and by implication, provides that all powers reasonably necessary to carry into effect the object and purpose of the organization, are possessed by the board of directors.

That the petition does not show that the district has sufficient funds on hand which can be utilized for the purpose of repairing the lateral, is not a sufficient defense under the circumstances proved in this case. The evidence shows that, upon several occasions during the years in which there has been trouble over the water in the lateral, the presence of a ditch-rider who could and would control the quantity of water withdrawn from the lateral by the upper owners would have allowed the water to which the lower owners were entitled to flow to their lands. Furthermore, the writ did not compel instantaneous action, but only required the board of directors to make provision for the repair and enlargement of the lateral and for its supervision in the future. The refusal to perform the duties requested was never placed by the directors on the ground that they had no funds with which to perform, but their refusal has always been upon the ground that the district had no authority to construct, maintain and supervise the laterals, their duty ending with the opening of a head-gate upon the main canal; and this is the real and substantial issue in this case.

The respondents argue that Section 8462, Comp. St. 1922, provides: "Any owner or person in control of any ditch for irrigation purposes shall construct necessary outlets in the banks for the delivery of water to all persons who are entitled to the same," and that this is the measure of their duty. This section is no part of the irrigation district act, and does not effect the duty of the district to furnish water. If applicable at all, it only prescribes upon whom the duty to construct outlets rests.

Similar questions as to the rights of water-users, have been presented to the supreme courts of California, Utah, and Idaho, and they have taken the same view. Jenison v. Redfield, 149 Cal. 500; Niday v. Barker, 16 Idaho, 73; City of Nampa v. Nampa & Meridian

Irrigation District, 19 Idaho, 779; and 23 Idaho, 422; Harris v. Tarvbt, 19 Utah. 328, 57 Pac. 33.

AFFIRMED.

IN THE DISTRICT COURT OF DUNDY COUNTY, NEBRASKA

The State of Nebraska, on the Relation of George W. Morris, Relator, vs. Dundy County Irrigation Company, Respondent.

BE IT REMEMBERED, That on this 14th day of May, 1923, this being one of the days of the regular May, 1923, term of the district court held within and for Dundy County, Nebraska, this cause came on to be heard before the court, the relator, George W. Morris appearing in person and being represented by Hines & Hines and Scott & Scott, his attorneys, and the respondent, Dundy County Irrigation Company, being present by its constituted officers, and being represented by R. D. Druliner and Butler and James, its attorneys, and upon the order of the court was set down for trial for the 7th day of June 1923.

Afterwards, on the 7th day of June, 1923, this still being one of the days of said term of said court, this cause came on for trial, the parties appearing as above and evidence introduced by the relator, and at 6 o'clock P. M. a recess was taken until 9 o'clock A. M. on the 8th day of June, 1923. Afterwards on the 8th day of June, 1923, this still being one of the days of said term of said court, the trial of this cause proceeded and the taking of the testimony was concluded, and both parties rested their case. After the argument of council for the relator and for the respondent the case was submitted to the court upon the pleadings and the evidence.

Upon due consideration whereof the court finds generally for the respondent.

It is therefore hereby considered, adjudged and decreed by the court take nothing of his petition and that said petition be dismissed and that the respondent recover its costs herein expended. To all of which findings and judgment of the court the relator excepts.

Afterwards, to-wit:—On the 1st day of August, 1923, this still being one of the days of said term of court, this cause coming on to be heard before the court upon the motion of the relator for a new trial, the parties appearing as above and was submitted to the court upon said motion for a new trial. Upon consideration whereof said motion is sustained by the court and the judgment heretofore entered in this cause is vacated and set aside. To which ruling of the court the respondent excepts.

And afterwards, on the same day this cause came on further to be considered by the court upon the pleadings and the evidence, and being duly advised in the premises the court finds generally for the relator, to which finding of the court the respondent excepts.

It is therefore hereby considered, adjudged and decreed by the court that a peremptory writ of mandamus issued against the respondent, Dundy County Irrigation Company, commanding it to recognize and accept the relator, George W. Morris, as a member and stockholder of the Dundy County Irrigation Company; to make a transfer of the three shares of capital stock of said corporation held by him, on the books of said corporation; to grant to the relator, George W. Morris, all of the rights, privileges and benefits of a stockholder of said corporation, including the right to use of water from its irrigation ditch or canals for the irrigation of his crops growing and to be grown upon the Southwest Quarter (SW¼) of section Twenty (20) in Township One (1) North of Range Thirty-eight (38) West of the 6th principal meridian, upon his paying, or tendering to said corporation his proportionate share of the costs of maintenance of its ditches, canals and other appliances used in the operation of said ditch and canals, and that the relator recover his costs herein expended taxed at the sum of $___________. To all of which findings and judgment the respondent excepts, and gives notice of appeal in open court, and is allowed forty days from the (raising) of the court to prepare and serve bill of exceptions.

IN THE DISTRICT COURT OF DAWSON COUNTY, NEBRASKA

In the Matter of the Confirmation of the Proceedings for the Organization of the Gothenburg South Side Irrigation District in the Counties of Lincoln and Dawson, in the State of Nebraska and for the issuing of $408,000.00 of Bonds of said District.

Now on this 28th day of July, 1924, this cause came on for hearing upon the petition, the objections of the objectors, the reply, the stipulations, and the evidence, petitioners being represented by Beeler, Crosby, and Baskins, and objectors by Halligan, Beatty & Halligan. Trial proceeds and the time for adjournment having arrived Court adjourns until tomorrow morning, 9 o'clock a. m.

July 29, 1924, Court convened pursuant to adjournment and the trial proceeds, and both parties having introduced all of the evidence offered by them, rest.

Whereupon the argument of counsel was heard by the Court and the time having arrived to adjourn, said Court is adjourned until tomorrow morning at 9 o'clock a. m.

July 30, 1924, 9 o'clock a. m. Court convened pursuant to adjournment, parties being present by their counsel argument proceeds, and the Court having heard the evidence and the argument takes said cause under advisement.

August 4, 1924, Court convened pursuant to adjournment, and the Court being fully advised in the premises finds in relation to the qualifications of voters that Claude Delaney, H. C. Booker,. Neary Corpeney, and Arthur Sollers, were legal electors and qualified to vote at said election.

The Court further finds that Harry Miles, Newton, McKim, Mrs. William Harkness and Martha Harkness, Alta Peckham and William Sollers, were not qualified electors of said district and were not entitled to vote thereat, and that said persons all voted for the issuance of said bonds, but that the said illegal votes cast did not change the result of said election.

The Court further finds upon the other issues joined between the petitioners and the objectors, generally for the objectors and against the petitioners. The Court especially finds that the purpose of the organization of said district was to purchase the canal works, rights, and franchises of a concern known as the Gothenburg South Side Irrigation Canal which included its water appropriation of 357 14-100 cubic feet per second of time, with priority dated September 26, 1894, and to build a canal to carry the water to be obtained from and under said alleged water right.

The Court further finds that at the bond election the $408,000.00 Irrigation District Bonds were voted for the purpose of purchasing the works of the Gothenburg South Side Irrigating Canal including its canal, franchises, water appropriation, and property, which was to be obtained by purchase and constructing a canal which should carry the water obtained by, through, and under said appropriation to the lands included in said Irrigation District.

The Court further finds that it was represented to said electors at and before said election, that said water right was a valid water right, and had a priority dated September 26, 1894, and was for 357 and 14-100 cubic feet per second of time.

The Court further finds that at the time of said election that the electors voting for said water right, relied upon said reports and believed that said water right was a valid and subsisting water right, having a priority of September 26, 1894, and was for 357 and 14-100 cubic feet per second of time. That they relied upon said representations and many of them would not have voted for said bonds had they known that said water right had been abandoned, and that they acquired no rights thereunder.

The Court further finds that said report was untrue, and misleading, that at the time said district was organized and at the time of said bond election when said bonds were voted, said water right was dead, and of no force and effect, and said canal and water right had been abandoned for many years prior to said election.

The Court further finds that said purported water right was sold by A. G. Wolfenbarger, to another person for which no consideration was paid, and that if said water right was a valid and subsisting right it would be worth thousands of dollars.

The Court further finds that said Irrigation District has, at this time, no water right, and that there is no un-appropriated water in the river, except flood waters, and the Court is loath under this state of facts to validate these bonds, and impose the enormous debt of $408,000.00 upon said district when it is shown that said bonds were voted under a misapprehension of the facts and upon a reliance of the representations made that the said water right to be purchased was a valid and substisting right for 357 and 14-100 cubic feet per second of time of water, with a priority of September 26, 1894. It is argued with much force that this Court has no jurisdiction in the matter to determine whether or not said water right is a valid and subsisting water right, but the Court finds that under the Statutes auhorizing these proceedings it is authorized to investigate and decide any question touching the validity of said bonds.

IT IS THEREFORE CONSIDERED, ADJUDGED AND DECREED that the canal and water appropriation described herein, and described in the proceedings organizing said district, and described in the proceedings at which said bonds were voted, has been abandoned and forfeited, and had been so abandoned and forfeited many years prior to the organization of said district, or the voting of said bonds, and that said Irrigation District gets nothing by the pretended purchase of said pretended canal, water rights, and franchises; that the election at which said bonds were voted was for the reasons heretofore stated, null and void, and that the bonds voted at said election are likewise null and void, and of no force and effect, and the petition of petitioners herein is dismissed at petitioners cost, to all of which said petitioners except, and forty days are allowed from the rising of the Court to prepare and settle a Bill of Exceptions. Supersedeas as required by law.

IN RE APP. FOR PERMIT TO APPROPRIATE AND STORE WATERS. CITY OF CHADRON v. CARD.

Opinion filed January 13, 1922. No. 21965.

Lower riparian proprietors who knowingly, without objection or protest, permit a city to adopt plans, to vote bonds, to let contracts, to create indebtedness, and to expend money in an effort to increase the municipal water-supply from unappropriated waters of a stream, may be estopped to object to the granting of permission to use such waters.

Heard before Morrissey, C. J., Aldrich and Rose, JJ., and Hobart and Paine, District Judges.

ROSE, J.

This is a proceeding before the State Department of Public Works, Bureau of Irrigation, Water-Power and Drainage. The city of Chadron is the applicant and is seeking permission to increase its water-supply. It installed a system of water-works in 1892, and has since kept the plant in operation, using water from Chadron Creek. Owing to the growth of the city of Chadron an increase in the supply of water for public and private uses is imperatively demanded. To this end additional water-works are in course of construction or have been installed. The present application, as indicated by the prayer, is for a permit.

"To impound and apply to such uses all unappropriated waters flowing in said stream, and all storm and flood waters, and all seepage, subterranean, underground and percolated waters, subject to the disposition of the state, in the said valley of the Chadron creek, and to impound any and all waters not otherwise appropriated."

Some of the lower riparian proprietors are defendants. They filed objections to the issuing of the permit on the ground that under it, if granted, the city of Chadron would interfere with their water rights. A reply to the objections contains a plea of estoppel, to the effect that defendants, with knowledge of the facts, without objection or protest, sat quietly by and permitted the city, in furtherance of its purpose to improve its water-works and increase its water-supply, to pass ordinances, to adopt plans, to vote bonds, to let contracts, to create indebtedness, and to expend money. Upon a trail of the issues the proceeding was dismissed, and the city has appealed.

The estoppel pleaded by the city is conclusively established by the evidence and prevents defendants from successfully interposing objections to the permit. Clark v. Cambridge & Arapahoe Irrigation & Improvement Co., 45 Neb. 798. No substantial reason for refusing the city relief to the extent indicated by the foregoing excerpt from the prayer of the application has been given. The order of the Department of Public Works, Bureau of Irrigation, Water Power and Drainage is therefore reversed and the proceeding is remanded to that tribunal, with instructions to grant the permit.

REVERSED.

IN RE APP. BLACK BROTHERS FLOUR MILLS.

BLACK BROTHERS FLOUR MILLS V. UMPHENHOUR.

Opinion Filed November 26, 1923. No. 23487.

1. In an application by a riparian owner to the Department of Public Works, for the sole purpose of procuring a record of a prior appropriation of water, that department has no power or jurisdiction to determine the height to which the applicant may erect and maintain a dam across the stream from which the appropriation was acquired.

2. If the Department of Public Works has no jurisdiction to pass upon a question submitted to it, an appeal from their decision does not confer jurisdiction on this court to determine such question.

Heard before Morrissey, C. J. Letton, Rose Dean, Day and Good, J. J., Shepehrd, District Judge.

DAY, J.

On November 4, 1922, Black Brothers Flour Mills, a corporation, hereinafter called "applicant" instituted this proceeding before the Department of Public Works for the purpose of securing a formal adjudication of its claim to use, for milling and power purposes, all the waters flowing in the Big Blue river at a designated point, being in block 68 of the original townsite of the city of Beatrice. The purpose of the application was not to secure a new appropriation of water, but rather to have a public record made by the Department of Public Works of the applicant's prior right of appropriation. The applicant claimed a priority of appropriation of 350 cubic feet of water per second for milling and power purposes by virtue of a special act of the territorial legislature of Nebraska passed January 11, 1860, giving a perpetual and exclusive right to applicant's predecessors in interest to keep a mill dam across the river at that point, not to exceed, when finished, 12 feet in height, and by having used the water for a beneficial purpose for many years; and by prescription. Notice was given by the Department of Public Works to all persons interested in water appropriations from the Big Blue river and its tributaries, to appear on a day certain to protect their rights and to submit evidence in support of and adverse to the adjudication of the water right claimed by the applicant. But one appropriator of water appeared, and it waived all objections to the allowance of the appropriation claimed by applicant. A large number of persons, property owners in the city of Beatrice, residing below the dam, and a few riparian owners residing above the dam, appeared and filed objections to the construction and maintenance of a dam 12 feet high at the location in question. In substance the objectors urged that the applicant had maintained a dam approximately 9 feet high for a period of years; that a few weeks prior to the commencement of this proceeding the applicant had increased the height of the dam to 12 feet; that prior to the increase the applicant had never owned, possessed, or used the right to flow water of a depth of more than 9 feet above low water level in said river; that it is unsafe, dangerous and threatening to the safety of life and property to have the said dam built and maintained to a height of more than 9 feet; that by reason of the course of the river and the slope of the land a permanent dam 12 feet high would, especially in times of high water, subject their property to great damage from overflow.

At the outset of the hearing the secretary of the department before whom the testimony was taken announced that the question of damages to the objectors could not be considered or determined by the department, but that testimony would be heard to show the amount of water the applicant and its predecessors had used, the head which had been maintained, and the different dates that the head had been raised or lowered. At the conclusion of the hearing the department determined that the applicant had the priority of use of all of the water in the river at the location in question, being approximately 300 cubic feet per second, sometimes more and sometimes less, for milling and power purposes; that applicant's priority to the use of the water was based on an act of the territorial legislature passed January 11, 1860; that applicant's predecessors in interest had erected a milldam at the place in question soon after the right was granted, and ever since have maintained a dam at the location in question at various heights, and have used the water for milling and power purposes; that prior to July, 1895, the date on which the irrigation law of the state became effective, the applicant's predecessors had not erected a dam higher than 9 feet and 6 inches above tail-water; that the applicant's right to priority in the nse of all of the water was limited under a head of 9 feet and 6 inches. From this judgment the applicant has appealed, claiming that under the record it is entitled to use all of the water and to maintain a dam 12 feet high.

It was evidently the theory of the department that the applicant's rights were limited to the height of the dam built by its predecessors prior to July, 1895, which the department found to be 9 feet and 6 inches above tail-water. It is not clear whether this was based upon the ideas that the dam was "finished" within the meaning of that term as used in the act of January 11, 1860, or whether after July, 1895, their rights should be determined by the law as it stood on and after that date.

The record shows that on January 11, 1860, the legislature of the territory of Nebraska passed an act granting authority to J. B. Weston, his heirs and assigns, to erect and establish a dam across the Big Blue river at the location now in question, and that the applicant succeeded to that right. The act granted a 'perpetual and exclusive right to keep a milldam across said stream at the place designated; * * * Provided, said dam when finished shall not exceed twelve feet in height above low water mark, so as to propel mills or any other machinery that J. B. Weston, his heirs or assigns, may want to erect." Laws 1860, p. 202. In 1895 the legislature of the state passed an act embodying a comprehensive scheme regulating the appropriation and distribution of the waters in running rivers and streams of the state, and placed the administration of the law in the hands of a board of irrigation. By subsequent legislation the administration of the law was placed under the control of the Department of Public Works. The act became effective April 4, 1895, instead of July, 1895, as found by the board. The act of 1895 covers many printed pages, and it is not practical to give an epitome of its provisions. Among other things, it declared: "The water of every natural stream not heretofore appropriated * * * is hereby declared to be the property of the public, and is dedicated to the use of the people of the state, subject to appropriation as heretofore provided." Laws 1895, ch. 69, Sec. 42.

The act of 1895 also contained a provision, now Section 8411, Comp. St. 1922: "Nothing in this article contained shall be so construed as to interfere with or impair the rights of water appropriated and acquired prior to the fourth day of April, 1895."

It appears that, soon after the passage of the act of 1860, the applicant's predecessors in interest constructed a dam across the river at the location in question, erected a mill, and ever since, except at short intervals occasioned by washouts and fire, have maintained the dam and operated a mill. The first dam constructed was very crude as compared with modern methods of construction, and consisted mostly of brush. It was about 2 feet high. From time to time, as needs required, the dam was heightened and rebuilt with stronger and better materials, until in 1895 it was a concrete construction which with "flash-boards" was approximately 9 feet and

6 inches high. A short time before this action was instituted the height was increased to approximately 12 feet.

From the express provision of the act of 1895 it appears that it was not the intention of the legislature to in any way interfere with prior acquired rights. It was the intention, however, to ascertain the extent of prior appropriations, and to make a public record of the same in order to carry out the provisions of the law respecting subsequent appropriations.

The department very properly found that the applicant and its predecessors had appropriated all of the water in the river at the point designated prior to the act of 1895. The correctness of this finding is not seriously questioned by the objectors. The main contention relates to the height of the dam. A number of questions are presented in the briefs which we do not deem necessary to consider.

Upon the oral argument the point was urged by the applicant that the department had no authority to pass upon the height of the dam; that its authority was limited to a determination of the amount of the appropriation to which the applicant was entitled; and the priority of use. Commencing on an early day in the history of our territorial legislation, an act was passed January 10, 1862, which authorized abutting property owners upon streams to construct dams for milling and machinery purposes, and prescribed the method to be pursued in assessing damages to adjacent property owners by the overflow. This act with some modifications has been continued to the present time, and is now Section 3377, Comp. St. 1922. In 1911 there was added to this act as it then stood a proviso to the effect that before proceedings could be commenced permission should be obtained from the board of irrigation (now the Department of Public Works) to use the water for such purpose. While it was within the province of the department under this application to determine the amount of water which the applicant was entitled to use by virtue of the prior appropriation, we do not think that, under the circumstances presented by the record, the height of the dam was a matter for the department's determination. This was not an application for permission to build the dam. No plans were submitted to the department for its approval. The amount of appropriation was the only question at issue.

In this discussion we are not unmindful of Section 8446, Comp. St. 1922, requiring plans for proposed dams to be submitted to the department for approval before construction of a dam is commenced. The provisions of this statute, however, do not apply to the proceedings submitted to the department for determination.

If the Department of Public Works has no jurisdiction to pass upon a question submitted to it, an appeal from their decision does not confer jurisdiction on this court to determine such question.

The judgment of the department, in so far as it determined the amount of water the applicant is entitled to use and the date of its priority, is affirmed. That part of the judgment regulating the height of the dam is reversed upon the ground of lack of jurisdiction.

AFFIRMED IN PART, REVERSED IN PART.

IN THE DISTRICT COURT OF DUNDY COUNTY,NEBRASKA.

In the Matter of Cancellation of Water Appropriation Docket Number 157. Delaware-Hickman Ditch Co., Benkleman, Nebraska Water Div. No. 1-B, Republican River.

State of Nebraska Contestant, vs. Delaware-Hickman Ditch, Contestee.

Now on this 8th day of February, 1923, this case coming on to be heard upon its regular order upon the docket, was submitted to the court upon the transcript of the files before the Department of Public Works, and the evidence, it being stipulated that the transscript of the evidence taken before the Department of Public Works should be considered by the court, together with such additional evidence as either party may desire to offer. After the evidence was submitted it was agreed by the parties hereto that the presiding judge should view the irrigation works and grounds in question, and that the case should be submitted on the written briefs and arguments of counsel. Thereupon, the works and grounds in question were, on the same day, viewed and examined by the presiding judge in company with counsel for both parties.

There was considerable delay in the submission of briefs, so that the record and the last of the briefs were not received by the court until the convening of this present term.

Now, on this 5th day of June, 1924, the same being one of the days of the regular May, 1924, term of the District Court of this county the court being now fully advised in the premises, proceeds with the consideration and determination of said case. While it has been urged by counsel for contestee that the reports of the Water Commissioner, upon which the notice to show cause was evidently based, are not sufficient in substance to give the board jurisdiction or authority to issue the order or cancel the water right, and there is possibly some merit in such contention, but proceeding to consideration of the case upon its merits, the court finds from the evidence and the observations made at the examination of the works and grounds, pursuant to the stipulation of counsel, that the contestee, Delaware-Hickman Ditch Company, has constructed and is maintaining the irrigation works in question, and that the structures and appliances used in connection therewith are of a feasible and practical nature, and adopted to the purpose for which constructed: that the water of the Republican River has been put to the beneficial and useful purpose of irrigating lands for which the appropriation was made; the works and structures are probably as substantial as the size of the ditch would justify, particularly when consideration is given to the irregularity of the supply of water and demand for water; that at times there is no available water in the river at the point of diversion, and at times irrigation not necessary; that there has never been an abandonment of such irrigation project; that there has not been a failure to use said works, nor to apply water appropriated thereby for irrigation purposes for a period of three consecutive years. The court finds generally in favor of the contestee and against the contestant. To all of which findings the contestant excepts.

It is therefore considered and decreed by the court that the order of the Department of Public Works of the State of Nebraska, made and entered herein on the 27th day of March, 1922, declaring said water appropriation forfeited, and cancelling and annulling all rights thereunder, be, and the same hereby vacated. That these proceedings be, and the same are dismissed, and that the contestee go hence without day, and recover of the contestant costs herein expended, taxed at $______.

To all of which the contestant excepts, and gives notice of appeal in open court.

IN RE APP. BLUE RIVER POWER CO. BLUE RIVER POWER v. HRONIK.

Opinion filed July 18, 1924. No. 22890-22891.

1. Proceedings for condemnation of rights of way for irrigation, Water power purposes, including the right of overflow and damage caused to upper riparian lands by the construction and maintenance across a stream of a dam for either of said purposes, may be maintained under the provisions of Chapter 69, Laws 1895, sections 8452, et seq., Comp. St. 1922.

2. In order to confer jurisdiction, the petition by which such proceeding are instituted must with substaitial accuracy describe the lands to be crossed, the size of the works to be constructed and the quantity of land required to be taken.

Heard before Letton, Rose, and Dean, JJ., Blackledge and Redick, District Judges.

BLACKLEDGE, DISTRICT JUDGE.

This is a proceeding under the law of eminent domain seeking the condemnation of rights for the overflow of lands caused by the erection and maintenance of a dam across the Blue River, which is being constructed for water-power purposes. There are two appea involving the same issue which will be treated as one case.

The petition was filed November 26, 1920. It alleges the corporate capacity of the plaintiff, that it is the owner of three irregular tracts of land in Section 34 and 35, Township 7, Range 4, Saline County, containing an aggregate acreage of 20.35. It is a alleged.

"That the Blue River runs through and across the above described tract of land; that your petitioner has been duly authorized to construct a dam across the Blue River upon said real estate to the height of sixteen (16) feet for water power purposes; that your petitioner duly submitted a plan of its proposed dam to the State Board of Irrigation, Highways and Drainage of the state of Nebraska, for examination and approval, and that said State Board duly approved the same March 2, 1918, and authorized its construction to a height of sixteen (16) feet; that your petitioner is the owner in fee simple of both side of said river where said dam is being constructed as aforesaid and has the legal title thereto, that said dam is in the course of construction and nearly completed and said water-power plant will be ready for operation within a few days. "Your petitioner alleges that there are no lands below the site of said dam that will be overflowed or injured by reason of the construction of said dam or the operation of said power plant. 'Your petitioner further alleges that the real estate hereinafter mentioned and not owned by it, situate in township 7 North, of Range 4 East of the 6th P. M. in Saline County, Nebraska, and hereinafter specifically described, are lands situated above the site of said dam and through which said Blue River flows, which are probably will be overflowed or injured by reason of the construction and erection of said dam and the operation of said Power plant".

It then gives 19 separate descriptions of land owned in which rights are sought to be acquired by condemnation. One description is: "That Frank Hronik is the owner of the N. E. ¼ of the N. W. ¼ of Sec. 35; the S. E. ¼ of the S. W. ¼ of Sec. 26; all of the S. W. ¼ of the S. W. ¼ of Sec. 26, except a tract of land at the south end thereof lying south of the channel of the Big Blue river and containing about 4½ acres more or less; also that portion of the S. E. ¼ of the S. E. ¼ of Sec. 27, lying east of the channel of the Big Blue River and containing 2½ acres more or less, of which tract about 41.67 acres will be taken, overflowed or damaged; and that Bessie Hronik is the wife of the said Frank Hronik."

It is further alleged that the petitioner has not been able to agree with the several owners and parties interested touching the compensation and damage that will be sustained by the construction of the dam and operation of the plant, and prayer is made for the appointment of appraisers to ascertain the damage and determine the compensation to be made.

A Summon was issued on the same date to the sheriff requiring him to summon certain appraisers to appear at or on the lands December 10, 1920, at 10 o'clock A. M., "To severally appraise the damages sustained by the parties hereinafter named to the lands hereinafter described." There follows a description of lands as in the petition. A Notice containing the same description was issued on the same date by the petitioner and served by the sheriff notifying the owners that the petitioner was about to complete the construction of a dam for water-power purposes across the Blue-River at or near the south line of the northwest quarter of the Northwest quarter of section 35, Township 7, Range 4, and that appraisers would proceed on the lands December 10, 1920, at 10 o'clock A. M., to determine and assess the damage. December 9 and 10 certain objections were filed by some of the owners, and on December 10 a supplemental petition was filed which seeks to bring in a new party and other real estate not before described in the petition. Also, a motion to amend each description in the petition by inserting the acreage was filed and a motion to amend the summons to conform to the petition as amended and the supplemental petition. The objections of the owners were all overruled. The amendments asked by petitioner were all allowed.

December 14 a report of the appraisers was filed and thereupon appeals were perfected both by the petitioner and by the owners to the district court. In this district court the owners, as appellants in one case and appellees in the other, renewed the objections made by them before the county judge, and upon hearing in that court the objections of the owners were sustained and a judgment entered dismissing the petition and annulling all proceedings had thereunder; from which judgment the power company has appealed to this court.

It is stated by counsel for both parties that two questions are presented by the appeal; first, whether the prcoeedings were properly had under the provisions of Sections 3429 et seq,. Rev. St. 1913 (Comp. St. 1922, Sections 8452, et seq). Second whether the petition of the power company, the summons and notice were sufficient to confer jurisdiction on the county judge or the county court to proceed in the matter.

It is stated in argument that the district court held the proceedings to have been properly had under the provisions of the statutes designated and that its judgment was based upon the ground of the insufficiency of the petition and proceedings; but the judgment as entered is a general one, not designating the ground upon which it is based, so that both propositions are here presented for review.

Without entering into a detailed consideration of the matter of statutory authority, we think it is apparent that much proceedings may properly be had under the provisions of the statute designated. The act of 1889 (Laws 1889, Ch. 68) was entitled "An act to provide for water rights and irrigation, and to regulate the right to the use of water for agriculture and manufacturing purposes." The amendatory act of 1893 (Laws 1893, Ch 40) was entitled "An act to promote the development of water-power for manufacturing and other industrial purposes." And the act of 1895 (Laws of 1895, Ch 69), which is in substance our present law, was entitled, in part: "An act prescribing regulations for the appropriation, distribution and use of water in the construction and maintaining of canals, ditches and storage reservoirs for the purpose of irrigation, evaporation and water-power." It is true that at that time the need primarily considered was the matter of irrigation, which was then in its early development in this state, but we think it equally clear that the purpose of the act was to establish a code for the regulation of the use and application of the waters of the State which were made subject to appropriation, and that it was intended to be complete for that purpose. It contains ample provisions for the acquisition of sites, right of way and other matters incidental to the use of water, provides for the institution of condemnation proceedings by Sections 8452, 8453, Comp, St. 1922, and that the subsequent procedure shall be according to the provisions of law for the condemnation of rights of way for railroad corporations. The act provides that canals and other works constructed for irrigation or water-power purposes, or both, are declared to be works of internal improvement; and, with reference to the priority of rights, that the use of water for domestic purposes shall have preference over those claiming for any other purpose, and those using the water for agriculture purposes shall have preference over those using the same for manufacturing purposes. While it is insisted that what is known as "The Mill Dam Act," Rev. St. 1913, Sections 3974 Et. Seq. (Comp. St. 1922, Secs. 3377 Et Seq), should be followed, we do not think it necessary to determine that question. Nothing is pointed out with reference to the act sought to be followed in this instance wherein it is not sufficient or adequate in all respects to protect the rights of the parties and afford means for determination thereof. We therefore hold that such proceedings may properly be had under the sections of the statute to which reference is made, and now appearing as sections 8452 et seq., Comp. St. 1922.

Upon the other branch of the case, it is strenuously argued that the petition and proceedings were not sufficient to give jurisdiction, and this position is grounded, principally, upon the propositions that the proceedings is not a judicial proceeding and that in his acts in reference to it the county judge was a ministerial and not a judicial officer; that the petition did not sufficiently or accurately describe the works of the petitioner then being or about to be constructed, nor the land to be taken; that there was no authority for allowance of the amendment to the petition and summons whereby the amount of acreage in each discription, which had previously been left blank, was inserted, and that the amendment could not relate back so as to affect the notice to the landowners or cur the summons to the appraisers which had already been issued more than ten days before.

Upon the other hand, it is as vigorously asserted that the petition was sufficient, the amendment authorized, and that the allegations of the petition were such that they could be made certain, in that a skilled person, such as a surveyor, could thereby determine the quantity and location of the land to be overflowed, and therefore were sufficient.

In support of its argument and of the petition, the appellant relies upon the cases in this court of Fremont E. & M. V. R. Co. v. Mattheis, 39 Neb. 98, and Dettman v. Pittenger, 89 Neb. 825, 132 N. W. 407. These cases, we think, do not control the instant case, and the reasons therefor will be stated in connection with our consideration of other cases by which we think it is controlled.

The statute under which the proceeding is had requires that the petition in such cases shall (1) describe the lands to be crossed, (2) state the size of the ditch, canal or works, (3) state the quantity of land which is required to be taken. In Matheis v. Fremont, E. & M. V. R. Co., 53 Neb. 681, this court held that the proceeding for condemning real estate for right of way of a railroad is not instituted in nor conducted by the county court; That it is conducted by the county judge, the sheriff and the appraisers selected by the former, That these constitute a tribunal not to try a civil action but simply to assess the damages, and that the powers conferred upon the county judge, and the duties required of him, are not judicial but are purely ministerial. There is little, if any, conflict in the decisions of any of the courts with respect to the fact that the petition by which such proceedings are instituted must accurately describe the property sought to be taken and that such a description is necessary to confer jurisdiction. This in our judgment does not mean meticulous accuracy, but substantial accuracy, that certainty by means of which a reasonably competent person could take the instrument and therefrom, aided by such inquiries as it suggests, locate the identical property.

In Omaha & R. V. R. Co. v. Rickards, 38 Neb. 847, considering condemnation proceedings wherein the property had been described by governmental subdivisions only, and although it was vacant and unoccupied land, but had previously been laid out in lots and blocks and was within the corporate limits of the city, it was held that such description was insufficient and the railroad company acquired no title or rights thereby. In the more recent case of Daily v. Missouri P. R. Co., 103 Neb. 219, wherein a variance in the petition consisted in a misstatement of the depth of the property sought to be condemned, it being stated as 115 feet when in fact it was 140 feet, was such a substantial inaccuracy as to render the proceedings void.

In the earlier case of Fremont, E. &. M. V. R. Co. v. Matheis, 39 Neb. 98, which was a rehearing of the same case reported in 35 Neb. 48, the decision was undoubtedly right upon the facts on which it was based. In that case there was in addition to the description written in the petition, a plat annexed thereto in and by which the property was designated with sufficient certainty that it could be accurately determined. In the instant case there is no reference to any plat in the petition and none appears in the record. It appears to the writer that in this sort of case a properly drawn plat is the most accurrate and illuminating method of description that could be adopted. The surface of the ground is necessarily uneven and the outlines of the land which will be overflowed, it seems, could be more accurately and plainly shown by means of a proper plat than in any other manner. The petitioner must have had the information at hand which would enable it to supply such a designation, else it would be unable to compute the acreage itself. Upon the question of acreage we do not think that the amendment aided the petition to any appreciable extent. In the description hereinbefore quoted there was designated four separate 40 acre tracts, and it is said in the petition as amended that about 41.67 acres will be taken, overflowed or damaged; which would furnish little, if any, information to the owner as to the location or form of the part of his land to be taken, or whether it was all in one body or in a number of tracts. It made a material difference to the landowner as to the exact location of the submerged portion in respect to his land and his improvements of all kinds. It is said that the petition is sufficient because a surveyor or skilled person may take it and ascertain the lands; that we have failed to discover how such a person, however skilled, could take this petition and make any definite ascertainment. There is to be a dam to the height of 16 feet across the Blue river somewhere upon the 20-acre tract of land owned by the petitioner. A great deal may, and doubtless does, depend upon the particular location of the dam and of each end thereof and its direction and length as to the overflow that will be produced thereby. The petition shows that certain lands for the distance of more than four miles upstream are to be overflowed and affected by this dam. It follows that a very little difference in the land to be overflowed. The skilled person who would determine the exact location of these lines must mave a starting point, and we fail to discover one in the petition. The dam is said to be 16 feet high. From what point does the measurement proceed? Is it from the low water mark or the bed of the stream? And, if the bed of the stream, is it the lowest part thereof or is it what is sometimes called the flow line, and how determined or how may it now be found? The dam is shown incomplete in its construction and therefore the top of it as actually constructed cannot be ascertained from the petition. In other words, where is the base point or bench mark from which the surveyor must start in order to determine his course, distance or levels? The petition gives no information which the statute requires as to the size or location of the works, which in this instance is the dam, and the body of water which will be impounded thereby. Neither does it give any information as to the particular tracts and locality of the land to be taken from the different landowners so that they might determine, not only the land itself, but how adjacent land of improvements might be affected by the overflow, and the addition of the term "about ten acres," when applied to a 40-acre or an 80-acre tract gives no definite information.

Now, if a condemnation proceeding fully completed, because it described vacant, unoccupied land by governmental subdivisions, when it has been laid out in lots and blocks, or because it made a variance of a little less than 20 per cent, in the depth of certain property, is so fatally defective that no rights were acquired thereby, it must necessarily follow that, when objection is made in the inception of a proceeding that the description is so indefinite as that contained in the petition here, and as incapable of being made definite by anything therein stated, it is likewise fatally defective and insufficient to confer jurisdiction.

It follows from these considerations that the judgment of the district court was right, and it is

AFFIRMED.

DIVISION OF HYDROGRAPHY AND SURVEYS

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DESCRIPTION OF GAGING STATIONS.

NORTH LATTE RIVER AT WHALEN, WYOMING, 1923-1924.

LOCATION—In Section 11, Township 26 N, Range 65 W, at diversion dam of the Interstate and Ft. Laramie-Gering projects.

DRAINAGE AREA 16,300 squire miles.

RECORDS AVAILABLE—May 1st, 1909, to October 31st, 1924. Records of the river flow prior to May 1st, 1909, were made from the Gurnesy, Wyoming, gaging station and are available from June 14th, 1900, to November 17th, 1908. These stations are only a few miles apart.

GAGE—The discharges over the weir are determined by use of a vertical staff, and computed by weir formula. There are also sluice gates thru which the discharge is computed. The Ft. Laramie Canal carries water the year around for the Lingle Power Plant the flow for this purpose is included in the discharge at the weir for the reason that it is returned to the river at Lingle, Wyoming. The wier is constructed of concrete, 300 feet in length and 29 feet high.

OBSERVER—Observations made and discharge records furnished by the United States Reclamation Service.

NORTH PLATTE RIVER AT MORRILL, NEBRASKA, 1923-1924.

LOCATION—About two miles south of Morrill.

GAGE—One wooden staff, five feet in length, fastened to first pier from north end and on down stream side of concrete bridge. Eighteen inch bolts are set in concrete, holding the staff in a perpendicular position. Concrete bridge consists of twelve fifty-foot spans.

BENCH MARK—Top of handrail over north pier is 14.26 above zero on gage. More bench marks will be established later.

OBSERVERS—V. Q. Corder to July 25, 1923; E. C. Gregory to July 31st, 1923; Henry W. Havens, 1923-1924.

CHANNEL—The river channel is narrowed to 600 feet and widened above and below the bridge to about 1,500 or 2,000 feet.

ACCURACY—Because of the collapsible dam of the Enterprise Irrigation Ditch the relation between the gage heights and daily discharges are not reliable and will not be published.

DISTANCE FROM PATHFINDER RESERVOIR—298 miles.

ELEVATIONS—33,980 feet.

NORTH PLATTE RIVER AT MITCHELL, NEBRASKA, 1923-1924.

LOCATION—At highway bridge, one mile south of town, in Section 27, Township 23 North, Range 56 West.

DRAINAGE AREA—24,400 square miles.

RECORDS AVAILABLE—From June 2nd, 1901, to July 10th, 1913, seasons 1916 to 1924.

GAGE—Five foot wooden staff, fastened to a pile about fifteen feet east of south end of the concrete bridge. The concrete bridge consists of twelve fifty-foot spans.

BENCH MARKS—The datam of the present gage bears no relation to former datums. Bench marks will be established later.

OBSERVER—C. G. Waldo.

CHANNEL—Channel narrows to 600 feet at the gaging station and widens from 1,500 to 2,000 feet above and below the station.

ACCURACY—Accurate measurements are difficult during high water periods.

DISTANCE FROM PATHFINDER RESERVOIR—304 miles.

ELEVATION—3,945 feet.

NORTH PLATTE RIVER AT MELBETA, NEBRASKA, 1923-1924.

LOCATION—On highway bridge between Melbeta and Minatare.

GAGE—Vertical staff fastened to first concrete pier of bridge on south end on down stream side.

BENCH MARKS—No bench mark data is at hand concerning this gage. However, it will be referred to bench marks and information concerning its location and datum will be on file in the Department of Public Works.

OBSERVERS—Earl Faith, 1923 to October 1, 1924; Earl Lewis after October 1st, 1924.

DISTANCE FROM PATHFINDER RESERVOIR—322 miles.

ELEVATION—3,820 feet.

NORTH PLATTE RIVER AT BRIDGEPORT, NEBRASKA, 1923-1924.

LOCATION—One-half mile north of town on the public road. Section 28, Township 20 North, Range 50 West.

GAGE—Painted rod fastened in a concrete well on down-stream side at north end of concrete bridge and rod on outside of well on south side.

BENCH MARKS—No. 1, a six-inch by six-inch stone marked U. S.& G. S. located on the northeast quarter of Section 32, Township 20 North, Range 50 West, of the Sixth P. M., 30 feet east of east gate of stock yards and 300 feet northwest of northwest corner of public school building. Elevation 9.94 feet. No. 2, the regular aluminum U. S. G. B. M. cap set in a 28-inch stone, top of which is filled with concrete to form a truncated pryamid, located about fifty feet south and a little east of the northeast corner of lot four, block two, Riverside Addition to Bridgeport. Elevation 11.32 feet. The concrete well constructed in second concrete pier, of wagon bridge, from the north end. The gage rod fastened on the inside of well, zero of which is 15.18 feet below the top of the northwest corner of iron frame of door. Stevens Long Distance Water Recorder has been in operation at this station since June, 1917.

OBSERVER—Automatic Recorder. A. W. Hall since September 1, 1924.

CHANNEL—The river channel narrows to 700 feet at the gage section and widens to 3,000 feet one-half mile below.

ACCURACY—It is difficult to obtain satisfactory results at this station during flood periods because of the narrowed section and the shifting conditions of the sandy bed.

DISTANCE FROM PATHFINDER RESERVOIR—341 miles.

ELEVATION—3,675 feet above sea level.

NORTH PLATTE RIVER AT BROADWATER, NEBRASKA, 1923-1924.

LOCATION—At highway bridge about three-quarters of a mile south of Broadwater.

GAGE—Wooden staff nailed to a pile in the abutment on the up-stream side of the bridge at the north end. On July 5th, 1924, new gage rod was fastened to bridge pile on down-stream side about 600 foot mark from north end of bridge. The old gage rod was destroyed which was fastened to piling on north abutment of bridge. The new gage read 3.15 at 4:00 p. m. The old rod read 2.48 at 9:30 a. m., by the observer, Glen Haistons.

BENCH MARKS—On nail driven in base of second telephone pole north of river on east side of highway. Elevation 100.34 feet. Top of bolt driven in ground one foot west of above described telephone pole. Elevation 100.00 feet. Elevation of zero of gage 93.57.

OBSERVER—Glen Haistons, 1923 and 1924. Observations discontinued July 28th on account of new bridge construction.

CHANNEL—Straight for about one mile above and one mile below the gage section. The section has been narrowed somewhat by the construction of bridge approach of earth.

ACCURACY—Very satisfactory results are obtainable at this station, considering the shifting condition of the sandy bed.

GENERAL—The width of the section is 1,800 feet, making actual measurements fairly accurate.

DISTANCE FROM PATHFINDER RESERVOIR—360 miles.

ELEVATION—3,620 feet above sea level.

NORTH PLATTE RIVER AT BELMAR, NEBRASKA, 1923-1924.

LOCATION—Highway bridge south of Belmar.

GAGE—Vertical staff nailed to the down-stream pile of the north abutment of bridge.

OBSERVER—James Pratt, 1923. C. H. Fairchild after April 22, 1924.

GENERAL—The river at this section is narrowed to 2,190 feet. Fairly accurate measurements are obtainable here.

DISTANCE FROM PATHFINDER RESERVOIR—410 miles.

ELEVATION—3,230 feet above sea level.

NORTH PLATTE RIVER AT NORTH PLATTE, NEBRASKA, 1923-1924.

LOCATION—At highway bridge one-half mile north of North Platte in Section 28, Township 14 north, Range 30 west, four and one-half miles above the junction of the South Platte.

RECORDS AVAILABLE—From 1895 to 1909, and 1911 to 1924, for open seasons.

GAGE—Vertical staff fastened to pile on south end of wagon bridge north of city on down-stream side. After September 5, 1922, a new staff was fastened to the first telephone pole in the river from the south bank on down-stream side, using same datum as for previous gage staffs.

BENCH MARK—No. 1: The top of the southwest corner of the east concrete abutment of the U. P. Bridge. Elevation 8.20 feet above zero of the gage at that section. No. 2: Two square wrought iron nails on the east side of a telephone pole on the west side of the road at the gage at the highway bridge. No. 3: Two nails in each side of a telephone pole on the west side of the road at the south end of the bridge one foot above the ground. Elevation 7.55 feet above zero of the staff gage at the highway bridge.

OBSERVER—A. W. Shilling, Jr., 1923-1924.

CHANNEL—Straight for about 500 feet above and below the secsection at the highway bridge; very shifting.

ACCURACY—Only fair because of the shifting nature of the river bed.

DISTANCE FROM PATHFINDER RESERVOIR—480 miles.

ELEVATION—2,800 feet above sea level.

SOUTH PLATTE RIVER AT NORTH PLATTE, NEBRASKA, 1923-1924.

LOCATION—Concrete river bridge consisting of ten spans, fifty feet each. Sections 4 and 9, Township 13 North, Range 30 West, about four miles above its junction with the North Platte.

RECORDS AVAILABLE—From June 1, 1914, to October, 1924.

GAGE—One five-foot vertical staff fastened to piling up-stream side of bridge at north end, about ten feet from bridge. Set February 1, 1922.

OBSERVER—A. W. Shilling, Jr., 1923-1924.

BENCH MARKS—Elevation of handrail, northeast corner of bridge, 109.58. Elevation of zero of rod 93.48. Bench mark on spike in fifth telephone pole north from the pier of poles north side of river used to carry wires across river. Elevation 98.80.

ACCURACY—Effected by shifting sands.

ELEVATION—2,800 feet above sea level.

PLATTE RIVER AT LEXINGTON, NEBRASKA, 1923-1924.

LOCATION—Highway bridge two miles south of Lexington, Section 20, Township 9 North, Range 21 West.

GAGE—Vertical staff nailed to pile on revetment north end and up-stream side of bridge.

BENCH MARKS—The datum used since 1922 bears no relation to the datum used in former years. July 23, 1921, established a B. M.

on two 6d wire nails in top of old oak pile of old bridge. Said pile is east pile on west side of north embankment opposite telephone pole No. 126 on north side of river. Nail was bent in driving. Elevation of nails in 100.00 feet. Elevation of zero of rod is 89.58 feet. Elevation of top of west hand rail at station, 0.10 of hydrographer's gaging marks is 103.98 feet.

OBSERVER—Ray V. Duryea, 1923-1924.

CHANNEL—Straight at gaging station, reduced by construction of a concrete bridge from a width of about 2,000 feet to a little over 800 feet.

RECORDS AVAILABLE—April 2, 1902, to November 30, 1906; April 13, 1916, to September 30, 1916; May 18, 1917, to October 31, 1917; May 2, 1918, to September 30, 1918; April 16, 1919, to October 31, 1919; April 10, 1920, to October 31, 1920;April 1, 1921, to November 22, 1921; April 1, 1922, to September 30, 1924.

DRAINAGE AREA—53,300 square miles.

WINTER FLOW—Ice causes back water during freezing weather.

DISTANCE FROM PATHFINDER RESERVOIR—535 miles.

PLATTE RIVER AT OVERTON, NEBRASKA, 1923-1924.

LOCATION—Concrete highway bridge two miles south of Overton, Section 6, Township 10, Range 21 West.

GAGE—Vertical staff nailed to four inch pile at north end of bridge on down-stream side about eight feet from bridge.

OBSERVER—Nils Brunzell, 1923-1924.

CHANNEL—Straight at gaging station, reduced from natural width of about 2,000 feet to a little over 800 feet.

BENCH MARK—Top of concrete wheel guard on left side of bridge on north side of river. Elevation 100.00. Zero of gage eleve-tion 88.03.

DISTANCE FROM PATHFINDER RESERVOIR—550 miles.

ELEVATION—2,320 feet above sea level.

LOSS AND GAIN IN ACRE FEET ON THE PLATTE RIVERS BETWEEN GAUGING STATIONS FOR 1922.

	May		June	
North Platte River	Acre Ft.	Acre Ft.	Acre Ft.	Acre Ft.
At Whalen	279,280		197,832	
At Mitchell		280,778		147,381
Diversions		31,000		89,005
Gain	32,498		38,554	
Percent	12		19	
North Platte River				
At Mitchell	280,773		147,381	
At Melbeta		326,782		197,454
Diversions		3,600		15,150
Gain	49,604		65,323	
Percent	18		44	
North Platte River				
At Melbeta	326,782		197,454	
At Bridgeport				166,713
Diversions				19,894
Loss				10,847
Percent				5.4
North Platte River				
At Bridgeport			166,713	
At Belmar		341,559		214,714
Diversions		3,391		4,258
Gain	18,168		52,259	
Percent	5.5		31	
North Platte River				
At Belmar	341,559		214,714	
At North Platte		348,640		201,335
Diversions		9,243		16,755
Gain	16,324		3,376	
Percent	4.6		1.5	
North Platte River				
At North Platte	348,640		201,335	
Platte River				
At Lexington		324,005		166,654
Diversions		4,134		31,784
Loss		30,501		2,897
Percent		5.8		1.3

LOSS AND GAIN IN ACRE FEET ON THE PLATTE RIVERS BETWEEN GAUGING STATIONS FOR 1922.

	July		Aug.	
North Platte River	Acre Ft.	Acre Ft.	Acre Ft.	Acre Ft.
At Whalen	150,607		119,305	
At Mitchell		79,766		53,168
Diversions		104,005		97,237
Gain	33.164		41,100	
Percent	22		34	
North Platte River				
At Mitchell	79,766		53.168	
At Melbeta		111,373		79,379
Diversions		14,633		8.256
Gain	46,270		34,467	
Percent	57	64		
North Platte River				
At Melbeta	111,373		79,379	
At Bridgeport		116,713		85,072
Diversions		27,174		22,526
Gain	32,514		28,419	
Percent			35	
North Platte River				
At Bridgeport	116,713		85,072	
At Belmar		112.266		85,548
Diversions		8,746		6,116
Gain	4.099		6,592	
Percent			77	
North Platte River				
At Belmar	112,266		85,548	
At North Platte		118,316		93,076
Diversions		17,762		22,837
Gain	24,812		30,365	
Percent	22		35	
North Platte River				
At North Platte	118,316		93,076	
Platte River				
At Lexington		73.270		60,011
Diversions		29,411		26,350
Loss		15,635		6,715
Percent		22		7.2

LOSS AND GAIN IN ACRE FEET ON THE PLATTE RIVERS BETWEEN GAUGING STATIONS FOR 1922.

	Sept.		Oct.	
North Platte River	Acre Ft.	Acre Ft.	Acre Ft.	Acre Ft.
At Whalen	65,797		28,449	
At Mitchell		18,129		45,620
Diversions		88,124		9,454
Gain	40,456		26,625	
Percent	61		94	
North Platte River				
At Mitchell	18,129		45,620	
At Melbeta		37,210		No Melbeta
Diversions		6,669		See Bridgeport
Gain	25,750			
Percent	142			
North Platte River				
At Belbeta	37,210			
At Bridgeport		48,992		75,075
Diversions		12,558		6,932
Gain	24,341		36,387	
Percent	65		79	
North Platte River				
At Bridgeport	48,992		75,075	
At Belmar		64,860		94,513
Diversions		5,256		1,654
Gain	21,124		21,092	
Percent	43		28	
North Platte River				
At Belmar	64,860		94,513	
At North Platte		51,273		87,968
Diversions		20,945		0
Loss		7,358		6,545
Percent		11		7
North Platte River				
At North Platte	51,273		87,968	
Platte River				
At Lexington		9,590		52,067
Diversions		20,366		13,714
Loss		21,317		22,187
Percent		41		25

LOSS AND GAIN IN ACRE FEET ON THE PLATTE RIVERS BETWEEN GAUGING STATIONS FOR 1923.

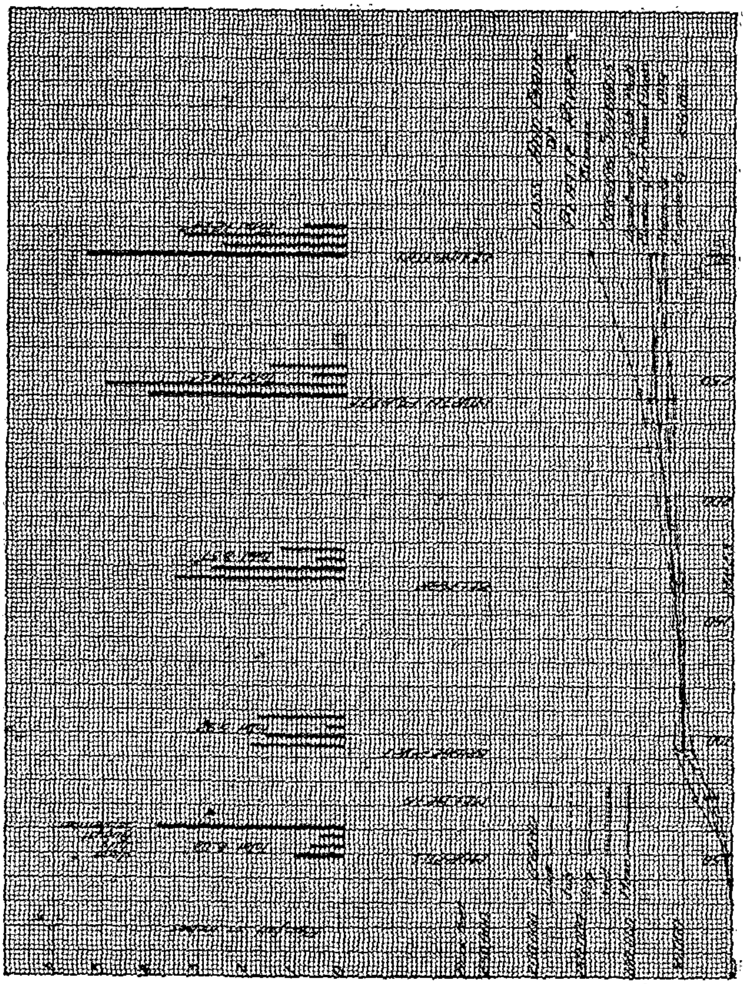
	May		June	
North Platte River	Acre Ft.	Acre Ft.	Acre Ft.	Acre Ft.
Whalen	116,632		186,133	
At Morrill		121,013		157,926
Diversions		23,200		76,592
Gain	27,581		48,385	
Percent	23		26	
North Platte River				
At Morrill	121,013		157.926	
At Mitchell		148,167		171,176
Diversions		0		3,548
Gain	27,154		16.798	
Percent	22		10	
North Platte River				
At Mitchell	148,167		171,176	
At Belbeta		160,000		171,771
Diversions		387		10,153
Gain	12,220		10,748	
Percent	8		6	
North Platte River				
At Melbeta	160,000		171.771	
At Bridgeport		189,424		224.036
Diversions		777		20.353
Gain	30,201		72,618	
Percent	19		42	
North Platte River				
At Bridgeport	189,424		224,036	
At Belmar		225,524		261,128
Diversions		2,091		4,296
Gain	38,191		41,388	
Percent	20		18	
North Platte River				
At Belmar	225,524		261,128	
At North Platte		230,284		224,830
Diversions		8,882		14.521
Gain	13,642			
Loss				21,777
Percent	6			8
North Platte River				
At North Platte	230,284		224,830	
Platte River				
At Lexington		258,648		425.656
Diversions		4,736		18,236
Gain	33.100		200,820	
Percent	14		47	

LOSS AND GAIN IN ACRE FEET ON THE PLATTE RIVERS BETWEEN GAUGING STATIONS FOR 1923.

	July		Aug.	
North Platte River	Acre Ft.	Acre Ft.	Acre Ft.	Acre Ft.
At Whalen	208,561		135,076	
At Morrill		153,999		115,440
Diversions		88,067		83,455
Gain	33,505		63,819	
Percent	16		47	
North Platte River				
At Morrill	153,999		115,440	
At Mitchell		145,191		132,150
Diversions		3,679		2,983
Gain			19,639	
Loss		5,129		
Percent		3	17	
North Platte River				
At Mitchell	145,191		132,150	
At Melbeta		157,093		137,000
Diversions		12,834		10,065
Gain	24,736		14,915	
Percent	17		12	
North Platte River				
At Melbeta	157,093		137,000	
At Bridgeport		178,316		176,234
Diversions		26,182		22,120
Gain	47,405		61,354	
Percent	30		44	
North Platte River				
At Bridgeport	178,316		176,234	
At Belmar		181,589		239,111
Diversions		6,152		5,888
Gain	9,425		68,765	
Percent	5		39	
North Platte River				
At Belmar	181,589		239,111	
At North Platte		149,754		235,640
Diversions		16,475		21,343
Gain			17,872	
Loss		15,360		
Percent		8	7	
North Platte River				
At North Platte	149,754		235,640	
Platte River				
At Lexington		312,599		342,550
Diversions		29,007		26,495
Gain	191,852		133,405	
Percent	128	56		

LOSS AND GAIN IN ACRE FEET ON THE PLATTE RIVERS BETWEEN GAUGING STATIONS FOR 1923.

	Sept.		Oct.	
	Acre Ft.	Acre Ft.	Acre Ft.	Acre Ft.
North Platte River				
At Whalen	133,063		62,972	
At Morrill		87,671		131,506
Diversions		79,359		8,497
Gain	33,967		77,031	
Percent	25		122	
North Platte River				
At Morrill	87,671		131,506	
At Mitchell		80,728		146,144
Diversions		261		
Gain			14,638	
Loss		6,682		
Percent		8	11	
North Platte River				
At Mitchell	80,728		146,144	
At Melbeta		99,383		160,564
Diversions		8,221		2,314
Gain	26,876		16,734	
Percent	33		11	
North Platte River				
At Melbeta	99,383		160,564	
At Bridgeport		95,902		186,846
Diversions		10,794		4,946
Gain	7,313		31,228	
Percent	7		19	
North Platte River				
At Bridgeport	95,902		186,846	
At Belmar		106,415		271,541
Diversions		4,857		1,695
Gain	15,370		86,390	
Percent	16		46	
North Platte River				
At Belmar	106,415		271,541	
At North Platte		107,109		317,756
Diversions		19,109		500
Gain	19,713		46,715	
Percent	18		17	
North Platte River				
At North Platte	107,109		317,756	
Platte River				
At Lexington		126,845		255,475
Diversions		20,222		13,714
Gain	39,958			
Loss				48,567
Percent	37			15



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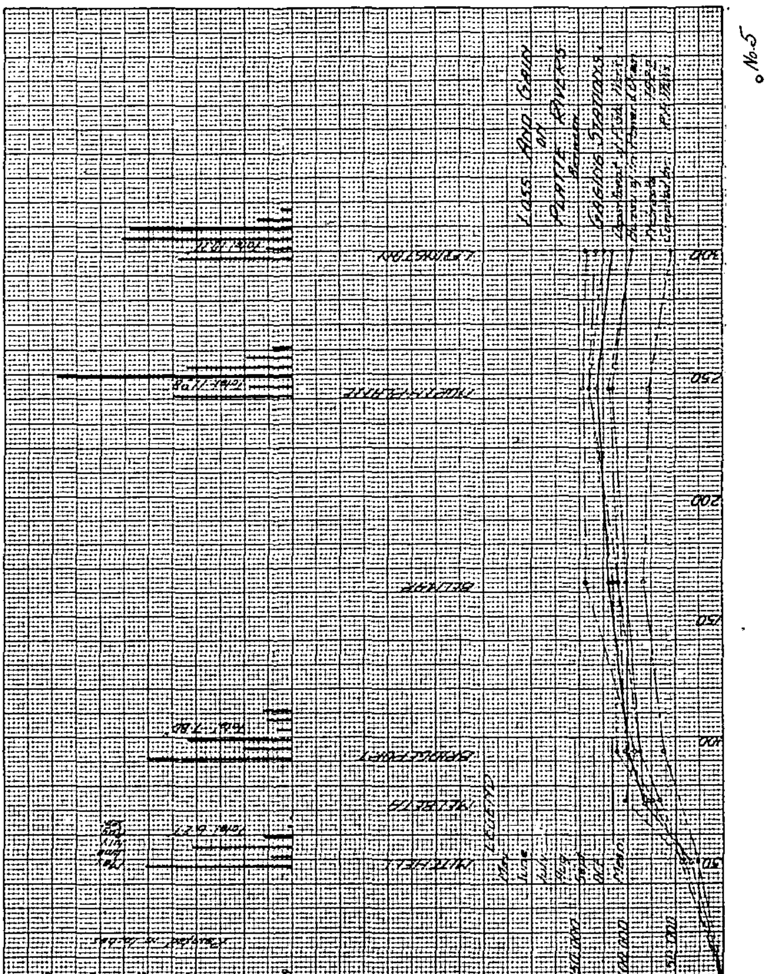
LOSS AND GAIN
ON
PLATTE RIVERS
Between
GAGING STATIONS.
LEGEND
May
June
July
Aug
Sept
Oct
Mean
MITCHELL
BRIDGEPORT
NORTH PLATTE
LEXINGTON
150,000
100,000
50,000
50
100
150
200
250
300
No. 5

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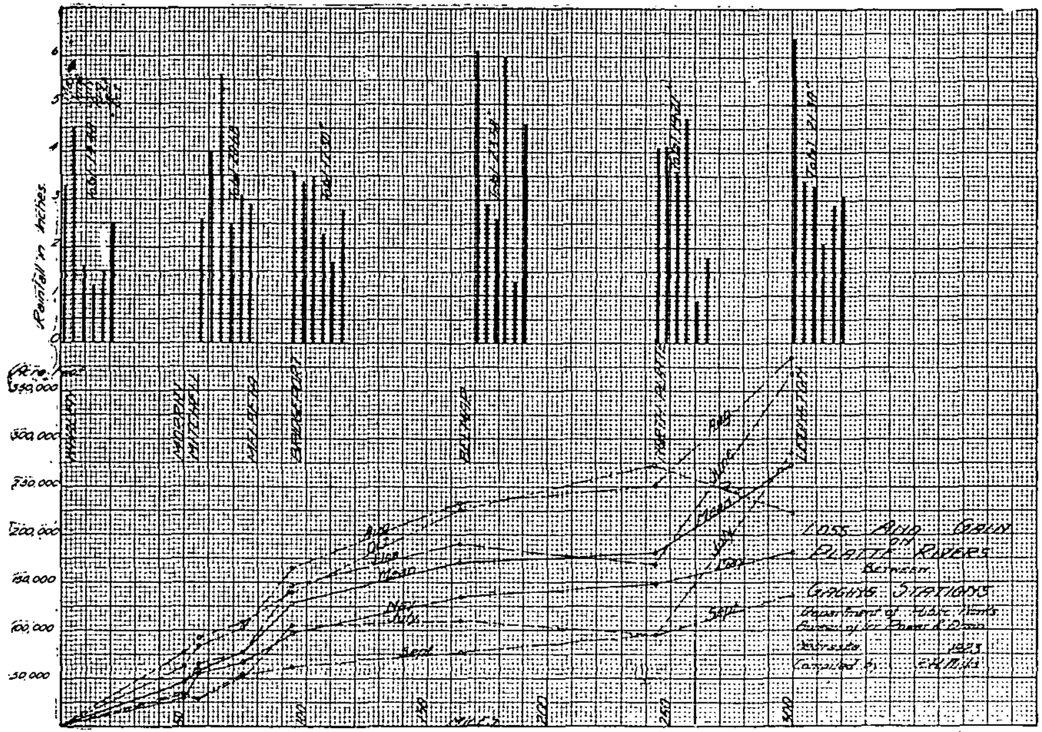
Rainfall in Inches
Acre Feet
350,000
300,000
250,000
200,000
150,000
100,000
50,000
Miles
Loss and Gain
on
Platte Rivers
Between
Gaging Stations

No. 4

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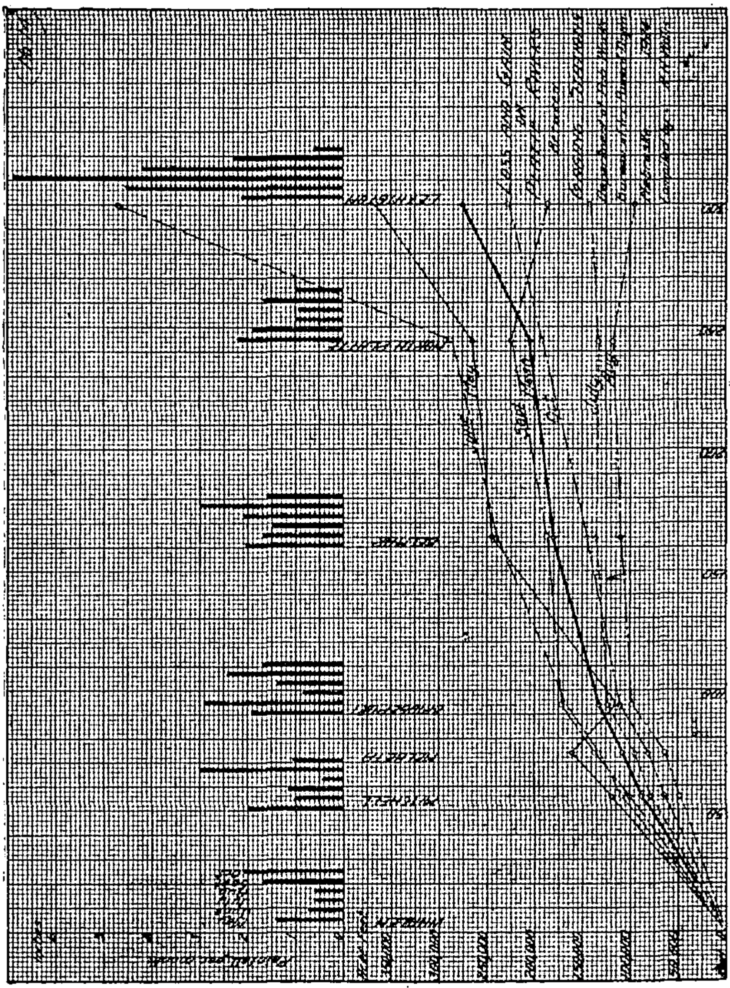

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VISIBLE RETURN FLOW, IN ACRE FEET, BY MONTHS, YEAR 1921, IN THE NORTH PLATTE VALLEY, HENRY TO BRIDGEPORT.

Stream	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Bayard Sugar Fac. Dr	1401	1,511	1,412	1,102	1,206	1,981	2,017	2,499	2,898	2,648	2,380	1,582	22,637
Camp Clark Seep	194	206	184	149	151	137	514	1,033	934	706	524	397	5,129
Fairfield Seep	462	536	331	262	496	1,370	1,781	2,612	1,960	1,577	1,208	1,277	17,652
Horse Creek	153	119	155	172	305	426	597	561	537	399	236	154	3,814
Kronberg Seep	151	186	107	71	79	702	902	813	482	434	418	430	6,268
Melbeta Seep	155	139	184	159	0	139	174	246	228	212	230	133	1,956
Morrill Drain	0	0	0	0	0	0	0	0	0	0	0	0	637
Nine Mile Drain	6,085	5,578	5,782	5,361	6.514	0	105	270	303	200	258	153	1,289
Red Willow Creek ..	2,652	2,567	2,499	2,769	5,783	7,388	9,457	10,838	10,667	9,211	7,097	6,742	90,720
Scottsbluff Drain	613	539	611	381	367	11,506	6,045	5,548	7,135	3,907	3,741	3,481	57,633
Sheep Creek	3,535	3,439	3,437	3,634	4,284	1,323	1,150	1,285	1,267	831	543	633	9,543
Snell Drain	258	252	242	208	652	3,832	3,267	4,158	4,764	5,605	5,282	4,915	50,152
Stewarts Drain	184	153	143	129	91	504	1,815	1,450	827	766	815	635	8,424
Spotted Tail (dry)....	666	972	1,311	1,230	1,688	93	196	188	145	123	119	117	1,681
Spotted Tail (wet)....	821	961	891	722	1,166	3,768	3,457	2,927	3,333	2,928	2,749	2,413	33.212
Tub Springs	2,029	2,057	2,178	1,787	3,586	202	196	222	311	282	228	226	2,603
Toohey Drain	222	167	184	167	196	3,150	2,993	6,528	7,053	3,578	2,830	2,519	39,074
Wild Horse Drain	2,305	2,023	2,041	1,805	2,249	723	882	1,209	1,302	1,718	1,709	1,483	13,587
Winter's Creek	2,688	2,428	2,572	3,078	2,824	3,287	4,619	4,715	4,693	3,400	2,824	2,725	39,853
Total	24,574	23,833	23,264	23,186	31,637	40,513	40,167	47,102	48,839	38,525	33,191	30,015	405,864

VISIBLE RETURN FLOW, IN ACRE FEET, BY MONTHS, YEAR 1922, IN THE NORTH PLATTE VALLEY, HENRY TO BRIDGEPORT.

Stream	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Bayard Sugar Fac. D.	1,537	1,388	1,487	1,497	1,743	2,231	2,574	2,580	2,995	4,349	3,296	2,275	27,952
Camp Clark Seep........	184	166	184	133	236	370	561	745	777	570	190	178	4,294
Fairfield Seep	340	284	374	410	387	567	477	388	518	518	334	180	4,777
Fanning Seep	286	218	278	295	633	357	222	389	293	289	170	167	3,597
Horse Creek	184	222	266	208	266	528	296	256	298	307	298	307	3,436
Indian Creek	0	0	0	0	0	0	0	0	592	715	182	123	1,612
Kronberg Seep	123	111	123	119	123	129	236	307	244	277	200	128	2,120
Melbeta Drain	123	126	218	238	146	59	61	61	59	61	59	61	1,272
Morrill Drain	123	153	195	101	63	181	267	184	192	230	179	130	1,998
Nine Mile Drain	6,047	4,467	4,675	3,899	4,282	6,282	11,437	11,090	9,959	8,027	6,617	5,976	82,758
Red Willow Creek....	3,871	2,386	2,824	2,241	5,654	5,989	8,127	7,207	5,708	4,800	4,641	3,969	57,417*
Scottsbluff Drain	430	418	557	549	523	736	1,360	1,230	1,490	1,190	984	812	10,279
Sheep Creek	4,288	3,788	4,015	4,344	4,345	2,997	3,431	4,032	5,008	4,179	6,123	6,262	52,812*
Snell Drain	904	931	1,253	1,581	1,589	1,407	2,009	2,094	1,924	2,912	2,232	1,962	20,798*
Stewarts Drain	95	166	151	119	118	84	169	201	208	209	146	87	1,753*
Spotted Tail (dry)....	1,277	986	1,168	1,229	1,307	3,574	3,542	4,821	3,857	2,214	1,469	2,279	27,723*
Spotted Tail (upper)	654	793	680	702	930	525	809	1,388	1,342	829	720	670	10,042*
Spotted Tail (lower)	676	559	984	974	771	339	627	571	347	553	515	492	7,408
Tub Springs	2,273	2,366	2,658	2,539	3,404	3,102	3,977	4,743	4,377	3,491	3,392	3,209	39,531*
Toohey Drain	184	167	151	149	126	325	324	269	296	305	971	811	4,048
Winter's Creek	2,065	2,215	2,449	2,202	2,624	2,854	3,602	3,951	6,504	6,879	4,788	3,961	45,094*
Wild Horse	2,214	1,914	1,924	2,027	2,287	3,063	2,511	3,794	3,856	3,701	3,237	3,130	34,658
Total	27,878	23,824	26,614	25,526	31,557	35,699	47,619	51,301	50,844	46,605	40,743	37,168	445,378

VISIBLE RETURN FLOW, IN ACRE FEET, BY MONTHS, YEAR 1923, IN THE NORTH PLATTE VALLEY, HENRY TO BRIDGEPORT.

Stream	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Bayard Sugar Fac. D.	2,596	1,824	1,785	1,537	2,120	2,741	3,247	3,358	3,424	3,070	2,533	2,513	30,748
Camp Clark Seep	199	133	123	94	92	89	155	277	203	241	233	232	2,071
Fairfield Seep	165	226	134	273	263	347	258	347	382	560	278	231	3,464
Fanning Seep	238	222	246	238	246	238	246	246	238	246	298	322	3,255
Gering Drain	28	67	123	119	156	192	142	319	327	349	327	322	2,471
Horse Creek	430	333	501	696	430	1,923	4,603	9,270	8,271	10,607	7,864	3,379	48,307
Indian Creek	266	180	143	119	111	222	341	1,081	650	296	289	284	3,982
Kronberg Seep	112	101	91	59	61	89	123	123	119	123	123	154	1,278
Morrill Drain	61	119	123	129	111	89	103	143	30	61	121	107	1,197
Melbeta Seep	77	146	179	198	210	89	61	165	134	139	193	253	1,844
Nine Mile Drain	4,665	3,705	3,545	3,648	4,215	5,498	6,587	6,909	6,714	446	0	0	45,340
Red Willow Creek	2,854	2,009	1,981	1,995	4,788	5,662	5,837	5.210	4,320	3,939	3,425	2,320	44,340
Scottsbluff Drain	553	367	246	317	258	557	062	835	1,012	833	575	635	7,150
Sheep Creek	4,645	4,580	4,032	4,195	3,357	3,895	4,167	4,309	5,875	6,563	5,690	4,612	55,920
Stewarts Drain	93	139	123	119	93	119	184	246	179	155	119	93	1,662
Snell Drain	1.678	1,682	1,579	1,864	1,688	2,337	2.190	3,824	2,890	9,963	7,531	6,649	44,875
Spotted Tail (dry)	1,521	1,148	1,065	579	870	1,144	1,987	3,205	2,868	2,192	1,603	1,541	19,723
Spotted Tail (wet)	154	347	225	311	297	208	628	634	317	296	489	553	4,359
Tri-State waste, Mitchell	522	553	432	908	3,299	6,522	2,769	3,720	2,279	1,875	2,103	815	26,797
Tri-State waste, Toohey	746	807	644	710	640	694	1,388	0	0	452	1,065	1,098	8,244
Tub Springs	,2176	2,400	2,408	1,711	1,962	2,983	2,739	4,228	4,290	2,985	2,830	2,222	32,934
Toohey Drain	154	166	184	149	61	178	184	274	297	246	238	184	2,315
Winters Creek	3,494	2,432	2,412	2,106	3,473	4,787	5,545	6,321	8,368	6,386	3,477	3,443	52,244
Wild Horse Drain	2,430	1,938	1,922	1,745	1,569	2,261	4,038	2,783	3,592	3,213	2,886	2,828	31,205
Total	29,857	25,524	24,246	23,819	30,370	42,864	49,484	57,827	57,779	55,236	44,290	35,021	476,317

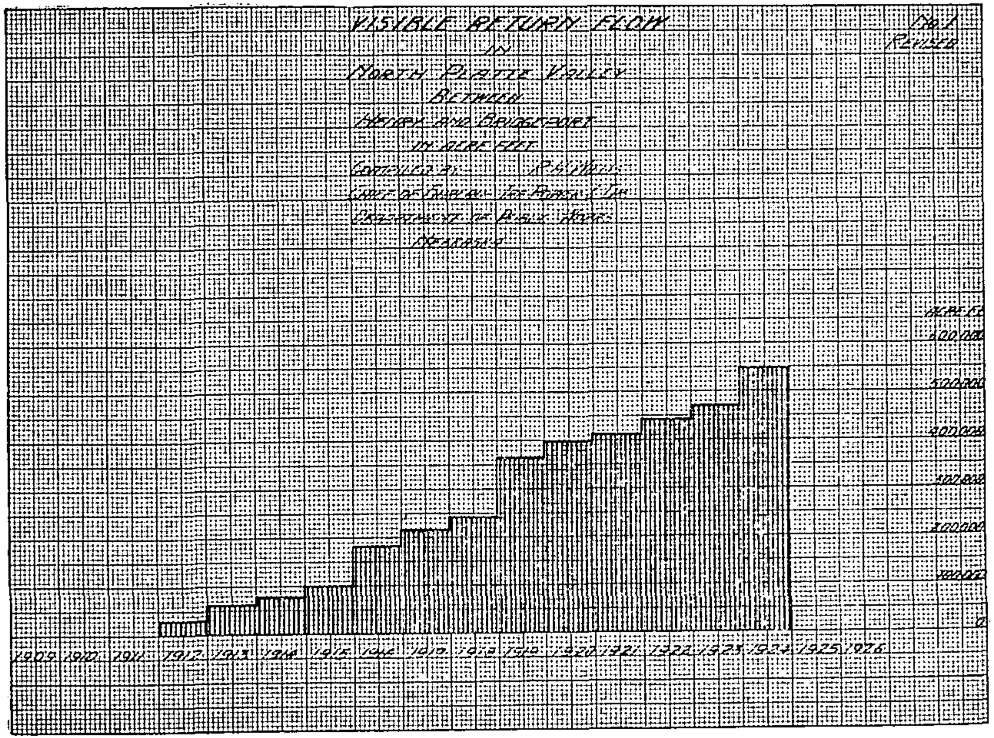
VISIBLE RETURN FLOW, IN ACRE FEET, BY MONTHS, YEAR 1924, IN THE NORTH PLATTE VALLEY, HENRY TO BRIDGEPORT.

Stream	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Bayard Sugar Fac. D.	2,128	2,025	1,743	1,694	2,172	3,768	4,214	4,980	4,848	4,205	3,884	3,800	39,461
Camp Clark Seep	123	115	123	60	61	60	123	696	676	355	298	307	2,997
Fairfield Seep	280	182	184	230	299	422	543	756	783	426	357	369	4,831
Fanning Seep	246	153	123	149	185	188	246	278	268	250	250	250	2,686
Gering Drain	299	345	369	278	258	297	367	476	732	603	536	553	5,113
Horse Creek	4,780	6,829	5,284	4,395	8,166	11,040	6,724	5,414	4,620	3,431	3,500	3,500	67,683
Indian Creek	246	115	123	238	369	678	456	833	1,985	827	595	600	7,065
Morrill Drain	61	46	49	49	49	160	160	160	160	298	254	246	2,608
Melbeta Seep	357	230	246	178	159	297	307	307	297	307	207	307	3,625
Mitchell Spillway	307	288	307	297	307	2,694	3,769	4,128	6,379	4,945	3,328	3,500	40,183
Red Willow Creek	2,277	2,520	2,240	1,854	2,549	799	933	1,603	1,864	1,265	1,012	1,045	10,659
Scottsbluff Drain	492	460	428	315	432	4,054	5,484	5,424	7,642	7,726	7,100	7,340	66,055
Sheep Creek	4,635	4,480	4,544	3,592	4,034	60	103	196	157	61	60	61	1,151
Stewarts Drain	184	87	61	60	61	8,688	9,606	12,139	13,765	11,662	9,384	8,548	103,189
Snell & 9 Mile Drains	5,375	5,339	6,414	5,712	6,557	2,062	2,987	3,689	4,118	3,096	2,975	3,074	30,309
Spotted Tail (dry)....	1,408	1,906	1,368	1,686	1,940	833	1,523	1,476	2,202	1,963	1,488	1,498	13,736
Spotted Tail (wet)....	615	575	615	535	413								
Spotted Tail (wet)						47	61	61	218	186	178	186	1,191
Kronberg Seep	710	496	478	694	710	3,337	2,156	2,677	5,065	5,020	3,721	3,689	35,096
Tub Springs	1,751	1,747	1,874	1,804	2,255	238	511	456	297	430	297	307	3,458
Toohey Drain	184	232	142	119	245	0	0	0	0	250	1,190	1,230	7,321
Toohey Spillway	992	978	799	714	1,168	4,377	5,238	6,480	7,741	6,276	4,413	4,304	53,787
Winters Creek	2,491	2,743	2,882	3,272	3,570	2,650	3,979	5,859	5,617	5,177	3,552	3,000	39,911
Wild Horse Drain	2,150	1,951	2,122	1,950	1,904								
Total	31,784	33,554	32,211	29,578	37,556	47,114	49,942	58,553	69,744	59,101	49,086	47,947	549,795

MEAN ANNUAL DISCHARGE OF NORTH PLATTE RIVER SHOWN GRAPHICALLY

Northgate, Colorado	6 Yrs. *	445000 Acre Feet
Saratoga, Wyoming	14 Yrs.	1018000 Acre Feet
Above Pathfinder	11 Yrs.	1387000 Acre Feet
Below Pathfinder	20 Yrs.	1397000 Acre Feet
Above Whalen	12 Yrs.	1620000 Acre Feet
Below Whalen	15 Yrs.	1199000 Acre Feet
North Platte, Nebraska	29 Yrs.	2294000 Acre Feet

* Ending September 30th, 1921.
Taken from Water Supply Paper 469
United States Geological Survey.


VISIBLE RETURN FLOW
IN
NORTH PLATTE VALLEY
BETWEEN
HENRY AND BRIDGEPORT
IN ACRE FEET
1909 1910 1911 1912 1913 1914 1915
1920 1921 1922 1923 1924 1925 1926

PATHFINDER STORAGE RESERVOIR
Pathfinder, Wyoming.

1922

Daily Content in Acre Feet.

Date	Oct.	Nov.	Dec.
1	301,640	250,380	278,330
2	299,340	251,370	279,100
3	296,980	252,560	279,790
4	294,660	253,510	280,480
5	292,340	254,460	281,180
6	289,940	255,410	281,870
7	297,560	256,360	282,490
8	285,210	257,310	282,950
9	282,870	258,040	283,420
10	280,410	258,770	283,890
11	277,870	259,500	284,360
12	275,330	260,300	284,670
13	272,780	261,190	284,980
14	270,110	262,010	285,290
15	267,450	262,820	285,600
16	264,830	263,630	285,920
17	262,300	264,450	286,310
18	259,790	265,280	286,700
19	257,380	266,180	287,160
20	255,630	267,080	287,630
21	254,020	267,980	288,110
22	252,410	268,670	289,700
23	250,810	269,500	289,700
24	249,230	270,420	290,500
25	247,640	271,330	291,300
26	246,200	272,320	292,100
27	244,840	273,320	292,900
28	245,200	274,710	293,700
29	246,560	276,100	294,500
30	247,930	277,480	295,300
31	249,300		296,100

PATHFINDER STORAGE RESERVOIR

Pathfinder, Wyoming—1923

Daily Content in Acre Feet.

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	296,900	320,820	342,420	376,436	470,320	829,950	1,117,700	972,850	786,680	660,520	711,980	756,900
2	297,550	321,500	343,220	379,240	476,480	840,770	1,115,900	963,680	780,480	663,940	713,570	757,740
3	298,200	322,180	344,020	382,060	484,080	849,910	1,113,430	955,830	774,480	666,780	715,170	758,580
4	298,850	322,870	344,820	385,280	492,120	861,030	1,111,850	948,950	768,360	669,030	716,770	759,420
5	279,500	323,560	245,620	388,530	499,140	870,410	1,110,730	942,520	762,280	670,840	718,370	760,260
6	300,160	324,250	346,420	391,790	505,670	879,890	1,106,900	934,830	756,570	673,260	719,980	760,930
7	301,140	324,940	347,220	394,990	512,900	890,440	1,102,400	926,790	750,560	674,920	721,590	761,600
8	302,130	325,630	348,020	398,200	523,320	899,150	1,096,780	918,810	744,430	676,900	723,360	762,280
9	303,110	326,320	348,830	401,340	533,920	906,970	1,090,250	913,270	738,170	679,650	725,130	762,790
10	304,100	327,020	349,640	404,100	544,630	918,810	1,085,530	907,750	731,630	682,260	726,920	763,290
11	304,770	327,890	350,450	407,180	556,180	936,850	1,080,130	902,470	725,130	683,950	728,700	763,800
12	305,430	238,760	351,260	410,280	569,260	959,330	1,077,880	897,020	718,690	685,340	730,650	764,330
13	306,100	329,630	352,070	413,280	581,860	982,300	1,073,380	891,590	712,130	686,880	732,610	764,810
14	306,760	330,500	352,880	416,580	594,380	1,003,600	1,068,870	885,820	706,100	688,430	734,570	765,320
15	307,420	331,370	353,690	418,810	605,090	1,123,140	1,067,510	880,080	699,810	689,980	736,530	765,830
16	308,090	332,240	354,500	421,030	614,390	1,140,810	1,064,120	874,570	693,390	691,530	738,500	766,330
17	308,750	333,120	355,310	423,580	619,290	1,158,720	1,059,620	868,910	688,270	693,080	740,470	766,840
18	309,420	334,000	356,120	426,160	626,430	1,072,260	1,055,350	863,450	683,030	694,640	741,950	767,350
19	310,080	334,880	356,930	427,390	633,180	1,085,140	1,051,530	858,240	678,430	695,580	743,450	767,860
20	310,740	335,760	357,750	428,850	640,560	1,095,210	1,046,830	852,860	674,160	695,510	744,760	768,360
21	311,740	336,640	359,200	431,870	650,040	1,106,060	1,039,700	846,780	669,930	697,770	746,080	768,870
22	312,570	337,350	360,660	435,850	663,340	1,113,650	1,033,050	840,770	665,280	699,020	747,410	769,380
23	313,400	338,060	362,110	441,140	678,120	1,116,350	1,027,530	834,990	661,850	700,280	748,740	769,890
24	314,240	338,770	363,570	445,610	692,610	1,119,050	1,023,800	829,590	658,890	701,530	750,060	770,400
25	315,080	339,480	365,030	448,940	707,370	1,119,950	1,018,990	824,560	655,490	702,790	751,060	770,910
26	315,920	340,190	366,480	452,080	722,870	1,120,400	1,014,630	819,730	651,660	704,050	752,060	771,420
27	316,760	340,900	367,940	454,460	738,820	1,120,400	1,008,560	814,360	647,100	705,310	753,060	771,930
28	317,600	341,610	369,610	357,510	755,230	1,119,950	1,001,880	808,500	649,890	706,580	754,060	772,440
29	318,440		370,880	460,800	773,800	1,119,730	995,460	803,050	653,270	707,840	755,060	772,950
30	319,290		372,350	464,980	702,740	1,118,600	988,440	797,620	656,840	709,070	756,070	773,630
31	320,140		373,830		812,050		981,030	792,220		710,390		774,310

PATHFINDER STORAGE RESERVOIR

Pathfinder, Wyoming—1924

Daily Content in Acre Feet.

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.
1	775,000	792,040	821,700	852,310	1,009,640	1,009,850	1,063,220	735,380	396,050
2	775,680	792,570	822,590	853,420	1,000,380	1,014,410	1,056,470	724,000	385,580
3	776,370	793,090	823,490	854,530	992,900	1,018,990	1,047,500	711,980	374,660
4	777,050	793,610	824,380	856,940	985,470	1,022,050	1,038,590	699,650	364,390
5	777,730	794,130	825,280	862,150	979,140	1,022,050	1,028,630	688,120	354,590
6	778,420	794,650	826,170	867,780	972,850	1,024,240	1,018,770	676,900	344,670
7	779,100	795,180	827,070	879,130	968,670	1,027,530	1,008,560	665,880	334,530
8	779,790	795,700	827,970	895,270	965,130	1,031,940	998,460	654,600	324,080
9	780,480	796,220	828,870	911,490	960,370	1,037,040	987,600	643,460	313,900
10	781,170	796,750	829,770	929,390	954,180	1,045,940	977,040	632,310	303,770
11	781,850	797,800	830,670	947,620	953,770	1,054,220	966,590	621,430	294,500
12	782,540	798,950	831,750	967,630	960,370	1,056,470	956,240	610,220	287,320
13	783,060	799,900	832,830	985,050	953,360	1,059,850	945,990	599,600	280,480
14	783,570	800,950	833,910	995,460	947,210	1,063,220	935,840	589,200	273,550
15	784,090	802,000	834,990	1,008,990	942,520	1,069,320	924,790	578,510	266,625
16	784,610	803,050	835,890	1,030,840	941,710	1,076,980	912,870	567,810	259,640
17	785,120	804,280	836,790	1,056,020	941,710	1,086,200	901,100	557,090	253,440
18	785,640	805,510	837,690	1,063,900	942,730	1,093,850	891,400	546,410	248,360
19	786,160	806,740	838,600	1,063,220	944,360	1,100,150	880,270	535,540	243,410
20	786,680	807,970	839,500	1,055,350	947,620	1,104,650	869,090	524,680	238,440
21	787,190	809,210	840,410	1,043,930	950,690	1,107,130	857,310	513,740	233,590
22	787,710	810,450	841,310	1,035,930	954,180	1,107,350	846,230	503,170	228,710
23	788,230	811,690	842,400	1,027,970	959,120	1,106,450	834,990	492,820	223,560
24	788,750	813,120	843,490	1,021,610	963,060	1,102,630	823,840	482,710	219,640
25	789,270	814,540	844,580	1,024,670	967,630	1,099,030	812,760	472,110	216,420
26	789,790	815,970	845,680	1,032,600	971,590	1,094,080	801,650	461,240	213,760
27	790,140	817,400	846,780	1,034,820	975,790	1,089,130	790,140	450,350	211,680
28	790,480	818,830	847,890	1,028,630	983,360	1,082,830	778,760	439,550	210,500
29	790,830	820,260	848,990	1,019,860	990,350	1,076,300	767,860	428,750	209,380
30	791,170		850,090	1,018,770	996,100	1,070,000	757,240	417,900	208,270
31	791,520		851,200		1,003,600		746,410	406,980	

NORTH PLATTE RIVER

Into Pathfinder Reservoir

Pathfinder Wyoming

1922

Date	Oct.	Nov.	Dec.
1	70	550	480
2	80	560	440
3	100	560	400
4	140	490	400
5	150	490	400
6	270	490	400
7	340	490	320
8	340	490	280
9	370	380	320
10	310	380	340
11	290	380	340
12	280	410	260
13	230	460	260
14	130	420	260
15	140	420	260
16	150	420	260
17	190	420	300
18	200	430	300
19	250	460	330
20	270	460	340
21	330	460	340
22	310	480	500
23	310	530	480
24	370	510	480
25	360	510	480
26	460	550	480
27	500	550	480
28	490	750	480
29	700	750	480
30	700	750	480
31	700		480
Total	9,530	15,000	11,850
Mean	307	500	382
Maximum	700	750	480
Minimum	70	380	280
Acre Feet	18,902	29,752	23,504

NORTH PLATTE RIVER—Into Pathfinder Reservoir

Pathfinder, Wyoming—1923

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	480	420	480	1,320	3,760	9,420	5,010	1,770	570	1,710	900	520
2	400	420	480	1,420	4,230	8,660	4,140	1,140	570	1,720	900	520
3	400	420	480	1,430	4,490	8,510	3,460	1,240	660	1,480	910	520
4	400	420	480	1,510	4,660	9,470	3,430	1,410	670	1,350	910	520
5	400	420	480	1,690	3,970	9,160	3,600	1,650	650	1,220	910	520
6	410	420	480	1,690	4,000	9,320	2,990	1,040	800	1,330	910	440
7	570	420	480	1,690	4,270	9,950	3,500	790	660	1,030	910	440
8	570	420	480	1,670	5,460	9,150	2,880	720	610	1,160	990	440
9	570	420	480	1,630	5,490	8,640	2,610	1,120	530	1,660	990	360
10	570	430	480	1,440	5,570	8,660	3,440	1,050	530	1,460	1,000	350
11	410	510	460	1,560	5,850	11,690	3,200	1,140	450	1,060	1,000	360
12	410	510	460	1,570	6,520	14,150	4,740	1,070	400	800	1,080	360
13	410	510	460	1,520	6,440	14,490	3,620	1,040	360	880	1,090	340
14	410	510	460	1,670	6,400	13,620	3,690	900	390	880	1,090	360
15	410	510	460	1,850	5,410	12,740	4,900	820	240	880	1,090	360
16	410	510	460	1,810	4,690	11,850	4,100	780	200	980	1,090	350
17	410	520	460	1,930	2,480	12,020	3,700	920	270	880	1,090	360
18	410	520	460	1,920	3,780	9,690	3,690	1,000	600	890	850	360
19	410	520	460	2,100	3,570	9,700	3,960	1,270	980	570	860	360
20	410	520	460	2,300	3,920	9,350	3,550	1,140	1,010	570	760	350
21	580	520	780	3,070	4,960	9,000	2,320	770	1,120	740	770	360
22	490	520	790	3,480	6,520	7,930	2,560	660	930	730	770	360
23	490	430	780	3,870	7,460	6,080	2,600	740	1,070	740	770	360
24	500	430	790	3,250	7,420	6,620	3,900	1,000	1,140	730	770	360
25	500	430	790	2,680	7,690	6,150	3,310	970	890	740	610	360
26	500	430	790	2,580	7,920	5,770	2,930	990	720	740	610	360
27	500	430	790	2,200	8,360	5,710	2,500	710	290	740	610	360
28	500	430	790	2,560	8,530	5,290	2,410	480	2,840	740	610	360
29	500		790	2,730	9,020	5,410	2,580	640	2,360	740	610	360
30	500		790	3,230	9,750	4,910	2,410	620	1,650	740	610	360
31	500		800		9,920		2,120	580		740		440
Total	14,430	12,970	18,080	63,403	182,510	273,010	103,850	27,460	24,160	30,640	26,070	12,310
Mean	465	463	583	2,113	5,887	9,100	3,350	885	805	988	868	397
Max.	580	520	800	3,870	9,920	14,490	5,010	1,770	2,840	1,720	1,090	520
Min.	410	420	460	1,320	2,480	4,910	2,120	480	200	570	610	340
A. F.	28,622	25,725	35,861	125,759	362,008	541,515	205,986	54,467	47,921	66,774	51,709	24,417

NORTH PLATTE RIVER—Into Pathfinder Reservoir
Pathfinder, Wyoming—1924

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.
1	450	360	550	660	3,120	8,270	2,940	1,060	140
2	440	370	550	1,060	3,110	7,400	3,000	880	160
3	450	360	550	1,060	4,050	7,560	1,960	640	240
4	440	360	550	1,210	4,090	6,860	1,970	440	190
5	440	360	550	3,130	4,690	5,430	1,850	470	390
6	450	360	550	3,340	4,400	6,360	1,880	500	270
7	440	370	550	6,220	5,470	7,110	1,730	600	170
8	450	360	550	8,640	5,780	7,540	1,590	580	150
9	450	360	550	8,680	5,300	7,800	1,340	660	140
10	450	370	550	9,530	4,430	8,090	1,520	580	85
11	440	630	550	9,690	4,040	7,430	1,660	590	100
12	450	630	650	10,590	3,790	6,510	1,600	490	90
13	360	630	650	9,870	4,130	7,050	1,540	830	65
14	360	630	650	9,700	4,640	7,080	1,720	960	85
15	360	630	650	12,130	5,380	8,590	1,220	650	75
16	360	630	550	15,110	5,580	9,520	860	370	47
17	360	720	550	15,920	5,280	10,170	980	340	42
18	360	720	550	9,720	5,730	10,030	1,830	350	40
19	360	720	560	7,320	6,080	9,170	1,310	310	70
20	360	720	550	3,690	6,840	7,740	1,170	270	63
21	360	730	560	1,900	6,640	7,160	1,000	220	45
22	360	730	550	3,630	6,980	6,000	1,170	330	20
23	360	730	650	3,650	7,380	5,460	1,090	460	20
24	360	820	650	4,450	7,040	3,920	1,010	490	160
25	360	820	650	6,570	7,500	4,500	1,020	390	580
26	360	820	660	7,000	7,320	3,850	1,000	230	330
27	280	820	660	6,010	7,130	4,170	810	240	450
28	270	820	660	4,540	7,100	3,470	890	240	310
29	280	830	660	3,240	7,430	3,120	1,030	230	370
30	270		660	3,250	7,890	3,180	1,200	190	390
31	280		660		8,430		1,140	130	
Total	11,770	17,110	18,430	191,510	176,770	200,540	45,630	14,720	5,287
Mean.	380	590	594	6,383	5,702	6,684	1,472	475	176
Max.	450	830	660	15,920	8,430	10,170	3,600	1,060	580
Min.	270	360	550	660	3,110	3,120	810	130	20
A. F.	23,345	33,937	36,555	379,860	350,623	297,771	90,507	29,197	10,487

NORTH PLATTE RIVER

Outflow Pathfinder Reservoir

Pathfinder Wyoming

1922

Date	Oct.	Nov.	Dec.
1	1,170	10	50
2	1,150	10	50
3	1,200	10	50
4	1,200	10	50
5	1,190	10	50
6	1,410	10	50
7	1,490	10	50
8	1,480	10	50
9	1,470	10	80
10	1,500	10	100
11	1,490	10	100
12	1,490	10	100
13	1,490	10	100
14	1,480	10	100
15	1,480	10	100
16	1,470	10	100
17	1,470	10	100
18	1,470	10	100
19	1,460	10	100
20	1,120	10	100
21	1,085	10	100
22	1,080	130	100
23	1,080	110	100
24	1,095	50	100
25	1,095	50	75
26	1,095	50	75
27	1,095	50	75
28	230	50	75
29	10	50	75
30	10	50	75
31	10		75
Total	35,565	800	2,480
Mean	1,147	26	80
Max.	1,490	130	100
Min.	10	10	50
A. F.	70,543	1,587	4,919

NORTH PLATTE RIVER—Outflow Pathfinder Reservoir
Pathfinder, Wyoming—1923

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	75	75	75	5	1,000	5	4,940	5,535	3,420	5	100	100
2	75	75	75	5	1,000	2,980	4,650	5,515	3,525	5	100	100
3	75	75	75	5	550	8,510	4,330	4,780	3,510	5	100	100
4	75	75	75	40	500	3,540	4,020	4,560	3,500	140	100	100
5	75	75	75	50	330	4,330	3,790	4,560	3,435	210	100	100
6	75	75	75	50	670	4,540	4,500	4,560	3,540	140	100	100
7	75	75	75	50	500	4,480	5,280	4,520	3,525	100	100	100
8	75	75	75	50	75	4,500	5,320	4,505	3,500	100	100	100
9	75	75	75	50	5	4,540	5,480	3,640	3,525	100	100	100
10	75	75	75	50	5	2,670	5,701	3,510	3,525	100	100	100
11	75	75	50	5	5	2,490	5,580	3,510	3,540	100	100	100
12	75	75	50	5	5	2,540	5,610	3,510	3,540	100	100	100
13	75	75	50	5	5	2,490	5,570	3,510	3,525	100	100	100
14	75	75	50	5	5	2,490	5,620	3,510	3,310	100	100	100
15	75	75	50	720	5	2,490	5,580	3,510	3,240	100	100	100
16	75	75	50	690	5	2,490	5,580	3,510	3,240	100	100	100
17	75	75	50	310	5	2,490	5,580	3,510	3,240	100	100	100
18	75	75	50	500	5	2,500	5,480	3,510	3,240	100	100	100
19	75	75	50	1,380	5	2,880	5,480	3,540	3,240	100	100	100
20	75	75	50	1,500	5	3,780	5,560	3,540	3,010	100	100	100
21	75	75	50	1,500	5	3,340	5,515	3,510	3,005	100	100	100
22	75	75	50	1,500	5	3,560	5,515	3,510	3,005	100	100	100
23	75	75	50	1,200	5	4,270	5,515	3,510	2,570	100	100	100
24	75	75	50	1,000	5	4,830	5,560	3,510	2,500	100	100	100
25	75	75	50	1,000	5	5,130	5,560	3,290	2,500	100	100	100
26	75	75	50	1,000	5	5,190	5,560	3,250	2,500	100	100	100
27	75	75	50	1,000	5	5,210	5,560	3,240	2,500	100	100	100
28	75	75	50	1,000	5	5,210	5,560	3,240	2,500	100	100	100
29	75		50	1,000	5	5,210	5,560	3,210	1,390	100	100	100
30	75		50	1,000	5	5,150	5,580	3,210	5	100	100	100
31	75		50		5		5,580	3,200		100		100
Total	2,325	2,100	1,800	16,875	4,740	112,835	164,716	117,525	90,655	3,005	3,000	3,100
Mean.	75	75	58	563	153	3,761	5,313	3,791	3,029	97	100	100
Max.	75	75	75	1,500	1,000	5,210	5,580	5,535	3,540	100	100	100
Min.	75	75	50	5	5	5	3,790	3,200	1,390	5	100	100
A. F.	4,611	4,165	3,570	11,157	9,401	223,808	326,714	233,110	179,814	5,960	5,950	6,149

NORTH PLATTE RIVER—Outflow Pathfinder Reservoir
Pathfinder, Wyoming—1924

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.
1	100	100	100	100	7,590	5,015	6,040	6,270	5,495
2	100	100	100	500	7,590	5,035	6,040	6,270	5,450
3	100	100	100	500	7,590	5,035	6,120	6,320	5,495
4	100	100	100	500	7,590	5,035	6,040	6,320	5,240
5	100	100	100	500	7,590	5,035	6,520	6,010	5,190
6	100	100	100	500	7,590	5,035	6,540	5,975	5,150
7	100	100	100	500	7,590	5,035	6,510	5,975	5,150
8	100	100	100	500	7,570	5,035	6,490	6,020	5,310
9	100	100	100	500	7,570	5,035	6,540	6,000	5,210
10	100	100	100	500	7,550	3,360	6,510	6,020	5,170
11	100	100	100	500	4,250	2,940	6,510	6,020	4,930
12	100	100	100	500	170	5,015	6,490	6,000	3,680
13	100	100	100	1,090	7,500	5,015	6,540	5,975	3,470
14	100	100	100	4,450	7,500	5,015	6,540	6,000	3,525
15	100	100	100	5,310	7,500	5,035	6,510	5,975	3,500
16	100	100	100	4,090	5,740	5,150	6,490	5,580	3,500
17	100	100	100	3,220	5,015	5,150	6,580	5,495	3,110
18	100	100	100	5,750	5,015	5,730	6,540	5,495	2,550
19	100	100	100	7,660	5,015	5,600	6,540	5,535	2,480
20	100	100	100	7,660	5,015	5,470	6,510	5,495	2,505
21	100	100	100	7,660	5,015	5,580	6,510	5,535	2,490
22	100	100	100	7,660	5,015	5,420	6,390	5,495	2,480
23	100	100	100	7,660	5,015	5,470	6,340	5,475	2,505
24	100	100	100	7,660	5,015	5,470	6,340	5,450	2,030
25	100	100	100	5,030	5,015	6,100	6,340	5,555	2,115
26	100	100	100	3,005	5,015	6,040	6,320	5,555	1,690
27	100	100	100	4,890	5,015	6,250	6,320	5,535	1,505
28	100	100	100	7,660	3,240	6,120	6,320	5,515	915
29	100	100	100	7,660	4,290	6,040	6,290	5,495	915
30	100		100	3,800	5,015	6,040	6,270	5,495	915
31	100		100		5,015		6,270	5,475	
Total	3,100	2,900	3,100	107,515	181,165	157,305	198,310	179,330	103,665
Mean	100	100	100	3,583	5,844	5,243	6,397	5,785	3,455
Max.	100	100	100	7,660	7,589	6,250	6,580	6,320	5,495
Min.	100	100	100	100	170	2,940	6,040	5,450	915
A. F.	6,139	5,752	6,149	213,256	359,341	312,014	393,348	355,701	205,619

NORTH PLATTE RIVER

Daily Discharge

Whalen, Wyoming

1922

Date	Oct.	Nov.	Dec.
1	1,165	275	120
2	1,129	267	123
3	534	460	100
4	382	391	108
5	291	440	75
6	264	330	85
7	268	220	76
8	298	179	33
9	380	175	51
10	473	188	51
11	473	200	95
12	453	118	18
13	483	70	58
14	483	110	44
15	508	119	35
16	508	92	44
17	476	98	54
18	1,210	175	63
19	600	126	68
20	510	114	102
21	460	110	100
22	505	81	115
23	320	77	115
24	299	86	137
25	250	90	130
26	226	107	132
27	250	123	137
28	270	106	168
29	300	110	273
30	300	145	273
31	275		277
Total	14,343	5,172	3,260
Mean.	463	172	105
Max.	1,210	460	277
Min.	226	70	18
A. F.	28,449	10,258	6,466

NORTH PLATTE RIVER—Daily Discharge
Whalen, Wyoming—1923

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	303	155	318	483	1,662	1,176	3,231	3,595	1,282	5,885	408	347
2	176	115	363	474	1,649	614	3,278	4,072	1,376	3,259	239	219
3	250	40	365	442	1,502	403	2,647	3,553	1,490	2,179	422	290
4	211	85	290	456	1,515	264	2,329	3,341	1,791	1,100	619	247
5	163	147	138	356	1,453	2,835	1,925	3,002	1,797	777	691	270
6	150	133	230	347	1,184	3,583	1,680	2,554	1,770	801	639	248
7	194	123	300	297	1,372	4,278	1,307	4,076	1,735	900	560	414
8	283	122	353	409	1,523	4,313	1,995	2,882	1,716	834	545	236
9	201	125	170	366	1,611	4,492	2,537	2,747	1,636	1,480	518	174
10	237	124	281	323	1,356	4,979	4,123	2,616	1,657	1,037	520	53
11	200	122	398	296	1,488	5,621	3,525	1,797	1,630	894	534	51
12	207	125	380	313	1,450	3,974	3,382	1,608	1,663	845	547	89
13	212	110	223	282	1,582	3,534	3,170	1,545	1,810	815	547	140
14	187	95	252	221	1,405	3,817	3,160	1,601	1,823	777	590	176
15	192	117	157	209	925	3,604	3,410	2,864	2,013	763	585	242
16	170	129	242	189	1,105	3,294	3,529	2,008	1,955	689	620	293
17	188	138	110	189	1,041	3,116	3,489	1,788	1,818	667	568	325
18	190	135	55	172	904	2,893	3,340	2,149	2,291	688	551	349
19	140	150	170	172	954	2,745	3,345	1,741	2,536	545	534	368
20	157	150	281	283	864	2,360	3,253	1,735	2,391	551	528	342
21	189	176	197	430	971	2,437	3,543	1,735	2,313	517	513	346
22	180	180	202	735	1,321	3,346	3,503	1,800	2,036	507	495	360
23	195	195	260	1,002	5,010	3,009	3,251	1,798	2,143	534	495	354
24	160	222	180	1,299	5,114	2,947	3,892	1,661	2,024	709	517	338
25	180	230	233	1,210	4,349	2,380	5,764	1,664	1,752	623	499	334
26	182	237	335	1,066	3,889	3,514	5,079	1,687	1,460	584	441	337
27	173	170	285	634	3,421	3,756	4,166	1,539	1,417	570	402	341
28	146	253	245	875	2,916	3,648	5,624	1,377	3,882	560	402	297
29	180		287	1,253	2,162	3,564	4,225	1,165	13,071	582	402	335
30	85		400	1,349	1,810	3,345	3,833	1,225	10,890	561	376	225
31	164		400		1,293		3,613	1,235		515		152
Total	5,847	4,103	8,100	116,132	58,801	93,841	105,148	68,000	77,168	31,748	15,307	8,392
Mean	188	146	261	237	1,896	3,128	3,391	2,196	2,572	1,024	501	270
Max.	303	237	400	1,349	5,114	5,621	5,764	4,076	13,071	5,885	620	414
Min	85	40	55	172	864	264	1,307	1,165	1,282	515	239	51
A. F.	11,597	8,138	16,066	31,998	116,632	186,133	208,561	135,076	153,063	62,972	30,361	16,645

Total 977,242 Acre Feet.

Total 977,242 Acre Feet.

NORTH PLATTE RIVER—Daily Discharge

Whalen, Wyoming—1924

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.
1	140	360	517	962	6,605	3,914	4,323	2,292	1,877
2	160	368	564	704	6,865	3,956	3,285	2,292	1,854
3	144	345	523	1,122	7,981	3,788	3,015	2,292	1,879
4	140	383	473	1,570	8,430	3,707	2,662	2,243	1,899
5	163	357	292	2,159	8,576	3,668	2,748	2,292	1,899
6	217	338	447	4,736	8,538	3,504	2,574	2,180	1,721
7	223	356	388	4,295	8,324	3,424	2,929	2,060	1,472
8	237	360	296	4,127	7,827	3,390	2,958	2,013	1,809
9	246	348	303	5,138	7,808	3,328	2,908	1,966	1,809
10	240	361	417	4,714	7,589	3,246	2,943	2,038	2,025
11	240	402	371	3,511	6,841	3,008	3,024	2,048	2,406
12	244	433	422	3,130	6,717	1,853	2,961	2,159	2,348
13	244	462	402	3,139	3,840	351	2,985	2,089	2,535
14	224	568	381	3,218	2,185	2,591	2,955	2,058	1,423
15	227	740	293	5,444	6,860	2,632	2,901	2,058	1,260
16	238	691	216	8,012	7,461	2,451	2,848	2,081	1,260
17	218	625	248	8,126	6,739	2,425	2,796	2,058	1,196
18	225	668	277	5,943	5,340	2,177	2,943	1,834	1,196
19	233	795	323	5,553	5,351	2,056	2,943	1,854	979
20	211	638	191	7,057	5,117	2,292	2,848	1,854	708
21	193	670	431	7,593	4,748	2,230	2,743	1,809	487
22	199	800	278	7,593	4,289	2,081	2,691	1,809	636
23	221	440	251	7,820	4,205	1,991	2,631	1,854	660
24	238	350	335	8,027	4,402	1,883	2,471	1,809	594
25	246	458	367	8,586	4,302	1,869	2,471	1,877	540
26	246	546	322	8,518	3,863	2,101	2,471	1,899	444
27	228	520	358	5,299	3,821	2,308	2,471	1,943	578
28	244	443	1,039	5,060	3,801	2,271	2,389	1,898	384
29	285	508	2,254	7,297	3,638	2,429	2,341	1,877	180
30	311		1,282	7,879	2,568	3,607	2,340	1,854	228
31	318		1,090		2,800		2,292	1,876	
Total	6,942	14,334	15,351	157,132	177,431	80,531	85,960	66,266	38,184
Mean	227	494	495	5,238	5,723	2,684	2,772	2,138	1,273
Max.	318	800	2,254	8,586	8,576	3,956	3,423	2,292	2,535
Min.	140	338	191	704	2,566	351	2,292	1,809	180
A. F.	13,768	28,431	30,449	311,671	351,934	159,733	170,501	131,438	75,738

Total 1,273,664 Acre Feet.

LARAMIE RIVER

Daily Discharge

Ft. Laramie, Wyoming.

1922

Date	Oct.	Nov.	Dec.
1	42	70	170
2	42	70	150
3	42	70	120
4	42	90	120
5	42	90	150
6	42	100	150
7	42	150	150
8	42	120	170
9	42	100	170
10	42	100	220
11	62	90	220
12	62	90	220
13	62	90	210
14	62	90	300
15	62	170	300
16	62	90	300
17	62	90	300
18	70	90	300
19	70	90	330
20	70	90	330
21	70	90	400
22	70	90	330
23	70	90	330
24	62	120	300
25	70	135	300
26	70	100	300
27	70	100	300
28	70	100	260
29	70	100	260
30	70	120	260
31	70		260
Total	1,926	3,085	7,680
Mean	62	102	247
Max.	70	170	400
Min.	42	70	120
A. F.	3,820	6,119	15,233

LARAMIE RIVER—Daily Discharge
Laramie, Wyoming—1923

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	230	155	190	140	330	420	230	275	235	* 225	* 225	* 200
2	230	200	155	140	330	370	205	280	155	225	225	200
3	260	180	140	140	330	370	180	280	195	225	225	200
4	260	180	140	140	330	330	180	275	155	225	225	200
5	260	200	140	140	295	530	180	205	155	225	225	200
6	200	200	140	140	295	615	170	275	155	225	225	200
7	200	200	140	140	330	420	125	265	125	225	225	200
8	200	200	140	155	370	580	127	235	105	225	225	200
9	200	200	140	140	370	560	175	235	105	225	225	200
10	180	200	140	140	370	1,190	350	410	115	225	225	200
11	180	200	140	140	370	1,390	275	315	125	225	225	200
12	170	200	140	140	370	1,190	200	235	105	225	225	200
13	155	150	140	125	395	1,060	170	235	105	225	225	200
14	155	150	140	125	370	935	145	215	105	225	225	200
15	155	150	140	125	350	760	145	145	80	225	225	200
16	180	150	140	125	330	820	250	130	80	225	225	200
17	140	150	140	140	295	820	320	155	155.	225	225	200
18	140	150	140	125	295	820	270	155	125	225	225	200
19	140	150	140	125	295	760	255	235	125	225	225	200
20	140	150	140	140	295	700	220	155	125	255	255	200
21	155	150	140	155	330	645	215	145	125	225	225	200
22	155	150	140	190	370	500	205	145	115	225	225	200
23	155	150	140	190	1,390	420	395	570	115	225	225	200
24	155	150	140	180	1,550	330	217	470	125	225	225	200
25	140	150	140	180	1,220	295	255	470	125	225	225	200
26	140	150	140	155	990	295	270	255	105	225	225	200
27	140	150	140	155	820	280	415	340	105	225	225	200
28	120	150	140	180	700	230	340	215	730	225	225	200
29	120		140	260	615	230	370	195	235	225	225	200
30	140		140	295	645	230	410	214	235	225	225	200
31	155		140		530		340	195		225		200
Total	5,350	4,715	4,405	4,665	15,875	17,805......	7,604	7,925	4,645	* 6,975	* 6,750	* 6,200
Mean	172	168	142	150	512	592	245	256	155	225	225	200
Max.	260	200	190	295	1,390	1,390	410	570	730	225	225	200
Min.	120	150	140	125	295	230	145	130	80	225	225	200
A. F.	10,611	9,352	8,737	9,253	31,488	35,316	15,082	15,719	9,213	13,835	13,388	12,297

Total 184,219 Acre Feet.

* Estimated.

NORTH PLATTE RIVER—Daily Discharge

Morrill, Nebraska—1923

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	890	750	750	890	1,500	1,260	2,100	2,900	700	9,500	1,200	1,300
2	890	750	800	800	1,700	1,000	2,000	2,900	800	7,000	1,200	1,300
3	890	750	800	1,100	1,950	750	1,900	3,400	700	4,700	1,150	1,300
4	890	750	800	1,100	1,950	620	1,750	2,900	700	3,350	1,200	1,300
5	890	800	800	1,100	1,950	550	1,300	2,900	700	2,450	1,150	1,100
6	890	800	800	1,100	1,950	1,850	1,150	2,500	800	2,250	1,300	1,200
7	800	800	750	1,060	1,950	2,650	800	2,500	800	2,250	1,300	1,200
8	800	800	700	1,060	1,800	3,250	1,000	3,700	750	2,250	1,300	1,300
9	750	800	800	1,000	2,000	3,750	900	2,500	750	1,300	1,200	1,200
10	750	825	800	900	1,800	4,900	1,170	2,500	600	2,100	1,200	1,200
11	750	800	750	900	1,650	5,200	2.450	2,250	650	1,450	1,200	1,200
12	750	800	750	900	1,500	5,200	1,950	2,050	650	1,300	1,300	1,200
13	750	800	800	900	1,500	3,700	1,700	1,400	700	1,700	1,300	1,200
14	750	800	800	890	1,650	4,000	2,200	1,300	700	1,700	1,300	1,200
15	750	800	750	800	1,450	3,500	2,670	1,450	800	1,700	1,300	1,200
16	750	800	750	800	1,250	3,500	2,900	2.250	800	1,550	1,450	1,200
17	750	800	750	800	1,250	3,300	3,400	1,450	900	1,450	1,300	1,200
18	750	800	750	800	1,060	2,650	3,150	1,450	1,000	1,350	1,200	1,200
19	750	800	750	750	1,200	3,000	2,900	2,600	1,350	1,300	1,300	1,200
20	750	800	900	750	1,000	2,500	2,900	1,450	1,500	1,300	1,300	1,200
21	750	750	750	750	1,000	2,500	2,900	1,100	1,350	1,300	1,300	1,200
22	750	750	750	825	1,100	2,500	2,900	1,100	1,500	1,300	1,200	1,200
23	750	800	850	900	1,500	2,500	2,900	1,250	1,350	1,300	1,200	1,200
24	750	800	750	1,350	5,750	2,300	2,700	1,350	1,200	1,300	1,300	1,200
25	750	750	800	1,500	4,500	1,900	3,100	1,260	1,500	1,300	1,300	1,200
26	750	750	800	1,350	3,750	1,950	4,250	1,100	1,350	1,450	1,300	1,200
27	750	750	750	1,350	3,050	2,150	4,900	1,100	1,250	1,300	1,300	1,200
28	750	750	750	1,300	2,750	2,150	2,900	1,000	1,850	1,300	1,300	1,200
29	750		800	1,300	2,400	2,400	3,400	1,000	4,600	1,200	1,300	1,200
30	750		800	1,250	1,650	2,150	4,000	900	12,000	1,300	1,200	1,200
31	750		800		1,500		3,400	700		1,200		1,200
Total	..* 24,190	783	775	30,275	61,010	79,620	77,640	58,200	44,200	66,300	37,850	37,600
Mean	780	825	900	1,009	1,968	2,654	2,504	1,877	1,473	2,138	1,261	1,212
Max.	890	750	700	1,500	5,750	5,200	3,900	3,700	12,000	9,500	1,450	1,300
Min.	750	43,488	47,703	750	1,000	550	800	700	600	1,200	1,150	1,200
A. F.	47,981	* 21,925	* 24,050	60,054	121,014	157,926	153,999	115,440	87,671	131,560	75,075	74,579

Total 1,116,435 Acre Feet.

NORTH PLATTE RIVER

Daily Discharge

Mitchell, Nebraska

1922

Date	Oct.	Nov.	Dec.
1	350	650	800
2	400	650	750
3	500	650	750
4	450	650	750
5	700	700	800
6	300	800	800
7	400	800	850
8	450	800	850
9	500	700	900
10	650	700	900
11	700	750	900
12	800	750	850
13	800	750	850
14	800	750	800
15	850	750	800
16	900	700	900
17	1,000	850	900
18	1,000	850	900
19	1,150	900	900
20	1,150	900	850
21	1,000	850	850
22	1,000	850	850
23	1,000	850	850
24	1,000	850	850
25	900	850	850
26	900	850	850
27	800	850	900
28	700	850	900
29	750	850	900
30	800	800	900
31	600		900
Total	23,000	23,500	26,400
Mean.	741	783	851
Max.	11,500	900	900
Min.	300	650	750
A. F.	45,620	46,612	52,364

NORTH PLATTE RIVER—Daily Discharge
Mitchell, Nebraska—1923

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	900	800	850	900	1,750	1,300	1,800	3,500	600	10,500	1,400	1,500
2	900	850	900	1,000	1,800	1,100	1,800	3,200	600	8,000	1,300	1,200
3	900	850	850	1,100	2,550	750	1,700	3,700	600	5,100	1,400	1,200
4	750	1,050	850	1,250	2,250	700	1,150	3,300	600	5,700	1,425	1,100
5	750	1,250	850	1,250	2,150	600	1,150	2,900	600	2,600	1,450	1,200
6	750	2,100	850	1,250	2,000	1,400	1,150	2,500	700	2,300	1,550	1,300
7	700	1,900	750	1,200	1,900	2,600	900	2,500	700	2,025	1,500	1,200
8	700	1,700	750	1,100	1,800	3,600	800	3,500	700	1,750	1,450	1,200
9	750	1,700	800	1,050	2,250	4,600	700	2,900	700	1,400	1,450	1,150
10	650	1,700	800	1,000	2,250	5,400	1,000	3,200	600	2,250	1,425	1,150
11	850	1,600	800	850	2,150	5,300	2,400	2,900	600	1,750	1,400	1,150
12	850	1,600	850	800	2,150	5,700	1,700	2,450	600	1,750	1,400	1,150
13	900	1,600	800	750	2,100	4,400	1,500	2,000	600	1,750	1,450	1,150
14	900	1,500	850	750	2,100	4,400	1,150	1,900	600	1,600	1,750	1,150
15	850	1,500	850	750	2,150	3,800	2,400	2,400	600	1,450	1,800	1,150
16	850	1,500	850	800	1,900	3,750	2,800	2,100	600	1,550	1,750	1,150
17	800	1,400	1,000	800	2,150	3,700	3,200	2,400	600	1,500	1,750	1,150
18	750	1,300	900	750	1,750	3,600	3,200	1,900	700	1,500	1,550	1,150
19	800	1,250	800	750	1,550	3,700	2,700	1,800	1,600	1,500	1,750	1,150
20	850	1,250	750	800	1,400	2,600	2,700	1,700	1,700	1,500	1,650	1,150
21	800	1,250	850	800	1,250	2,300	2,400	1,700	1,600	1,475	1,550	1,150
22	750	1,100	850	900	1,750	2,300	2,500	1,700	1,500	1,450	1,500	1,150
23	800	1,000	850	1,000	1,650	2,800	2,500	1,500	1,100	1,400	1,400	1,150
24	850	750	850	1,400	5,900	2,300	2,500	1,700	1,100	1,400	1,750	1,150
25	900	800	850	1,650	5,800	2,300	3,500	1,500	1,100	1,580	1,625	1,150
26	900	800	900	1,550	4,400	2,300	4,400	1,325	1,000	1,550	1,500	1,150
27	1,000	850	900	1,750	3,800	2,500	5,100	1,150	1,100	1,500	1,500	1,150
28	1,000	800	900	1,650	3,300	2,150	3,500	1,150	1,900	1,500	1,500	1,150
29	1,000		850	1,600	3,050	2,150	3,600	850	3,700	1,500	1,400	1,150
30	850		800	1,550	1,900	2,200	3,700	700	12,000	1,450	1,300	1,150
31	800		850		1,800		2,600	600		1,400		1,150
Total	25,800	35,750	26,150	32,750	74,700	86,300	73,200	66,625	40,700	73,680	45,625	36,350
Mean	832	1,276	843	1,091	2,409	2,876	2,361	2,149	1,356	2,376	1,521	1,172
Max.	1,000	2,100	1,000	1,750	5,900	5,700	5,100	3,700	12,000	10,500	1,800	1,500
Min.	700	800	750	750	1,250	600	700	600	600	1,400	1,300	1,150
A. F.	51,174	70,910	51,868	64,959	148,167	171,176	145,191	132,150	80,728	146,144	90,407	72,100

NORTH PLATTE RIVER—Daily Discharge
Mitchell, Nebraska—1924

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.
1	1,200	1,200	1,050	1,800	11,400	4,000	4,400	1,750	1,300
2	1,200	1,200	11,00	1,800	7,100	5,500	2,850	1,650	1,400
3	1,200	1,200	1,200	1,600	5,800	6,000	2,600	1,600	1,400
4	1,200	1,200	1,150	1,800	9,500	5,800	2,600	1,500	1,400
5	1,200	1,200	1,100	1,900	13.200	5,500	2,300	1,650	1,350
6	1,200	1,200	1,200	5,000	13,500	4,400	2,300	1,800	1,350
7	1,200	1,200	1,100	4,900	13,500	4,400	2,300	1,800	1,300
8	1,200	1,200	1,100	5,300	11,400	4,400	2,500	1,650	1,200
9	1,200	1,200	1,000	6,300	10,400	4,400	2,300	1,750	1,200
10	1,200	1,200	900	10,400	9,900	4,400	2,100	2,100	1,250
11	1,200	1,200	800	5,750	8,800	4,400	2,000	2,500	1,700
12	1,200	1,200	800	5,150	7,800	4,400	2,100	2,750	2,300
13	1,200	1,200	900	5,150	8,900	2,850	2,200	2,500	3,200
14	1,200	1,200	1,050	5,150	4.400	2.100	2.300	2,250	2,500
15	1,2,00	1,300	1,050	6,500	3,400	2,450	2,200	2,175	1,800
16	1,200	1,400	1,050	10,350	7.900	2,850	2,100	2,100	1,800
17	1,200	1,200	1,050	15,000	9,400	2,700	2,100	2,050	1,800
18	1,200	1,300	1,050	11,900	7,500	2.550	2,300	2,000	2,100
19	1,200	1,200	1,050	7.500	5,600	2,400	2.300	1,800	2,200
20	1,200	1,200	1,050	8,400	5,600	2,250	2,150	1,600	2,400
21	1,200	1,200	1,050	10,850	5,800	2,100	2,100	1,450	2,300
22	1,200	1,200	1,200	11,100	5,600	2,300	2,300	1,600	2,200
23	1,200	1,100	1,100	10,800	4,600	2,300	2,200	1,600	2,000
24	1,200	1,100	1,050	10,800	4,400	2,300	2,200	1,550	2,000
25	1,200	1,200	1.200	11,300	4,500	2,100	2,100	1,500	1,650
26	1,200	1,050	1,200	13,500	4,600	2,100	1,750	1,500	1,800
27	1,200	1,200	1,050	8,400	4,400	1,650	1,750	1,500	2,150
28	1,200	1,200	1,200	6,500	4,400	1,800	1,800	1.350	1,900
29	1,200	1,200	1,200	6,500	4,400	1,950	1,800	1,250	1,800
30	1,200		1,350	10,600	4,100	2,100	2,100	1,150	1,700
31	1,200		1,500		3,900		1.800	1,250	
Total	37,200	34,850	33,850	222,000	225,700	99,050......	69,900	54,675	54,450
Mean	1,200	1,020	1,090	7,400	7,280	3,301	2,255	1,764	1,815
Max.	1,200	1,400	1,500	15,000	13,500	6,000	4,400	2,750	3,200
Min.	1,200	1,050	800	1,600	3,400	1,800	1,750	1,150	1,200
A. F.	73,786	69,125	67,141	440,337	447,676	196,465	138,646	108,448	108,001

Total 1,649,625 Acre Feet.

NORTH PLATTE RIVER—Daily Discharge

Melbeta, Nebraska—1923

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1						1,500	1,950	3,950	600	10,700	1,900	1,700
2						1,000	1,800	3,950	600	8,400	1,800	1,600
3						900	1,800	3,000	600	6,300	1,700	1,300
4						700	1,400	3,000	600	4,200	1,600	1,200
5						650	1,150	3,000	700	3,450	1,600	1,300
6						700	1,050	2,800	700	2,750	1,700	1,300
7						1,950	1,050	3,150	800	2,150	1,900	1,300
8						3,150	1,050	3,300	800	2,150	1,900	1,300
9						4,300	1,000	3,600	850	2,300	1,900	1,200
10						5,900	1,000	2,800	850	2,750	1,900	1,200
11						6,300	1,950	3,000	850	2,400	1,700	1,200
12						5,900	1,700	2,600	850	2,000	2,000	1,200
13						5,500	1,600	2,150	850	1,900	2,000	1,200
14						5,300	1,500	2,150	850	1,900	1,800	1,200
15						4,900	2,600	2,150	900	1,800	1,800	1,300
16						3,950	2,800	2,300	900	1,800	1.800	1,300
17						3,150	3,150	3,000	1,300	1,700	1,900	1,300
18						3,950	2,800	2,050	1,500	1,700	1,800	1,300
19						3,150	3,600	2,060	1,700	1,600	1,700	1,300
20						2,800	2,450	1,950	1,950	1,300	1,700	1,300
21						2,450	2,450	1,700	2,150	1,300	1,700	1,300
22						2,050	2,800	1,700	2,150	1,300	1,800	1,300
23					5,900	2,050	3,000	1,500	2,150	1,300	1,700	1,300
24					6,300	3,000	3,150	1,300	1,950	1,700	1,900	1,300
25					6,300	1,950	3,150	1,300	2,050	1,600	1,900	1,300
26					6,050	1,800	5,500	1,300	1,800	1,700	1,900	1,300
27					4,700	1,700	4,500	1,000	1,800	1,700	1,800	1,300
28					3,900	2,050	4,500	1,000	2.450	1,800	1,800	1,300
29					3,100	1,950	3,950	850	3,600	1,800	1,800	1,300
30					2,400	1,950	4,300	850	11,300	1.700	1,700	1,300
31					1,800		4,500	600		1,800		1,300
Total					40,450	86,600	79,200	69,070	50,150	80,950	54,100	40,300
Mean					4,494	2,886	2,554	2,223	1,617	2,611	1,803	1,300
Max.					6,300	6,300	5,500	3,950	11,300	10.700	2,000	1,700
Min.					1,800	650	1,000	600	600	1,300	1,600	1,200
A. F.					10,232	171,771	157,093	137,000	99,382	160,564	107,307	79,935

Total 993,285 Acre Feet.

Total 993,285 Acre Feet.

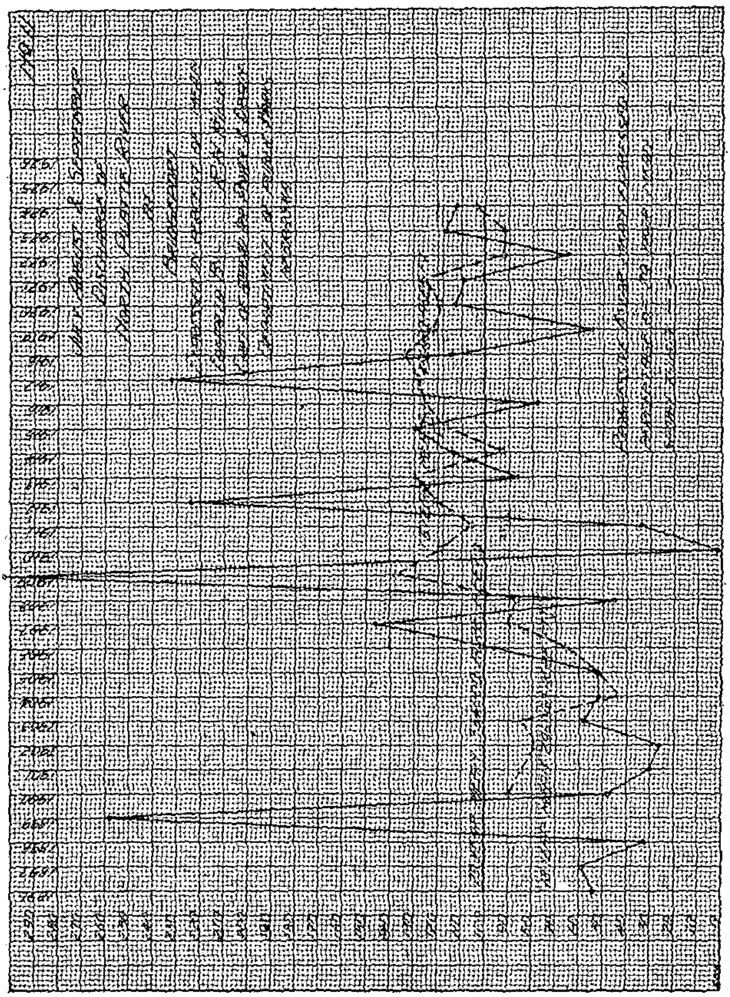
NORTH PLATTE RIVER—Daily Discharge

Melbeta, Nebraska—1924

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.
1	1,900	2,000	1,800	1,600	12,600	4,600	3,500	1,800	1,450
2	1,900	2,000	1,500	1,800	12,600	5,250	3,250	1,800	1,450
3	1,900	1,800	1,300	1,800	13,200	5,250	2,750	1,800	1,450
4	1,900	1,800	1,300	1,900	12,600	5,250	2,000	1,650	1,500
5	1,900	1,700	1,300	1,900	13,200	4,600	2,750	1,800	1,500
6	1,900	1,700	1,250	1,950	14,100	4,600	2,650	1,800	1,500
7	1,900	1,700	1,200	3,150	14,100	4,600	2,450	1,800	1,450
8	1,900	1,700	1,200	4,700	13,200	5,250	2,250	1,800	1,450
9	1,900	1,600	1,150	5,000	11,500	5,500	2,200	1,800	1,400
10	1,900	1,600	1,100	8,600	9,600	5,300	2,200	1,800	1,500
11	1,900	1,600	1,050	8,100	8,500	5,250	2,200	2,050	2,000
12	1,900	1,500	1,050	5,300	8,100	4,600	2,200	2,150	2,600
13	1,900	1,500	1,050	4,050	8,800	4,600	2,200	2,150	3,400
14	1,900	1,500	1,100	4,050	6,600	3,200	2,200	2,100	3,400
15	1,900	1,500	1,050	4,950	6,600	3,400	2,200	2,000	3,400
16	1,900	1,400	1,050	6,550	5,000	3,500	2,350	2,150	2,600
17	1,900	1,500	1,050	15,500	8,800	3,200	2,200	2,150	2,600
18	1,900	1,500	1,050	15,000	8,000	3,100	2,200	2,150	3,000
19	1,900	1,500	1,050	8,300	6,000	2,600	2,200	2,000	3,400
20	1,900	1,700	1,050	7,300	5,000	2,350	2,200	1,800	3,650
21	1,900	2,000	1,050	6,900	4,800	2,000	2,350	1,750	2,900
22	1,900	3,000	1,100	8,700	4,600	2,100	2,200	1,750	2,900
23	1,900	5,500	1,100	9,500	4,000	2,200	2,350	1,650	2,350
24	1,900	5,000	1,150	8,700	3,800	2,200	2,350	1,500	2,600
25	1,900	4,700	1,300	12,000	4,000	2,000	2,200	1,500	2,350
26	1,900	3,600	1,400	12,000	4,200	1,800	2,000	1,800	2,350
27	1,900	3,000	1,500	12,800	3,700	1,800	2,200	1,800	2,350
28	1,900	2,600	1,600	7,900	3,600	1,750	2,250	1,500	2,300
29	1,900	2,400	1,800	6,200	3,500	1,700	2,000	1,575	2,250
30	1,900		1,600	9,200	4,200	1,700	2,000	1,650	2,350
31	1,900		1,600		4,600		1,950	1,550	
Total	* 58,900	* 64,600	38,850	205,500	243,100	105,250	72,000	56,575	69,400
Mean	1,900	2,227	1,253	6,850	7,842	3,508	2,322	1,825	2,313
Max.	1,900	5,500	1,800	15,500	14,100	5,500	3,500	2,150	3,650
Min.	1,900	1,500	1,050	1,600	3,500	1,700	1,950	1,550	1,450
A. F.	116,828	635,341	77,058	407,609	482,189	208,763	142,812	112,216	137,654

Total 2,320,470 Acre Feet.

* Estimated.



NORTH PLATTE RIVER

Daily Discharge

Bridgeport, Nebraska

1922

Date	Oct.	Nov.	Dec.
1	800	1,500	1,400
2	800	1,500	1,300
3	1,000	1,500	1,200
4	1,250	1,500	1,050
5	1,300	1,700	900
6	1,250	1,500	800
7	1,000	1,500	800
8	1,000	1,800	700
9	1,050	1,800	700
10	1,050	1,800	600
11	1,050	1,800	800
12	1,050	1,800	1,000
13	1,050	1,650	1,200
14	1,050	1,600	1,200
15	1,400	1,600	1,300
16	1,400	1,600	1,200
17	1,400	1,550	1,100
18	1,400	1,600	1,100
19	1,400	1,500	1,050
20	1,400	1,500	1,050
21	1,400	1,500	1,050
22	1,250	1,500	1,100
23	1,200	1,400	1,200
24	1,200	1,400	1,200
25	1,200	1,400	1,250
26	1,200	1,500	1,200
27	1,200	1,500	1,100
28	1,600	1,500	1,100
29	1,500	1,500	1,000
30	1,500	1,500	1,000
31	1,500		1,000
Total	37,850	45,500	32,700
Mean.	1,220	1,516	1,054
Max.	1,600	1,800	1,400
Min.	800	1,400	600
A. F.	75,075	90,249	64,860

NORTH PLATTE RIVER—Daily Discharge

Bridgeport, Nebraska—1923

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,500	1,150	560	1,000	1,800	3,550	1,800	4,300	1,150	12,100	2,100	1,800
2	1,700	1,150	850	1,200	1,800	2,700	1,450	4,100	1,050	9,750	2,100	1,800
3	1,700	1,150	850	1,350	2,000	2,300	1,350	3,600	1,050	6,200	2,000	2,800
4	1,700	1,150	1,050	1,350	2,150	2,300	1,250	4,100	950	4,400	2,000	1,550
5	1,700	1,150	1,250	1,350	2,300	1,150	1,450	3,600	850	3,700	2,000	1,450
6	1,650	1,150	1,150	1,350	2,150	1,050	1,350	3,600	950	3,050	2,100	1,450
7	1,650	1,150	1,250	1,350	2,500	2,300	1,250	5,000	950	2,800	2,100	1,450
8	1,650	1,150	1,250	1,350	2,500	4,800	1,250	4,100	950	2,400	2,100	1,550
9	1,500	1,150	1,250	1,350	2,500	6,850	1,150	4,100	950	3,050	2,100	1,550
10	1,500	1,500	1,250	1,250	2,500	7,100	1,700	3,850	950	3,050	2,100	1,550
11	1,450	1,500	1,200	1,150	2,700	6,850	1,700	3,600	850	2,800	2,100	1,600
12	1,400	1,500	1,150	1,150	2,500	6,650	2,500	3,600	800	2,450	2,100	1,750
13	1,350	1,500	1,200	1,150	2,500	6,650	1,800	3,150	800	2,250	2,300	1,750
14	1,350	1,500	1,250	1,050	2,000	5,700	2,300	2,300	800	2,100	2,100	1,750
15	1,350	1,500	1,350	1,050	2,150	5,450	2,700	2,300	800	2,100	2,100	1,750
16	1,350	1,500	1,250	1,050	2,150	5,000	3,150	3,150	850	2,000	2,100	1,750
17	1,350	1,500	1,250	1,050	2,150	5,000	3,400	2,300	950	2,000	2,100	1,750
18	1,350	1,500	1,250	1,050	2,000	3,850	3,600	2,700	950	2,000	2,100	1,750
19	1,350	1,500	1,250	1,050	2,000	4,800	3,600	2,300	950	1,800	2,100	1,750
20	1,350	1,500	1,150	1,050	2,000	3,350	3,400	2,500	950	1,800	2,100	1,750
21	1,250	1,600	1,150	1,050	2,000	3,350	3,150	2,150	950	1,800	2,100	1,750
22	1,250	1,500	1,050	1,050	3,150	3,350	2,700	2,150	950	1,800	2,000	1,750
23	1,250	1,400	1,050	1,250	2,850	3,350	2,900	2,150	2,500	2,100	2,000	1,750
24	1,250	1,300	1,050	1,450	3,350	2,900	3,400	2,000	2,500	2,100	1,800	1,750
25	1,250	1,200	1,050	2,000	7,300	2,500	3,600	1,800	2,500	2,100	1,800	1,750
26	1,250	1,100	1,050	2,150	6,650	2,150	4,300	2,000	2,300	2,100	1,800	1,750
27	1,350	1,000	1,050	2,000	5,900	2,150	5,000	1,800	2,150	2,100	1,800	1,750
28	1,350	900	1,150	2,150	5,200	2,000	5,450	1,800	4,800	2,300	2,000	1,750
29	1,250		1,150	2,000	5,000	2,000	5,900	1,800	4,100	2,100	1,800	1,750
30	1,200		1,150	1,800	4,550	1,800	5,900	1,800	7,100	2,100	1,800	1,750
31	1,200		950		4,050		2,450	1,150		1,800		1,750
Total	* 43,800	* 36,850	* 35,100	40,600	95,500	112,950	89,900	88,850	48,350	94,200	60,700	* 53,500
Mean	1,412	1,316	1,132	1,353	3,080	3,765	2,900	2,866	1,611	3,038	2,023	1,725
Max.	1,700	1,600	1,350	2,150	7,300	7,100	5,900	5,000	7,100	12,100	2,300	2,800
Min.	1,200	900	800	1,000	1,800	1,050	1,150	1,150	800	1,800	1,800	1,450
A. F.	868,877	73,092	69,612	80,530	189,424	224,036	178,316	176,234	95,902	186,846	120,398	106,117

Total 1,587,393 Acre Feet.

* River frozen over part of the month and choked with floating ice, therefore estimated.

NORTH PLATTE RIVER—Daily Discharge

Bridgeport, Nebraska—1924

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.
1	1,700	1,850	1,800	2,000	9,000	4,800	2,150	1,850	1,700
2	1,700	1,700	1,800	1,800	9,800	5,500	3,000	1,750	1,700
3	1,700	1,800	2,000	2,000	9,000	6,000	3,600	1,800	1,700
4	1,700	1,900	2,100	2,000	9,000	6,000	3,300	1,800	1,850
5	1,700	2,000	1,700	2,000	9,000	6,000	2,800	1,800	1,850
6	1,700	2,100	2,000	2,100	10,700	5,500	2,650	1,950	1,950
7	1,700	2,150	1,700	2,150	12,300	5,500	2,650	1,950	1,850
8	1,700	1,700	1,700	4,200	12,300	5,500	2,400	2,150	1,850
9	1,700	1,400	1,700	4,400	11,100	5,500	2,400	2,150	1,700
10	1,700	1,650	1,600	5,400	9,500	5,500	2,400	2,300	1,850
11	1,800	1,900	1,700	83,00	8,600	5,300	2,300	2,300	2,150
12	1,800	1,600	1,600	5,700	8,600	5,000	2,300	2,400	2,650
13	1,800	1,450	1,700	4,000	7,900	4,600	2,300	2,500	3,250
14	1,800	1,450	1,700	3,600	9,500	4,200	2,150	2,500	3,600
15	1,800	1,700	2,000	3,800	4,600	3,300	2,100	2,400	4,000
16	1,800	1,600	1,800	4,400	3,600	3,300	2,100	2,400	3,600
17	1,800	1,700	2,150	7,500	4,000	3,300	2,300	2,400	3,250
18	1,800	1,700	1,800	13,200	5,500	3,300	2,300	2,400	3,450
19	1,800	1,700	1,500	10,700	7,000	3,000	2,300	2,100	3,800
20	1,800	1,200	1,600	7,200	5,500	3,100	2,300	2,100	3,600
21	1,900	3,000	1,500	7,200	4,800	3,100	2,300	1,900	3,600
22	1,900	4,000	2,000	9,000	4,600	2,800	2,300	1,850	3,600
23	1,900	4,000	1,800	8,300	4,600	2,500	2,300	1,850	3,250
24	1,900	3,300	1,600	9,000	4,600	2,300	2,300	1,900	3,100
25	1,900	3,000	1,600	8,300	4,600	2,300	2,300	1,900	3,100
26	2,000	2,150	1,600	8,800	4,000	2,150	2,150	1,700	3,000
27	2,000	1,850	1,600	10,000	4,000	2,150	2,150	1,700	3,000
28	2,000	1,700	1,700	8,800	4,600	1,950	2,050	1,700	3,000
29	2,000	1,700	1,700	4,900	4,600	2,050	2,050	1,700	2,650
30	2,000		1,900	4,900	4,800	2,050	1,900	1,650	2,650
31	1,900		2,300		5,500		1,900	1,650	
Total	60,900	58,950	54,950	175,650	217,200	117,550	73,500	62,500	82,300
Mean	1,964	2,032	1,772	5,855	7,006	3,918	2,371	2,016	2,743
Max.	2,000	4,000	2,300	13,200	12,300	6,000	3,600	2,500	4,000
Min.	1,700	1,450	1,500	1,800	3,600	1,950	1,900	1,650	1,700
A. F.	120,795	116,927	108,993	348,401	430,816	233,160	145,787	123,968	163,242

Total 1,792,089 Acre Feet.

NORTH PLATTE RIVER—Daily Discharge
Broadwater, Nebraska—1923

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,500	1,200	900	1,500	1,900	2,500	1,900	5,100	850	12,100	2,350	2,400
2	1,500	1,200	900	1,700	1,900	1,900	1,850	4,750	850	7,800	2,350	2,400
3	1,500	1,200	900	1,700	1,900	1,500	1,850	4,500	850	7,300	2,400	2,400
4	1,500	1,200	900	1,900	2,500	1,150	1,700	4,500	875	6,500	2,400	2,300
5	1,500	1,200	1,000	1,700	3,000	1,500	1,500	4,500	840	5,500	2,400	2,150
6	1,500	1,200	1,000	1,500	2,750	1,150	1,300	4,500	840	4,800	2,400	1,850
7	1,700	1,200	1,100	1,500	2,500	1,150	1,150	4,800	1,050	4,200	2,400	1,850
8	1,700	1,200	1,100	1,500	2,500	2,500	650	4,750	1,100	4,200	2,800	1,850
9	1,700	1,200	1,200	1,300	3,000	4,500	500	4,600	1,075	4,200	2,400	1,850
10	1,700	1,200	1,300	1,100	1,900	5,800	850	4,500	1,100	4,200	2,400	1,850
11	1,700	1,200	1,300	1,100	2,500	7,000	1,300	3,900	1,025	4,200	2,800	1,850
12	1,700	1,200	1,300	1,100	2,500	7,100	1,900	3,800	1,000	3,600	3,050	1,850
13	1,700	1,200	1,300	800	1,900	7,400	1,900	3,800	1,100	3,100	3,300	1,900
14	1,300	1,200	1,300	800	1,900	6,800	1,900	2,800	1,000	2,900	2,800	1,900
15	1,300	1,500	1,300	1,300	1,900	5,450	2,500	3,800	1,000	2,750	2,400	1,900
16	1,300	1,500	1,300	1,450	2,400	5,150	3,000	3,800	1,125	2,400	2,400	1,900
17	1,300	1,500	1,300	1,500	2,400	5,150	3,800	2,800	1,500	2,400	2,400	1,900
18	1,300	1,500	1,400	1,500	2,400	4,800	3,800	3,000	1,700	2,400	2,400	1,900
19	1,300	1,500	1,400	1,400	1,900	4,500	3,800	2,800	1,900	2,350	2,400	1,900
20	1,300	1,700	1,300	1,300	2,400	4,300	3,000	2,500	1,800	2,400	2,400	1,900
21	1,300	1,600	1,200	1,300	2,500	3,800	3,800	2,450	1,900	2,350	2,150	1,900
22	1,300	1,500	1,200	1,400	2,500	3,100	3,000	2,450	2,400	2,400	2,150	1,900
23	1,300	1,400	1,200	1,700	2,650	2,800	2,800	1,800	2,200	2,350	2,400	1,900
24	1,300	1,300	1,100	1,900	3,100	3,500	2,850	1,900	2,500	2,350	2,450	1,900
25	1,300	1,200	1,100	1,900	4,100	4,100	3,000	1,700	2,500	2,900	2,400	1,900
26	1,200	1,100	1,100	1,900	5,150	3,000	4,200	1,500	2,500	2,400	2,400	1,900
27	1,200	1,000	1,100	1,900	5,750	3,000	5,300	1,500	2,500	2,400	2,400	1,900
28	1,200	900	1,100	1,900	5,150	2,500	5,000	1,500	3,000	2,700	2,400	1,900
29	1,200		1,000	1,900	4,500	2,450	5,000	1,150	4,100	2,800	2,400	1,900
30	1,200		1,000	1,900	3,800	2,400	5,800	1,100	8,800	2,550	2,400	1,900
31	1,200		1,300		3,000		5,500	1,000		2,400		1,900
Total ..	* 43,700	* 36,000	* 35,900	45,350	88,250	111,950	86,400	101,350	54,980	116,900	74,200	* 60,700
Mean	1,029	1,285	1,158	1,511	2,846	37,316	2,787	32,693	1,832	3,779	2,473	1,958
Max.	1,700	1,700	1,400	1,900	5,750	7,400	5,800	5,100	8,800	12,100	3,300	2,400
Min.	1,200	900	900	800	1,800	1,150	500	100	850	2,350	2,150	1,850
A. F.	86,679	71,406	71,207	89,952	175,044	222,053	171,374	201,028	109,053	231,871	147,176	120,398

Total 1,697,241 Acre Feet.

* Estimated on account of ice.

NORTH PLATTE RIVER

Daily Discharge

Belmar, Nebraska

1922

Date	Oct.	Nov.	Dec.
1	1,000	2,000	1,800
2	1,000	2,000	1,800
3	1,000	2,000	1,800
4	1,000	2,000	1,800
5	1,000	2,000	1,800
6	1,300	1,800	1,800
7	1,200	1,800	1,800
8	1,100	1,900	1,800
9	1,000	1,900	1,800
10	1,100	2,000	1,800
11	1,250	1,900	1,800
12	1,600	2,000	1,800
13	1,200	2,000	1,800
14	1,600	2,000	1,800
15	1,650	2,000	1,800
16	1,400	2,000	1,800
17	1,600	2,000	1,800
18	1,600	2,000	1,800
19	1,900	2,000	1,800
20	1,900	2,000	1,800
21	2,000	2,000	1,800
22	2,050	2,000	1,800
23	2,200	2,000	1,800
24	2,000	2,000	1,800
25	2,000	2,000	1,800
26	2,000	2,000	1,800
27	1,800	2,000	1,800
28	1,800	2,000	1,800
29	1,800	2,000	1,800
30	1,800	2,000	1,800
313	1,800		1,800
Total	47,650	57,400	55,800
Mean	1,536	1,913	1,800
Max.	2,200	2,000	1,800
Min.	1,000	1,900	1,800
A. F.	94,513	113,852	110,679

NORTH PLATTE RIVER—Daily Discharge
Belmar, Nebraska—1923

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,500	1,500	1,800	1,500	1,800	3,900	2,700	5,400	1,300	4,800	3,000	2,200
2	1,500	1,500	1,800	1,650	1,800	3,300	2,700	5,700	800	7,800	3,000	1,750
3	1,500	1,500	1,800	1,800	1,800	2,400	2,400	5,400	650	11,700	3,000	1,750
4	1,500	1,500	1,800	2,050	2,700	1,900	2,400	4,500	800	9,000	3,000	1,750
5	1,500	1,500	1,800	2,400	3,300	1,400	1,750	4,800	500	7,200	3,000	1,750
6	1,500	1,500	1,800	2,400	3,900	1,800	1,150	4,400	500	7,200	3,000	2,100
7	1,500	1,500	1,800	2,400	3,900	1,150	1,150	4,200	500	5,700	3,000	2,500
8	1,500	1,500	1,800	2,400	3,600	800	1,000	4,200	800	5,100	3,000	2,400
9	1,500	1,500	1,800	2,400	3,000	1,150	800	4,800	600	4,200	3,000	2,400
10	1,500	1,500	1,800	2,900	2,700	3,900	600	4,200	500	4,200	3,000	2,400
11	1,500	1,500	1,800	1,800	2,700	6,700	800	5,100	800	5,100	3,000	2,400
12	1,500	1,500	1,800	1,800	3,000	7,500	1,500	4,800	1,150	4,800	3,300	2,400
13	1,500	1,500	1,800	1,800	3,000	7,700	1,000	4,500	800	4,500	3,300	2,400
14	1,500	1,500	1,800	1,900	3,150	9,000	2,400	4,400	650	3,850	3,300	2,400
15	1,500	1,500	1,700	1,800	3,300	6,900	2,400	5,400	1,150	3,850	3,300	2,500
16	1,500	1,500	1,700	1,650	3,300	6,900	3,100	5,300	1,000	3,300	3,000	2,500
17	1,500	1,500	1,700	1,450	3,100	6,000	3,500	5,400	1,050	2,900	2,900	2,500
18	1,500	1,500	1,700	1,300	2,100	5,900	4,000	4,800	1,300	3,000	2,700	2,500
19	1,500	1,500	1,700	1,150	2,350	6,000	3,900	4,200	1,900	2,700	2,700	2,500
20	1,500	1,500	1,600	1,300	2,050	6,200	3,700	3,600	2,400	3,000	2,700	2,500
21	1,500	1,500	1,600	1,150	2,500	5,400	4,400	3,300	2,700	3,000	2,500	2,500
22	1,500	1,500	1,600	1,500	3,150	6,300	4,200	3,300	3,000	2,700	2,400	2,500
23	1,500	1,500	1,600	1,300	4,200	4,200	3,600	2,400	3,300	2,400	2,100	2,500
24	1,500	1,500	1,600	1,800	5,100	4,500	3,300	2,400	3,300	3,000	2,400	2,500
25	1,500	1,500	1,400	2,400	4,600	3,900	3,300	2,300	3,300	3,300	2,400	2,500
26	1,500	1,500	1,400	2,700	6,100	4,200	4,500	2,400	3,300	2,500	2,400	2,500
27	1,500	1,500	1,400	3,000	7,600	4,200	3,900	2,050	3,300	3,300	2,500	2,500
28	1,500	1,500	1,400	3,300	9,000	3,000	5,400	1,900	3,900	2,700	3,500	2,500
29	1,500		1,400	3,300	5,700	2,700	5,400	1,800	3,600	3,000	2,400	2,500
30	1,500		1,400	3,000	5,300	2,750	5,500	1,800	5,800	3,100	2,200	2,500
31	1,500		1,200		3,900		5,100	1,800		3,000		2,500
Total ..	* 46,500	* 39,000	* 48,700	61,300	113,700	131,650	91,550	120,550	53,650	136,900	84,000	* 73,100
Mean	1,500	1,500	1,167	2,043	3,667	4,388	2,953	3,888	1,788	4,416	2,800	2,358
Max.	1,500	1,550	1,800	3,300	9,000	9,000	5,500	5,700	4,800	11,700	3,300	2,500
Min.	1,500	1,500	1,200	1,150	1,800	800	600	1,800	500	2,400	2,200	1,750
A. F.	92,232	77,356	96,596	121,588	225,524	261,128	181,589	239,111	106,415	271,541	166,614	144,993

Total 1,984,687 Acre Feet.

* Estimated on account of ice.

NORTH PLATTE RIVER—Daily Discharge

Belmar, Nebraska—1924

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.
1	2,700	2,700	5,000	2,400	8,800	6,800	2,150	1,750	1,250
2	2,700	2,700	3,700	2,500	8,400	6,800	2,150	1,750	1,250
3	2,700	2,700	2,500	2,500	11,900	5,600	2,400	1,950	1,400
4	2,700	2,700	2,300	2,000	9,150	7,150	2,400	2,150	1,400
5	2,700	2,700	2,500	2,500	9,900	6,800	3,750	1,750	1,400
6	2,700	2,700	2,300	2,300	12,250	7,150	3,400	1,950	1,750
7	2,700	2,700	2,500	2,000	13,000	9,200	3,400	1,950	1,550
8	2,700	2,700	2,800	2,300	12,600	8,400	2,900	1,950	1,300
9	2,700	2,700	2,500	3,500	13,800	8,800	3,150	2,150	1,300
10	2,700	2,700	3,900	5,900	12,250	7,600	2,550	2,150	1,900
11	2,700	2,700	3,100	5,900	11,000	7,600	2,400	2,150	2,500
12	2,700	2,700	2,300	9,900	11,500	7,200	2,150	2,150	2,500
13	2,700	2,700	2,300	7,500	11,000	6,800	2,400	2,450	2,500
14	2,700	2,700	2,000	6,300	10,700	6,400	2,550	2,450	2,500
15	2,700	2,700	2,500	5,500	10,700	5,600	2,400	3,000	2,500
16	2,700	2,700	2,500	5,500	6,800	4,500	2,150	2,700	4,200
17	2,700	2,700	2,500	6,700	4,500	3,750	2,150	2,700	4,000
18	2,700	2,700	2,600	11,000	6,800	4,500	2,150	2,700	3,500
19	2,700	2,700	2,600	13,400	9,900	3,750	2,150	2,450	4,000
20	2,700	2,700	2,600	11,500	9,900	2,600	2,150	2,450	4,000
21	2,700	2,800	2,700	10,000	7,950	2,550	2,400	2,200	4,150
22	2,700	3,500	2,700	9,100	7,600	2,900	2,550	2,200	4,150
23	2,700	4,000	2,800	10,700	7,600	2,900	2,550	1,850	4,400
24	2,700	4,500	2,900	11,000	7,600	3,150	2,400	1,650	4,400
25	2,700	5,000	3,000	11,900	7,200	3,150	2,550	1,450	4,150
26	2,700	5,300	3,100	11,500	6,800	2,900	2,150	1,400	4,150
27	2,700	5,700	3,100	13,400	6,400	2,900	2,150	1,400	4,150
28	2,700	6,100	2,800	13,900	7,200	2,550	2,150	1,750	3,600
29	2,700	5,700	2,300	12,300	6,400	2,400	1,950	1,750	3,200
30	2,700		2,300	9,100	6,400	2,150	1,950	1,250	3,200
31	2,700		2,300		7,600		1,950	1,250	
Total	83,700	96,600	85,000	224,000	283,600	154,550	75,650	65,000	86,250
Mean	2,700	3,331	2,742	7,466	9,149	5,051	2,440	2,097	2,875
Max.	2,700	6,100	5,000	13,900	13,800	9,200	3,750	3,000	4,400
Min.	2,700	2,700	2,300	2,000	4,500	2,150	1,950	1,250	1,250
A. F.	166,019	191,600	168,597	444,304	562,520	306,550	150,051	128,927	171,076

Total 2,289,644 Acre Feet.

NORTH PLATTE RIVER

Daily Discharge

North Platte, Nebraska

1922

Date	Oct.	Nov.	Dec.
1	1,250	1,800	1,800
2	1,250	1,800	1,800
3	1,250	1,800	1,800
4	1,250	1,800	1,800
5	1,250	1,800	1,800
6	1,250	1,800	1,800
7	1,250	1,800	1,800
8	1,250	1,800	1,800
9	1,250	1,800	1,800
10	1,250	1,800	1,800
11	1,250	1,800	1,800
12	1,250	1,800	1,800
13	1,250	1,800	1,800
14	1,250	1,800	1,800
15	1,250	1,800	1,800
16	1,250	1,800	1,800
17	1,250	1,800	1,800
18	1,250	1,800	1,800
19	1,400	1,800	1,800
20	1,600	1,800	1,800
21	1,600	1,800	1,800
22	1,800	1,800	1,800
23	1,800	1,800	1,800
24	1,800	1,800	1,800
25	1,800	1,800	1,800
26	1,800	1,800	1,800
27	1,800	1,800	1,800
28	1,800	1,800	1,800
29	1,800	1,800	1,800
30	1,500	1,800	1,800
31	1,500		1,800
Total	44,350	54,000	55,800
Mean.	1,437	* 1,800	* 1,800
Max.	1,800	1,800	1,800
Min.	1,200	1,800	1,800
A. F.	87,968	107,109	110,679

* The flow is estimated for November and December on account of ice.

NORTH PLATTE RIVER—Daily Discharge

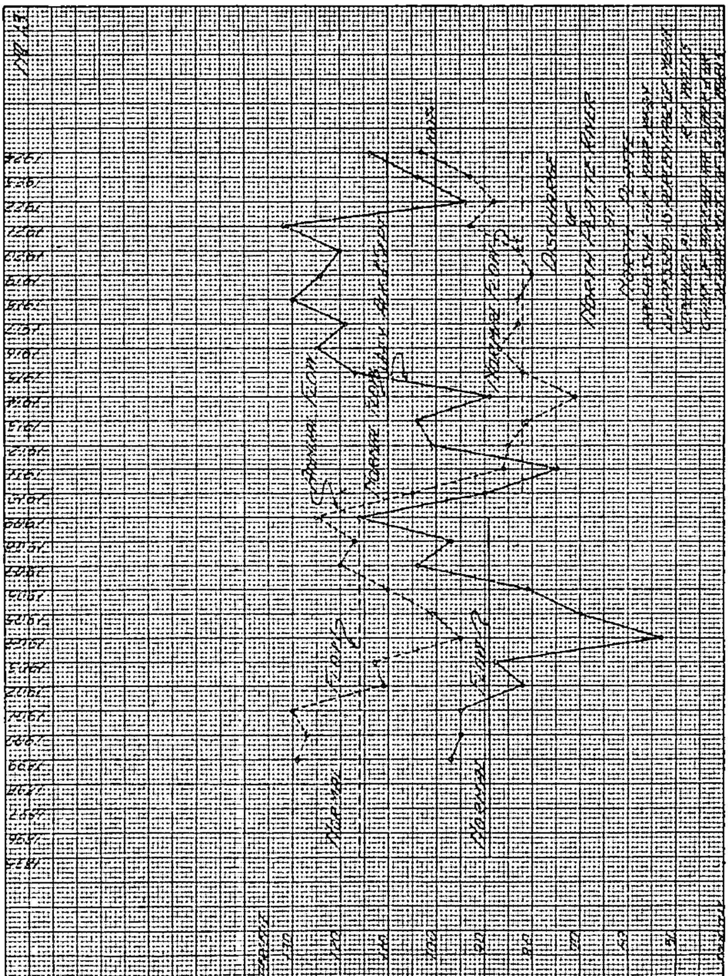
North Platte, Nebraska—1923

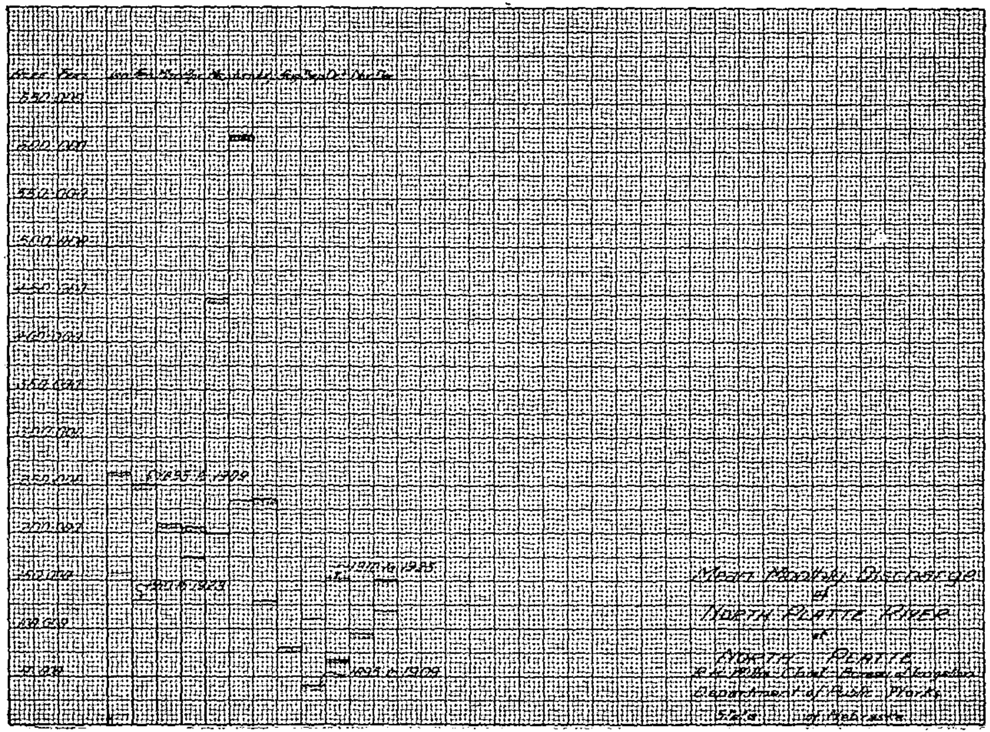
Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	3,000	1,400	2,600	1,600	2,700	3,800	2,400	4,400	2,000	6,200	3,100	3,400
2	3,000	1,050	2,300	1,600	2,700	3,000	2,200	3,700	1,800	5,700	3,100	3,050
3	3,000	1,050	2,200	1,600	2,700	2,700	2,200	3,800	1,600	18,400	3,100	3,060
4	3,000	1,150	1,700	2,000	2,400	2,700	2,000	5,000	1,300	13,200	3,100	3,050
5	3,000	1,150	2,000	2,000	2,400	3,000	2,000	4,400	1,300	9,500	3,100	3,050
6	3,200	1,300	1,600	2,200	2,700	3,400	1,800	4,400	1,300	7,300	3,100	3,050
7	3,200	1,550	1,700	2,200	3,000	2,200	1,800	4,400	1.300	7,300	3,050	3,050
8	3,300	1,700	1,600	2,200	3,000	2,200	1,600	6,500	1,200	7,300	3,050	3,050
9	3,400	1,900	1,800	2,200	2,700	2,200	1,100	4,400	1,200	4,800	3,050	3,050
10	3,500	1,900	1,700	2,200	2,700	2,000	1,000	8,100	1,000	4,400	3,050	3,400
11	2,700	1,700	1,600	2,000	2,700	2,000	900	4,400	1,200	4,400	3,060	2,100
12	2,800	1,700	1,600	2,000	2,700	7,700	1,000	5,000	1,300	4,400	3,700	1,800
13	3,400	1,900	1,650	2,000	2,700	7,700	1,200	4,400	1,350	4,400	3,400	1,600
14	2,100	1,700	1,650	2,000	2,700	8,900	1,200	3,800	1,350	4,100	3,400	1,700
15	1,700	1,200	1,500	2,000	3,000	8,900	1,350	5,000	1,350	3,800	3,400	1,700
16	2,100	1,400	1,500	2,000	3,000	7,400	1,350	5,000	1,350	3,500	3,400	2,100
17	1,900	1,550	1,550	2,000	2,700	5,000	1,600	5,000	1,800	3,500	3,400	3,050
18	1,700	1,550	1,600	1,600	2,700	4,300	3,000	4,400	1,600	3,350	3,400	3,400
19	1,900	2,100	1,900	1,600	3,000	3,800	3,000	3,800	1,600	3,350	3,400	3,000
20	1,900	2,300	2,400	1,600	2,400	3,800	3,000	3,000	2,000	3,500	3,050	3,000
21	1,900	2,300	3,300	2,000	2,700	3,800	3,400	2,700	2,000	3,500	3,050	3,000
22	1,700	2,800	3,300	2,000	3,800	3,000	3,000	2,400	2,000	3,350	3,050	3,000
23	1,400	3,000	3,100	2,200	5,800	2,450	3,000	2,400	2,000	3,350	3,050	3,000
24	1,400	3,000	2,700	2,200	5,000	2,450	2,700	2,400	2,000	3,300	3,050	3,000
25	1,300	3,400	2,700	2,200	5,000	2,450	3,400	2,200	2,400	3,400	3,400	3,000
26	1,400	3,400	1,800	2,700	5,000	2,200	2,700	2,200	3,000	3,800	3,400	3,000
27	1,400	3,400	1,800	2,700	4,400	2,700	3,000	2,200	3,000	3,700	3,400	3,000
28	1,150	3,000	1,600	3,800	7,700	2,700	3,000	2,700	3,000	3,500	2,400	3,000
29	1,400		1,800	3,400	10,500	2,450	5,800	2,400	2,700	3,400	3,400	3,000
30	1,550		1,800	3,000	6.600	2,450	5,800	2,000	3,000	3,300	3.050	3,000
31	1,400		1,600		5,000		5,000	2,000		3,200		3,000
Total	70,800	55,500	61,650	64,800	116,100	113.350	75,500	118,800	54,000	160,200	96,750	* 87,650
Mean.	2,283	1,987	1,988	2,160	3,745	3.778	2,435	38,322	1.800	5,167	3.225	2,827
Max.	3,700	3,400	3,300	3,800	10,500	8,900	5,800	8,100	3,000	18,400	3,700	3,400
Min.	1,150	1,050	1,500	1,600	2,400	2,000	900	2,000	1,000	3,200	3,100	1,600
A. F.	140,432	110,382	122,283	128,283	230,284	224,830	149,754	235,640	191,903	173,854	107,109	317,756

NORTH PLATTE RIVER—Daily Discharge
North Platte, Nebraska—1924

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.
1	1,500	1,600	7,000	3,000	8,200	7,500	1,750	1,750	1,250
2	1,500	1,700	5,800	3,000	7,300	8,400	1,600	1,750	1,250
3	1,500	1,800	5,200	3,400	11,400	6,500	1,600	1,750	1,250
4	1,500	1,900	3,200	4,300	11,400	4,300	1,600	1,750	1,250
5	1,500	2,300	3,000	3,800	10,500	7,500	3,100	1,950	1,250
6	1,500	2,500	2,700	3,700	12,100	7,500	3,100	2,150	1,250
7	1,500	2,600	2,700	3,400	13,700	12,500	2,450	2,450	1,250
8	1,500	2,700	1,800	3,400	13,700	11,700	2,450	2,150	1,250
9	1,500	2,800	2,300	3,400	14,500	10,000	2,750	2,150	1,250
10	1,500	2,900	2,200	3,700	15,300	10,000	2,750	2,450	1,250
11	1,500	3,000	2,700	6,900	13,000	9,200	1,950	2,350	2,550
12	1,500	3,100	3,400	10,500	13,000	8,400	1,900	2,300	1,700
13	1,500	3,100	3,600	12,100	12,200	8,400	2,150	2,200	3,300
14	1,500	2,700	3,800	6,900	12,200	8,400	2,150	2,600	3,300
15	1,500	2,400	3,200	8,100	10,800	6,700	2,150	2,600	3,300
16	1,500	2,400	2,800	6,500	10,800	5,900	2,150	2,600	3,800
17	1,500	2,400	1,600	7,300	7,000	4,500	2,150	2,500	5,400
18	1,500	2,100	2,100	8,100	3,400	3,800	2,150	2,400	5,400
19	1,500	1,900	2,800	16,900	7,000	4,500	2,450	1,400	5,400
20	1,500	1,500	3,250	15,300	10,300	4,000	2,450	1,700	5,400
21	1,500	1,700	2,800	12,900	9,000	2,800	2,450	2,200	5,400
22	1,500	1,300	2,800	11,300	8,400	2,800	2,450	2,200	5,400
23	1,500	1,500	3,700	9,000	6,700	2,800	2,150	2,200	5,400
24	1,500	1,700	3,700	12,900	5,900	2,450	1,900	1,950	5,400
25	1,500	1,800	4,200	12,900	5,900	2,450	1,900	1,700	4,800
26	1,500	2,400	4,200	12,900	5,900	2,150	2,150	1,450	4,800
27	1,500	4,000	4,200	12,100	5,100	2,150	2,150	1,450	4,800
28	1,500	7,200	4,200	12,100	5,900	2,150	1,900	1,300	4,800
29	1,500	7,200	2,600	14,500	6,700	1,950	1,900	1,300	4,800
30	1,500		3,000	12,100	6,700	1,950	1,900	1,300	4,300
31	1,500		2,600		6,700		1,900	1,300	
Total	46,500	78,600	103,150	256,400	290,700	173,350	67,000	61,300	101,850
Mean	1,500	2,711	3,327	8,547	9,377	5,778	2,161	1,977	3,395
Max.	1,500	7,200	7,000	15,300	15,300	12,500	3,100	2,600	5,400
Min.	1,500	1,300	1,600	3,000	3,400	1,950	1,600	1,300	1,250
A. F.	92,232	155,903	204,598	508,569	576,603	343,839	132,895	121,588	202,019

Total 2,338,246 Acre Feet.


Normal Flow
Discharge
of
North Platte River
at
North Platte


Mean Monthly Discharge
of
North Platte River
at
North Platte

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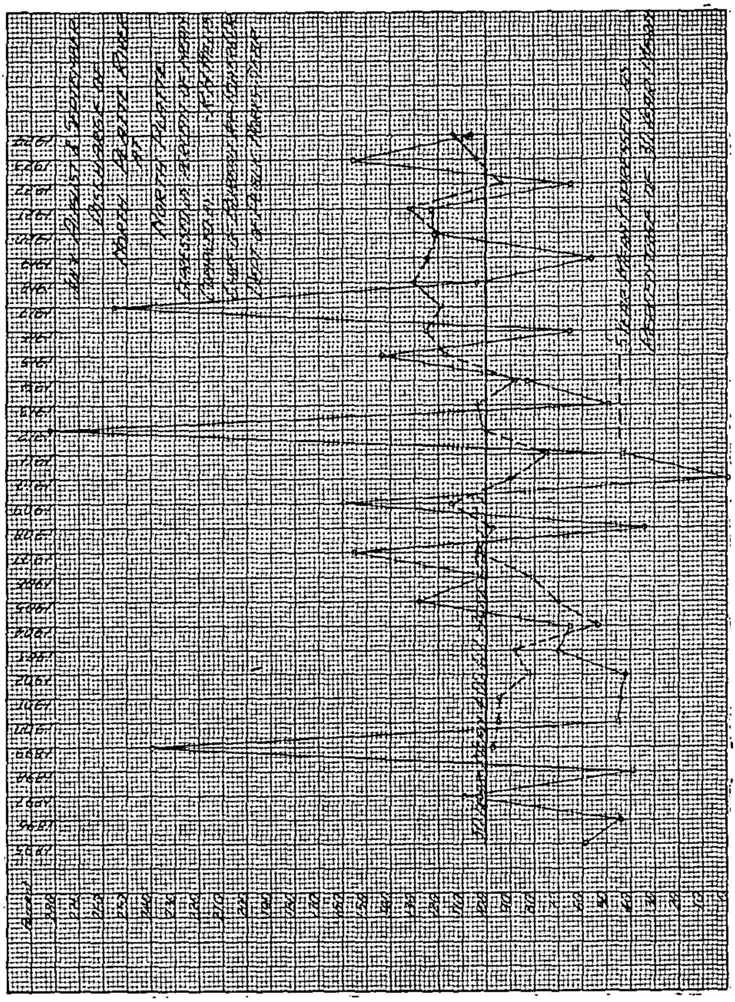
July August & September
Discharge of
North Platte River
At
North Platte
Percent

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SOUTH PLATTE RIVER

Daily Discharge

North Platte, Nebraska.

1922

Date	Oct.	Nov.	Dec.
1	0	0	90
2	0	0	90
2	0	0	90
4	0	0	80
5	0	0	70
6	0	0	70
7	0	25	50
8	0	50	40
9	0	50	30
10	0	50	20
11	0	50	15
12	0	40	* 8
13	0	40	8
14	0	30	8
15	0	30	8
16	0	50	8
17	0	100	8
18	0	100	8
19	0	100	8
20	0	125	8
21	0	125	8
22	0	150	8
23	0	150	8
24	0	150	8
25	0	130	8
26	0	130	8
27	0	120	8
28	0	100	8
29	0	100	8
30	0	100	8
31	0		8
Total	0	2,085	665
Mean	0	80	22
Max.	0	150	90
Min.	0	0	0
A. F.	0	140	90

SOUTH PLATTE RIVER—Daily Discharge

North Platte, Nebraska—1923

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	8	120	300	300	300	800	1,900	850	300	500	1,600	1,800
2	25	120	360	300	300	700	1,900	600	300	500	1,600	1,400
3	50	120	300	300	300	500	1,400	750	200	600	1,600	1,400
4	75	375	270	300	300	400	1,250	750	200	600	1,600	1,600
5	100	250	225	300	300	500	1,100	700	200	700	1,600	1,600
6	150	250	375	230	300	600	850	650	200	700	1,600	1,600
7	200	375	340	300	300	400	750	650	190	700	1,600	1,400
8	400	460	340	230	230	400	525	700	100	700	1,800	1,400
9	500	520	340	230	230	400	350	550	100	700	1,800	1,600
10	575	375	340	230	160	600	180	1,100	100	700	1,800	1,800
11	525	375	340	160	160	600	100	800	100	950	1,800	1,600
12	500	375	300	120	230	600	350	700	90	950	2,000	1,250
13	600	270	300	120	230	700	350	500	90	950	2,000	950
14	300	375	200	120	230	1,000	350	500	90	950	2,000	1,250
15	200	575	270	120	230	1,000	650	700	100	950	2,300	1,800
16	200	475	270	120	230	6,000	750	600	110	800	2,300	1,800
17	300	340	270	120	230	12,000	850	600	200	800	2,500	1,800
18	400	300	270	80	230	8,300	1,100	700	200	800	2,500	1,800
19	350	525	340	80	375	7,900	1,000	500	200	800	2,300	1,800
20	350	575	270	80	300	8,300	850	500	200	950	2,300	1,800
21	350	575	225	120	300	11,200	750	500	200	1,100	2,300	1,700
22	325	575	300	120	400	10,900	750	500	200	1,100	2,000	1,700
23	200	650	375	230	700	8,300	1,250	500	200	1,250	2,000	1,700
24	200	1,000	450	120	620	6,500	1,400	500	200	1,100	2,000	1,700
25	400	1,000	450	160	700	5,400	1,400	500	200	1,250	2,000	1,700
26	400	700	450	230	700	4,300	1,400	700	400	1,250	2,000	1,700
27	375	350	450	230	700	3,700	1,000	300	500	1,400	2,300	1,700
28	250	300	375	300	950	2,900	1,000	300	500	1,400	2,300	1,700
29	375		375	300	1,250	2,700	1,100	300	500	1,400	2,300	1,700
30	300		340	300	1,100	2,300	1,100	300	500	1,400	2,300	1,700
31	170		320		950		1,000	300		1,400		1,600
Total	* 9,153	12,300	10,230	5,950	13,534	109,900	28,705	18,200	6,770	29,350	60,100	* 50,050
Mean	295	439	330	198	437	3,663	926	587	226	9,465	2,003	1,668
Max.	600	1,000	450	300	1,250	12,000	1,900	1,100	500	1,400	2,500	1,800
Min.	8	120	225	80	160	400	100	300	90	500	1,600	1,250
A. F.	18,159	24,397	20,291	11,801	26,846	217,986	56,936	36,100	13,428	58,216	119,208	99,274

Total 702,642 Acre Feet.

* Estimated from Jan. 1st to Jan. 12th on account of ice.

SOUTH PLATTE RIVER—Daily Discharge

North Platte, Nebraska—1924

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.
1	1,700	1,100	1,700	1,700	1,900	400	600	0	0
2	1,700	1,100	1,600	1,700	2,200	800	450	0	0
3	1,600	1,100	1,500	1,900	2,200	1,500	320	0	0
4	1,600	1,100	1,200	1,900	2,100	3,200	260	0	0
5	1,500	1,100	1,200	1,900	1,900	5,500	210	0	0
6	1,400	1,100	1,200	1,700	1,900	6,500	160	0	0
7	1,400	1,100	1,000	1,500	1,900	7,500	100	0	0
8	1,300	1,100	800	1,500	1,900	8,500	100	0	0
9	1,300	1,100	900	1,500	1,900	7,500	100	0	0
10	1,200	1,100	1,100	1,500	2,900	8,000	80	0	0
11	1,200	1,000	1,100	1,700	2,500	8,000	50	0	0
12	1,100	1,000	1,100	1,500	2,200	8,000	40	0	0
13	1,100	1,000	1,000	1,450	1,900	8,000	30	0	0
14	1,100	1,000	1,100	1,200	1,700	7,500	30	0	0
15	1,100	1,000	1,000	1,200	1,500	5,800	30	0	0
16	1,100	1,000	800	1,200	1,400	4,200	25	0	0
17	1,100	1,000	1,300	1,200	1,100	3,900	25	0	0
18	1,100	1,000	1,500	1,200	600	4,600	15	0	0
19	1,100	1,000	1,700	1,500	500	5,800	15	0	0
20	1,100	1,000	1,700	1.650	500	5.800	15	0	0
21	1,100	1,300	1,300	2,200	350	5,000	15	0	15
22	1,100	1,300	1,300	2,000	250	4,200	15	0	30
23	1,100	1,300	1,700	2,400	250	3,100	10	0	50
24	1,100	1,300	1,700	2,900	150	2,700	0	0	100
25	1,100	1,300	1,700	2,200	150	2,500	0	0	140
26	1,100	1,300	1,700	2,000	160	1,700	0	0	140
27	1,100	1,300	1,700	1,500	150	1,300	0	0	210
28	1,100	1,300	1,700	1,500	160	1,000	0	0	210
29	1,100	1,300	2,000	1,500	160	750	0	0	210
30	1,100		1,700	1,700	160	650	0	0	210
31	1,100		1,700		300		0	0	
Total	*37,900	* 32,700	42,700	50,500	36,940	133,900	2,695	0	1,350
Mean	1,223	1,127	1,377	1,683	1,192	4,463	87	0	45
Max.	1,700	1,300	2,000	2,900	2,900	8,000	600	0	210
Min.	1,100	1,000	800	1,200	160	650	0	0	0
A. F.	75,174	64,860	84,695	100,167	73,270	265,590	5,345	0	2,677

Total 671,751 Acre Feet.

* Estimated.

SOUTH PLATTE RIVER—Daily Discharge
Ovid, Colorado—1923

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	500	240	300	120	140	660	1,100	450	180	650	2,280	1,880
2	490	240	300	120	140	660	900	460	160	670	2,340	1,850
3	480	240	300	120	140	400	660	450	140	690	2,400	1,820
4	470	240	300	120	140	400	640	440	120	720	2,410	1,780
5	460	240	300	120	140	240	580	430	100	800	2,420	1,740
6	450	240	280	100	220	220	520	420	80	880	2,430	1,680
7	440	245	280	100	220	200	560	410	80	980	2,430	1,650
8	430	255	280	100	220	190	400	400	70	1,060	2,430	1,620
9	420	265	280	100	220	500	340	390	60	1.160	2,430	1,580
10	410	280	280	100	200	1,000	260	380	40	1,300	2,430	1,550
11	400	300	240	80	340	1,600	180	370	80	1,340	2,420	1,530
12	390	300	240	80	340	10,000	140	360	110	1,360	2,415	1,510
13	380	300	240	80	340	9,000	180	350	140	1,400	2,410	1,480
14	370	300	240	80	340	8,000	240	340	170	1,440	2.405	1.460
15	360	300	240	80	340	7,000	280	330	200	1,460	2,400	1,440
16	340	340	200	80	500	6,000	320	350	240	1,500	2,400	1,430
17	330	340	200	80	500	5,500	320	370	280	1.540	2,380	1,410
18	320	340	200	80	500	5,000	330	390	300	1,580	2,360	1,390
19	310	340	200	80	500	4,500	330	410	340	1,600	2,330	1,370
20	300	340	200	80	500	4,000	340	440	360	1,660	2,300	1,350
21	290	340	180	80	800	3,500	340	450	390	1,720	2,280	1,330
22	280	340	180	80	800	3,000	350	470	420	1,760	2,250	1,320
23	270	340	180	80	800	2,500	360	440	440	1,820	2,240	1,300
24	260	340	180	80	800	2,000	370	400	460	1,860	2,200	1,290
25	260	340	180	80	800	1,800	380	380	480	1,920	2,140	1,280
26	255	320	140	100	980	1,700	390	340	520	1,980	2,100	1,260
27	255	320	140	100	940	1,600	400	300	540	2,020	2,050	1,250
28	250	320	140	100	890	1,500	410	280	560	2,080	2,000	1,240
29	250	320	140	100	840	1,400	420	240	580	2,120	1,960	1,230
30	245		140	100	800	1,300	430	220	610	2,180	1,920	1,220
31	240		140		760		440	200		2,220		1,210
Total	10,905	10,665	6,840	2,800	15,210	85,370	12,910	11,660	8,260	43,710	68,960	45,450
Mean	351	367	220	93	490	2,845	416	376	275	1,410	2,298	1,433
Max.	500	340	300	120	940	10,000	1,100	450	610	2,220	2,430	1,880
Min.	240	240	140	80	140	190	140	200	16,384	86,699	1,920	1,210
A. F.	21,630	21,154	13,567	5,554	30,169	169,331	25,607	23,128	40	650	136,782	90,150

Total 640,155 Acre Feet.

Total 640,155 Acre Feet.

Discharge of the South Platte River at Ovid, Colorado,

For the year ending September 30, 1923.

Date	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.
1	13	23	85	318	298	201	344	281	385	888	368	113
2	13	28	87	318	297	201	327	268	332	721	494	123
3	13	29	94	318	308	183	331	262	299	664	468	101
4	15	39	101	318	307	166	350	232	303	533	367	72
5	16	37	97	318	299	151	354	197	335	423	350	65
6	17	62	97	317	300	145	339	162	280	283	372	59
7	17	107	101	317	291	158	313	133	342	170	363	50
8	16	148	106	317	292	158	296	110	207	70	365	47
9	16	159	98	317	291	159	274	108	234	56	314	66
10	16	156	110	317	307	201	233	91	436	56	281	68
11	16	155	112	317	307	209	185	82	767	94	229	108
12	17	125	112	317	329	237	162	64	732	94	273	111
13	17	119	113	317	328	237	153	64	661	204	282	89
14	18	168	113	317	328	237	164	82	12,000	298	226	84
15	18	296	121	317	338	246	177	79	16,000	281	299	105
16	18	252	117	317	339	276	202	77	15,500	281	343	131
17	17	216	122	317	350	276	173	79	15,200	235	401	209
18	18	168	134	317	348	318	130	84	16,000	258	503	277
19	18	134	145	317	358	318	105	82	15,500	410	533	338
20	20	129	162	317	358	296	100	72	15,500	871	448	416
21	20	82	163	318	368	282	70	126	16,000	1,160	443	502
22	20	111	164	318	367	341	66	382	14,000	1,050	438	620
23	20	111	163	318	337	343	128	1,000	12,600	803	433	722
24	20	101	163	318	300	314	144	1,560	9,960	574	396	780
25	21	96	169	318	273	322	166	876	7,240	471	324	757
26	21	85	218	317	266	301	155	659	5,200	569	277	728
27	20	85	311	317	235	322	176	568	3,680	516	365	692
28	23	82	337	318	225	368	232	550	2,420	586	372	687
29	23	81	346	318		350	264	497	1,640	470	269	723
30	25	85	330	318		353	286	457	1,060	381	175	752
31	23		302	318		357		417		336	124	
Total	565	3,469	4,893	9,841	8,743	8,026	6,399	9,702	184,813	13,806	10,895	9,595
Mean	18	116	158	317	312	259	213	313	6,160	445	351	320
Max.	25	296	346	318	367	368	354	1,560	16,000	1,160	533	780
Min.	13	23	85	317	225	145	66	64	207	56	124	47
A. F.	1,120	6,900	9,720	19,500	17,300	15,900	12,700	19,200	367,000	27,400	21,600	19,000

STATE OF COLORADO—ENGINEERING DEPARTMENT

Discharge of the South Platte River at Ovid, Colorado,

For the year ending September 30, 1924.

Date	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.
1	609	1,990	1,760		1,770	1,070	2,150	3,130	2,700	271	16	23
2	662	2,000	1,680		1,770	1,020	2,070	3,180	4,820	190	17	26
3	716	1,950	1,590		1,690	1,050	1,930	2,940	7,510	111	17	28
4	730	1,960	1,470		1,710	993	1,590	3,010	9,050	53	16	24
5	722	1,910	1,590		1,640	904	1,500	3,140	9,560	37	17	29
6	974	1,930	1,630		1,670	840	1,450	3,090	9,740	26	15	30
7	919	1,960	1,640		1,740	905	1,430	3,060	10,100	24	17	35
8	952	1,990	1,640	1,470	1,970	905	1,460	3,470	10,200	31	15	30
9	1,060	2,040	1,810		1,880	955	1,640	3,580	10,400	36	17	30
10	1,160	2,320	1,620		1,860	955	1,540	3,310	11,000	36	18	31
11	1,280	2,540	1,630		1,980	993	1,360	2,980	9,400	31	20	44
12	1,120	2,610	1,720		2,050	999	1,240	2,600	8,100	28	19	62
13	1,040	2,740	1,650		2,150	1,090	1,260	2,140	6,300	63	19	135
14	1,040	2,840	1,690		1,900	1,090	1,270	1,690	4,780	40	20	257
15	1,030	2,790	1,690		1,880	1,220	1,220	1,050	3,640	32	20	320
16	1,020	2,760	1,690		1,660	1,180	1,420	723	3,800	17	27	387
17	1,110	2,680	1,700		1,500	1,810	1,760	407	4,720	18	28	386
18	1,270	2,800	1,710		1,490	1,880	2,180	220	6,800	25	25	349
19	1,330	2,810	1,720		1,700	1,750	2,880	120	5,440	21	21	321
20	1,320	2,730	1,730		1,580	1,740	3,490	83	4,160	28	20	302
21	1,300	2,930	1,690		1,340	1,740	3,610	53	2,910	23	22	287
22	1,300	2,570	1,750		1,500	1,910	3,400	41	2,220	26	21	272
23	1,340	2,470	1,750		1,650	1,910	3,080	25	2,180	25	20	252
24	1,340	2,380	1,670		1,500	1,870	2,750	13	1,310	24	18	237
25	-,380	2,380	1,730		1,530	1,920	2,360	15	999	26	18	227
26	1,380	2,210	1,600		1,480	2,000	2,140	20	804	26	17	216
27	1,260	2,030	1,590		1,360	2,060	2,020	15	708	24	18	216
28	1,340	1,940	1,600		1,280	2,080	2,300	56	560	23	21	216
29	1,880	1,870	1,540		1,190	1,910	2,610	132	407	45	17	216
30	1,900	1,860	838			1,940	2,890	512	331	23	22	216
31	1,970		676			2,000		1,100		19	23	
Total	36,274	69,990	49,794		48,420	44,689	62,000	45,905	154,649	1,402	601	5,204
Mean	1,170	2,330	1,610	1,350	1,670	1,440	2,070	1,480	5,150	45	19	173
Max.	1,970	2,930	1,810		2,150	2,080	3,610	3,580	11,000	271	28	387
Min.	609	1,860	676		1,190	840	1,220	13	331	17	15	23
A. F.	71,900	139,000	99,000	83,000	96,100	88,500	123,000	91,0000	306,000	2,780	1,190	10,300

Total 1,111,770 Acre Feet.

SOUTH PLATTE RIVER—Daily Discharge

Julesburg, Colorado—1923.

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	240	350	310	180	240	500	1,300	480	230	670	1,760	1,800
2	240	350	310	180	260	440	1,100	540	200	700	1,800	1,800
3	240	350	310	180	280	400	900	520	180	720	1,840	1,790
4	240	350	310	180	300	360	820	490	150	740	1,880	1.780
5	240	350	310	180	320	320	750	460	120	800	1,920	1,760
6	260	350	300	160	340	280	700	440	100	880	1,960	1,750
7	260	350	300	160	360	260	660	420	80	960	2,000	1,740
8	260	350	300	160	380	420	620	400	60	1,060	2,060	1,730
9	260	350	300	160	410	700	590	390	60	1,200	2,120	1,720
10	260	350	300	160	440	800	580	380	80	1,400	2,180	1,710
11	280	350	280	140	460	1,000	540	360	100	1,410	2,260	1,700
12	280	350	280	140	490	4,000	520	350	120	1,420	2,340	1,690
13	280	350	280	140	520	10,000	500	350	150	1,430	2,440	1,680
14	280	350	280	140	550	9,000	480	340	180	1,440	2,600	1,670
15	280	350	280	140	580	8,000	460	340	200	1,460	2,840	1,660
16	320	340	260	140	620	7,000	450	350	240	1,480	2,720	1,660
17	320	340	260	140	650	5,000	440	350	280	1,490	2,600	1,650
18	320	340	260	140	700	4,500	430	360	320	1,500	2,460	1,640
19	320	340	260	140	750	4,000	420	380	360	1,520	2,320	1,630
20	320	340	260	140	800	3.500	420	420	420	1,530	2,240	1,620
21	340	330	250	140	850	3,000	410	460	440	1,550	2,140	1,610
22	340	330	250	160	900	2,800	400	520	460	1,570	2,060	1,600
23	340	330	250	160	950	2,600	400	440	480	1,580	2,000	1,600
24	340	330	250	160	1,000	2,400	390	400	500	1,600	1,960	1,590
25	340	330	250	160	1,100	2,200	380	380	530	1,620	1,920	1,580
26	340	320	230	200	1,000	2,000	380	360	550	1,630	1,890	1,580
27	340	320	230	200	860	1,800	380	340	580	1,650	1,870	1,590
28	340	320	230	200	760	1,600	380	350	600	1,670	1,850	1,590
29	340	320	220	200	680	1,500	370	330	620	1,690	1,830	1,570
30	340		220	200	620	1,400	370	300	640	1,710	1,810	1,560
31	340		200		560		370	260		1,730		1,550
Total	9,240	9,880	8,350	4,900	18,730	80,780	16,910	12,260	9,030	41,810	63,670	51,600
Mean	298	340	269	163	604	2,692	545	395	31	1,347	2,122	1,664
Max.	340	350	310	200	1,100	10,000	1,300	520	640	1,730	2,720	1,800
Min.	240	320	200	140	240	260	370	260	60	670	1,760	1,550
A. F.	18,328	19,597	16,562	9,719	37,151	160,227	33,541	24.318	17,911	82,930	126,289	102,349

Total 648,922 Acre Feet.

SOUTH PLATTE RIVER—Daily Discharge
Julesburg, Colorado—1924

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.
1	1,540	1,600	1,600	2,000	3,000	5,000	300	20	33
2	1,540	1,600	1,600	2,000	3,000	6,000	250	20	33
3	1,540	1,600	1,600	2,000	3,000	6,160	200	22	33
4	1,540	1,600	1,600	2,000	3,000	6,500	150	24	32
5	1,540	1,600	1,600	2,000	3,000	7,000	60	25	32
6	1,540	1,600	1,380	2,000	3,000	9,000	45	25	45
7	1,540	1,600	1,380	2,000	3,000	10,000	45	40	45
8	1,540	1,600	1,380	2,000	3,000	10,000	45	40	45
9	1,540	1,600	1,380	2,000	3,000	10,000	45	40	45
10	1,540	1,600	1,380	2,000	3,000	11,000	45	40	45
11	1,540	1,640	1,380	1,300	1,600	10,000	45	40	75
12	1,540	1,640	1,380	1,300	1,600	9,000	45	45	100
13	1,540	1,640	1,380	1,300	1,600	8,000	45	45	130
14	1,540	1,640	1,380	1,300	1,600	6,000	45	45	200
15	1,540	1,640	1,380	1,300	1,600	5,000	45	45	247
16	1,540	1,640	1,990	1,300	600	4,000	37	48	247
17	1,540	1,640	1,990	1,300	600	4,500	37	48	247
18	1,540	1,640	1,990	1,300	600	6,500	37	48	247
19	1,540	1,640	1,990	1,300	600	5,500	37	48	247
20	1,540	1,640	1,990	1,300	600	4,200	37	48	247
21	1,540	1,640	1,990	2,700	50	3,000	30	30	247
22	1,640	1,640	1,990	2,700	50	2,500	30	30	247
23	1,540	1,640	1,990	2,700	50	2,000	30	30	247
24	1,540	1,640	1,990	2,700	50	1,500	30	27	247
25	1,540	1,640	1,990	2,700	50	1,000	30	27	247
26	1,540	1,640	1,990	2,680	30	900	28	30	250
27	1,640	1,640	1,990	2,680	60	860	27	31	250
28	1,540	1,640	1,990	2,680	100	860	26	32	250
29	1,540	1,640	1,990	2,680	1,400	700	25	33	250
30	1,540		1,990	2,680	3,000	600	22	34	250
31	1,540		1,990		5,000	400	21	34	
Total	47,750	47,160	52,540	59,900	50,840	* 157,680	1,894	1,099	4,860
Mean	1,540	1,625	1,694	1,996	1,640	5,086	61	35	162
Max.			1,990	2,680	5,000	11,000	300	48	250
Min.			1,380	1,300	30	400	21	20	32
A. F.	* 94,692	* 93,541	104,213	118,811	100,841	312,758	3,757	2,179	9,640

Total 840,432 Acre Feet.

* Estimated June 6th to June 25th.

SOUTH PLATTE RIVER—Daily Discharge

Ogallala, Nebraska, 1923

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	360	270	310	300	100	760	1,700	520	150	520	1,920	2,250
2	360	270	310	290	100	720	1,560	520	130	560	1,980	2,230
3	360	270	310	280	100	660	1,300	520	110	580	2,050	2,210
4	360	270	310	260	100	620	1,100	520	100	630	2,100	2,200
5	360	270	310	250	100	560	900	520	90	650	2,140	2,180
6	360	250	315	220	110	520	600	520	70	670	2,180	2,150
7	360	250	315	200	110	460	360	520	60	700	2,220	2,140
8	360	250	315	190	110	420	320	520	40	730	2,280	2,120
9	360	240	315	180	110	480	300	520	30	760	2,340	2,100
10	360	240	315	170	110	580	260	520	50	790	2,400	2,070
11	340	240	325	160	140	680	210	520	70	820	2,480	2,050
12	340	250	325	150	140	780	240	520	100	860	2,580	2,040
13	340	250	325	140	140	960	280	520	130	900	2,600	2,030
14	340	250	325	120	140	3,000	300	510	150	940	2,650	2,020
15	340	260	325	100	140	10,000	330	490	170	1,000	2,600	2,010
16	330	260	340	90	160	9,000	360	460	180	1,040	2,560	2.000
17	330	260	340	80	160	8,000	400	440	200	1,140	2,540	1,990
18	330	270	340	70	160	7,500	420	420	230	1,280	2,520	1,980
19	330	270	340	70	300	7,000	440	400	250	1,330	2,500	1,970
20	330	280	340	70	540	6,500	470	370	270	1,370	2,480	1,950
21	320	280	340	70	800	6,000	560	350	300	1,420	2,460	1,920
22	320	290	340	70	1,000	5,500	640	330	320	1,460	2,440	1,910
23	320	290	340	80	1,230	5,000	740	310	340	1,520	2,420	1,900
24	320	290	340	80	1,180	4,500	800	290	360	1,560	2,400	1,890
25	320	300	340	80	1,120	4,000	880	270	380	1,600	2,380	1,870
26	300	300	340	80	1,060	3,600	980	250	410	1,650	2,360	1,860
27	300	300	340	80	1,020	3,200	900	230	430	1,700	2,340	1,850
28	300	300	250	80	960	3,000	800	210	460	1,750	2,320	1,840
29	300	300	340	90	920	2,500	720	200	480	1,800	2,300	1,830
30	300		320	90	850	2,000	640	190	500	1,840	2,270	1,820
31	300		310		820		520	180		1,880		1,800
Total	10,350	7,820	10,150	4,190	14,030	98,506	20,030	12,660	6,560	35,450	70,810	62,180
Mean	330	268	327	139	452	3,280	646	408	218	1,140	2,360	2,005
Max.	360	300	350	300	1,230	10,000	1,700	520	500	1,880	2,650	2,250
Min.	300	240	310	70	100	420	210	180	30	520	1,920	1,800
A. F.	20,529	15,511	20,133	8,311	27,829	195,375	39,730	25,111	13,012	70,315	140,452	123,334

Total 699,642 Acre Feet. Total 1,111,770 Acre Feet.

PLATTE RIVER

Daily Discharge

Lexington, Nebraska

1922

Date	Oct.	Nov.	Dec.
1	390	1,150	1,600
2	390	1,150	1,700
3	390	1,300	1,700
4	500	1,800	1,700
5	390	1,800	1,400
6	450	1,800	700
7	450	2,800	700
8	390	2,100	800
9	450	1,800	1,800
10	500	2,100	1,300
11	500	1,500	900
12	500	2,000	800
13	600	2,800	700
14	500	1,500	550
15	600	900	400
16	500	1,300	600
17	900	1,700	1,400
18	1,150	2,100	2,300
19	1,150	2,800	2,400
20	1,150	2,500	2,400
21	1,150	1,900	3,000
22	1,150	1,500	3,000
23	1,300	1,500	3,000
24	1,300	1,500	3,200
25	1,300	1,500	3,400
26	1,400	1,500	2,700
27	1,400	1,500	2,400
28	1,400	1,500	2,700
29	1,300	1,500	2,700
30	1,400	1,500	3,000
31	1,300		3,000
Total	26,250	52,300	58,950
Mean	846	1,743	1,901
Max.	1,400	2,800	3,400
Min.	390	900	550
A. F.	52,067	103,737	116,927

PLATTE RIVER—Daily Discharge
Lexington, Nebraska—1923

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2,750	1,750	3,100	2,600	3,500	5,900	4,400	5,000	3,500	3,650	4,100	4,100
2	2,750	1,500	3,600	2,300	3,500	4,300	3,800	5,700	3,350	4,800	4,100	4,400
3	2,750	2,000	2,500	2,200	1,500	3,600	3,000	5,700	3,150	3,800	4,100	4,700
4	2,750	1,500	2,700	2,600	2,500	1,900	2,650	5,050	3,000	4,800	4,400	4,100
5	2,750	1,050	3,000	2,400	2,500	3,600	3,000	6,250	2,800	12,000	4,700	4,100
6	2,750	1,500	3,000	2,200	1,800	2,700	2,650	5,400	1,700	6,800	4,100	4,100
7	2,500	1,500	2,500	2,100	1,800	3,100	2,650	7,400	2,000	6,800	4,700	3,600
8	2,300	1,500	2,200	2,500	1,800	1,200	2,050	6,250	1,700	5,800	4,700	3,600
9	1,300	1,750	2,000	2,400	3,500	1,200	1,800	5,400	2,000	5,300	4,700	3,600
10	1,300	1,750	2,300	2,400	3,000	1,200	1,550	6,000	700	4,300	4,100	3,600
11	2,300	1,600	2,200	2,000	2,500	1,200	1,550	8,200	700	2,800	4,400	4,100
12	1,200	1,500	2,000	2,000	2,500	1,200	1,350	7,200	650	2,800	4,700	3,050
13	2,000	1,500	2,000	1,800	3,000	6,400	1,000	6,250	600	2,800	5,200	2,600
14	1,750	1,500	2,000	1,800	2,100	8,500	1,800	5,700	500	4,000	4,700	1,000
15	1,500	1,500	1,800	1,500	2,500	8,500	1,800	5,700	600	4,300	4,100	1,550
16	1,600	1,500	3,400	1,150	3,500	7,700	2,800	6,800	1,100	2,800	4,100	5,700
17	1,500	1,500	2,500	1,150	3,500	15,100	2,300	7,400	1,100	2,800	4,700	5,700
18	1,500	1,900	2,200	1,150	2,500	15,950	3,500	7,050	600	3,300	4,700	6,200
19	1,750	2,300	1,800	1,700	2,500	15,400	5,050	6,500	2,200	3,500	4,700	6,700
20	1,750	3,200	2,500	900	3,000	13,300	4,600	6,000	2,200	3,500	4,100	6,700
21	1,750	4,200	2,600	1,500	3,500	14,000	4,600	6,250	2,200	3,250	4,100	6,200
22	1,750	4,400	4,400	1,500	3,900	12,800	4,400	4,300	2,200	3,300	4,100	6,200
23	1,050	4,600	3,500	2,500	7,900	11,200	4,150	5,400	2,800	3,300	4,700	5,400
24	800	4,600	6,000	1,700	7,900	11,200	3,950	5,050	2,800	3,300	4,700	4,700
25	1,500	4,200	5,000	1,800	7,000	10,200	4,400	5,050	2,800	2,800	4,700	4,900
26	1,500	3,700	3,300	3,000	6,100	8,500	4,600	4,300	2,800	3,500	4,700	5,200
27	1,050	3,700	2,800	3,500	6,100	8,000	4,600	3,500	3,300	3,500	4,700	5,200
28	1,350	3,000	2,800	3,500	6,100	7,000	4,600	3,500	3,800	2,800	5,200	5,200
29	1,750		2,800	3,500	8,800	7,000	4,600	3,200	3,800	4,300	4,900	5,200
30	1,350		2,650	3,500	11,300	7,000	5,050	3,700	3,300	2,800	4,700	5,200
31	1,250		3,650		8,000		6,300	3,500		4,300		5,200
Total	* 55,850	* 64,600	* 87,800	64,850	130,400	214,750	157,600	172,700	63,950	128,800	135,600	* 191,800
Mean	1,801	2,307	2,832	2,161	4,346	7,158	5,083	5,570	2,131	4,154	4,520	6,187
Max.	2,750	4,600	6,000	3,500	11,300	15,950	6,300	8,200	3,800	12,000	5,200	6,700
Min.	800	1,500	2,500	1,150	1,500	1,900	1,000	3,200	500	2,800	4,100	1,000
A. F.	110,778	128,134	174,151	128,630	258,648	425,656	312,599	342,550	126,845	255,475	268,962	380,435

Total 2,912,863 Acre Feet.

* Estimated on account of ice.

PLATTE RIVER—Daily Discharge
Lexington, Nebraska—1924

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.
1	2,600	4,000	8,000	4,500	14,000	12,700	4,000	650	300
2	2,600	4,000	8,000	5,300	11,000	12,700	3,200	650	400
3	2,600	4,000	6,000	5,000	11,000	12,700	2,500	650	400
4	2,600	4,000	5,500	5,500	12,500	10,000	2,200	650	400
5	2,600	4,000	4,800	6,600	12,500	10,000	2,000	650	600
6	2,600	4,000	4,200	5,700	13,000	17,000	3,000	650	600
7	2,600	4,000	3,300	5,000	9,500	13,500	4,000	800	400
8	2,600	4,000	5,600	5,400	14,000	15,000	3,200	1,200	250
9	2,600	4,000	4,500	5,800	14,000	18,800	3,100	1,600	350
10	2,600	4,000	2,500	6,000	14,000	16,000	3,200	1,400	350
11	2,600	6,000	4,800	6,000	14,000	16,000	2,500	1,200	350
12	2,600	6,000	4,200	9,800	14,000	16,000	1,800	1,200	1,200
13	2,600	6,000	4,800	9,800	14,000	16,000	2,000	1,200	2,050
14	2,600	6,000	4,800	12,800	14,000	16,000	2,300	2,400	1,850
15	2,600	6,000	4,200	10,200	13,000	15,000	2,300	1,100	1,650
16	2,600	6,000	3,000	9,000	12,000	14,000	1,800	1,800	1,650
17	2,600	6,000	6,900	8,800	10,500	13,000	1,800	1,800	2,500
18	2,600	6,000	6,900	8,400	8,500	11,000	2,300	1,800	4,200
19	2,600	6,000	5,300	9,200	6,000	10,100	1,450	1,400	5,600
20	2,600	6,000	6,000	13,000	6,000	9,900	1,200	1,800	4,700
21	2,600	8,000	9,000	13,700	11,000	9,700	1,000	1,400	4,300
22	2,600	8,000	8,000	11,600	9,500	9,000	2,100	1,800	3,900
23	2,600	8,000	7,000	11,000	9,000	8,200	1,700	1,800	4,700
24	2,600	8,000	6,000	11,000	8,000	7,400	1,550	1,600	4,700
25	2,600	8,000	6,000	12,000	8,000	7,100	1,200	1,400	4,700
26	2,600	8,000	4,000	13,000	8,000	6,800	900	1,400	4,100
27	2,600	8,000	6,800	11,900	7,800	6,500	850	1,000	4,100
28	2,600	8,000	6,800	11,900	7,800	5,500	1,150	650	4,400
29	2,600	8,000	6,000	12,300	8,700	4,400	1,650	650	4,700
30	2,600		5,000	13,000	10,700	3,300	950	400	4,100
31	2,600		4,000		12,700		650	550	
Total	*80,600	* 160,000	172,900	273,200	338,700	343,300	63,550	37,250	73,500
Mean	2,600	5,517	5,577	9,106	10,263	11,433	2,050	1,201	2,450
Max.	2,600	8,000	9,000	13,700	14,000	18,800	4,000	2,400	5,600
Min.	2,600	4,000	4,000	4,500	6,000	3,300	650	550	250
A. F.	159,870	317,360	342,947	541,892	671,811	680,935	126,051	73,885	145,787

Total 3,060,538 Acre Feet.

* Estimated.

PLATTE RIVER—Daily Discharge
Overton, Nebraska—1923

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	4,200	2,350	5,600	1,700	3,600	7,300	2,100	4,900	2,700	4,500	6.400	5,700
2	4,200	2.350	6.800	1,500	3,600	6,900	3,600	5,800	2,850	5,900	5,400	5,550
3	3,600	4,000	4,800	1,500	3.200	6,900	2,950	5,300	2,935	6.550	5,000	5,400
4	4,000	4,000	4,400	2,300	3.200	5,500	2,650	5,550	3,100	8,150	5.200	5,400
5	3,200	4,000	4,000	2.300	3,150	5,500	2,500	5,550	2,900	12,000	5,400	5,400
6	3.200	3,600	3,600	2.300	2,900	5,500	2,250	5,550	1,600	9,500	5,550	5,400
7	3,600	3,600	3.600	2,300	2,800	4,900	2,000	6.200	1,300	8,750	5,400	5,000
8	4,000	3.600	2.800	2,300	2,800	2,950	1,700	5,300	1,300	7,950	5,400	4,700
9	2,800	3,600	2.350	2,300	3,600	2,950	1,950	5,800	500	7,250	5,400	4,800
10	2,800	4,000	1,950	2,800	3.600	2,950	1,300	5,800	300	6,100	5.400	5,000
11	4,200	4.200	2,150	2.800	3,200	2,950	1.250	6.650	250	5,400	5.700	5,000
12	3,600	4,400	2,350	2.300	2,800	9,000	1,950	6,400	500	5.400	6,050	4,500
13	3,600	4,400	1.950	2.300	3,200	6,900	1,950	6,200	500	5,400	6,400	2.450
14	3,200	4,400	1.400	1,900	3.200	11,900	1.300	5,800	850	5,700	6,400	2,450
15	2,800	3,600	750	1.900	3,600	11,200	1,400	5,300	850	5.900	6,400	2,450
16	2.350	3,600	1,150	1,900	3,600	11.200	1,500	6,200	1,500	5.400	6,050	2,100
17	2,350	3,600	450	1,900	4,000	20.500	1,700	6,650	2,200	4,950	5,400	1,900
18	2,800	3.800	450	1,900	3,200	20.500	2,650	6.200	1.800	4.500	5,550	3.900
19	2,350	4,000	450	1,700	3,200	17,600	4,300	5,800	2.600	4,500	5.700	5,000
20	2,800	4,400	450	1.900	3.500	14.700	4,000	5,300	2,600	4,500	6,050	6,050
21	2,800	4,400	1,700	1.700	3,800	13,300	3,150	4,900	2.600	4.750	6.050	5,700
22	2,800	4,800	2,350	1.900	4.200	13.300	3.150	4,000	2,600	4.950	6,050	5,700
23	2,350	5,200	3.200	2,100	7,300	16,850	3,150	4,000	2.600	4,950	6,050	6,050
24	2,350	5.200	3,200	2,300	800	14,000	3,150	3.550	2,600	3.950	6,050	5,700
25	2.800	5.200	3.600	2,300	7,500	11,200	3,150	3,550	3.100	3,950	6,050	5,700
26	3.200	5,200	4,000	3,200	6,500	8,400	3,500	3,550	3,500	4.950	6,050	5,700
27	3,200	5,200	3,200	3,600	6.600	6,900	3,500	3.550	3.750	4,950	6,050	5,700
28	3,400	5,600	2,800	3.600	6.700	4,900	3,500	3,550	4,900	5.650	6,050	5,700
29	3,600		2,300	3,600	6,800	5,500	5,300	3.550	4,400	6,350	5,700	5,700
30	3.200		1,950	3.600	8,100	4,800	6,000	4,000	4,450	6.350	5,700	5,000
31	2,800		1,950		9.500		5,500	3,550		6.600		4,250
Total	 98,150	116,300	81,750	69.700	140,950	276,950	90.050	158.000	67,625	187,700	174,050	149,050
Mean	3,166	4,153	2,637	2,323	4,546	9,231	2,904	4,096	2,254	6,054	5.801	4.808
Max.	4.200	5,600	6,800	3.600	9,500	20,500	6,000	6,650	4,900	12.000	6,400	6,050
Min.	2,350	2.350	450	1,500	2,800	2,950	1,250	3,550	250	4.500	5,200	1,900
A. F.	194.680	230,681	162,151	128,250	279,574	549,330	178,614	313,393	134,134	372,303	345,228	295,640

Total 3,193,978 Acre Feet.

PLATTE RIVER—Daily Discharge
Central City, Nebraska—1923

Date	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1						13,000	5,000	4,100	2,800	7,000	5,000	6,600
2						10,300	5,000	4,500	3,000	7,000	5,000	5,900
3						8,000	3,700	5,000	2,800	6,200	6,200	5,000
4						5,700	3,400	7,000	2,800	6,200	5,600	5,200
5						4,200	2,800	7,000	2,500	7,600	5,600	5,400
6						4,600	2,500	7,000	2,300	18,200	5,600	5,600
7						3,700	2,000	7,000	2,300	14,700	6,200	5,900
8						4,200	1,700	7,000	2,000	11,900	6,200	5,600
9						4,600	1,600	7,000	1,700	10,500	6,900	5,300
10						4,600	1,400	6,200	1,600	9,800	6,900	5,000
11						4,600	1,300	6,200	1,300	9,000	6,900	5,000
12						3,700	1,400	6,200	1,200	6,900	6,900	5,000
13						3,000	1,250	7,000	1,200	6,200	6,800	5,000
14						3,000	1,400	9,000	1,300	5,900	6,700	5,000
15						5,200	1,400	7,000	1,300	5,600	6,000	5,000
16						10,300	1,200	6,200	1,500	6,200	6,500	5,000
17						10,300	1,600	5,500	1,700	6,200	6,300	5,000
18						8,900	1,600	5,500	2,300	5,600	6,200	5,000
19						7,600	2,000	7,000	3,700	5,000	6,900	5,000
20						18,000	1,600	7,000	3,700	4,900	6,700	5,000
21						17,600	2,300	6,200	4,100	4,800	6,500	5,000
22						14,000	3,700	5,300	3,300	4,700	6,300	5,000
23						13,000	3,700	4,500	2,500	4,600	6,200	5,000
24					12,000	13,000	3,000	3,700	2,500	4,500	9,500	5,000
25					14,000	16,000	3,000	3,400	3,000	4,500	9,000	5,000
26					13,000	13,300	3,400	3,400	2,500	4,700	8,400	5,000
27					8,500	10,500	3,000	3,400	2,800	4,900	8,000	5,000
28					7,600	8,400	4,100	3,000	10,500	5,000	7,400	5,000
29					7,000	6,200	4,500	2,800	11,200	5,000	7,000	5,000
30					6,300	5,000	4,100	2,800	7,700	5,000	6,400	5,000
31					7,600		3,700	4,100		5,000		5,000
Total					76,000	254,600	82,350	171,900	93,100	213,400	199,800	* 159,900
Mean					9,512	8,486	2,655	5,545	3,103	6,883	6,660	5,158
Max.					13,000	13,000	5,000	9,000	11,200	18,200	9,500	6,000
Min.					6,300	3,000	1,250	2,800	1,200	4,500	5,000	5,000
A. F.					150,746	504,999	163,341	340,963	184,664	423,279	396,303	317,161

Total 2,481,456 Acre Feet.

* Estimated on account of ice.

MISCELLANEOUS MEASURMENTS ON THE NORTH PLATTE RIVER.
Between October 1st and December 31st.
1922.

Date	Hydrographer	Location	Area	Vel.	Gage	Disch.
10- 4	A. E. Johnston	Below Tri-State Diversion Dam	26	2.40	......	63
10- 4	A. E. Johnston	Morrill	198	1.58	1.35	313
11-16	A. E. Johnston	Morrill	570	1.91	1.52	1092
12-27	A. E. Johnston	Morrill	445	1.85	1.30	826
10- 5	A. E. Johnston	Mitchell	213	1.03	0.55	412
12-28	A. E. Johnston	Mitchell	408	2.17	0.95	888
10- 5	A. E. Johnston	Melbeta	543	1.74	0.80	950
10- 1	A. E. Johnston	Bridgeport	506	1.95	5.50	987
10-14	A. E. Johnston	Bridgeport	708	2.04	5.80	1449
11- 9	A. E. Johnston	Bridgeport	918	1.94	5.95	1783
11-24	A. E. Johnston	Bridgeport	852	1.91	5.95	1629
12-19	A. E. Johnston	Bridgeport	763	1.38	6.80	1056
10- 9	A. E. Johnston	Broadwater	743	1.70	2.20	1266
10-25	A. E. Johnston	Belmar	1313	1.69	1.15	2225
11-27	A. E. Johnston	Belmar	1230	1.61	1.10	1981
10-18	A. E. Johnston	North Platte	927	2.26	3.50	2090
10-20	A. E. Johnston	North Platte	1182	2.22	3.60	2633
11-23	A. E. Johston	North Platte	1059	2.20	3.80	2336
12-12	A. E. Johnston	North Platte		Frozen Over		

MISCELLANEOUS MEASUREMENTS ON THE SOUTH PLATTE RIVER.
Between October 1st and December 31.
1922.

Date	Hydrographer	Location	Area	Vel.	Gage	Disch.
10-17	A. E. Johnston	Ovid, Colorado	14	1.21	0.18	17
11-21	A. E. Johnston	Ovid, Colorado	87	1.68	0.70	146
10-17	A. E. Johnston	Julesburg, Colo.	18	1.65	......	31
10-18	A. E. Johnston	Ogallala	12	1.42	0.95	17
10-25	A. E. Johnston	Ogallala	21	1.90	0.95	40
11-22	A. E. Johnston	Ogallala	79	2.03	1.70	162
11-27	A. E. Johnston	Ogallala	43	2.39	1.45	104
11-22	A. E. Johnston	North Platte	97	1.58	0.85	154
12-12	A. E. Johnston	North Platte	8	0.70	......	7

MISCELLANEOUS MEASUREMENTS ON THE PLATTE RIVER.
Between October 1st and December 31.
1922.

Date	Hydrographer	Location	Area	Vel.	Gage	Disch.
10-19	A. E. Johnston	Lexington	632	1.86	3.50	1180
11-23	A. E. Johnston	Lexington	1227	2.05	3.70	2516
10-19	A. E. Johnston	Overton	930	1.60	2.50	1842
11-24	A. E. Johnston	Overton	1169	2.35	2.80	2757

DISCHARGE MEASUREMENTS OF SOUTH PLATTE RIVER AT BALZAC, COLORADO, FOR 1923.

Date	Made by	Area of Section	Mean Velocity	Gage Height	Discharge Sec. Ft.
1-17	A. E. Johnston	7.6	1.32	......	10.05

DISCHARGE MEASUREMENTS OF SOUTH PLATTE RIVER AT AT PROCTOR, COLORADO, FOR 1923.

1-18	A. E. Johnston	91.6	2.11	......	193.90

DISCHARGE MEASUREMENTS OF LARAMIE RIVER—FIRST BRIDGE BRIDGE ABOVE MOUTH—FOR 1923.

Date	Made by	Area of Section	Mean Velocity	Gage Height	Discharge Sec. Ft.
2-15	A. E. Johnston	39.6	2.92	......	115.82
3- 8	A. E. Johnston	47.6	2.62	......	124.90
4- 4	A. E. Johnston	48.9	2.61	......	127.97
4-26	A. E. Johnston	41.6	2.37	1.80	98.50
5- 8	Johnston-Ketcham	134.5	3.17	2.50	427.47
5-29	E. F. Ketcham	163.8	3.32	2.95	544.60
6-19	E. F. Ketcham	193.4	4.38	3.35	849.00
7- 7	A. E. Johnston	146.8	0.84	1.70	124.60
7-28	A. E. Johnston	179.0	1.91	2.40	343.08
8-14	E. F. Ketcham	87.5	1.98	1.80	171.60
8-25	A. E. Johnston	179.2	2.02	2.45	362.15
9-28	A. E. Johnston	185.6	2.13	1.30	386.84
10-24	A. E. Johnston	167.9	1.45	1.05	245.57
11-15	A. E. Johnston	157.7	1.61	1.05	254.50

On July 7th a porcelain gage was fastened to a 4"x4" timber about 100 feet below foot bridge on east side of river. The staff is four feet in length. Opposite this is another gage set on an angle. On this date the new rod read 0.7 and the old rod 1.70. From this date the readings on both rods were taken. Beginning on January 1st, 1924, only the new rod will be read.

DISCHARGE MEASUREMENTS OF LARAMIE RIVER AT FT. LARAMIE, WYOMING, FOR 1924.

Date	Made by	Area of Section	Mean Velocity	Gage Height	Discharge Sec. Ft.
1-15	A. E. Johnston	54	3.01	1.00	164
1-29	A. E. Johnston	62	2.75	1.05	171
2-14	A. E. Johnston	151	1.39	0.90	210
3-19	A. E. Johnston	153	1.32	0.80	204
4-10	A. E. Johnston	490	4.21	......	2067
5- 7	A. E. Johnston	333	3.70	3.60	1238
6- 7	A. E. Johnston	337	4.40	4.45	1486
7- 7	A. E. Johnston	190	2.18	2.20	415
7-28	C. G. Hrubesky	78	1.54	1.59	122
8-13	C. G. Hrubesky	62	1.41	......	89
9- 6	C. G. Hrubesky	11	1.78	......	20
9-16	Atkinson-Johnston	......	......	......	125

DISCHARGE MEASUREMENTS OF NORTH PLATTE RIVER, FT. LARAMIE, WYOMING, FOR 1924.

Date	Made by	Area of Section	Mean Velocity	Gage Height	Discharge Sec. Ft.
1-15	A. E. Johnston	174	1.53	......	267
1-29	A. E. Johnston	116	2.93	......	338
2-14	A. E. Johnston	284	2.10	......	597
3-19	A. E. Johnston	232	1.32	......	305
4-10	A. E. Johnston	1188	4.28	......	5090
5- 7	A. E. Johnston	2131	5.63	......	12017
6- 7	A. E. Johnston	1037	4.08	......	4240
7- 7	A. E. Johnston	1073	3.41	3.40	3662
7-28	C. G. Hrubesky	858	3.67	......	3154
8-13	C. G. Hrubesky	860	3.26	......	279
9- 6	C. G. Hrubesky	742	3.11	......	2310

MISCELLANEOUS DISCHARGE MEASUREMENTS OF THE NORTH PLATTE FOR 1924.

NORTH PLATTE RIVER AT HENRY, NEBRASKA.

Date	Made by	Area of Section	Mean Velocity	Gage Height	Discharge Sec. Ft.
7-22	A. W. Hall	1662	2.09	......	3482

NORTH PLATTE RIVER, WHALEN CABLE STATION.

9-16	Atkinson-Johnston	....	......	......	1624

DISCHARGE MEASUREMENTS OF NORTH PLATTE RIVER AT MORRILL, NEBRASKA, FOR 1923.

Date	Made by	Area of Section	Mean Velocity	Gage Height	Discharge Sec. Ft.
1-24	A. E. Johnston	415.8	1.75	1.25	731.7
3- 8	A. E. Johnston	366.8	1.86	1.20	683.1
4- 4	A. E. Johnston	524.8	1.92	1.60	1009.3
4-27	A. E. Johnston	736.1	2.00	1.90	1460.8
5-10	Johnston-Ketcham	894.5	2.33	2.25	2083.9
5-30	E. F. Ketcham	892.3	2.32	2.25	2072.8
6-14	E. F. Ketcham	1433.0	2.80	3.30	4018.6
6-24	E. F. Ketcham	1047.6	2.34	2.60	2452.6
7-10	A. E. Johnston	669.6	1.68	2.10	1129.3
7-27	A. E. Johnston	1376.1	2.89	3.40	3979.3
8-15	E. F. Ketcham	876.6	2.16	2.20	1894.5
8-27	A. E. Johnston	591.9	0.18	1.90	1093.5
9-19	A. H.Atkins	675.0	1.99	2.10	1346.9
9-22	A. H. Atkins	708.9	2.08	2.30	1475.6
10- 1	A. E. Johnston	2485.8	3.44	4.90	8567.0
10- 9	A. H. Atkins	928.6	2.04	2.10	1900.6
10-25	A. H. Johnston	576.9	2.51	1.70	1449.1
11- 5	A. H. Atkins	764.0	2.01	1.65	1537.9
11-16	A. E. Johnston	573.5	2.60	1.70	1495.8
11-20	A. H. Atkins	754.4	1.82	1.60	1373.8
12- 4	A. H. Atkins	678.4	1.62	1.40	1103.5

DISCHARGE MEASUREMENTS OF NORTH PLATTE RIVER, MORRILL, NEBRASKA, FOR 1924.

Date	Made by	Area of Section	Mean Velocity	Gage Height	Discharge Sec. Ft.
2-15	A. E. Johnston	520	2.27	1.50	1184
3-20	A. E. Johnston	432	2.08	1.35	902
4-10	A. E. Johnston	1819	3.83	4.20	6976
5- 8	A. E. Johnston	2701	4.50	4.80	12165
6- 9	A. E. Johnston	1569	3.31	3.05	5200
7- 2	A. E. Johnston	1236	2.48	2.65	3073
7- 8	A. E. Johnston	929	2.82	2.45	2601
7-21	A. W. Hall	1070	2.00	2.50	2149
7-28	C. G. Hrubesky	1185	2.08	2.30	2472
8-12	C. G. Hrubesky	1050	2.00	2.60	2096
8-29	A. E. Johnston	585	2.02	......	1198
9-17	Johnston-Atkinson	802	2.31	2.40	1854

DISCHARGE MEASUREMENTS OF NORTH PLATTE RIVER AT MITCHELL FOR 1923.

Date	Made by	Area of Section	Mean Velocity	Gage Height	Discharge Sec. Ft.
1-24	A. E. Johnston	420.9	1.89	0.85	798.6
3- 9	A. E. Johnston	270.0	1.88	0.90	695.7
4- 5	A. E. Johnston	465.7	2.11	1.30	983.4
4-27	A. E.Johnston	685.7	2.28	1.50	1564.8
5-10	Johnston-Ketcham	840.0	2.31	1.75	1944.0
5-30	E. F. Ketcham	898.2	2.38	1.85	2143.8
6-14	E. F. Ketcham	1761.2	2.34	2.60	4138.3
6-25	E. F. Ketcham	906.5	2.37	1.80	2155.2
7-10	A. E. Johnston	461.2	1.99	1.30	921.0
7-27	A. E. Johnston	1584.3	3.12	2.90	4950.5
8-16	E. F. Ketcham	843.3	2.20	2.10	1846.0
8-27	A. E. Johnston	524.3	0.21	1.40	1147.5
9-19	A. H. Atkins	646.0	2.36	1.40	1525.4
9-22	A. H. Atkins	807.0	1.94	1.60	1571.6
10- 2	A. E. Johnston	2031.7	2.81	3.25	5723.0
10-10	A. H. Atkins	1265.1	2.06	1.70	2609.8
10-25	A. E. Johnston	6053.0	2.26	1.40	1369.3
11- 6	A. H. Atkins	933.7	1.67	1.35	1566.0
11-16	A. E. Johnston	678.4	2.50	1.50	1698.7
11-20	A. H. Atkins	668.9	2.14	1.40	1436.8
12- 4	A. H. Atkins	525.7	2.11	0.90	1112.6

DISCHARGE MEASUREMENTS OF NORTH PLATTE RIVER, MITCHELL, NEBRASKA, FOR 1924.

Date	Made by	Area of Section	Mean Velocity	Gage Height	Discharge Sec.-Ft.
2-16	A. E. Johnston	583	2.39	1.50	1399
3-20	A. E. Johnston	473	2.17	1.30	1027
4-11	A. E. Johnston	2012	3.00	3.10	6046
5- 9	A. E. Johnston	2679	3.86	3.80	10350
6-10	A. E. Johnston	1706	2.98	2.70	5085
7- 3	A. E. Johnston	1080	2.57	1.95	2785
7- 9	A. E. Johnston	923	2.51	1.80	2324
7-22	A. W. Hall	880	2.30	1.75	2032
7-26	C. G. Hrubesky	894	2.40	1.60	2147
8-11	C. G. Hrubesky	987	2.15	1.70	2127
8-30	A. E. Johnston	570	2.40	1.30	1363
9- 5	C. G. Hrubesky	715	2.04	1.30	1489

DISCHARGE MEASUREMENTS OF NORTH PLATTE RIVER AT MELBETA, NEBRASK, FOR 1923.

Date	Made by	Area of Section	Mean Velocity	Gage Height	Discharge Sec. Ft.
1-23	A. E. Johnston	472.3	2.24	1.00	1061.5
3- 7	A. E. Johnston	335.3	1.99	1.10	668.5
4- 3	A. E. Johnston	627.5	2.20	1.30	1380.6
4-28	A. E. Johnston	889.0	2.41	1.50	2140.2
5-12	Ketcham-Johnston	961.8	2.59	1.45	2490.3
5-26	E. F. Ketcham	1765.6	3.39	2.45	5985.6
6-13	E. F. Ketcham	1637.4	3.00	2.35	4913.1
6-25	E. F. Ketcham	1182.5	2.12	1.45	2508.0
7-11	A. E. Johnston	1278.1	2.45	1.75	3142.9
7-24	A. E. Johnston	1336.8	2.25	1.77	3019.3
8-17	E. F. Ketcham	1032.6	2.51	1.80	2597.3
8-28	A. E. Johnston	732.1	2.14	1.00	1571.1
9-19	A. H. Atkins	809.2	2.09	1.45	1698.3
9-23	A. H. Atkins	1046.0	2.07	1.60	2174.0
10- 3	A. E. Johnston	2125.1	2.97	2.50	6325.3
10-10	A. H. Atkins	1338.3	2.07	1.60	2773.3
10-27	A. E. Johnston	1000.0	2.28	1.20	2286.4
11- 7	A. H. Atkins	869.0	2.03	1.30	1767.9
11-17	A. E. Johnston	880.3	2.52	1.25	2223.7
11-21	A. H. Atkins	785.3	2.23	1.20	1758.4
12- 5	A. H. Atkins	727.0	1.88	1.05	1372.9

DISCHARGE MEASUREMENTS OF NORTH PLATTE RIVER, MELBETA, NEBRASKA, FOR 1924.

Date	Made by	Area of Section	Mean Velocity	Gage Height	Discharge Sec. Ft.
2-13	A. E. Johnston	719	2.19	1.40	1577
3-18	A. E. Johnston	651	1.89	1.15	1235
4- 9	A. E. Johnston	1761	3.34	2.50	5852
4-16	A. E. Johnston	1758	3.21	2.65	5656
5- 9	A. E. Johnston	2253	3.94	3.15	10083
5-17	A. E. Johnston	2262	3.73	2.85	8459
6-11	A. E. Johnston	1835	2.69	2.30	4948
7- 1	A. E. Johnston	1319	2.80	1.95	3702
7-10	A. E. Johnston	992	2.42	1.25	2403
7-25	C. G. Hrubesky	1043	2.13	1.30	2231
8- 9	C. G. Hrubesky	778	2.43	1.20	1911
8-23	A. E. Johnston	778	1.90	1.05	1480
9- 4	C. G. Hrubesky	817	2.01	1.10	1648
9-19	A. E. Johnston	1076	2.90	1.80	3118

DISCHARGE MEASUREMENTS OF NORTH PLATTE RIVER AT BRIDGEPORT, NEBRASKA, FOR 1923.

Date	Made by	Area of Section	Mean Velocity	Gage Height	Discharge Sec. Ft.
1-15	A. E. Johnston	589.0	2.17	5.90	1280.7
2- 1	A. E. Johnston	578.7	1.97	5.80	1136.7
3- 6	A. E. Johnston	490.3	2.08	5.80	1022.9
3-31	A. E. Johnston	642.4	1.73	5.70	1110.7
4- 6	A. E. Johnston	625.2	1.99	5.90	1226.9
4-21	A. E. Johnston	493.0	1.71	5.75	845.3
4-30	A. E. Johnston	1495.3	1.77	6.10	2647.5
5- 7	Johnston-Ketcham	1220.8	2.07	6.30	2544.4
5-24	E. F. Ketcham	1484.0	1.92	6.40	2854.3
5-25	E. F. Ketcham	2396.0	2.57	7.35	6166.9
6-11	A. H. Atkins	2607.5	2.55	7.20	6658.3
7- 2	E. F. Ketcham	1156.6	2.12	6.10	2458.7
7-13	A. E. Johnston	934.8	2.08	6.10	1953.4
7-24	A. E. Johnston	1409.5	2.32	6.50	3273.6
8-18	E. F. Ketcham	1270.9	2.25	6.25	2873.2
8-30	A. E. Johnston	418.3	3.27	5.90	1575.6
9- 4	A. E. Johnston	826.0	1.84	5.75	1154.9
9-22	A. E. Johnston	1108.5	2.15	6.30	2392.0
10- 9	A. E. Johnston	1252.0	2.37	6.35	*2977.1
10-22	A. E. Johnston	862.5	2.32	6.00	*2005.1
11-20	A. E. Johnston	915.3	1.93	6.10	*1831.3

*Measurements made by wading.

DISCHARGE MEASUREMENTS OF NORTH PLATTE RIVER, BRIDGEPORT, NEBRASKA, FOR 1924.

Date	Made by	Area of Section	Mean Velocity	Gage Height	Discharge Sec. Ft.
1- 8	Johnston-Hall	1295	1.34	6.80	1744
2- 2	A. E. Johnston	803	2.15	6.45	1730
2-11	A. E. Johnston	916	2.11	6.10	1938
3- 5	A. E. Johnston	825	2.08	6.15	1708
3-17	A. E. Johnston	783	2.26	6.15	1770
4- 8	A. E. Johnston	1595	2.60	6.85	4154
4-17	A. E. Johnston	3181	3.56	7.92	11333
5- 2	A. E. Johnston	3089	3.17	7.60	9796
6- 5	A. E. Johnston	2150	2.87	7.00	6183
6-20	A. W. Hall	1330	2.13	6.35	2825
7- 3	A. W. Hall	1613	2.17	6.40	3157
7-14	A. W. Hall	1086	1.78	6.00	1936
7-30	C. G. Hrubesky	1218	1.98	5.95	2423
8-4	A. E. Johnston	807	2.22	5.85	1793
8-14.	C. G. Hrubesky	1577	1.81	6.15	2858
8-16	A. E. Johnston	1049	2.28	6.10	2386
9- 2	A. E. Johnston	854	1.95	5.80	1671
9-29	A. E. Johnston	1173	2.83	6.20	2806

DISCHARGE MEASUREMENTS OF NORTH PLATTE RIVER AT BROADWATER, NEBRASKA, FOR 1923.

Date	Made by	Area of Section	Mean Velocity	Gage Height	Discharge Sec. Ft.
3-16	A. E. Johnston	763.5	2.00	2.60	1534.7
3-30	A. E. Johnston	753.3	1.63	2.30	1230.3
4- 7	A. E. Johnston	896.4	1.84	2.40	1644.8
4-21	A. E. Johnston	516.5	1.76	2.25	909.8
5-15	A. E. Johnston	1241.6	1.94	2.60	2405.1
5-26	A. E. Johnston	2638.4	2.41	3.20	6376.7
6-11	A. E. Johnston	1195.4	5.96	3.30	7126.1
6-26	A. E. Johnston	1461.6	1.89	2.68	2765.3
7- 3	E. F. Ketcham	1534.8	1.73	2.50	2657.8
7-23	A. E. Johnston	1602.7	1.85	2.65	2970.1
8-20	E. F. Ketcham	1755.5	1.94	2.62	3411.8
8-31	A. E. Johnston	915.8	1.70	2.25	1560.9
9-10	A. E. Johnston	625.5	1.61	2.25	1560.9
9-20	A. H. Atkins	1361.6	1.72	2.45	2348.6
10-20	A. E. Johnston	1273.7	1.72	2.50	2194.7
10-24	Atkins-Wood	1462.0	1.94	2.50	2792.1
11-21	A. E. Johnston	1054.0	2.03	2.45	2139.7

DISCHARGE MEASUREMENTS OF NORTH PLATTE RIVER, BROADWATER, NEBRASKA, FOR 1924.

Date	Made by	Area of Section	Mean Velocity	Gage Height	Discharge Sec. Ft.
3- 6	A. E. Johnston	1033	1.87	2.50	1933
3-24	A. E. Johnston	1197	1.92	2.50	2298
4- 7	A. E. Johnston	1316	2.11	2.55	2784
4-18	A. E. Johnston	4445	3.26	3.90	14508
5- 5	A. E. Johnston	4011	2.96	3.80	11902
5-19	A. E. Johnston	3142	2.82	3.45	8888
6-12	A. E. Johnston	2595	2.30	3.00	5969
7-14	A. E. Johnston	1102	2.15	3.15	2373

DISCHARGE MEASUREMENTS OF NORTH PLATTE RIVER AT BELMAR, NEBRASKA, FOR 1923.

Date	Made by	Area of Section	Mean Velocity	Gage Height	Discharge Sec. Ft.
3- 2	A. E. Johnston	1287.2	1.91	1.20	2,464.4
3-29	A. E. Johnston	779.5	1.68	1.10	1315.3
4-10	A. E. Johhnston	875.3	1.81	1.10	1584.5
5-17	A. E. Johnston	1456.6	1.82	1.35	2664.4
5-29	A. E. Johnston	2432.3	2.19	1.75	5334.1
6-13	A. E. Johnston	3107.5	2.41	2.05	7516.6
6-28	A. E. Johnston	1657.0	1.79	1.28	2977.9
7- 7	E. F. Ketcham	1019.4	1.54	1.00	1571.1
7-20	A. E. Johnston	2572.0	1.48	1.40	3825.7
7-25	A. H. Atkins	1824.6	2.31	1.35	4230.1
8-11	A. E. Johnston	2268.4	2.34	1.60	5330.1
8-25	A. H. Atkins	1564.8	1.81	1.20	2835.8
9-12	A. E. Johnston	748.1	1.52	1.00	1138.5
9-27	A. H. Atkins	1912.6	1.62	1.30	3099.3
10-15	A. H. Atkins	2032.2	1.65	1.40	3362.2
10-18	Atkins-Wood	1949.5	1.86	1.30	3641.4

DISCHARGE MEASUREMENTS OF NORTH PLATTE RIVER, BELMAR, NEBRASKA, FOR 1924.

Date	Made by	Area of Section	Mean Velocity	Gage Height	Discharge Sec. Ft.
3- 4	A. E. Johnston	1111	1.76	1.25	1962
3-13	A. E. Johnston	1228	2.07	1.25	2554
4- 4	A. E. Johnston	1373	2.02	1.25	2773
4-21	A. E. Johnston	3534	2.56	2.15	9060
5-21	A. E. Johnston	3888	2.33	1.93	7916
6-14	A. E. Johnston	2762	2.29	1.75	6340
6-30	A. E. Johnston	814	1.87	1.00	1529
7-16	A. E. Johnston	1232	1.71	1.10	2117
7-24	A. E. Johnston	1295	1.89	1.15	2449
8- 2	C. G. Hrubesky	1055	1.68	......	1763
8-18	C. G. Hrubesky	1529	1.93	1.20	2955
8-26	A. E. Johnston	866	1.58	0.91	1366
9- 1	C. G. Hrubesky	866	1.60	0.87	1390

DISCHARGE MEASUREMENTS OF NORTH PLATTE RIVER AT NORTH PLATTE, NEBRASKA FOR 1923.

Date	Made by	Area of Section	Mean Velocity	Gage Height	Discharge Sec. Ft.
1-11	A. E. Johnston	1489.0	2.22	4.60	3312.6
2-28	A. E. Johnston	1625.5	2.22	4.40	3617.1
3-28	A. E. Johnston	795.0	2.03	......	1612.0
4-11	A. E. Johnston	960.6	1.88	3.50	1802.1
5-19	A. E. Johnston	1391.0	2.43	4.00	3385.8
5-23	A. E. Johnston	1781.0	2.73	4.40	4862.2
5-31	A. E. Johnston	2066.0	2.87	4.30	5933.8
6-17	A. E. Johnston	2122.9	2.80	4.20	5963.9
7- 2	A. E. Johnston	1368.0	2.24	3.70	3073.6
7- 9	E. F. Ketcham	770.5	1.94	3.20	1495.3
7-10	A. H. Atkins	632.0	2.18	2.80	1383.8
7-30	E. F. Ketcham	2055.2	2.85	4.40	5861.0
8-10	A. E. Johnston	2747.9	3.22	4.75	8859.3
8-13	A. H. Atkins	198.2	2.55	4.20	5071.3
8-28	A. H. Atkins	892.0	3.53	3.75	3150.3
9- 8	A. H. Atkins	716.5	1.80	3.00	1294.3
9-14	A. E. Johnston	678.3	2.00	3.15	1378.4
9-28	A. H. Atkins	1330.2	2.02	3.80	2677.5
10- 3	A. H. Atkins	4080.2	4.52	6.00	18468.1
10-17	A. H. Atkins	1483.0	2.31	3.60	3426.5
10-23	Atkins-Wood	1563.4	2.12	3.50	3321.1
11- 5	A. E. Johnston	1318.0	2.41	3.70	3187.4
11-14	A. H. Atkins	1663.9	2.31	3.70	3844.9
11-26	A. E. Johnston	1243.4	2.45	3.70	3006.7

DISCHARGE MEASUREMENTS OF NORTH PLATTE RIVER, NORTH PLATTE, NEBRASKA, FOR 1924.

Date	Made by	Area of Section	Mean Velocity	Gage Height	Discharge Sec. Ft.
2- 7	A. E. Johnston	1420	1.83	4.95	2601
3- 1	A. E. Johnston	2131	2.69	5.05	5753
3-12	A. E. Johnston	1510	2.58	4.00	3894
3-28	A. E. Johnston	1299	2.81	3.75	3640
4-23	A. E. Johnston	2691	3.20	4.45	8620
5-23	A. E. Johnston	2373	3.01	4.15	7164
6-17	A. E. Johnston	1927	2.83	3.95	5454
7-18	A. E. Johnston	849	2.50	3.20	2126
7-21	A. E. Johnston	967	2.04	3.15	1973
8- 5	C. G. Hrubesky	787	1.98	2.80	1567
8-20	C, G. Hrubesky	1182	2.16	3.50	2564
8-29	C. G. Hrubesky	625	2.07	3.00	1293

DISCHARGE MEASUREMENTS OF PLATTE RIVER AT MAXWELL, NEBRASKA, FOR 1923.

Date	Made by	Area of Section	Mean Velocity	Gage Height	Discharge Sec. Ft.
7-10	A. E. Johnston	669.6	1.68	2.10	1129.3

DISCHARGE MEASUREMENTS OF SOUTH PLATTE RIVER AT NORTH PLATTE, NEBRASKA, FOR 1923.

Date	Made by	Area of Section	Mean Velocity	Gage Height	Discharge Sec. Ft.
1-10	A. E. Johnston	224.4	2.60	2.05	584.24
2-28	A. E. Johnston	154.5	2.11	1.35	327.10
3-28	A. E. Johnston	189.5	2.05	1.50	387.70
4-12	A. E. Johnston	83.1	1.60	1.15	132.30
5-19	A. E. Johnston	167.5	1.81	0.95	293.10
5-23	A. E. Johnston	276.5	2.17	1.80	600.40
5-31	A. E. Johnston	424.7	2.23	2.00	948.00
6-15	A. E. Johnston	374.5	2.28	2.00	856.40
6-17	A. E. Johnston	2172.7	4.99	5.00	1058.20
7- 2	A. E. Johnston	613.4	2.78	2.10	1707.60
7- 7	E. F. Ketcham	181.8	1.76	1.00	321.70
7-10	A. H. Atkins	85.5	2.05	1.00	175.00
7-28	A. H. Atkins	361.0	2.43	1.60	879.40
8- 9	A. E. Johnston	349.0	1.79	1.70	625.34
8-13	A. H. Atkins	304.4	1.71	1.60	523.04
8-28	A. H. Atkins	157.4	1.48	1.40	233.74
9- 8	A. H. Atkins	68.0	1.29	1.20	87.82
9-14	A. E. Johnston	43.4	1.56	1.10	67.87
9-29	A. H. Atkins	275.6	1.75	1.40	482.34
10- 3	A. H. Atkins	335.3	1.79	1.70	603.20
10-17	A. H. Atkins	460.1	1.99	1.90	917.40
10-23	Atkins-Wood	636.8	2.12	2.20	1431.20
11- 5	A. E. Johnston	581.4	2.87	2.40	1672.50
11-15	A. H. Atkins	801.0	2.34	2.40	1899.20
11-26	A. E. Johnston	716.4	2.84	2.65	2036.20

DISCHARGE MEASUREMENTS OF SOUTH PLATTE RIVER, NORTH PLATTE, NEBRASKA, FOR 1924.

Date	Made by	Area of Section	Mean Velocity	Gage Height	Discharge Sec. Ft.
3- 1	A. E. Johnston	575	2.84	3.00	1637
3-12	A. E. Johnston	494	2.12	2.70	1050
3-27	A. E. Johnston	737	2.51	3.15	1856
4-23	A. E. Johnston	1009	2.92	3.50	2949
5-23	A. E. Johnston	204	1.47	2.30	301
6-17	A. E. Johnston	1198	3.17	3.25	3811
7-17	A. E. Johnston	15	1.50	1.10	23
7-22	A. E. Johnston	17	1.16	0.10	20
8- 5	C. G. Hrubesky	......	......	......	0
8-20	C. G. Hrubesky	......	......	......	0
8-29	C. G. Hrubesky	......	......	......	0

DISCHARGE MEASUREMENTS OF SOUTH PLATTE RIVER AT OVID, COLORADO, FOR 1923.

Date	Made by	Area of Section	Mean Velocity	Gage Height	Discharge Sec. Ft.
1- 4	A. E. Johnston	126.6	3.77	1.30	477.99
1-18	A. E. Johnston	167.0	1.87	1.30	313.40
2- 5	A. E. Johnston	192.4	1.20	1.90	231.61
2-23	A. E. Johnston	177.7	1.92	1.35	342.90
3-20	A. E. Johnston	101.7	1.91	1.15	194.60
4-19	A. E. Johnston	42.0	1.87	0.65	78.55
5-25	A. E. Johnston	377.8	2.62	2.20	991.50
6- 4	Ketcham-Bailey	151-1	2.01	0.90	303.89
6- 8	A. E. Johnston	144.4	1.71	1.00	196.60
7- 3	A. E. Johnston	452.4	1.48	......	671.8
7-12	A. H. Atkins	79.0	1.73	0.40	136.80
7-16	A. E. Johnston	150.1	2.12	1.00	318.4
7-21	E. F. Ketcham	185.5	1.79	1.30	445.5
8- 2	A. E. Johnston	223.5	2.03	1.50	455.46
8-15	A. H .Atkins	187.2	1.77	1.20	332.80
8-22	A. E. Johnston	212.1	2.23	......	474.1
8-29	E. F. Ketcham	126.3	1.87	1.20	237.2
9-10	A. H. Atkins	30.5	1.32	0.60	40.56
9-21	A. E. Johnston	195.3	2.01	1.65	392.64
10- 4	A. H. Atkins	360.2	1.98	2.10	716.0
10-10	A. E. Johnston	526.5	2.50	2.40	1318.30
10-19	A. E. Johnston	589.0	2.68	2.50	1585.50
11- 3	A. E. Johnston	822.2	2.92	2.80	2404.90
11-16	A. H. Atkins	866.1	2.79	3.10	2419.50
11-23	A. E. Johnston	766.6	1.92	2.95	2243.80
12- 5	A. E. Johnston	644.3	2.70	2.50	1742.9

DISCHARGE MEASUREMENTS OF SOUTH PLATTE RIVER, OVID, COLORADO, FOR 1924.

Date	Made by	Area of Section	Mean Velocity	Gage Height	Discharge Sec. Ft.
2- 4	A. E. Johnston	744	2.87	3.00	2136
2-25	A. E. Johnston	690	2.48	2.60	1715
3-10	A. E. Johnston	434	2.75	2.25	1197
3-26	A. E. Johnston	730	2.87	2.85	2100
5- 1	A. E. Johnston	971	3.35	3.30	3082
6- 3	A. E. Johnston	2015	3.58	4.45	7226
6-28	A. E. Johnston	303	2.47	......	749
8- 5	A. E. Johnston	15	1.10	......	17
8- 7	C. G. Hrubesky	13	0.96	......	14
8-18	C. G. Hrubesky	24	1.14	......	28
8-25	A. E. Johnston	11	0.94	......	10
8-30	C. G. Hrubesky	11	0.98	......	11
9- 3	A. E. Johnston	19	0.67	......	13
9-15	C. G. Hrubesky	......	......	......	255

DISCHARGE MEASUREMENTS OF SOUTH PLATTE RIVER AT JULESBURG, COLORADO, FOR 1923.

Date	Made by	Area of Section	Mean Velocity	Gage Height	Discharge Sec. Ft.
1-18	A. E. Johnston	143.4	2.25	......	322.70
2-23	A. E. Johnston	139.8	2.47	......	345.85
3-20	A. E. Johnston	133.9	1.76	......	235.60
4-18	A. E. Johnston	60.7	2.29	......	139.20
5-25	A. E Johnston	465.5	2.35	......	1097.40
6- 4	Bailey-Ketcham	151.6	2.35	......	357.70
6- 7	A. E. Johnston	117.1	2.18	......	256.00
7- 3	A. E. Johnston	373.2	2.36	......	882.00
7-12	A. H. Atkins	223.1	2.31	......	515.4
7-16	A. E. Johnston	213.0	2.10	......	448.7
7-31	E. F. Ketcham	189.5	1.92	......	365.50
8- 2	A. E. Johnston	223.2	2.50	......	559.46
8-14	A. H. Atkins	164.6	2.09	0.70	345.40
8-22	A. E. Johnston	231.5	2.23	......	516.30
8-25	E. F. Ketcham	186.1	2.04	......	381.30
8-29	E. F. Ketcham	168.2	1.98	......	333.80
9- 9	A. H. Atkins	35.8	1.57	1.50	56.25
9-20	A. E. Johnston	193.2	2.20	......	425.15
10- 4	A. H. Atkins	398.0	1.91	......	761.50
10-10	A. E. Johnston	563.1	2.20	......	1395.30
10-19	A. E. Johnston	530.3	2.10	......	1219.30
11- 2	A. E. Johnston	734.7	2.41	......	1773.60
11-15	A. H. Atkins	1120.0	2.54	0.30	2845.40
11-23	A. E. Johnston	750.00	2.68	......	2,015.20
12- 5	A. E. Johnston	678.0	2.59	*2.70	1759.60

*New gage rod installed.

DISCHARGE MEASUREMENTS OF SOUTH PLATTE RIVER, JULESBURG, COLORADO, FOR 1924.

Date	Made by	Area of Section	Mean Velocity	Gage Height	Discharge Sec. Ft.
2-25	A. E. Johnston	638	2.57	2.55	1643
3-10	A. E. Johnston	487	2.82	2.00	1376
3-26	A. E. Johnston	749	2.66	2.75	1993
4-30	A. E. Johnston	969	2.76	3.10	2683
6- 3	A. E. Johnston	3696	1.66	4.00	6162
6-28	A. E. Johnston	337	2.55	1.75	860
8- 6	A. E. Johnston	19	1.32	......	25
8- 7	C. G. Hrubesky	30	1.26	......	38
8-18	C. G. Hrubesky	41	1.17	......	48
8-25	A. E. Johnston	23	1.15	......	27
8-30	C. G. Hrubesky	22	1.54	......	34
9- 4	A. E. Johnston	27	1.20	......	32
9-15	C. G. Hrubesky	......	......	......	247

DISCHARGE MEASUREMENTS OF SOUTH PLATTE RIVER AT OGALLALA, NEBRASKA, FOR 1923.

Date	Made by	Area of Section	Mean Velocity	Gage Height	Discharge Sec. Ft.
1-11	A. E. Johnston	167.46	2.10	2.20	352.68
2-10	A. E. Johnston	111.30	2.19	2.00	243.78
3- 1	A. E. Johnston	135.4	2.31	2.05	313.00
3-28	A. E. Johnston	147.7	2.35	2.10	346.00
4-11	A. E. Johnston	81.40	1.95	1.80	158.90
4-18	A. E. Johnston	38.85	1.74	1.50	67.52
5-18	A. E. Johnston	78.50	2.08	1.65	163.60
5-23	A. E. Johnston	505.70	2.44	3.20	1232.00
5-30	A. E. Johnston	337.20	2.52	2.70	851.40
6- 7	A. E. Johnston	185.00	2.24	2.10	415.90
6-13	A. E. Johnston	393.40	2.46	2.85	970.00
6-15	A. E. Johnston	1516.80	4.80	6.60	7288.40
6-15	A. E. Johnston	2297.80	5.00	8.20	11498.90
6-29	A. E. Johnston	3448.00	0.69	3.70	2408.10
7- 7	A. E. Johnston	168.00	2.11	2.20	355.70
7-11	A. H. Atkins	91.70	2.30	0.90	211.68
7-20	A. E. Johnston	184.20	2.55	2.30	471.20
7-26	A. H. Atkins	340.60	2.87	2.50	979.90
7-31	E. F. Ketcham	241.30	2.21	2.40	523.60
8-13	A. E. Johnston	217.50	2.44	2.25	531.54
8-14	A. H. Atkins	234.50	2.10	2.30	492.60
9- 9	A. H. Atkins	25.10	1.07	1.80	26.91
9-13	A. E. Johnston	62.45	2.13	1.00	133.39
10- 4	A. H. Atkins	339.40	1.84	2.70	626.00
10-18	A. E. Johnston	447.20	2.87	3.30	1286.80
11- 3	A. E. Johnston	703.50	2.91	3.80	2051.20
11-15	A. H. Atkins	973.00	2.65	4.20	2581.70
11-24	A. E. Johnston	812.60	2.96	4.10	2400.30

DISCHARGE MEASUREMENTS OF SOUTH PLATTE RIVER, OGALLALA, NEBRASKA, FOR 1924.

Date	Made by	Area of Section	Mean Velocity	Gage Height	Discharge Sec. Ft.
3- 3	A. E. Johnston	532	2.89	3.50	1543
3-13	A. E. Johnston	448	3.08	3.45	1382
3-28	A. E. Johnston	772	2.88	3.05	2229
4- 3	A. E. Johnston	833	2.97	4.00	2479
4-22	A. E. Johnston	1047	2.17	4.60	3319
5-22	A. E. Johnston	121	2.15	......	216
6- 3	A. E. Johnston	1090	3.13	4.80	3422
6-16	A. E. Johnston	1820	2.74	4.95	5000
7-16	A. E. Johnston	28	1.69	......	48
7-23	A. E. Johnston	25	1.27	......	33
8- 7	C. G. Hrubesky	17	1.68	......	29
8-19	C. G. Hrubesky	15	1.47	......	21
8-26	A. E. Johnston	13	1.32	......	17
9- 1	C. G. Hrubesky	9	1.06	......	10

DISCHARGE MEASUREMENTS OF PLATTE RIVER AT LEXINGTON, NEBRASKA, FOR 1923.

Date	Made by	Area of Section	Mean Velocity	Gage Height	Discharge Sec. Ft.
1- 9	A. E. Johnston	1494.2	2.32	4.35	3440.6
2-27	A. E. Johnston	1661.8	2.46	4.50	4094.1
3-27	A. E. Johnston	1260.7	2.35	3.85	2961.9
4-12	A. E. Johnston	899.2	1.97	3.90	1771.1
5-21	A. E. Johnston	1447.5	2.53	4.10	3567.0
6- 1	A. E. Johnston	1991.0	2.57	4.30	5125.7
6-19	A. E. Johnston	3903.0	3.65	5.40	14253.4
7- 9	A. H. Atkins	961.8	3.09	1.00	2976.6
7-11	E. F. Ketcham	699.8	2.12	0.85	1488.6
7-28	E. F. Ketcham	1476.3	2.21	3.80	3273.4
8-1	A. H. Atkins	1956.2	2.57	3.90	5042.7
8- 8	A. E. Johnston	1647.1	2.49	4.10	4108.0
8-11	A. H. Atkins	2797.7	3.07	4.50	8612.5
8-29	A. H. Atkins	1580.0	2.19	3.60	3472.1
9- 6	A. H. Atkins	905.8	1.94	3.10	1762.3
9-15	A. E. Johnston	432.3	1.71	3.30	739.4
10- 1	A. H. Atkins	1698.2	2.24	3.90	3810.6
10-16	A. E. Johnston	1414.0	2.66	3.90	3771.3
10-20	Atkins-Wood	1805.1	2.59	3.90	3681.6
11- 6	A. E. Johnston	1591.1	2.64	4.07	4197.9
11-13	A. H. Atkins	2205.0	2.59	4.20	5731.6
11-27	A. E. Johnston	1650.1	2.77	4.20	4481.2

DISCHARGE MEASUREMENTS OF SOUTH PLATTE RIVER, LEXINGTON, NEBRASKA, FOR 1924.

Date	Made by	Area of Section	Mean Velocity	Gage Height	Discharge Sec. Ft.
3-28	A. E. Johnston	2232	2.87	4.35	6426
4-24	A. E. Johnston	3304	3.46	4.60	11441
5-26	A. E. Johnston	2352	3.31	3.90	7794
6-19	A. E. Johnston	2811	3.61	4.00	10169
7-19	A. E. Johnston	715	1.99	3.00	1427
8- 6	C. G. Hrubesky	392	1.68	2.90	655
8-21	C. G. Hrubesky	810	1.76	3.20	1388
8-28	C. G. Hrubesky	475	1.62	3.05	767
9- 9	A. E. Johnston	267	1.85	3.10	493

DISCHARGE MEASUREMENTS OF PLATTE RIVER AT OVERTON, NEBRASKA, FOR 1923.

Date	Made by	Area of Section	Mean Velocity	Gage Height	Discharge Sec. Ft.
1- 9	A. E. Johnston	1048.6	2.76	2.90	2901.5
2-27	A. E. Johnston	1700.0	2.66	3.50	4528.6
3-26	A. E. Johnston	1646.0	2.46	3.20	4059.2
4-13	A. E. Johnston	1048.5	2.20	2.80	2307.6
5-21	A. E. Johnston	1592.5	2.66	3.20	4255.2
6- 2	A. E. Johnston	2418.0	2.88	3.30	6978.2
6-19	A. E. Johnston	4717.0	3.87	4.80	18269.4
7- 9	A. H. Atkins	827.9	2.63	1.95	2180.4
7-11	E. F. Ketcham	632.7	2.15	1.85	1361.6
7-27	E. F. Ketcham	1214.8	2.91	2.70	3544.4
8- 1	A. H. Atkins	1865.0	2.59	3.00	4831.8
8- 8	A. E. Johnston	2020.0	2.62	3.10	5308.7
8-11	A. H. Atkins	1964.0	2.53	3.30	4982.4
8-29	A. H. Atkins	1504.6	2.36	2.70	3552.6
9- 6	A. H. Atkins	749.4	2.09	2.25	1569.3
9-15	A. E. Johnston	469.5	1.86	2.10	876.4
10- 1	A. H. Atkins	1472.4	2.13	2.90	3150.7
10-16	A. E. Johnston	2033.0	2.65	3.10	5384.5
10-20	Atkins-Wood	1914.2	2.43	2.90	4668.7
11- 6	A. E. Johnston	1780.0	3.02	3.10	5381.9
11-13	A. H. Atkins	2560.0	2.68	3.40	6861.2
11-28	A. E. Johnston	1581.5	3.15	3.30	4978.5

DISCHARGE MEASUREMENTS OF PLATTE RIVER OVERTON, NEBRASKA, FOR 1924.

Date	Made by	Area of Section	Mean Velocity	Gage Height	Discharge Sec. Ft.
3-12	A. E. Johnston	1722	2.75	1.70	4751
3-29	A. E. Johnston	2339	2.87	2.20	5735
4-24	A. E. Johnston	3080	3.73	2.50	11505
5-26	A. E. Johnston	2225	3.41	1.60	7606
6-19	A. E. Johnston	2741	3.26	1.95	8945
7-19	A. E. Johnston	1003	2.00	0.60	2013
8- 6	C. G. Hrubesky	342	1.82	0.20	622
8-21	C. G. Hrubesky	872	1.86	0.68	1621
8-28	C. G. Hrubesky	454	1.97	0.43	897
9- 9	A. E. Johnston	338	1.74	0.45	587

DISCHARGE MEASUREMENTS OF PLATTE RIVER AT CENTRAL CITY, NEBRASKA, FOR 1923.

Date	Made by	Area of Section	Mean Velocity	Gage Height	Discharge Sec. Ft.
3-24	A. E. Johnston	1249.7	2.53	......	3151.0
4-14	A. E. Johnston	1203.3	2.06	3.40	2478.0
5-22	A. E. Johnston	2233.8	2.01	2.85	4484.4
6- 2	A. E. Johnston	2889.3	2.62	3.40	7584.0
6-20	A. H. Atkins	1452.5	1.24	4.55	18016.3
6-24	A. H. Atkins	5482.4	2.70	4.00	14809.6
6-29	A. H. Atkins	4052.5	2.83	2.85	11503.9
8- 2	A. H. Atkins	3067.5	1.96	2.60	6029.0
8- 9	A. H. Atkins	3218.3	2.29	3.20	7377.4
8-17	A. E. Johnston	2437.0	2.00	2.70	4876.7
8-31	A. H. Atkins	2214.9	1.95	2.40	4338.0
9- 5	A. H. Atkins	1651.6	1.31	1.80	2269.4
11- 2	A. H. Atkins	3216.8	1.95	2.80	6257.9

DISCHARGE MEASUREMENTS OF PLATTE RIVER AT FREMONT, NEBRASKA, FOR 1923.

Date	Made by	Area of Section	Mean Velocity	Gage Height	Discharge Sec. Ft.
8-19	A. E. Johnston	2953.2	3.03	......	8967.4

DISCHARGE MEASUREMENTS OF PLATTE RIVER AT ASHLAND, NEBRASKA, FOR 1923.

Date	Made by	Area of Section	Mean Velocity	Gage Height	Discharge Sec. Ft.
7- 3	A. H. Atkins	3358.0	2.43	......	8169.2
7-21	E. F. Ketcham	2281.0	2.13	......	4868.2
8- 6	A. H. Atkins	4406.0	2.90	......	12813.8
9- 1	A. H. Atkins	2678.0	1.84	......	4,928.4

ANNUAL FLOW OF THE NORTH PLATTE RIVER AT OUTLET OF PATHFINDER RESERVOIR, TAKEN FROM WATER SUPPLY PAPER 469, UNITED STATES GEOLOGICAL SURVEY.

Year	Acre Feet	Percent	"A"	"B"
1905	1236000	88	....	......
1906	1415200	101	....	......
1907	1769300	127	....	......
1908	919000	66	....	......
1909	2230000	160	1513900	109
1910	1010000	72	1468700	105
1911	1100000	79	1405660	101
1912	1470000	105	1345800	96
1913	1310000	94	1424000	102
1914	1310000	94	1440000	103
1915	945000	68	1227000	88
1916	1160000	83	1239000	89
1917	1990000	143	1343000	96
1918	1500000	108	1381000	98
1919	1120000	80	1343000	96
1920	1370000	98	1428000	102
1921	1790000	128	1554000	111
1922	1356329	96	1427000	102
1923	1073249	77	1342000	96
1924	1875388	134	1492000	107
Total	27949466	......	....	......
Mean	1397000	100	....	......

"A" Progressive five year mean in acre feet.

"B" Five year mean progressive, expressed as percent of twenty year mean (1904 to 1924).

Annual period from October 1st to September 30th.

ANNUAL DISCHARGE OF THE NORTH PLATTE RIVER ABOVE PATHFINDER.

Taken from Water Supply Paper 469, United States Geological Survey and Reclamation Service.

Year	Acre Feet	Percent	"A"	"B"
1914	1440000	103	....	......
1915	823000	59	....	......
1916	1050000	75	....	......
1917	2290000	165	....	......
1918	1370000	98	1394600	100
1919	799000	57	1266400	91
1920	1690000	121	1135600	81
1921	1660000	119	1561800	112
1922	1143605	103	1332521	96
1923	1503700	108	1359261	98
1924	1488888	107	1497237	107
11 years	15258193	......	....	......
Mean	1387000	100	....	......

"A" Progressive five year mean in acre feet.

"B" Five year progressive mean expressed as percent of eleven year mean (1914 to 1924).

Annual period, October 1 to September 30.

ESTIMATED MONTHLY DISCHARGE IN ACRE FEET OF THE NORTH PLATTE RIVER AT NORTH PLATTE.

Drainage Area 28,500 Square Miles.
480 Miles from Pathfinder.

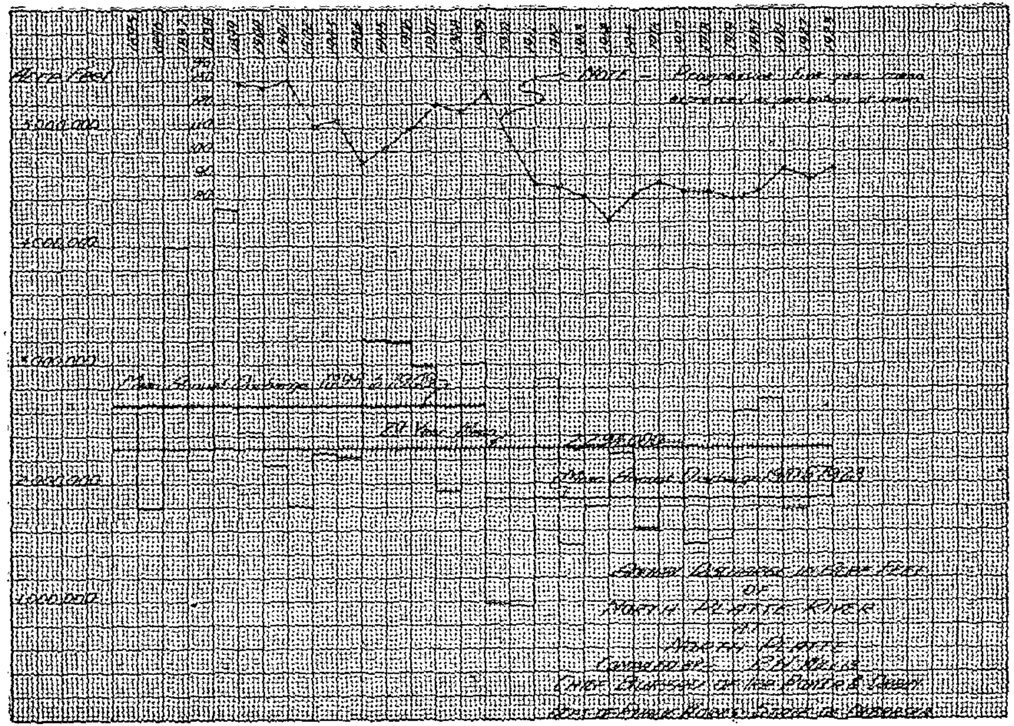
Year	January	February	March	April	May	June
1895	300000	280000	184770	206770	432450	654050
1896	124000	112000	115000	117579	280262	376898
1897	426296	370044	241094	304125	859664	828296
1898	318383	296679	136871	151150	324409	409269
1899	385097	413030	318979	387312	565444	323835
1900	186000	168000	189520	244000	582000	648100
1901	124000	112000	200470	143300	472200	579200
1902	266253	250250	138000	145350	335130	305750
1903	266253	250250	400000	191782	299199	406116
1904	266252	250250	84200	115300	247000	610500
1905	266253	250250	167800	227700	631500	874700
1906	266253	250250	366000	363000	463000	631000
1907	266253	250250	250000	268000	351000	744000
1908	266253	250250	103000	91600	338000	539000
1909	266253	250250	144610	140000	408000	803000
Total	3993800	3753763	3140314	3097168	6689358	9243714
Mean	266253	250250	309355	206377	445964	616247

Year	July	August	September	October	November	December
1895	192789	30253	14380	49840	80745	209370
1896	69727	56507	50995	70711	128886	267350
1897	226768	176839	36238	69604	128053	314634
1898	113506	21705	20945	28961	64740	213486
1899	660566	237771	68311	59274	107881	201310
1900	138630	35700	6620	32780	66540	132000
1901	92730	21300	63560	68900	93780	186000
1902	137090	6300	28600	63490	65180	62000
1903	205861	43718	32430	66837	46985	47000
1904	226300	24530	9461	71760	90270	124000
1905	367900	114500	34810	37880	70000	140000
1906	255000	69500	87500	97800	128000	200000
1907	413000	124000	89800	89200	73800	62600
1908	94100	32400	11300	49400	110000	44600
1909	358000	221000	70800	169000	87500	90000
Total	3551958	1216023	625750	1026401	1342360	2294350
Mean	236797	81068	41716	68360	95882	152956

TOTAL ANNUAL DISCHARGE IN ACRE FEET OF THE NORTH PLATTE RIVER AT NORTH PLATTE.

Year	Acre Feet.	Year	Acre Feet.
1895	2635582	1910	976503
1896	1769915	1911	962600
1897	3981655	1912	2873361
1898	2100094	1913	1482261
1899	4328810	1914	1812632
1900	2430090	1915	2263732
1901	2157440	1916	1626992
1902	1803393	1917	2344699
1903	2256431	1918	1477914
1904	2219824	1919	1517153
1905	3183293	1920	2604110
1906	2177303	1921	2708746
1907	2981903	1922	1769200
1908	1939903	1923	2132758
1909	3008413		
Total	39974049	Total	26552661
Mean	2664936	Mean	1896618

The mean discharge of the North Platte River at North Platte for August, September, October, November and December for the past fourteen years (1910 to 1923) has increased 47% over the fifteen years (1895 to 1909) previous and the mean discharge for January to July for the past fourteen years (1910 to 1923) has decreased 45% over the fifteen years (1895 to 1909). The Pathfinder was completed and filling in 1909-10.


Acre Feet
3,000,000
2,000,000
1,000,000
OF
NORTH PLATTE RIVER
NORTH PLATTE

No. 2

ANNUAL DISCHARGE IN ACRE FEET OF THE NORTH PLATTE RIVER AT NORTH PLATTE.

Year	Acre Feet	"A"	"B"
1895	2635582	....	......
1896	1769915	....	......
1897	3981655	....	......
1898	2100094	....	......
1899	4328810	2963000	129
1900	2430090	2922000	127
1901	2157440	3000000	130
1902	1903393	2564000	111
1903	2256431	2595000	113
1904	2219824	2178000	95
1905	3183293	2324000	101
1906	3177303	2528000	110
1907	2891903	2764000	120
1908	1939903	2700000	117
1909	3008413	2858000	125
1910	9765030	2416000	105
1911	9626000	1974000	86
1912	2873361	1952000	85
1913	1482261	1861000	81
1914	1812632	1621000	71
1915	2263732	1878000	82
1916	1626992	2012000	87
1917	2344699	1906000	83
1918	1477914	1905000	83
1919	1517153	1846000	80
1920	2604110	1914000	83
1921	2708746	2131000	93
1922	1769200	2015000	88
1923	2132758	2141000	93

NOTE—"A" Column—Progressive five year means of North Platte River discharge at North Platte in Acre Feet.

"B" Column—Progressive five year means expressed as percentage of mean.

29 year mean annual discharge is 2,294,000 Acre Feet.

Stream	Location	Hydrographer	Date	Discharges
Arapahoe Mill Waste		A. E. Johnston	Nov. 24	193.8
Bayard S. F. Drain	South Line 34-21-52	A. E. Johnston	Oct. 3	76.6
Bayard S. F. Drain		A. E. Johnston	Nov. 15	57.9
Bayard S. F. Drain		A. E. Johnston	Dec. 14	28.8
Bayard S. F. Drain		A. E. Johnston	Dec. 26	46.4
Camp Clark Seep	North Line 9-2-51	A. E. Johnston	Oct. 3	9.4
Camp Clark Seep		A. E. Johnston	Nov. 2	9.7
Camp Clark Seep		A. E. Johnston	Nov. 10	1.6
Camp Clark Seep		A. E. Johnston	Nov. 15	1.6
Camp Clark Seep		A. E. Johnston	Dec. 9	3.0
Camp Clark Seep		A. E. Johnston	Dec. 14	3.5
Camp Clark Seep		A. E. Johnston	Dec. 26	3.5
DeGraw Seep	¼ Mile West Degraw	A. E. Johnston	Nov. 2	0.6
DeGraw Seep		A. E. Johnston	Nov. 15	0.4
DeGraw Seep		A. E. Johnston	Dec. 1	0.2
DeGraw Seep		A. E. Johnston	Dec. 14	0.2
DeGraw Seep		A. E. Johnston	Dec. 26	0.3
Fairfield Seep	West Line 18-21-53	A. E. Johnston	Dec. 26	2.6
Kronberg Seep	Section 6-22-55	A. E. Johnston	Dec. 15	1.6
Morrill Drain	Sec. 14-23-57	A. E. Johnston	Nov. 16	3.4
Morrill Drain		A. E. Johnston	Dec. 15	2.1
Morrill Drain		A. E. Johnston	Dec. 27	1.8
Melbeta Seep	Sec. 19-22-53	A. E. Johnston	Dec. 26	1.1

Stream	Location	Hydrographer	Date	Discharges
Nine Mile Drain	Southeast Corner 16-22-53	A. E. Johnston	Oct. 3	138.2
Nine Mile Drain		A. E. Johnston	Dec. 14	93.7
Nine Mile Drain		A. E. Johnston	Dec. 26	97.1
Northport Drain*	Northport Wye	A. E. Johnston	Oct. 3	12.0
Northport Drain		A. E. Johnston	Nov. 2	11.3
Northport Drain		A. E. Johnston	Nov. 10	1.4
Northport Drain		A. E. Johnston	Nov. 15	1.2
Northport Drain		A. E. Johnston	Dec. 2	1.9
Northport Drain		A. E. Johnston	Dec. 9	2.4
Northport Drain		A. E. Johnston	Dec. 14	1.5
Northport Drain		A. E. Johnston	Dec. 26	2.1
Stewarts Drain	South Side 13-23-57	A. E. Johnston	Dec. 27	1.4
Scottsbluff Drain	Southeast ¼ 25-22-55	A. E. Johnston	Dec. 15	14.2
Scottsbluff Drain		A. E. Johnston	Dec. 27	10.9
Snell Drain	Southeast Corner 23-21-53	A. E. Johnston	Oct. 3	52.6
Snell Drain		A. E. Johnston	Dec. 14	27.8
Snell Drain		A. E. Johnston	Dec. 26	36.3
Toohey Drain	West Line 20-23-56	A. E. Johnston	Oct. 4	0.0
Toohey Drain		A. E. Johnston	Nov. 16	17.5
Toohey Drain		A. E. Johnston	Dec. 15	18.9
Toohey Drain		A. E. Johnston	Dec. 27	3.5
Tub Springs	South Line 5-22-55	A. E. Johnston	Oct. 4	7.6

*Now known as Indian Creek.

Stream	Location	Hydrographer	Date	Discharges
Tub Springs	South line 5-22-55	A. E. Johnston	Dec. 15	57.6
Tub Springs		A. E. Johnston	Dec. 27	41.5
Tub Springs	Above Enterprise	A. E. Johnston	Oct. 4	30.0
Wild Horse Drain	South line 12-20-52	A. E. Johnston	Dec. 9	49.6
Wild Horse Drain		A. E. Johnston	Dec. 14	54.7
Wild Horse Drain		A. E. Johnston	Dec. 26	47.6
Birdwood Creek	Sec. 35-14 N-33-W	A. E. Johnston	Nov. 22	181.1
Blue Creek	Secs. 19 and 30-16-42	A. E. Johnston	Oct. 25	63.4
Blue Creek		A. E. Johnston	Nov. 27	88.9
Buffalo Creek	Sec. 18-1-40	A. E. Johnston	Nov. 24	1.7
Cedar Creek	Sec. 11-18-48	A. E. Johnston	Oct. 16	23.1
Cedar Creek		A. E. Johnston	Nov. 28	8.0
Cedar Creek		A. E. Johnston	Dec. 21	8.3
Cedar Creek		A. E. Johnston	Dec. 29	8.0
Clear Creek	Sec 32-16-41	A. E. Johnston	Oct. 25	7.9
Clear Creek		A. E. Johnston	Nov. 27	7.0
Cold Water Creek	Sec. 27-18-46	A. E. Johnston	Oct. 25	4.9
Cold Water Creek		A. E. Johnston	Nov. 28	2.5
Cottonwood Creek	Dunlap	A. E. Johnston	Dec. 4	0.3
Chadron Creek	Above Reservoir	A. E. Johnston	Dec. 5	2.1
Chadron Creek	Below Reservoir	A. E. Johnston	Dec. 5	0.7
Chadron Creek	Below Pipe Line	A. E. Johnston	Dec. 5	0.5

Stream	Location	Hydrographer	Date	Discharge
Chadron Creek	Gorr Ranch	A. E. Johnston	Dec. 5	1.5
Frenchman River	Below Imperial	A. E. Johnston	Oct. 24	48.8
Frenchman River	Culbertson	A. E. Johnston	Oct. 23	40.4
Frenchman River		A. E. Johnston	Nov. 25	187.0
Horse Creek	NE Corner 35-23-58	A. E. Johnston	Nov. 16	65.4
Horse Creek		A. E. Johnston	Dec. 27	50.4
Indian Creek	Sec. 1-20-51	A. E. Johnston	Nov. 2	1.3
Lodgepole Creek	1 Mile North, 1 Mile East Ovid	A. E. Johnston	Oct. 17	3.4
Lodgepole Creek		A. E. Johnston	Nov. 21	3.1
Lonergan Creek	Sec. 18-39-15	A. E. Johnston	Nov. 27	6.0
Medicine Creek	East of Cambridge	A. E. Johnston	Oct. 23	30.2
Muddy Creek	West of Arapahoe	A. E. Johnston	Oct. 23	1.3
Muddy Creek		A. E. Johnston	Nov. 24	3.1
Niobrara River	Sec. 28-29-48	J. D. Heywood	Oct. 5	41.4
Niobrara River	Dunlap	A. E. Johnston	Dec. 4	81.6
Niobrara River	Marsland	A. E. Johnston	Dec. 5	40.4
Niobrara River	Sec. 15-31-41	J. D. Heywood	Oct. 5	106.3
Otter Creek	Sec. 9-15-49	A. E. Johnston	Nov. 29	21.6
Pawnee Creek	Sec. 4-12-27	A. E. Johnston	Nov. 23	4.4
Pumpkinseed Creek	North Line 13-19-50	A. E. Johnston	Oct. 16	18.9

Stream	Location	Hydrographer	Date	Discharges
Pumpkinseed Creek	North line 13-19-50	A. E. Johnston	Nov. 28	44.8
Pumpkinseed Creek		A. E. Johnston	Dec. 9	28.8
Pumpkinseed Creek		A. E. Johnston	Dec. 21	46.9
Pumpkinseed Creek		A. E. Johnston	Dec. 29	62.5
Red Willow Creek	SE Corner 1-20-51	A. E. Johnston	Nov. 15	82.9
Red Willow Creek		A. E. Johnston	Dec. 9	61.2
Red Willow Creek		A. E. Johnston	Dec. 14	59.1
Red Willow Creek		A. E. Johnston	Dec. 26	66.8
Republican River	Culbertson	A. E. Johnston	Oct. 23	26.2
Republican River		A. E. Johnston	Nov. 25	27.6
Republican River	McCook	A. E. Johnston	Oct. 23	47.0
Republican River		A. E. Johnston	Nov. 25	388.0
Republican River	Arapahoe	A. E. Johnston	Oct. 23	3.0
Republican River		A. E. Johnston	Nov. 24	227.7
Sand Creek	Sec. 10-15-40	A. E. Johnston	Nov. 27	2.0
Sheep Creek	NE Corner 20-23-57	A. E. Johnston	Nov. 16	107.9
Sheep Creek	Above Tri-State	A. E. Johnston	Dec. 15	83.7
Sheep Creek		A. E. Johnston	Dec. 27	130.8
Spotted Tail (Wet)	West Line 26-23-56	A. E. Johnston	Dec. 27	8.2
Spotted Tail (Dry)	NW corner 29-23-56	A. E. Johnston	Oct. 4	40.9
Spotted Tail (Dry)		A. E. Johnston	Nov. 16	21.1
Spotted Tail (Dry)		A. E. Johnston	Dec. 14	35.8
Spotted Tail (Dry)		A. E. Johnston	Dec. 27	44.3
White Horse Creek	Sec. 5-13-29	A. E. Johnston	Nov. 23	13.5

Stream	Location	Hydrographer	Date	Discharges
White Tail Creek	Sec. 36-15-38	A. E. Johnston	Nov. 27	2.6
Wood River	Sec. 5-9-16	A. E. Johnston	Oct. 20	2.0
Wood River	Sec. 18-10-10	A. E. Johnston	Oct. 20	0.0
Wood River	Sec. 9-9-13	A. E. Johnston	Oct. 20	2.6
Wood River	Sec. 14-9-15	A. E. Johnston	Oct. 20	2.4
Wood River	NW ¼ 13-9-16	A. E. Johnston	Oct. 20	2.9
Wood River	Sec. 14-9-14	A. E. Johnston	Oct. 20	4.1
White River	SE ¼ SE ¼ 18-33-49	A. E. Johnston	Dec. 5	29.8
White River	Sec. 1-32-51	Chaloupka & Fowler	Oct. 3	25.9
White River	NE ¼ 6-30-53	A. E. Johnston	Dec. 5	26.1
White River	Sec. 26-32-52	A. E. Johnston	Dec. 5	22.7
White River	Sec. 27-31-55 Andrews	Chaloupka & Fowler	Nov. 3	1.5
White River	Sec. 3-31-52	Chaloupka & Fowler	Nov. 4	24.5
White River	Harris-Cooper GH	W. F. Chaloupka	Oct. 30	28.7
Winters Creek	E. Scottsbluff	A. E. Johnston	Oct. 4	95.3
Winters Creek	Sugar Beet Factory	A. E. Johnston	Nov. 15	80.4
Winters Creek		A. E. Johnston	Dec. 15	65.8
Winters Creek		A. E. Johnston	Dec. 27	57.1
Winters Creek	Above W. C. Canal	A. E. Johnston	Oct. 4	126.6

Stream	Location	Hydrographer	Date	Sec. Ft.
Arnold Drain	East Torrington	E. F. Ketcham	Aug. 13	5.04
Antelope Creek	Sec. 21-32-40, at mouth	Ketcham-Heywood	Aug. 9	3.12
Antelope Creek (Big)	Sec. 20-4-22, W. Edison	A. E. Johnston	Jan. 6	4.87
Ash Creek	South Line Sec. 11-31-50	A. E. Johnston	Sept. 7	2.87
Ash Creek	Sec. 7-32-50	A. E. Johnston	Oct. 10	2.49
Ash Creek (West)	West Line Sec. 36-32-51	E. F. Ketcham	Aug. 6	6.83
Austin Creek	Sec. 21-4-6	A. E. Johnston	Aug. 20	1.60
Arickaree River	West of Haigler, Sec. 28-1-41	A. E. Johnston	Apr. 17	11.90
Arickaree River		A. E. Johnston	June 6	75.20
Arickaree River		A. E. Johnston	June 22	39.60
Arickaree River		A. E. Johnston	July 18	28.15
Arickaree River		A. E. Johnston	Aug. 4	8.86
Arickaree River		A. E. Johnston	Sept. 19	6.90
Arickaree River		A. E. Johnston	Oct. 12	7.54
Arickaree River		A. E. Johnston	Dec. 4	8.00
Battle Creek	Sec. 1-23-3	A. E. Johnston	Aug. 8	9.89
Bear Creek	SE ¼ SW ¼ Sec. 25-34-36	A. H. Atkins	Aug. 17	61.23
Bear Creek		A. E. Johnston	Sept. 9	13.09
Bear Creek		A. E. Johnston	Oct. 5	66.57
Bear Creek		A. E. Johnston	Nov. 11	47.87
Bear Creek		A. E. Johnston	Nov. 25	37.07
Beaver Creek	Ravenna, Sec. 9-12-14	Atkins-Heywood	Aug. 16	102.67

Stream	Location	Hydrographer	Date	Sec. Ft.
Beaver Creek	West Genoa, Sec. 13-17-4	A. E. Johnston	Aug. 17	234.32
Beaver Creek	East Sweetwater	A. H. Atkins	Aug. 2	13.22
Beaver Creek	Albion	A. H. Atkins	June 29	54.86
Beaver Creek		A. H. Atkins	Aug. 3	97.46
Big Blue, S. F.	North Eldorado, Sec. 28-9-6	A. H. Atkins	June 27	5.15
Big Blue, S. F.		A. H. Atkins	July 6	0.39
Big Blue, S. F.		E. F. Ketcham	July 26	1.69
Big Blue, S. F.		A. H. Atkins	Aug. 8	5.01
Big Blue, S. F.		A. H. Atkins	Sept. 5	0.32
Big Blue, W. F.	2½ Miles N. Eldorado, Sec. 28-9-6	A. H. Atkins	July 6	0.13
Big Blue, W. F.		A. H. Atkins	Aug. 8	0.91
Big Blue, W. F.		A. H. Atkins	Sept. 5	0.08
Big Blue River	West Beatrice	A. H. Atkins	June 26	689.39
Big Blue River		A. H. Atkins	July 5	428.19
Big Blue River		E. F. Ketcham	July 23	314.80
Big Blue River		A. H. Atkins	Aug. 20	823.23
Big Blue River		A. E. Johnston	Aug. 20	346.90
Big Blue River		A. H. Atkins	Sept. 4	219.50
Big Blue River	Stromsburg	A. H. Atkins	Aug. 9	1.05
Blue Creek	Secs. 19 and 30-16-42	A. E. Johnston	Jan. 12	108.68
Blue Creek		A. E. Johnston	Feb. 2	91.64
Blue Creek		A. E. Johnston	Mar. 3	96.50
Blue Creek		A. E. Johnston	Mar. 29	82.90
Blue Creek		A. E. Johnston	Apr. 10	93.82
Blue Creek		A. E. Johnston	May 16	47.40
Blue Creek		A. E. Johnston	May 28	124.20
Blue Creek		A. E. Johnston	June 12	96.00

Stream	Location	Hydrographer	Date	Sec. Ft.
Blue Creek		A. E. Johnston	June 28	55.91
Blue Creek		E. F. Ketcham	July 6	40.82
Blue Creek		A. E. Johnston	July 20	1.30
Blue Creek		A. H. Atkins	July 24	5.01
Blue Creek		A. E. Johnston	Aug. 11	82.97
Blue Creek		A. H. Atkins	Aug. 25	90.26
Blue Creek		A. E. Johnston	Sept. 11	10.59
Blue Creek		A. H. Atkins	Sept. 26	48.79
Little Blue River	S. Hastings, Sec. 13-4-7	A. E. Johnston	Jan. 1	13.34
Little Blue River		A. H. Atkins	July 6	69.30
Little Blue River	Fairbury, Sec. 10-2-2	A. H. Atkins	June 26	549.86
Little Blue River		A. H. Atkins	July 6	166.32
Little Blue River		E. F. Ketcham	July 24	219.30
Little Blue River		A. H. Atkins	Aug. 7	461.50
Little Blue River		A. E. Johnston	Aug. 20	211.78
Little Blue River		A. H. Atkins	Sept. 9	46.17
Little Blue River	Sec. 12-4-8W	A. H. Atkins	June 27	168.34
Little Blue River		E. F. Ketcham	July 26	88.00
Little Blue River		A. H. Atkins	Aug. 8	111.40
Little Blue River		A. H. Atkins	Sept. 5	74.90
Birdwood Creek	Sec. 35-14-33	A. E. Johnston	Jan. 11	223.30
Birdwood Creek		A. E. Johnston	Mar. 1	174.86
Birdwood Creek		A. E. Johnston	Mar. 28	173.70
Birdwood Creek		A. E. Johnston	Apr. 11	163.46
Birdwood Creek		A. E. Johnston	May 18	157.40
Birdwood Creek		A. E. Johnston	May 30	203.10
Birdwood Creek		A. E. Johnston	June 14	180.10
Birdwood Creek		A. E. Johnston	June 30	202.24
Birdwood Creek		A. H. Atkins	July 11	162.50
Birdwood Creek		A. H. Atkins	July 27	160.33

Stream	Location	Hydrographer	Date	Sec. Ft.
Birdwood Creek	Sec. 35-14-33	E. F. Ketcham	July 30	159.70
Birdwood Creek		A. E. Johnston	Aug. 10	417.43
Birdwood Creek		A. H. Atkins	Aug. 27	126.00
Birdwood Creek		A. E. Johnston	Sept. 13	161.93
Birdwood Creek		A. E. Johnston	Oct. 18	203.57
Birdwood Creek		Atkins-Woods	Oct. 19	197.90
Birdwood Creek		A. E. Johnston	Nov. 24	204.10
Bordeaux Creek	Sec. 11-33-48	A. H. Atkins	July 20	3.72
Bordeaux Creek		A. E. Johnston	Sept. 7	7.24
Bordeaux Creek		A. E. Johnston	Oct. 6	3.33
Bordeaux Creek		A. E. Johnston	Nov. 10	3.93
Little Bordeaux Creek	W. Side 14-33-48, Gaging Sta.	A. H. Atkins	Aug. 18	1.73
Little Bordeaux Creek		A. H. Atkins	Sept. 14	2.00
Little Bordeaux Creek		A. H. Atkins	Oct. 26	5.10
Little Bordeaux Creek		Atkins-Heywood	Nov. 26	4.51
Buffalo Creek	Sec. 12-1-41	Johnston-Strong	Apr. 17	11.45
Buffalo Creek		E. F. Ketcham	June 1	9.95
Buffalo Creek		E. F. Ketcham	Aug. 28	9.10
Buffalo Creek		A. E. Johnston	Sept. 19	9.01
Buffalo Creek		A. E. Johnston	Oct. 12	13.04
Buffalo Creek		A. E. Johnston	Dec. 4	12.97
Buffalo Creek	Sec. 24-24-4W	A. H. Atkins	June 30	2.59
Buffalo Creek		E. F. Ketcham	July 17	4.58
Buffalo Creek		A. H. Atkins	Aug. 3	2.72
Buffalo Creek		A. E. Johnston	Aug. 18	4.37
Buffalo Creek	Sec. 3-8-18	A. E. Johnston	Aug. 7	50.51
Buffalo Creek		A. E. Johnston	Sept. 15	35.31
Buffalo Creek		A. E. Johnston	Nov. 28	3.49

Stream	Location	Hydrographer	Date	Sec. Ft.
Cedar Creek	NE ¼ 11-18-48	A. E. Johnston	Jan. 20	6.34
Cedar Creek		A. E. Johnston	Jan. 27	9.11
Cedar Creek		A. E. Johnston	Feb. 2	6.42
Cedar Creek		A. E. Johnston	Feb. 17	12.46
Cedar Creek		A. E. Johnston	Mar. 16	11.69
Cedar Creek		A. E. Johnston	Mar. 30	14.54
Cedar Creek		A. E. Johnston	Apr. 7	11.48
Cedar Creek		A. E. Johnston	May 1	3.43
Cedar Creek		A. E. Johnston	May 15	3.38
Cedar Creek		A. E. Johnston	May 28	12.67
Cedar Creek		A. E. Johnston	May 29	11.73
Cedar Creek		A. E. Johnston	June 12	25.00
Cedar Creek		A. E. Johnston	June 27	5.85
Cedar Creek		A. E. Johnston	Sept. 1	19.47
Cedar Creek		A. E. Johnston	Sept. 10	34.13
Cedar Creek		A. E. Johnston	Nov. 21	9.83
Cedar River	Fullerton, Sec. 12-16-6	A. E. Johnston	Aug. 17	503.99
Cedar Creek	Oakdale, Sec. 12-24-6	A. E. Johnston	Aug. 18	50.85
Calamus River	Sec. 22-23-18	A. E. Johnston	Nov. 11	272.90
Calamus River	Sec. 21-27-23	A. E. Johnston	Nov. 8	10.70
Center Creek	Sec. 1-1-15W	A. E. Johnston	Aug. 21	2.70
Clear Creek	Sec. 32-16-41	A. E. Johnston	Jan. 12	6.07
Clear Creek		A. E. Johnston	Feb. 10	8.13
Clear Creek		A. E. Johnston	Mar. 2	6.64
Clear Creek		A. E. Johnston	Mar. 29	6.22
Clear Creek		A. E. Johnston	Apr. 10	2.69
Clear Creek		A. E. Johnston	May 17	4.95
Clear Creek		A. E. Johnston	June 13	6.92
Clear Creek		A. E. Johnston	June 29	8.63

Stream	Location	Hydrographer	Date	Sec. Ft.
Clear Creek	Sec. 32-16-41	E. F. Ketcham	July 7	6.91
Clear Creek		A. E. Johnston	July 20	4.60
Clear Creek		A. H. Atkins	July 25	1.03
Clear Creek		A. E. Johnston	Aug. 11	7.47
Clear Creek		A. H. Atkins	Aug. 25	3.53
Clear Creek		A. E. Johnston	Sept. 12	3.06
Clear Creek		A. H. Atkins	Sept. 26	5.63
Clear Creek		A. H. Atkins	Oct. 15	7.58
Clear Creek	Sec. 26-13-92	A. H. Atkins	July 5	7.08
Clear Creek		A. H. Atkins	Aug. 6	41.22
Coldwater Creek	Sec. 34-18-46	A. E. Johnston	Jan. 12	4.28
Coldwater Creek		A. E. Johnston	Feb. 10	3.37
Coldwater Creek		A. E. Johnston	Mar. 2	2.75
Coldwater Creek		A. E. Johnston	Mar. 29	3.25
Coldwater Creek		A. E. Johnston	Apr. 10	3.77
Coldwater Creek		A. E. Johnston	May 16	1.58
Coldwater Creek		A. E. Johnston	June 12	1.40
Coldwater Creek		A. E. Johnston	June 27	2.65
Coldwater Creek		E. F. Ketcham	July 5	0.64
Coldwater Creek		A. H. Atkins	July 23	2.83
Coldwater Creek		A. H. Atkins	Aug. 24	0.69
Coldwater Creek		A. H. Atkins	Sept. 25	0.36
Coldwater Creek		A. H. Atkins	Oct. 11	1.71
Coon Creek	Sec. 13-3-28	A. E. Johnston	Aug. 6	8.80
Cottonwood Creek	Sec. 16-29-48	A. E. Johnston	Jan. 29	0.00
Cottonwood Creek		A. E. Johnston	Feb. 19	0.00
Cottonwood Creek		A. E. Johnston	Mar. 13	0.45
Cottonwood Creek		A. E. Johnston	May 2	0.43

Stream	Location	Hydrographer	Date	Sec. Ft.
Cottonwood Creek	Sec. 16-29-48	E. F. Ketcham	May 17	0.98
Cottonwood Creek		E. F. Ketcham	June 27	1.11
Cottonwood Creek		E. F. Ketcham	Aug. 3	1.13
Cottonwood Creek		A. E. Johnston	Sept. 5	0.66
Cottonwood Creek		A. E. Johnston	Oct. 4	0.60
Cottonwood Creek	Sec. 27-1-16	A. E. Johnston	Jan. 6	1.56
Cottonwood Creek	Sec. 26-1-16	A. E. Johnston	Jan. 6	5.68
Little Cottonwood	Sec. 8-32-52	A. E. Johnston	May 4	1.37
Little Cottonwood		Ketcham-Heywood	June 29	2.83
Little Cottonwood		A. H. Atkins	July 19	0.08
Little Cottonwood		E. F. Ketcham	Aug. 6	4.51
Little Cottonwood		A. H. Atkins	Aug. 18	3.15
Little Cottonwood		A. H. Atkins	Sept. 14	1.23
Little Cottonwood		A. H. Atkins	Oct. 26	6.30
Camp Creek	Sec. 13-18-49	E. F. Ketcham	Aug. 27	12.00
Chadron Creek	Above Reservoir	A. E. Johnston	Jan. 29	4.03
Chadron Creek		A. E. Johnston	Feb. 19	2.74
Chadron Creek		A. E. Johnston	Mar. 13	2.02
Chadron Creek		A. E. Johnston	May 2	1.90
Chadron Creek		E. F. Ketcham	May 17	3.06
Chadron Creek		E. F. Ketcham	June 27	2.95
Chadron Creek		A. H. Atkins	July 20	2.47
Chadron Creek		E. F. Ketcham	Aug. 3	6.38
Chadron Creek		A. H. Atkins	Aug. 18	3.55
Chadron Creek		A. H. Atkins	Sept. 14	2.38
Chadron Creek		A. H. Atkins	Oct. 26	1.74
Chadron Creek		A. E. Johnston	Nov. 11	2.87
Chadron Creek		A. H. Atkins	Nov. 24	3.27

Stream	Location	Hydrographer	Date	Sec. Ft.
Chadron Creek	Above Reservoir	A. H. Atkins	Nov. 26	3.29
Chadron Creek	Below Reservoir	A. E. Johnston	Jan. 29	1.73
Chadron Creek		A. E. Johnston	Feb. 19	1.57
Chadron Creek		A. E. Johnston	Mar. 13	1.16
Chadron Creek		A. E. Johnston	May 2	1.80
Chadron Creek		E. F. Ketcham	May 18	1.38
Chadron Creek		E. F. Ketcham	June 28	2.28
Chadron Creek		A. H. Atkins	July 20	1.28
Chadron Creek		E. F. Ketcham	Aug. 4	7.24
Chadron Creek		A. H. Atkins	Aug. 18	3.79
Chadron Creek		A. E. Johnston	Sept. 7	0.21
Chadron Creek		A. H. Atkins	Sept. 14	0.14
Chadron Creek		A. E. Johnston	Oct. 6	0.69
Chadron Creek		A. H. Atkins	Oct. 26	0.13
Chadron Creek		A. E. Johnston	Nov. 11	0.66
Chadron Creek		Atkins-Heywood	Nov. 24	0.73
Chadron Creek		A. H. Atkins	Nov. 26	0.71
Chadron Creek	Below Pipe Line	A. E. Johnston	Jan. 29	1.61
Chadron Creek		A. E. Johnston	Feb. 19	0.99
Chadron Creek		A. E. Johnston	Mar. 13	1.01
Chadron Creek		A. E. Johnston	June 2	1.75
Chadron Creek		E. F. Ketcham	May 18	0.91
Chadron Creek		E. F. Ketcham	June 28	1.54
Chadron Creek		A. H. Atkins	July 20	0.69
Chadron Creek		E. F. Ketcham	Aug. 4	6.34
Chadron Creek		A. H. Atkins	Aug. 18	1.84
Chadron Creek		A. E. Johnston	Sept. 7	0.90
Chadron Creek		A. H. Atkins	Sept. 14	0.77
Chadron Creek		A. E. Johnston	Oct. 6	1.68
Chadron Creek		A. H. Atkins	Oct. 26	0.31
Chadron Creek		A. E. Johnston	Nov. 11	1.31

Stream	Location	Hydrographer	Date	Sec. Ft.
Chadron Creek	Below Pipe Line	Atkins-Heywood	Nov. 24	1.33
Chadron Creek		A. H. Atkins	Nov. 26	1.32
Chadron Creek	Gorr Ranch	A. E. Johnston	Jan. 29	2.80
Chadron Creek		A. E. Johnston	Feb. 20	1.83
Chadron Creek		A. E. Johnston	Mar. 14	1.47
Chadron Creek		A. E. Johnston	May 3	2.25
Chadron Creek	Gorr Ranch	E. F. Ketcham	May 18	2.7
Chadron Creek		E. F. Ketcham	June 28	2.2
Chadron Creek		A. H. Atkins	July 20	1.2
Chadron Creek		E. F. Ketcham	Aug. 5	9.2
Chadron Creek		A. H. Atkins	Aug. 18	7.6
Chadron Creek		A. E. Johnston	Sept. 7	4.1
Chadron Creek		A. H. Atkins	Sept. 14	1.9
Chadron Creek		A. E. Johnston	Oct. 6	2.3
Chadron Creek		A. H. Atkins	Oct. 26	2.5
Chadron Creek		A. E. Johnston	Nov. 11	3.1
Chadron Creek		Atkins-Heywood	Nov. 24	3.2
Chadron Creek		A. H. Atkins	Nov. 26	2.8
Dead Horse Creek	Sec. 31-33-49	A. E. Johnston	Sept. 7	1.1
Drift Wood Creek	Sec. 1-2-30	A. E. Johnston	Sept. 18	23.6
Dry Creek	Sec. 20-34-37	A. H. Atkins	Aug. 17	7.8
Dugout (Lower)	Sec. 3-19-38	A. E. Johnston	Sept. 1	1.0
Elk Creek	East Arapahoe, Sec. 13-4-23	A. E. Johnston	June 20	3.6
Elk Creek		A. E. Johnston	Aug. 6	766.9
Elk Creek		A. E. Johnston	Sept. 17	18.9

Stream	Location	Hydrographer	Date	Sec. Ft.
Elkhorn, North Fork	Norfolk, Sec. 26-23-1W	A. H. Atkins	June 30	140.72
Elkhorn, North Fork		E. F. Ketcham	July 14	121.9
Elkhorn, North Fork		A. H. Atkins	Aug. 3	99.3
Elkhorn, North Fork		A. E. Johnston	Aug. 18	610.8
Elkhorn River	Arlington, Sec. 13-17-9E	A. H. Atkins	July 22	1177.1
Elkhorn River		E. F. Ketcham	July 19	985.9
Elkhorn River	North Hooper, 1 Mile	A. H. Atkins	July 2	801.3
Elkhorn River		E. F. Ketcham	July 18	817.7
Elkhorn River		A. H. Atkins	Aug. 4	552.6
Elkhorn River	Wisner, 12-23-4E	A. H. Atkins	June 30	759.6
Elkhorn River		E. F. Ketcham	July 18	641.7
Elkhorn River		A. H. Atkins	Aug. 3	498.5
Elkhorn River	Neligh, 20-25-6	A. H. Atkins	June 30	236.8
Elkhorn River		A. H. Atkins	Aug. 3	207.2
Elkhorn River		A. E. Johnston	Aug. 19	901.5
Elkhorn River	Norfolk, Sec. 34-24-1W	A. E. Johnston	Aug. 18	792.9
Elkhorn River	Oakdale, Sec. 12-24-6W	E. F. Ketcham	July 16	347.9
Elkhorn River	West Point, Sec. 34-22-6E	A. E. Johnston	Aug. 18	1750.9
Elm Creek	Trenton, Sec. 4-2-33	E. F. Ketcham	Aug. 27	0.00
Frenchman River	Sec. 7-5-35	A. E. Johnston	Jan. 5	110.9
Frenchman River	Below Kilpatrick Ditch, 23-6-40	A. E. Johnston	Jan. 5	29.9
Frenchman River		A. E. Johnston	Aug. 3	3.3
Frenchman River	Champion, 21-6-39	A. E. Johnston	Jan. 5	30.6
Frenchman River		A. E. Johnston	Feb. 6	120.1
Frenchman River		A. E. Johnston	Feb. 24	48.4
Frenchman River		A. E. Johnston	Mar. 22	32.8
Frenchman River		A. E. Johnston	Apr. 17	17.9
Frenchman River		A. E. Johnston	June 7	30.2

Stream	Location	Hydrographer	Date	Sec. Ft.
Frenchman River	Champion 21-6-39	A. E. Johnston	June 23	48.2
Frenchman River		A. E. Johnston	July 17	28.0
Frenchman River		A. E. Johnston	Aug. 3	22.1
Frenchman River		A. E. Johnston	Sept. 20	43.7
Frenchman River		A. E. Johnston	Oct. 11	64.5
Frenchman River		A. E. Johnston	Dec. 4	46.4
Frenchman River	Below Maranville Dam, 12-6-41	A. E. Johnston	Jan. 5	11.0
Frenchman River		A. E. Johnston	Feb. 6	7.1
Frenchman River		A. E. Johnston	Feb. 24	9.5
Frenchman River		A. E. Johnston	Mar. 22	13.8
Frenchman River		A. E. Johnston	Apr. 17	9.3
Frenchman River		A. E. Johnston	June 6	12.5
Frenchman River		E. F. Ketcham	June 11	13.7
Frenchman River		A. E. Johnston	June 23	15.3
Frenchman River		A. E. Johnston	July 17	9.1
Frenchman River		A. E. Johnston	Aug. 3	8.6
Frenchman River		E. F. Ketcham	Aug. 25	0.2
Frenchman River		A. E. Johnston	Sept. 20	1.8
Frenchman River		A. E. Johnston	Oct. 11	4.9
Frenchman River		A. E. Johnston	Dec. 4	9.4
Frenchman River	Below Inman Dam, Sec. 17-6-40	A. E. Johnston	Jan. 5	16.7
Frenchman River		A. E. Johnston	Feb. 6	19.7
Frenchman River		A. E. Johnston	Feb. 24	21.6
Frenchman River		A. E. Johnston	Mar. 22	24.8
Frenchman River		A. E. Johnston	Apr. 17	9.6
Frenchman River		A. E. Johnston	June 23	4.0
Frenchman River		A. E. Johnston	July 17	3.4
Frenchman River		A. E. Johnston	Aug. 3	10.4
Frenchman River		A. E. Johnston	Sept. 20	9.5
Frenchman River		A. E. Johnston	Oct. 11	21.1
Frenchman River		A. E. Johnston	Dec. 4	15.8

Stream	Location	Hydrographer	Date	Sec. Ft.
Frenchman River	Culbertson, Sec. 16-3-31	A. E. Johnston	Jan. 5	191.4
Frenchman River		A. E. Johnston	Feb. 7	180.0
Frenchman River		A. E. Johnston	Feb. 24	157.1
Frenchman River		A. E. Johnston	Mar. 23	163.5
Frenchman River		A. E. Johnston	Apr. 16	'62.2
Frenchman River		A. E. Johnston	June 5	610.3
Frenchman River		A. E. Johnston	June 21	284.1
Frenchman River		A. E. Johnston	Juyl 19	168.0
Frenchman River		A. E. Johnston	Aug. 6	119.3
Frenchman River		A. E. Johnston	Sept. 18	54.8
Frenchman River		A. E. Johnston	Oct. 12	152.4
Frenchman River		A. E. Johnston	Dec. 3	202.8
Frenchman River	Below Imperial Power Plant, 25-6-39	A. E. Johnston	Jan. 1	64.6
Frenchman River		A. E. Johnston	Feb. 2	65.1
Frenchman River		A. E. Johnston	Feb. 24	67.7
Frenchman River		A. E. Johnston	Mar. 22	70.6
Frenchman River		A. E. Johnston	Apr. 18	30.9
Frenchman River		A. E. Johnston	June 7	46.2
Frenchman River		E. F. Ketcham	June 6	83.3
Frenchman River		A. E. Johnston	June 23	66.8
Frenchman River		A. E. Johnston	July 17	77.6
Frenchman River		A. E. Johnston	Aug. 3	67.2
Frenchman River		E. F. Ketcham	Aug. 25	64.3
Frenchman River		A. E. Johnston	Sept. 20	73,2
Frenchman River		A. E. Johnston	Oct. 11	88.4
Frenchman River		A. E. Johnston	Dec. 4	96.3
Frenchman River	North Palisade Sec. 31-5-33	A. E. Johnston	Jan. 5	151.4
Frenchman River		A. E. Johnston	Feb. 6	174.1
Frenchman River		A. E. Johnston	Feb. 24	147.4
Frenchman River		A. E. Johnston	Mar. 22	147.8
Frenchman River		Johnston-Strong	Apr. 16	92.8

Stream	Location	Hydrographer	Date	Sec. Ft.
Frenchman River	North Palisade Sec. 31-5-33	A. E. Johnston	June 5	200.7
Frenchman River		E. F. Ketcham	June 7	199.2
Frenchman River		A. E. Johnston	June 21	246.0
Frenchman River		A. E. Johnston	Aug. 4	125.0
Frenchman River		A. E. Johnston	Aug. 19	73.0
Frenchman River		A. E. Johnston	Sept. 18	129.6
Frenchman River		A. E. Johnston	Oct. 12	235.7
Frenchman River		A. E. Johnston	Dec. 3	161.2
Frenchman River	Wauneta, 11-5-36	A. E. Johnston	Jan. 5	101.7
Frenchman River		A. E. Johnston	Feb. 6	104.2
Frenchman River		A. E. Johnston	Feb. 24	83.9
Frenchman River		A. E. Johnston	Mar. 22	90.1
Frenchman River		E. F. Ketcham	June 6	136.0
Frenchman River		E. F. Ketcham	June 7	124.5
Frenchman River		A. E. Johnston	June 22	84.3
Frenchman River		A. E. Johnston	July 19	137.6
Frenchman River		A. E. Johnston	Aug. 3	79.7
Frenchman River		E. F. Ketcham	Aug. 25	74.1
Frenchman River		A. E. Johnston	Sept. 18	86.0
Frenchman River		A. E. Johnston	Oct. 11	144.8
Frenchman River		A. E. Johnston	Dec. 3	104.1
Giles Creek	Tilden, 13-24-5	A. H. Atkins	June 30	9.1
Giles Creek		E. F. Ketcham	July 17	1.2
Giles Creek		A. H. Atkins	Aug. 3	2.4
Giles Creek		A. E. Johnston	Aug. 18	32.4
Greenwood Creek	Sec. 35-19-50	A. E. Johnston	Jan. 20	1.05
Greenwood Creek		A. E. Johnston	Jan. 27	0.00
Greenwood Creek		A. E. Johnston	Feb. 2	0.00
Greenwood Creek		A. E. Johnston	Feb. 13	0.24

Stream	Location	Hydrographer	Date	Sec. Ft.
Greenwood Creek	Sec. 35-19-50	A. E. Johnston	Mar. 5	1.63
Greenwood Creek		A. E. Johnston	Mar. 12	0.33
Greenwood Creek		A. E. Johnston	Sept. 24	0.25
Greenwood Creek		A. E. Johnston	Nov. 22	12.01
Greenwood Creek		A. E. Johnston	Nov. 22	8.31
Greenwood Creek		A. H. Atkins	Dec. 7	1.43
Horse Creek	¼ mile above mouth, Sec. 25-23-58	A. E. Johnston	Jan. 24	6.79
Horse Creek		A. E. Johnston	Feb. 15	5.77
Horse Creek		A. E. Johnston	Mar. 8	7.35
Horse Creek		A. E. Johnston	Apr. 4	17.41
Horse Creek		A. E. Johnston	Apr. 26	7.89
Horse Creek		Ketcham-Johnston	May 8	6.88
Horse Creek		A. E. Johnston	July 7	119.17
Horse Creek		A. E. Johnston	July 27	27.16
Horse Creek		E. F. Ketcham	Aug. 13	164.70
Horse Creek		A. E. Johnston	Apr. 25	188.32
Horse Creek		A. H. Atkins	Sept. 18	117.32
Horse Creek		A. H. Atkins	Sept. 22	111.05
Horse Creek		A. E. Johnston	Sept. 29	180.53
Horse Creek		A. E. Johnston	Nov. 16	158.70
Horse Creek		A. H. Atkins	Nov. 20	93.62
Horse Creek		Johnston-Hall	Dec. 13	74.05
Horse Creek	Sec 14-1-39	E. F. Ketcham	Aug. 28	0.50
Horse Creek		A. E. Johnston	Sept. 19	0.75
Horse Creek		A. E. Johnston	Dec. 4	1.06
Indian Creek	NE ¼ 19-20-50	A. E. Johnston	Jan. 22	4.84
Indian Creek		A. E. Johnston	Feb. 3	4.32
Indian Creek		A. E. Johnston	Mar. 6	3.20
Indian Creek		A. E. Johnston	Mar. 19	2.15

Stream	Location	Hydrographer	Date	Sec. Ft.
Indian Creek	NE ¼ 19-20-50	A. E. Johnston	Apr. 2	2.50
Indian Creek		A. E. Johnston	Apr. 24	1.83
Indian Creek		Ketcham-Johnston	May 12	1.55
Indian Creek		E. F. Ketcham	May 31	1.39
Indian Creek		E. F. Ketcham	June 20	4.54
Indian Creek		A. E. Johnston	July 24	6.48
Indian Creek		E. F. Ketcham	Aug. 11	23.10
Indian Creek		A. E. Johnston	Aug. 30	14.15
Indian Creek		A. E. Johnston	Oct. 23	3.30
Indian Creek		A. H. Atkins	Nov. 7	4.83
Indian Creek		A. E. Johnston	Nov. 14	3.66
Indian Creek		A. H. Atkins	Nov. 30	7.72
Indian Creek		Johnston-Hall	Dec. 10	4.43
Lodgepole Creek	2 miles West Bushnell, Sec. 1-14-58	E. F. Ketcham	June 23	19.56
Lodgepole Creek		A. H. Atkins	July 13	16.93
Lodgepole Creek		A. E. Johnston	July 30	8.91
Lodgepole Creek		E. F. Ketcham	Aug. 30	15.90
Lodgepole Creek	4 miles east Sidney	A. H. Atkins	July 12	54.78
Lodgepole Creek	1½ miles east Sidney	A. H. Atkins	July 12	18.00
Lodgepole Creek	2 miles west Sidney	A. H. Atkins	July 13	15.60
Lodgepole Creek	3 miles west Sidney	A. H. Atkins	July 13	5.10
Lodgepole Creek	4 miles east Sidney	A. E. Johnston	Aug. 1	8.80
Lodgepole Creek	3 miles east Sidney	A. E. Johnston	Aug. 1	9.70
Lodgepole Creek	2 miles south Ralton	E. F. Ketcham	June 22	51.50
Lodgepole Creek	3 miles east Lodgepole	A. H. Atkins	July 12	31.20
Lodgepole Creek	Sunol	A. H. Atkins	July 12	21.40
Lodgepole Creek	1 mile west Lodgepole	A. E. Johnston	Aug. 2	10.00
Lodgepole Creek	Kimball	E. F. Ketcham	June 23	14.70
Lodgepole Creek	Brownson	A. H. Atkins	July 13	3.19
Lodgepole Creek	2 miles east Kimball	A. H. Atkins	July 13	8.60

Stream	Location	Hydrographer	Date	Sec. Ft.
Lodgepole Creek	1 mile west Herdon	A. H. Atkins	July 13	12.20
Lodgepole Creek	2 miles west Dix	A. E. Johnston	July 30	3.23
Lodgepole Creek	½ mile west Chappell	A. H. Atkins	July 12	23.50
Lodgepole Creek	4 miles west Chappell	A. H. Atkins	July 12	15.20
Lodgepole Creek	2 miles southeast Chappell	A. E. Johnston	Aug. 2	10.10
Lodgepole Creek	Sidney, 32-14-49	A. E. Johnston	Feb. 5	1.03
Lodgepole Creek		A. E. Johnston	Feb. 23	0.99
Lodgepole Creek		A. E. Johnston	Mar. 20	2.10
Lodgepole Creek		A. E. Johnston	Apr. 19	0.39
Lodgepole Creek		A. E. Johnston	June 8	2.61
Lodgepole Creek		E. F. Ketcham	June 21	15.18
Lodgepole Creek		A. E. Johnston	Aug. 1	2.70
Lodgepole Creek		E. F. Ketcham	Aug. 1	5.22
Lodgepole Creek		E. F. Ketcham	Aug. 24	8.09
Lodgepole Creek		E. F. Ketcham	Aug. 29	8.70
Lodgepole Creek		A. E. Johnston	Sept. 21	4.05
Lodgepole Creek		A. E. Johnston	Oct. 10	4.51
Lodgepole Creek		A. E. Johnston	Oct. 19	7.59
Lodgepole Creek		A. E. Johnston	Nov. 2	6.14
Lodgepole Creek		A. E. Johnston	Nov. 23	7.43
Lodgepole Creek		A. E. Johnston	Dec. 6	9.06
Lodgepole Creek	Lodgepole	A. H. Atkins	July 12	26.00
Lodgepole Creek		E. F. Ketcham	Aug. 1	9.45
Lodgepole Creek		A. E. Johnston	Aug. 2	8.75
Lodgepole Creek		A. H. Atkins	Aug. 15	112.40
Lodgepole Creek		E. F. Ketcham	Aug. 24	18.80
Lodgepole Creek		E. F. Ketcham	Aug. 29	15.65
Lodgepole Creek		A. H. Atkins	Sept. 10	7.76
Lodgepole Creek		A. H. Atkins	Oct. 5	11.76
Lodgepole Creek		A. H. Atkins	Nov. 16	13.71
Lodgepole Creek	Chappell	E. F. Ketcham	Aug. 1	15.34

Stream	Location	Hydrographer	Date	Sec. Ft.
Lodgepole Creek	Chappell	E. F. Ketcham	Aug. 29	25.67
Lodgepole Creek		A. H. Atkins	Sept. 10	12.40
Lodgepole Creek		A. H. Atkins	Oct. 5	15.12
Lodgepole Creek		A. H. Atkins	Nov. 16	14.23
Lodgepole Creek	Below Kimball Reservoir	E. F. Ketcham	June 23	5.52
Lodgepole Creek		A. H. Atkins	July 13	6.60
Lodgepole Creek	½ Mi. W. Kimball, E. L. Sec. 30-15-55	E. F. Ketcham	June 22	26.3
Lodgepole Creek		A. E. Johnston	July 30	2.6
Lodgepole Creek		E. F. Ketcham	Aug. 30	12.8
Lodgepole Creek	Below Kimball Reservoir, 27-15-54	A. E. Johnston	July 30	2.64
Lodgepole Creek		E. F. Ketcham	Aug. 30	6.60
Lodgepole Creek	½ mile east, ¼ mile west Ovid	A. E. Johnston	Jan. 4	3.93
Lodgepole Creek		A. E. Johnston	Jan. 18	5.79
Lodgepole Creek		A. E. Johnston	Feb. 5	3.82
Lodgepole Creek		A. E. Johnston	Feb. 23	6.94
Lodgepole Creek		A. E. Johnston	Mar. 20	3.55
Lodgepole Creek		A. E. Johnston	Apr. 19	7.58
Lodgepole Creek		A. E. Johnston	May 25	73.20
Lodgepole Creek		Bailey-Ketcham	June 4	48.33
Lodgepole Creek		A. E. Johnston	June 8	43.90
Lodgepole Creek		A. E. Johnston	July 3	38.12
Lodgepole Creek		A. H. Atkins	July 12	101.46
Lodgepole Creek		A. E. Johnston	July 16	38.87
Lodgepole Creek		E. F. Ketcham	July 31	16.81
Lodgepole Creek		A. E. Johnston	Aug. 2	24.68
Lodgepole Creek		A. H. Atkins	Aug. 15	27.20
Lodgepole Creek		A. E. Johnston	Aug. 22	39.90
Lodgepole Creek		E. F. Ketcham	Aug. 29	34.40
Lodgepole Creek		A. H. Atkins	Sept. 10	19.41
Lodgepole Creek		A. E. Johnston	Sept. 21	35.75
Lodgepole Creek		A. H. Atkins	Oct. 4	29.48

Stream	Location	Hydrographer	Date	Sec. Ft.
Lodgepole Creek	½ mile East, ¼ mile West Ovid	A. E. Johnston	Oct. 10	35.04
Lodgepole Creek		A. E. Johnston	Oct. 19	27.50
Lodgepole Creek		A. E. Johnston	Nov. 3	31.00
Lodgepole Creek		A. H. Atkins	Nov. 16	34.07
Lodgepole Creek		A. E. Johnston	Nov. 23	28.86
Lodgepole Creek		A. E. Johnston	Dec. 5	29.20
Lawrence Fork	Sec. 25-19-52	A. H. Atkins	Aug. 20	1.44
Lawrence Fork		A. H. Atkins	Dec. 7	8.30
Lawrence Fork	Sec. 12-19-52	A. E. Johnston	Nov. 27	6.61
Lillian Creek	Sec. 1-19-20	A. E. Johnston	Aug. 15	3.46
Lonergan Creek	Sec. 18-39-15	A. E. Johnston	Jan. 12	5.43
Lonergan Creek		A. E. Johnston	Feb. 10	6.65
Lonergan Creek		A. E. Johnston	Mar. 1	10.84
Lonergan Creek		A. E. Johnston	Mar. 29	7.33
Lonergan Creek		A. E. Johnston	Apr. 10	5.80
Lonergan Creek		A. E. Johnston	May 17	7.16
Lonergan Creek		A. E. Johnston	May 29	10.12
Lonergan Creek		A. E. Johnston	June 13	6.31
Lonergan Creek		A. E. Johnston	June 29	2.54
Lonergan Creek		E. F. Ketcham	July 6	1.35
Lonergan Creek		A. E. Johnston	July 20	7.44
Lonergan Creek		A. H. Atkins	July 25	5.05
Lonergan Creek		A. E. Johnston	Aug. 10	9.47
Lonergan Creek		A. H. Atkins	Aug. 27	2.87
Lonergan Creek		A. E. Johnston	Sept. 12	4.33
Lonergan Creek		A. H. Atkins	Sept. 27	4.18
Lonergan Creek		A. H. Atkins	Oct. 16	6.55
Lonergan Creek		Atkins-Wood	Oct. 19	6.60

Stream	Location	Hydrographer	Date	Sec. Ft.
Loup River	7-17-2W Monroe	A. H. Atkins	June 22	3255.7
Loup River		E. F. Ketcham	July 14	3947.2
Loup River	25-17-4W South Genoa	A. E. Johnston	Aug. 19	4209.3
Loup River	11-16-6W Fullerton	A. H. Atkins	June 29	2781.6
Loup River		E. F. Ketcham	July 14	2808.3
Loup River		A. H. Atkins	Aug. 3	1696.4
Loup River		A. H. Atkins	Aug. 30	1380.9
Loup—Middle	13-15-15W Loup City	A. H. Atkins	June 28	527.8
Loup—Middle		E. F. Ketcham	July 13	995.5
Loup—Middle		A. H. Atkins	Aug. 2	716.0
Loup—Middle		A. E. Johnston	Aug. 16	1281.4
Loup—Middle		A. H. Atkins	Aug. 29	538.9
Loup—Middle	2-14-10 St. Paul	A. E. Johnston	Aug. 16	1972.5
Loup—Middle	10-19-18 South Sargent	A. E. Johnston	Aug. 15	1059.7
Loup—Middle		A. E. Johnston	Nov. 7	890.3
Loup—South	25-12-16 Pleasanton	A. H. Atkins	June 28	257.5
Loup—South		E. F. Ketcham	July 12	157.0
Loup—South		A. H. Atkins	Aug. 2	133.2
Loup—South		A. H. Atkins	Aug. 29	109.1
Loup—South		A. E. Johnston	Nov. 7	180.2
Loup—South	17-12-14 Ravenna	A. E. Johnston	Aug. 16	291.6
Loup—North	24-18-13 North Loup	A. H. Atkins	Aug. 30	1176.4
Loup—North	22-21-18 Taylor	A. E. Johnston	Aug. 7	691.2
Loup—North	22-15-10 St. Paul	A. H. Atkins	June 29	658.6
Loup—North		E. F. Ketcham	July 13	1176.4
Loup—North		A. H. Atkins	Aug. 2	791.1
Loup—North		A. E. Johnston	Aug. 16	1443.3

Stream	Location	Hydrographer	Date	Sec. Ft.
Logan Creek	11-19-8E Winslow	A. H. Atkins	July 2	0.3
Logan Creek	36-28-8E Oakland	A. H. Atkins	July 2	3.4
Logan Creek		E. F. Ketcham	July 18	0.9
Logan Creek		A. H. Atkins	Aug. 4	1.3
Logan Creek		A. E. Johnston	Aug. 18	622.7
Lincoln Creek	33-11-6W Aurora	E. F. Ketcham	July 26	0.0
Macklin Creek	West of Trenton	E. F. Ketcham	Aug. 27	Est. .05
Maple Creek	North of Fremont	E. F. Ketcham	July 18	49.4
Muskentine Creek	19-23-2E ½ mile west of Stanton	A. H. Atkins	June 30	0.2
Muskentine Creek		E. F. Ketcham	July 17	0.7
Medicine Creek	Northwest of Cambridge	A. E. Johnston	Feb. 2	30.5
Medicine Creek		A. E. Johnston	Feb. 26	0.0
Medicine Creek		A. E. Johnston	Mar. 23	80.5
Medicine Creek		A. E. Johnston	Apr. 14	56.3
Medicine Creek		A. E. Johnston	June 4	105.8
Medicine Creek		A. E. Johnston	June 20	516.9
Medicine Creek		A. E. Johnston	Aug. 6	445.5
Medicine Creek		A. E. Johnston	Aug. 21	79.8
Medicine Creek		A. E. Johnston	Sept. 17	57.9
Medicine Creek		A. E. Johnston	Oct. 15	68.1
Medicine Creek		A. E. Johnston	Nov. 30	55.2
Minnechuduza	22-34-27	A. E. Johnston	Nov. 9	0.0
Muddy Creek	West of Arapahoe	A. E. Johnston	Jan. 1	4.05
Muddy Creek		A. E. Johnston	Feb. 8	1.84

Stream	Location	Hydrographer	Date	Sec. Ft.
Muddy Creek	1 mile West Arapahoe	A. E. Johnston	Feb. 26	6.08
Muddy Creek		A. E. Johnston	Mar. 23	3.86
Muddy Creek		A. E. Johnston	Apr. 14	5.14
Muddy Creek		A. E. Johnston	June 4	22.90
Muddy Creek		A. E. Johnston	June 20	14.96
Muddy Creek		A. E. Johnston	Aug. 6	257.24
Muddy Creek		A. E. Johnston	Aug. 21	4.77
Muddy Creek		A. E. Johnston	Sept. 17	15.66
Muddy Creek		A. E. Johnston	Oct. 15	8.90
Muddy Creek		A. E. Johnston	Nov. 7	32.30
Muddy Creek		A. E. Johnston	Nov. 30	6.49
Nemaha—Little	24-8-6 South Lincoln	A. H. Atkins	June 25	3.87
Nemaha—Little		A. H. Atkins	July 5	3.98
Nemaha—Little		A. H. Atkins	Sept. 4	1.09
Niobrara River	5 and 5-28-51 Marsland	A. E. Johnston	Jan. 31	32.68
Niobrara River		A. E. Johnston	Feb. 21	25.62
Niobrara River		A. E. Johnston	Mar. 14	43.35
Niobrara River		A. E. Johnston	May 4	72.23
Niobrara River		E. F. Ketcham	May 20	43.12
Niobrara River		E. F. Ketcham	June 30	25.75
Niobrara River		A. H. Atkins	July 19	28.92
Niobrara River		Ketcham-Heywood	Aug. 8	54.60
Niobrara River		A. H. Atkins	Aug. 18	30.25
Niobrara River		A. E. Johnston	Sept. 8	27.12
Niobrara River		A. H. Atkins	Sept. 15	32.71
Niobrara River		A. E. Johnston	Oct. 8	53.60
Niobrara River		A. H. Atkins	Oct. 27	32.26
Niobrara River		A. E. Johnston	Nov. 11	55.67
Niobrara River		A. H. Atkins	Nov. 23	68.79

Stream	Location	Hydrographer	Date	Sec. Ft.
Niobrara River	28-29-48 Dunlap	A. E. Johnston	Jan. 29	108.57
Niobrara River		A. E. Johnston	Feb. 19	74.41
Niobrara River		A. E. Johnston	Mar. 13	91.75
Niobrara River		A. E. Johnston	May 2	113.38
Niobrara River		E. F. Ketcham	May 17	93.96
Niobrara River		E. F. Ketcham	June 27	52.16
Niobrara River		A. H. Atkins	July 21	33.42
Niobrara River		E. F. Ketcham	Aug. 3	78.60
Niobrara River		Ketcham-Heywood	Aug. 8	78.60
Niobrara River		A. E. Johnston	Sept. 5	61.84
Niobrara River		A. E. Johnston	Oct. 4	76.30
Niobrara River		A. H. Atkins	Nov. 27	134.25
Niobrara River	Nebraska-Wyoming Line	A. H. Atkins	July 18	9.39
Niobrara River	9-29-56	A. H. Atkins	July 18	23.65
Niobrara River	6-28-54	A. H. Atkins	July 19	18.02
Niobrara River	1-28-54	A. H. Atkins	July 19	27.57
Niobrara River	Alliance-Hayssprings	E. F. Ketcham	Aug. 10	107.70
Niobrara River	22-29-45	A. H. Atkins	Aug. 16	109.50
Niobrara River	16-31-41	E. F. Ketcham	Aug. 9	239.40
Niobrara River	21-32-40	E. F. Ketcham	Aug. 9	294.70
Niobrara River	1-35-33	A. H. Atkins	Aug. 17	254.70
Niobrara River	25-34-46	A. E. Johnston	Sept. 6	243.10
Niobrara River		A. E. Johnston	Oct. 5	259.80
Niobrara River	22-34-27	A. E. Johnston	Nov. 9	1171.7
Niobrara River		A. E. Johnston	Nov. 10	357.5
Oak Creek	35-15-13	A. H. Atkins	July 5	2.1
Oak Creek		A. E. Johnston	Aug. 16	36.6
Otter Creek	9-15-49	A. E. Johnston	Jan. 12	22.0
Otter Creek		A. E. Johnston	Feb. 10	24.8

Stream	Location	Hydrographer	Date	Sec. Ft.
Otter Creek	9-15-49	A. E. Johnston	Mar. 1	27.9
Otter Creek		A. E. Johnston	Mar. 29	19.3
Otter Creek		A. E. Johnston	Apr. 10	18.2
Otter Creek		A. E. Johnston	May 17	22.6
Otter Creek		A. E. Johnston	May 29	22.4
Otter Creek		E. F. Ketcham	June 29	19.8
Otter Creek		E. F. Ketcham	July 6	17.1
Otter Creek		A. E. Johnston	July 20	21.1
Otter Creek		A. H. Atkins	July 25	23.9
Otter Creek		A. E. Johnston	Aug. 10	24.5
Otter Creek		A. H. Atkins	Aug. 27	19.1
Otter Creek		A. E. Johnston	Sept. 12	24.5
Otter Creek		A. H. Atkins	Sept. 27	21.4
Otter Creek		Atkins-Wood	Oct. 19	25.1
Otter Creek		A. E. Johnston	Nov. 5	9.6
Otter Creek		A. H. Atkins	Nov. 14	9.1
Otter Creek		A. E. Johnston	Nov. 26	8.2
Pawnee Creek	Sec. 4-12-27	A. E. Johnston	Jan. 10	5.8
Pawnee Creek		A. E. Johnston	Feb. 9	6.4
Pawnee Creek		A. E. Johnston	Feb. 28	8.7
Pawnee Creek		A. E. Johnston	Mar. 27	9.5
Pawnee Creek		A. E. Johnston	Apr. 12	6.6
Pawnee Creek		A. E. Johnston	May 19	19.3
Pawnee Creek		E. F. Ketcham	July 10	5.1
Pawnee Creek		E. F. Ketcham	July 29	12.2
Pawnee Creek		A. E. Johnston	Aug. 9	30.4
Pawnee Creek		A. E. Johnston	Sept. 14	8.6
Pawnee Creek		A. E. Johnston	Oct. 17	6.0
Pawnee Creek		Atkins-Wood	Oct. 20	10.2
Pawnee Creek		A. E. Johnston	Nov. 5	9.6
Pawnee Creek		A. H. Atkins	Nov. 14	9.1
Pawnee Creek		A. E. Johnston	Nov. 26	8.2
Pumpkinseed Creek	North line 12-19-50	A. E. Johnston	Jan. 16	48.4
Pumpkinseed Creek		A. E. Johnston	Jan. 20	52.2
Pumpkinseed Creek		A. E. Johnston	Jan. 27	49.1
Pumpkinseed Creek		A. E. Johnston	Feb. 2	42.1

Stream	Location	Hydrographer	Date	Sec. Ft.
Pumpkinseed Creek	North Line 12-19-50	A. E. Johnston	Feb. 13	53.7
Pumpkinseed Creek		A. E. Johnston	Feb. 17	42.0
Pumpkinseed Creek		A. E. Johnston	Mar. 5	33.9
Pumpkinseed Creek		A. E. Johnston	Mar. 12	37.1
Pumpkinseed Creek		A. E. Johnston	Mar. 30	40.2
Pumpkinseed Creek		A. E. Johnston	Apr. 7	40.5
Pumpkinseed Creek		A. E. Johnston	Apr. 20	34.3
Pumpkinseed Creek		A. E. Johnston	May 1	47.0
Pumpkinseed Creek		A. E. Johnston	May 15	36.5
Pumpkinseed Creek		E. F. Ketcham	May 16	45.3
Pumpkinseed Creek		E. F. Ketcham	May 24	70.1
Pumpkinseed Creek		E. F. Ketcham	June 1	42.3
Pumpkinseed Creek		A. E. Johnston	June 12	82.8
Pumpkinseed Creek		A. E. Johnston	June 27	14.6
Pumpkinseed Creek		E. F. Ketcham	July 3	17.2
Pumpkinseed Creek		E. F. Ketcham	Aug. 1	26.3
Pumpkinseed Creek		E. F. Ketcham	Aug. 11	20.3
Pumpkinseed Creek		E. F. Ketcham	Aug. 20	65.2
Pumpkinseed Creek		A. E. Johnston	Sept. 1	47.6
Pumpkinseed Creek		A. E. Johnston	Sept. 12	32.4
Pumpkinseed Creek		A. E. Johnston	Sept. 24	31.1
Pumpkinseed Creek		A. E. Johnston	Oct. 10	43.0
Pumpkinseed Creek		A. E. Johnston	Oct. 22	43.0
Pumpkinseed Creek		A. E. Johnston	Nov. 21	41.9
Pumpkinseed Creek	27-19-50 Porter Ranch	A. E. Johnston	Jan. 16	37.6
Pumpkinseed Creek		A. E. Johnston	Jan. 20	43.4
Pumpkinseed Creek		A. E. Johnston	Jan. 27	42.4
Pumpkinseed Creek		A. E. Johnston	Feb. 13	33.03
Pumpkinseed Creek		A. E. Johnston	Feb. 17	29.10
Pumpkinseed Creek		A. E. Johnston	Mar. 5	31.74
Pumpkinseed Creek		A. E. Johnston	Mar. 12	35.62

Stream	Location	Hydrographer	Date	Sec. Ft.
Pumpkinseed Creek	Porter Ranch 27-19-50	A. E. Johnston	Apr. 20	32.75
Pumpkinseed Creek	8-19-55 Logan Dam	A. H. Atkins	July 14	1.51
Pumpkinseed Creek	2-19-55 Above Airdale No. 1 Div	A. E. Johnston	Sept. 26	2.61
Pumpkinseed Creek	23-19-53	A. H. Atkins	Aug. 20	11.49
Pumpkinseed Creek	West line 30-19-52	A. H. Atkins	Aug. 20	10.30
Pappio—Little	1-14-11E Millard	E. F. Ketcham	July 21	0.75
Pappio—Little		A. H. Atkins	Aug. 6	2.23
Pappio—Big	34-15-12E	E. F. Ketcham	Sept. 19	15.53
Pepper Creek	28-30-48 N Dunlap	A. E. Johnston	May 2	2.18
Pepper Creek		E. F. Ketcham	May 17	0.39
Pepper Creek		E. F. Ketcham	June 27	0.58
Pepper Creek		E. F. Ketcham	Aug. 3	0.72
Plum Creek	3-16-5W Fullerton	A. E. Johnston	Aug. 17	4.93
Plum Creek	15-22-6E W. Point	A. E. Johnston	Aug. 18	57.95
Plum Creek	19-31-23	A. E. Johnston	Nov. 9	75.60
Prairie Creek	22-15-6W	A. H. Atkins	Aug. 3	13.54
Prairie Creek		A. E. Johnston	Aug. 17	12.82
Rawhide Creek	E. Lingle, Wyoming	A. E. Johnston	Feb. 15	23.10
Rawhide Creek		A. E. Johnston	Mar. 8	23.42
Rawhide Creek		A. E. Johnston	Apr. 4	17.27
Rawhide Creek		A. E. Johnston	Apr. 26	27.20
Rawhide Creek		Ketcham-Johnston	May 9	27.67
Rawhide Creek		E. F. Ketcham	May 29	8.35
Rawhide Creek		E. F. Ketcham	June 16	35.32
Rawhide Creek		A. E. Johnston	July 9	5.25

Stream	Location	Hydrographer	Date		Sec. Ft.
Rawhide Creek	E. Lingle, Wyoming	A. E. Johnston	July	28	37.22
Rawhide Creek		E. F. Ketcham	Aug.	14	46.30
Rawhide Creek		A. E. Johnston	Aug.	25	29.97
Rawhide Creek		A. E. Johnston	Sept.	28	52.13
Rawhide Creek		A. E. Johnston	Oct.	24	22.85
Rawhide Creek		A. E. Johnston	Nov.	15	32.70
Red Willow Creek	Southwest corner 6-20-51	A. E. Johnston	Jan.	22	47.40
Red Willow Creek		A. E. Johnston	Feb.	3	42.70
Red Willow Creek		A. E. Johnston	Feb.	14	35.81
Red Willow Creek		A. E. Johnston	Mar.	6	29.20
Red Willow Creek		A. E. Johnston	Mar.	19	34.48
Red Willow Creek		A. E. Johnston	Apr.	2	30.41
Red Willow Creek		A. E. Johnston	Apr.	24	36.71
Red Willow Creek		Ketcham-Johnston	May	12	28.80
Red Willow Creek		E. F. Ketcham	June	20	144.72
Red Willow Creek		A. E. Johnston	July	12	43.91
Red Willow Creek		A. E. Johnston	July	25	226.32
Red Willow Creek		E. F. Ketcham	Aug.	17	64.50
Red Willow Creek		A. E. Johnston	Aug.	29	100.99
Red Willow Creek		A. E. Johnston	Oct.	23	63.76
Red Willow Creek		A. H. Atkins	Nov.	7	56.79
Red Willow Creek		A. E. Johnston	Nov.	14	64.02
Red Willow Creek		A. H. Atkins	Nov.	19	56.19
Red Willow Creek		A. H. Atkins	Nov.	21	56.27
Red Willow Creek		A. H. Atkins	Dec.	3	47.30
Red Willow Creek		A. H. Atkins	Dec.	5	40.04
Red Willow Creek		Johnston-Hall	Dec.	11	31.87
Red Willow Creek	3-3-29 Northwest of Indianola	A. E. Johnston	Jan.	6	21.88
Red Willow Creek		A. E. Johnston	Feb.	8	8.54
Red Willow Creek		A. E. Johnston	Feb.	26	27.72

Stream	Location	Hydrographer	Date	Sec. Ft.
Red Willow Creek	3-3-29 Northwest of Indianola	A. E. Johnston	Mar. 23	40.10
Red Willow Creek		A. E. Johnston	Apr. 14	20.48
Red Willow Creek		A. E. Johnston	June 4	155.01
Red Willow Creek		A. E. Johnston	June 20	100.70
Red Willow Creek		A. E. Johnston	Aug. 6	728.90
Red Willow Creek		A. E. Johnston	Sept. 17	9.58
Red Willow Creek		A. E. Johnston	Oct. 15	36.51
Red Willow Creek		A. E. Johnston	Nov. 30	25.88
Republican River	26-1-41 Haigler	E. F. Ketcham	Aug. 28	42.10
Republican River	13-1-42 Sanborn	A. E. Johnston	Apr. 17	42.40
Republican River		A. E. Johnston	June 6	72.70
Republican River		A. E. Johnston	June 22	69.10
Republican River		A. E. Johnston	July 18	61.43
Republican River		A. E. Johnston	Aug. 4	15.91
Republican River		A. E. Johnston	Sept. 19	32.11
Republican River		A. E. Johnston	Oct. 12	56.42
Republican River		A. E. Johnston	Dec. 4	68.60
Republican River	17-1-37 Benkleman	A. E. Johnston	Feb. 7	84.50
Republican River		A. E. Johnston	Apr. 16	74.10
Republican River		A. E. Johnston	June 6	205.40
Republican River		A. E. Johnston	June 22	134.40
Republican River		A. E. Johnston	July 17	81.30
Republican River		A. E. Johnston	Aug. 4	81.23
Republican River		E. F. Ketcham	Aug. 27	57.90
Republican River		A. E. Johnston	Sept. 19	56.71
Republican River		A. E. Johnston	Oct. 13	114.28
Republican River		A. E. Johnston	Dec. 3	131.80
Republican River	35-1-7 Southwest Superior	A. H. Atkins	June 26	1281.31
Republican River		E. F. Ketcham	July 25	1764.00
Republican River		A. H. Atkins	July 6	1161.90

Stream	Location	Hydrographer	Date	Sec. Ft.
Republican River	35-1-7 Southwest Superior	A. H. Atkins	Aug. 8	934.20
Republican River		A. H. Atkins	Sept. 5	943.80
Republican River	Culbertson	A. E. Johnston	Jan. 5	105.23
Republican River		A. E. Johnston	Feb. 7	114.50
Republican River		A. E. Johnston	Feb. 24	232.95
Republican River		A. E. Johnston	Mar. 23	259.30
Republican River		A. E. Johnston	Apr. 16	86.80
Republican River		A. E. Johnston	June 5	116.20
Republican River		A. E. Johnston	June 21	203.70
Republican River		A. E. Johnston	July 19	303.90
Republican River		A. E. Johnston	Aug. 6	350.80
Republican River		E. F. Ketcham	Aug. 27	133.20
Republican River		A. E. Johnston	Sept. 18	139.10
Republican River		A. E. Johnston	Oct. 12	251.85
Republican River		A. E. Johnston	Dec. 3	186.70
Republican River	Bostwick 15-1-8	A. E. Johnston	Jan. 7	415.84
Republican River		A. E. Johnston	Aug. 20	129.46
Republican River	26-3-29 McCook	A. E. Johnston	Jan. 6	287.69
Republican River		A. E. Johnston	Feb. 7	297.70
Republican River		A. E. Johnston	Feb. 26	317.46
Republican River		A. E. Johnston	Mar. 23	322.10
Republican River		A. E. Johnston	Apr. 16	170.50
Republican River		A. E. Johnston	June 5	1010.40
Republican River		A. E. Johnston	June 21	514.60
Republican River		A. E. Johnston	Aug. 6	633.60
Republican River		A. E. Johnston	Aug. 21	344.90
Republican River		A. E. Johnston	Sept. 18	197.80
Republican River		A. E. Johnston	Oct. 13	322.20
Republican River		A. E. Johnston	Dec. 1	330.80
Republican River	Arapahoe 22-4-23	A. E. Johnston	Jan. 6	176.00
Republican River		A. E. Johnston	Feb. 26	431.98

Stream	Location	Hydrographer	Date	Sec. Ft.
Republican River	Arapahoe 22-4-23	A. E. Johnston	Mar. 23	368.14
Republican River		A. E. Johnston	Apr. 14	167.30
Republican River		A. E. Johnston	June 4	1202.40
Republican River		A. E. Johnston	June 20	1631.80
Republican River		A. E. Johnston	Aug. 6	2361.50
Republican River		A. E. Johnston	Aug. 21	445.10
Republican River		A. E. Johnston	Sept. 17	974.90
Republican River		A. E. Johnston	Oct. 15	490.90
Republican River		A. E. Johnston	Nov. 30	361.10
Republican River	Oxford 12-3-21	A. E. Johnston	June 20	2132.30
Republican River		A. E. Johnston	Aug. 21	540.60
Republican River		A. E. Johnston	Sept. 17	2512.80
Republican River		A. E. Johnston	Oct. 15	517.30
Republican River		A. E. Johnston	Nov. 30	455.00
Republican River, South Fork	Benkleman 17-1-37	A. E. Johnston	Feb. 7	45.00
Republican River, South Fork		A. E. Johnston	Apr. 16	30.80
Republican River, South Fork		A. E. Johnston	June 6	195.00
Republican River, South Fork		A. E. Johnston	June 22	136.00
Republican River, South Fork		A. E. Johnston	July 17	148.10
Republican River, South Fork		A. E. Johnston	Aug. 4	60.57
Republican River, South Fork		E. F. Ketcham	Aug. 27	54.60
Republican River, South Fork		A. E. Johnston	Sept. 19	46.36
Republican River, South Fork		A. E. Johnston	Oct. 13	60.08
Republican River, South Fork		A. E. Johnston	Dec. 3	48.00
Rock Creek	Parks, NE ¼ 20-1-39	A. E. Johnston	Apr. 17	15.52
Rock Creek		A. E. Johnston	June 6	19.00
Rock Creek		A. E. Johnston	June 22	17.90
Rock Creek		A. E. Johnston	July 18	14.59
Rock Creek		A. E. Johnston	Aug. 4	14.73

Stream	Location	Hydrographer	Date	Sec. Ft.
Rock Creek	Parks, NE ¼ 20-1-39	E. F. Ketcham	Aug. 28	12.50
Rock Creek		A. E. Johnston	Sept. 19	17.54
Rock Creek		A. E. Johnston	Oct. 12	19.54
Rock Creek		A. E. Johnston	Dec. 4	15.67
Rose Creek	7-1-1 East	A. E. Johnston	Aug. 20	3.59
Rush Creek	17-17-45	A. E. Johnston	Nov. 19	4.14
Salt Creek	Lincoln	A. H. Atkins	July 5	1.43
Salt Creek		E. F. Ketcham	July 23	2.62
Salt Creek		A. H. Atkins	Aug. 7	1.43
Sand Creek	10-15-40	A. E. Johnston	Jan. 12	3.51
Sand Creek		A. E. Johnston	Feb. 10	3.33
Sand Creek		A. E. Johnston	Mar. 1	2.73
Sand Creek		A. E. Johnston	Mar. 29	2.62
Sand Creek		A. E. Johnston	Apr. 10	2.71
Sand Creek		A. E. Johnston	May 17	2.90
Sand Creek		A. E. Johnston	May 29	2.33
Sand Creek		A. E. Johnston	June 13	3.05
Sand Creek		A. E. Johnston	June 29	2.64
Sand Creek		E. F. Ketcham	July 6	1.31
Sand Creek		A. E. Johnston	July 20	3.83
Sand Creek		A. H. Atkins	July 25	3.13
Sand Creek		A. E. Johnston	Aug. 10	2.61
Sand Creek		A. H. Atkins	Aug. 27	3.46
Sand Creek		A. E. Johnston	Sept. 12	2.78
Sand Creek		A. H. Atkins	Sept. 27	4.38
Sand Creek		A. H. Atkins	Oct. 16	6.49
Sand Creek		Atkins-Wood	Oct. 19	4.60

Stream	Location	Hydrographer	Date	Sec. Ft.
Sappa Creek	20-20-19	A. E. Johnston	Jan. 6	5.04
Snake Creek	8-24-48 S. Alliance	A. E. Johnston	Jan. 29	0.00
Snake Creek		A. E. Johnston	Feb. 19	0.00
Snake Creek		A. E. Johnston	Mar. 13	0.65
Snake Creek		A. E. Johnston	May 5	1.80
Snake Creek		E. F. Ketcham	May 17	0.00
Snake Creek		E. F. Ketcham	June 27	4.08
Snake Creek		E. F. Ketcham	June 30	2.41
Snake Creek		E. F. Ketcham	Aug. 3	0.00
Snake Creek		E. F. Ketcham	Aug. 10	0.00
Snake Creek		A. E. Johnston	Sept. 5	0.00
Snake Creek		A. E. Johnston	Oct. 4	0.00
Soldier Creek	Ft. Robinson	Ketcham-Heywood	June 29	2.65
Soldier Creek		A. H. Atkins	July 8	0.84
Soldier Creek		A. H. Atkins	Sept. 15	1.34
Soldier Creek		A. H. Atkins	Oct. 26	0.49
Sheep Creek	Northeast corner 20-33-57	A. E. Johnston	Jan. 24	75.13
Sheep Creek		A. E. Johnston	Feb. 15	88.6
Sheep Creek		A. E. Johnston	Mar. 8	60.39
Sheep Creek		A. E. Johnston	Apr. 4	71.64
Sheep Creek		A. E. Johnston	Apr. 26	72.23
Sheep Creek		Ketcham-Johnston	May, 10	25.83
Sheep Creek		E. F. Ketcham	May 29	1.65
Sheep Creek		A. E. Johnston	July 10	0.00
Sheep Creek		A. E. Johnston	July 27	67.84
Sheep Creek		A. E. Johnston	Aug. 27	0.00
Sheep Creek		A. E. Johnston	Oct. 1	13.72
Sheep Creek		A. E. Johnston	Oct. 25	109.90

Stream	Location	Hydrographer	Date	Sec. Ft.
Sheep Creek	Northeast Corner 20-23-57	A. E. Johnston	Nov. 16	98.70
Sheep Creek		A. E. Johnston	Dec. 13	73.40
Sheep Creek	10-24-58	A. H. Atkins	Nov. 6	1.73
Spring Creek	28-23-56 Hebron	A. E. Johnston	Jan. 16	0.39
Spring Creek		A. H. Atkins	July 6	3.74
Spring Creek		A. H. Atkins	Aug. 8	20.88
Spring Creek		A. H. Atkins	Sept. 4	0.00
Spring Creek	Northeast corner 12-32-51	Johnston-Heywood	May 4	0.71
Spring Creek		E. F. Ketcham	May 20	0.82
Spring Creek	Northeast corner 12-32-51	E. F. Ketcham	June 28	1.17
Spring Creek		A. H. Atkins	July 20	1.08
Spring Creek		E. F. Ketcham	Aug. 5	2.33
Spring Creek		A. H. Atkins	Sept. 14	0.42
Spring Creek (Little)	22-22-55	A. E. Johnston	Oct. 26	1.02
Spring Creek	13-1-38 Benkleman	E. F. Ketcham	Aug. 28	0.00
Spring Creek	1-8-19	A. E. Johnston	Nov. 28	5.12
Squaw Creek	12-31-52	E. F. Ketcham	Aug. 6	10.24
Stinking Water	31-5-23, Bridge ½ mile above mouth	A. E. Johnston	Jan. 5	26.80
Stinking Water		A. E. Johnston	Feb. 6	14.60
Stinking Water		A. E. Johnston	Feb. 24	35.36
Stinking Water		A. E. Johnston	Mar. 22	38.50
Stinking Water		A. E. Johnston	Apr. 16	25.70
Stinking Water		A. E. Johnston	June 5	56.90
Stinking Water		A. E. Johnston	June 21	44.00
Stinking Water		A. E. Johnston	July 19	28.85
Stinking Water		A. E. Johnston	Aug. 4	27.44
Stinking Water		A. E. Johnston	Sept. 18	25.73
Stinking Water		A. E. Johnston	Oct. 12	55.34

Stream	Location	Hydrographer	Date	Sec. Ft.
Stinking Water	31-5-33, Bridg ½ Mile Above Mouth	A. E. Johnston	Dec. 3	36.65
Stinking Water	15-5-34	Johnston-Krotter	June 5	54.60
Stinking Water		A. E. Johnston	June 21	39.99
Spotted Tail (Dry)	28-23-56	A. E. Johnston	Jan. 24	25.06
Spotted Tail (Dry)		A. E. Johnston	Feb. 15	20.77
Spotted Tail (Dry)		A. E. Johnston	Mar. 8	15.88
Spotted Tail (Dry)		A. E. Johnston	Apr. 4	10.72
Spotted Tail (Dry)		A. E. Johnston	Apr. 27	8.59
Spotted Tail (Dry)		Ketcham-Johnston	May 10	15.70
Spotted Tail (Dry)		E. F. Ketcham	May 30	13.62
Spotted Tail (Dry)		A. E. Johnston	June 17	25.48
Spotted Tail (Dry)		A. E. Johnston	July 10	8.48
Spotted Tail (Dry)		A. E. Johnston	July 26	58.79
Spotted Tail (Dry)		E. F. Ketcham	Aug. 15	57.60
Spotted Tail (Dry)		A. E. Johnston	Aug. 27	39.77
Spotted Tail (Dry)		A. E. Johnston	Oct. 2	55.37
Spotted Tail (Dry)		A. H. Atkins	Oct. 9	32.72
Spotted Tail (Dry)		A. E. Johnston	Oct. 25	25.09
Spotted Tail (Dry)		A. E. Johnston	Nov. 16	28.68
Spotted Tail (Dry)		A. H. Atkins	Nov. 20	26.67
Spotted Tail (Dry)		A. H. Atkins	Dec. 3	17.45
Spotted Tail (Dry)		A. H. Atkins	Dec. 4	18.92
Spotted Tail (Dry)		A. H. Atkins	Sept. 18	58.04
Spotted Tail (Dry)		A. H. Atkins	Sept. 22	34.95
Spotted Tail (Dry)		Johnston-Hall	Dec. 12	34.05
Spotted Tail (Wet)	26-23-56	A. E. Johnston	Jan. 24	2.71
Spotted Tail (Wet)		A. E. Johnston	Feb. 16	3.88
Spotted Tail (Wet)		A. E. Johnston	Mar. 9	3.93
Spotted Tail (Wet)		A. E. Johnston	Apr. 5	3.32

Stream	Location	Hydrographer	Date	Sec. Ft.
Spotted Tail (Wet)	26-23-56	A. E. Johnston	Apr. 27	11.12
Spotted Tail (Wet)		Ketcham-Johnston	May 11	6.00
Spotted Tail (Wet)		E. F. Ketcham	June 17	2.78
Spotted Tail (Wet)		A. E. Johnston	July 10	8.64
Spotted Tail (Wet)		A. E. Johnston	July 26	13.26
Spotted Tail (Wet)		E. F. Ketcham	Aug. 16	12.50
Spotted Tail (Wet)		A. E. Johnston	Aug. 27	4.82
Spotted Tail (Wet)		A. E. Johnston	Oct. 2	6.26
Spotted Tail (Wet)		A. E. Johnston	Oct. 26	3.35
Spotted Tail (Wet)		A. E. Johnston	Nov. 16	3.10
Spotted Tail (Wet)		A. H. Atkins	Dec. 3	6.15
Spotted Tail (Wet)		A. H. Atkins	Dec. 4	5.94
Spotted Tail (Wet)		Johnston-Hall	Dec. 12	9.03
Tompson Creek	2-1-13 Riverton	A. E. Johnston	Aug. 20	11.10
Turkey Creek	17-15-12	A. E. Johnston	Aug. 16	68.99
Turkey Creek	8-1-16	A. E. Johnston	Jan. 6	11.30
Turkey Creek	31-4-21 5 miles west Oxford	A. E. Johnston	Aug. 6	703.00
Turkey Creek		A. E. Johnston	Sept. 17	407.37
Turkey Creek		A. E. Johnston	Oct. 15	1.36
Turkey Creek		A. E. Johnston	Nov. 30	2.35
Wahoo Creek	36-13-9 Ashland	A. H. Atkins	July 3	8.32
Wahoo Creek		A. H. Atkins	Aug. 6	34.56
Winters Creek	East Scottsbluff S. F.	A. E. Johnston	Jan. 23	57.67
Winters Creek		A. E. Johnston	Feb. 14	40.08
Winters Creek		A. E. Johnston	Mar. 7	43.22
Winters Creek		A. E. Johnston	Apr. 3	33.72
Winters Creek		A. E. Johnston	Apr. 28	36.33

Stream	Location	Hydrographer	Date	Sec. Ft.
Winters Creek	East Scottsbluff, S. F.	A. E. Johnston	May 11	59.70
Winters Creek		E. F. Ketcham	May 31	56.62
Winters Creek		E. F. Ketcham	June 18	105.69
Winters Creek		A. E. Johnston	July 11	65.55
Winters Creek		A. E. Johnston	July 26	80.70
Winters Creek		E. F. Ketcham	Aug. 16	93.50
Winters Creek		A. E. Johnston	Aug. 28	58.40
Winters Creek		A. E. Johnston	Oct. 2	12.28
Winters Creek		A. E. Johnston	Oct. 26	102.26
Winters Creek		A. H. Atkins	Nov. 2	58.68
Winters Creek		A. H. Atkins	Nov. 5	60.77
Winters Creek		A. H. Atkins	Nov. 7	62.70
Winters Creek		A. E. Johnston	Nov. 17	75.65
Winters Creek		A. H. Atkins	Nov. 19	46.99
Winters Creek		A. H. Atkins	Nov. 21	46.88
Winters Creek		A. H. Atkins	Dec. 3	45.27
Winters Creek		A. H. Atkins	Dec. 5	53.97
Winters Creek		A. E. Johnston	Dec. 27	57.13
Winters Creek	North Winters Creek Canal	Johnston-Hall	Dec. 14	59.06
White River	North Chadron 17-34-48	E. F. Ketcham	May 18	77.42
White River		E. F. Ketcham	June 28	45.70
White River		A. H. Atkins	July 20	36.87
White River		A. E. Johnston	Sept. 7	32.11
White River	15-33-49 Gorr Ranch	E. F. Ketcham	May 18	84.61
White River	9-33-49 Dakota Junction	A. E. Johnston	Jan. 30	9.06
White River	27-32-50	A. E. Johnston	Jan. 30	15.04
White River		A. E. Johnston	Mar. 14	29.04
White River	32-32-52 above Crawford W. W. Div.	E. F. Ketcham	June 29	16.51
White River		Atkins-Heywood	Nov. 24	15.77
White River	Below Crawford W. W. Div. 32-32-52	J. D. Heywood	Nov. 17	20.10

Stream	Location	Hydrographer	Date		Sec. Ft.
White River	Below Crawford, W. W. Div., 32-32-52	Atkins-Heywood	Nov.	24	13.04
White River	34-32-52 Crawford	Johnston-Heywood	Jan.	30	32.93
White River		A. E. Johnston	Mar.	14	23.95
White River		A. E. Johnston	May	3	34.62
White River		E. F. Ketcham	May	20	27.84
White River		Ketcham-Heywood	June	29	15.61
White River		E. F. Ketcham	Aug.	6	24.60
White River		A. H. Atkins	Sept.	15	15.95
White River		A. E. Johnston	Oct.	6	29.28
White River		A. H. Atkins	Oct.	26	22.16
White River		A. E. Johnston	Nov.	11	32.30
White River	Simmons Bridge SE¼ SE¼ 18-33-49 6 miles west Chadron	A. E. Johnston	Jan.	30	11.63
White River		A. E. Johnston	Feb.	20	11.34
White River		A. E. Johnston	May	3	51.05
White River		E. F. Ketcham	May	19	54.83
White River		E. F. Ketcham	June	28	47.40
White River		A. H. Atkins	July	20	26.30
White River		A. E. Johnston	Sept.	7	39.41
White River		A. H. Atkins	Sept.	14	21.50
White River		A. E. Johnston	Oct.	6	35.48
White River		A. E. Johnston	Nov.	11	47.37
White River		Atkins-Heywood	Nov.	24	40.38
White River	Military Road 4-31-52	A. E. Johnston	Jan.	30	31.34
White River		A. E. Johnston	Feb.	20	31.73
White River		A. E. Johnston	Mar.	14	20.17
White River		A. E. Johnston	May	4	23.12
White River		E. F. Ketcham	May	18	26.18
White River		E. F. Ketcham	June	28	33.80
White River		E. F. Ketcham	Aug.	5	40.80
White River		E. F. Ketcham	Aug.	6	25.80

Stream	Location	Hydrographer	Date	Sec. Ft.
White River	Military Road, 4-31-52	E. F. Ketcham	Aug. 7	437.10
White River		A. H. Atkins	Aug. 18	14.00
White River		A. E. Johnston	Sept. 8	17.23
White River		A. H. Atkins	Sept. 15	15.95
White River		A. E. Johnston	Oct. 8	101.15
White River		A. E. Johnston	Nov. 11	24.29
White River		A. H. Atkins	Nov. 24	35.54
White River	26-32-52 Whitney Div.	A. E. Johnston	Jan. 30	45.77
White River		A. E. Johnston	Feb. 20	50.09
White River		A. E. Johnston	Mar. 14	23.17
White River		A. E. Johnston	May 3	42.59
White River		E. F. Ketcham	May 20	29.34
White River		Ketcham-Heywood	June 29	21.95
White River		E. F. Ketcham	Aug. 6	37.80
White River		A. H. Atkins	July 19	17.20
White River		A. H. Atkins	Aug. 18	24.00
White River		A. E. Johnston	Sept. 7	18.59
White River		A. H. Atkins	Sept. 14	17.61
White River		A. E. Johnston	Oct. 6	32.21
White River		A. H. Atkins	Oct. 26	50.48
White River	26-32-52 Whitney Div.	A. E. Johnston	Nov. 11	50.48
White River		Atkins-Heywood	Nov. 24	29.33
White River	1-32-51 Whitney	E. F. Ketcham	May 19	56.64
White River		E. F. Ketcham	July 20	15.50
White River		E. F. Ketcham	Aug. 5	76.30
White River		A. H. Atkins	Aug. 18	38.80
White River		A. E. Johnston	Sept. 7	39.41
White River		A. H. Atkins	Sept. 14	25.39
White River		A. H. Atkins	Oct. 26	48.33
White River		A. H. Atkins	Nov. 24	50.90

Stream	Location	Hydrographer	Date	Sec. Ft.
Wood River	5-9-16	A. E. Johnston	Jan. 8	6.66
Wood River		A. E. Johnston	Mar. 24	10.54
Wood River		A. E. Johnston	May 22	8.17
Wood River		A. E. Johnston	June 2	200.60
Wood River	12-9-16	A. E. Johnston	Nov. 7	67.30
Wood River	13-10-12 North Wood River	A. H. Atkins	June 28	44.98
Wood River		E. F. Ketcham	July 26	32.50
Wood River		A. H. Atkins	Aug. 10	11.18
Wood River	7-9-15, 4 miles North Kearney	A. H. Atkins	June 28	14.82
Wood River		E. F. Ketcham	July 12	13.02
Wood River		A. E. Johnston	Aug. 14	32.46
White Tail Creek	36-15-38 West Keystone	A. E. Johnston	Mar. 1	27.15
White Tail Creek		A. E. Johnston	Mar. 29	23.93
White Tail Creek		A. E. Johnston	Apr. 10	28.07
White Tail Creek		A. E. Johnston	May 17	31.55
White Tail Creek		A. E. Johnston	May 29	31.17
White Tail Creek		A. E. Johnston	June 13	23.92
White Tail Creek		A. E. Johnston	June 29	26.93
White Tail Creek		A. H. Atkins	July 26	18.42
White Tail Creek		A. E. Johnston	Aug. 10	31.50
White Tail Creek		A. H. Atkins	Aug. 27	25.68
White Tail Creek		A. E. Johnston	Sept. 13	16.84
White Tail Creek		A. H. Atkins	Oct. 16	26.79
White Tail Creek		Atkins-Wood	Oct. 19	33.10
White Clay Creek	2-31-52 South Line	Johnston-Heywood	Jan. 30	5.78
White Clay Creek		A. E. Johnston	Feb. 20	4.74
White Clay Creek		A. E. Johnston	Mar. 14	3.32
White Clay Creek		Johnston-Heywood	May 4	4.02
White Clay Creek		E. F. Ketcham	May 19	3.82

Stream	Location	Hydrographer	Date	Sec. Ft.
White Clay Creek	2-31-52 South Line	Ketcham-Heywood	June 26	4.33
White Clay Creek		A. H. Atkins	July 19	2.81
White Clay Creek		E. F. Ketcham	Aug. 6	3.92
White Clay Creek		A. H. Atkins	Aug. 18	1.83
White Clay Creek		A. E. Johnston	Sept. 7	17.94
White Clay Creek		A. E. Johnston	Sept. 8	2.37
White Clay Creek		A. E. Johnston	Oct. 8	7.22
White Clay Creek		A. H. Atkins	Oct. 26	0.31
White Clay Creek		A. H. Atkins	Nov. 23	4.93
Whitman's Fork	22-6-39- North Champion	A. E. Johnston	Feb. 6	0.99
Whitman's Fork		A. E. Johnston	Feb. 24	1.35
Whitman's Fork		A. E. Johnston	Mar. 22	1.36
Whitman's Fork		A. E. Johnston	Sept. 20	0.94
Whitman's Fork		A. E. Johnston	Oct. 11	0.69
Whitman's Fork		A. E. Johnston	Dec. 12	1.20
White Horse Creek	5-14-29 W. Gannett	A. E. Johnston	Jan. 10	15.9
White Horse Creek		A. E. Johnston	Feb. 9	14.1
White Horse Creek		A. E. Johnston	Feb. 28	19.0
White Horse Creek		A. E. Johnston	Mar. 27	25.2
White Horse Creek		A. E. Johnston	Apr. 12	14.2
White Horse Creek		A. E. Johnston	June 18	15.7
White Horse Creek		A. E. Johnston	Aug. 9	5.9
White Horse Creek		A. E. Johnston	Sept. 14	10.0
White Horse Creek		A. E. Johnston	Oct. 17	15.8
White Horse Creek		A. E. Johnston	Oct. 20	20.0
White Horse Creek		A. E. Johnston	Nov. 5	23.2
White Horse Creek		A. E. Johnston	Nov. 26	18.2
Willow Creek	3-19-56 6 miles North Harrisburg	A. E. Johnston	Sept. 27	0.2

Stream	Location	Hydrographer	Date	Sec. Ft.
Willow Creek	16-19-56 Northwest Harrisburg	A. E. Johnston	Sept. 27	2.2
Willow Creek	3-1-10 Lester	A. E. Johnston	Jan. 7	15.2
Willow Creek		A. E. Johnston	Aug. 20	16.4
Warren Slough	4-13-6W Central City	A. H. Atkins	June 29	47.4
Warren Slough		E. F. Ketcham	July 14	14.3

Stream	Location	Hydrographer	Date	Discharge
Arapahoe Waste	Below Mill	A. E. Johnston	June 24	57.9
Arnold Drain	East Torrington	A. E. Johnston	Feb. 15	10.4
Arnold Drain		A. E. Johnston	Mar. 20	6.9
Arnold Drain		A. E. Johnston	Apr. 10	5.6
Arnold Drain		A. E. Johnston	May 7	3.4
Arnold Drain		A. E. Johnston	June 7	4.0
Arnold Drain		A. E. Johnston	Sept. 17	13.7
Arickaree River	West of Haigler	A. E. Johnston	Feb. 27	38.4
Arickaree River		A. E. Johnston	Apr. 29	12.3
Arickaree River		A. E. Johnston	May 31	54.8
Arickaree River		A. E. Johnston	June 26	2.8
Arickaree River		A. E. Johnston	Aug. 7	0.0
Arickaree River		A. E. Johnston	Sept. 5	0.7
Bayard Sugar Factory Drain	Sec. 34-21-52	A. E. Johnston	Jan. 14	28.1
Bayard Sugar Factory Drain		A. E. Johnston	Jan. 28	46.9
Bayard Sugar Factory Drain		A. E. Johnston	Feb. 13	35.2
Bayard Sugar Factory Drain		A. E. Johnston	Mar. 18	26.7
Bayard Sugar Factory Drain		A. E. Johnston	Apr. 9	30.6
Bayard Sugar Factory Drain		A. E. Johnston	Apr. 16	36.8
Bayard Sugar Factory Drain		A. E. Johnston	May 6	23.7
Bayard Sugar Factory Drain		A. E. Johnston	June 6	56.6
Bayard Sugar Factory Drain		A. E. Johnston	July 1	48.2
Bayard Sugar Factory Drain		A. E. Johnston	July 10	25.3
Bayard Sugar Factory Drain		C. G. Hrubesky	July 24	56.1
Bayard Sugar Factory Drain		C. G. Hrubesky	Aug. 9	73.1
Bayard Sugar Factory Drain		A. E. Johnston	Aug. 28	58.0
Bayard Sugar Factory Drain		C. G. Hrubesky	Sept. 3	54.5
Bayard Sugar Factory Drain		A. E. Johnston	Sept. 20	86.8

Stream	Location	Hydrographer	Date	Discharge
Beaver Creek	Sec. 24-2-20	A. E. Johnston	June 24	49.8
Big Blue River	Secs. 33 and 34-8N-4E	C. G. Hrubesky	Aug. 23	370.0
Big Blue River	Beatrice	C. G. Hrubesky	Aug. 25	513.0
Big Blue River	Wymore	C. G. Hrubesky	Aug. 25	352.0
Big Blue River	Northtown	C. G. Hrubesky	Aug. 27	0.0
Big Blue River	SE of Wilber	C. G. Hrubesky	Aug. 23	380.0
Big Blue River	Fairbury	C. G. Hrubesky	Aug. 25	160.0
Big Blue River	Seward	C. G. Hrubesky	Aug. 26	87.0
Big Blue River	Stromsberg	C. G. Hrubesky	Aug. 27	0.5
Birdwood Creek	½ mile above mouth	A. E. Johnston	Feb. 7	186.4
Birdwood Creek		A. E. Johnston	Mar. 3	194.9
Birdwood Creek		A. E. Johnston	Mar. 13	176.5
Birdwood Creek		A. E. Johnston	Apr. 22	178.6
Birdwood Creek		A. E. Johnston	May 22	186.0
Birdwood Creek		A. E. Johnston	June 16	179.1
Birdwood Creek		A. E. Johnston	July 17	134.0
Birdwood Creek		A. E. Johnston	July 23	136.9
Birdwood Creek		C. G. Hrubesky	Aug. 4	145.5
Birdwood Creek		C. G. Hrubesky	Aug. 19	149.7
Birdwood Creek		C. G. Hrubesky	Aug. 30	164.7
Buffalo Creek	Sec. 18-1-41 Northeast of Haigler	A. E. Johnston	Feb. 27	13.8
Buffalo Creek		A. E. Johnston	Mar. 12	15.5
Buffalo Creek		A. E. Johnston	Apr. 29	12.7
Buffalo Creek		A. E. Johnston	May 31	13.4
Buffalo Creek		A. E. Johnston	June 26	8.9
Buffalo Creek		A. E. Johnston	Aug. 7	13.3
Buffalo Creek		A. E. Johnston	Sept. 6	5.9
Buffalo Creek	Overton	C. G. Hrubesky	Aug. 6	38.8

Stream	Location	Hydrographer	Date	Discharge
Buffalo Creek	Overton	C. G. Hrubesky	Aug. 21	0.0
Buffalo Creek		C. G. Hrubesky	Aug. 28	23.0
Blue Creek	North line 30-16-42	A. E. Johnston	Feb. 9	117.9
Blue Creek		A. E. Johnston	Mar. 4	124.8
Blue Creek		A. E. Johnston	Mar. 14	106.0
Blue Creek		A. E. Johnston	Apr. 4	103.2
Blue Creek		A. E. Johnston	Apr. 21	115.8
Blue Creek		A. E. Johnston	May 20	33.9
Blue Creek		A. E. Johnston	June 13	54.9
Blue Creek		A. E. Johnston	July 15	10.9
Blue Creek		A. E. Johnston	July 24	18.7
Blue Creek		C. G. Hrubesky	Aug. 1	21.9
Blue Creek		C. G. Hrubesky	Aug. 16	23.6
Blue Creek		A. E. Johnston	Aug. 27	1.6
Blue Creek		C. G. Hrubesky	Sept. 2	10.5
Bear Creek	Belsky's Diversion	A. E. Johnston	May 13	21.4
Bear Creek		A. E. Johnston	July 29	15.3
Bear Creek		A. E. Johnston	Aug. 9	9.6
Bordeaux Creek	5 miles east Chadron	A. E. Johnston	May 14	3.2
Bordeaux Creek	Sec. 23-33-48	J. D. Heywood	Aug. 8	18.9
Bordeaux Creek	Sec. 34-34-48	Heywood-Hood	Aug. 27	2.6
Cottonwood Creek	Sec. 8-32-53	A. E. Johnston	May 14	3.0
Cottonwood Creek		A. E. Johnston	July 12	0.0
Cottonwood Creek		J. D. Heywood	Aug. 5	0.1
Camp Clark Seep	Sec. 4-20-51	A. E. Johnston	Jan. 14	1.8
Camp Clark Seep		A. E. Johnston	Jan. 28	2.3

Stream	Location	Hydrographer	Date	Discharge
Camp Clark Seep	Sec. 4-20-51	A. E. Johnston	Jan. 31	2.2
Camp Clark Seep		A. E. Johnston	Feb. 13	1.6
Camp Clark Seep		A. E. Johnston	Mar. 18	2.5
Camp Clark Seep		A. E. Johnston	Apr. 9	1.5
Camp Clark Seep		A. E. Johnston	May 6	1.1
Camp Clark Seep		A. E. Johnston	June 6	0.9
Camp Clark Seep		A. E. Johnston	July 1	1.9
Camp Clark Seep		A. E. Johnston	July 10	1.3
Camp Clark Seep		C. G. Hrubesky	Aug. 8	12.4
Camp Clark Seep		A. E. Johnston	Aug. 28	14.3
Camp Clark Seep		C. G. Hrubesky	Sept. 3	12.2
Camp Clark Seep		A. E. Johnston	Sept. 20	11.9
Cedar Creek	Sec. 11-18-48	A. E. Johnston	Jan. 18	12.7
Cedar Creek		A. E. Johnston	Feb. 1	12.7
Cedar Creek		A. E. Johnston	Mar. 6	15.4
Cedar Creek		A. E. Johnston	Mar. 24	16.3
Cedar Creek		A. E. Johnston	Apr. 7	15.5
Cedar Creek		A. E. Johnston	Apr. 18	10.2
Cedar Creek		A. E. Johnston	May 25	10.2
Cedar Creek		A. E. Johnston	July 14	6.4
Cedar Creek		A. E. Johnston	July 25	4.9
Chadron Creek No. 1	Above Reservoir	A. E. Johnston	Jan. 22	2.6
Chadron Creek No. 1		A. E. Johnston	Feb. 20	5.7
Chadron Creek No. 1		A. E. Johnston	Apr. 14	2.3
Chadron Creek No. 1		A. E. Johnston	May 12	4.7
Chadron Creek No. 1		A. E. Johnston	July 13	3.6
Chadron Creek No. 1		A. E. Johnston	July 28	1.2
Chadron Creek No. 1		J. D. Heywood	Aug. 8	2.1
Chadron Creek No. 1		A. E. Johnston	Aug. 18	1.4
Chadron Creek No. 1		Heywood-Hood	Aug. 27	1.3

Stream	Location	Hydrographer	Date	Discharge
Chadron Creek No. 2	Below Reservoir	A. E. Johnston	Jan. 22	0.5
Chadron Creek No. 2		A. E. Johnston	Feb. 20	0.8
Chadron Creek No. 2		A. E. Johnston	Apr. 14	3.4
Chadron Creek No. 2		A. E. Johnston	May 12	2.0
Chadron Creek No. 2		A. E. Johnston	July 13	0.9
Chadron Creek No. 2		A. E. Johnston	July 28	0.6
Chadron Creek No. 2		J. D. Heywood	Aug. 8	1.3
Chadron Creek No. 2		A. E. Johnston	Aug. 18	0.2
Chadron Creek No. 2		Heywood-Hood	Aug. 27	0.4
Chadron Creek No. 3	Below Pipe Line	A. E. Johnston	Jan. 22	0.3
Chadron Creek No. 3		A. E. Johnston	Feb. 20	1.6
Chadron Creek No. 3		A. E. Johnston	Apr. 14	3.8
Chadron Creek No. 3		A. E. Johnston	May 12	3.6
Chadron Creek No. 3		A. E. Johnston	July 13	0.3
Chadron Creek No. 3		A. E. Johnston	July 28	0.2
Chadron Creek No. 3		J. D. Heywood	Aug. 8	1.2
Chadron Creek No. 3		A. E. Johnston	Aug. 18	0.2
Chadron Creek No. 3		Heywood-Hood	Aug. 27	0.0
Chadron Creek No. 4	Gorr Ranch	A. E. Johnston	Jan. 22	2.6
Chadron Creek No. 4		A. E. Johnston	Feb. 20	3.8
Chadron Creek No. 4		A. E. Johnston	Apr. 15	4.9
Chadron Creek No. 4		A. E. Johnston	May 14	4.9
Chadron Creek No. 4		A. E. Johnston	July 13	0.7
Chadron Creek No. 4		A. E. Johnston	July 30	0.0
Chadron Creek No. 4		J. D. Heywood	Aug. 8	0.0
Chadron Creek No. 4		A. E. Johnston	Aug. 20	0.7
Cottonwood Creek	Sec. 11-1-16	A. E. Johnston	June 23	4.1

Stream	Location	Hydrographer	Date	Discharge
Clear Creek	Northeast corner 5-15-41	A. E. Johnston	Feb. 9	10.7
Clear Creek		A. E. Johnston	Mar. 4	10.3
Clear Creek		A. E. Johnston	Mar. 13	6.9
Clear Creek		A. E. Johnston	Apr. 4	9.3
Clear Creek		A. E. Johnston	Apr. 21	8.8
Clear Creek		A. E. Johnston	May 20	8.9
Clear Creek		A. E. Johnston	June 13	7.7
Clear Creek		A. E. Johnston	July 15	2.8
Clear Creek		A. E. Johnston	July 24	0.1
Clear Creek		C. G. Hrubesky	Aug. 2	2.6
Clear Creek		C. G. Hrubesky	Aug. 16	1.4
Clear Creek		A. E. Johnston	Aug. 26	0.4
Clear Creek		C. G. Hrubesky	Sept. 1	1.1
Cold Water Creek	North Line 34-18-46	A. E. Johnston	Feb. 9	3.5
Cold Water Creek		A. E. Johnston	Mar. 14	1.0
Cold Water Creek		A. E. Johnston	June 12	0.0
Cold Water Creek		A. E. Johnston	July 14	0.2
Cold Water Creek		A. E. Johnston	July 25	0.4
Cold Water Creek		C. G. Hrubesky	Aug. 1	0.7
Cold Water Creek		C. G. Hrubesky	Aug. 15	0.5
Cold Water Creek		A. E. Johnston	Aug. 27	1.0
Cold Water Creek		C. G. Hrubesky	Sept. 2	0.4
Dugout (Lower)	Sec. 4-19-48	A. E. Johnston	July 26	0.4
Elm Creek	Near Kearney	C. G. Hrubesky	Aug. 6	0.0
Elm Creek		C. G. Hrubesky	Aug. 21	0.0
Elm Creek		C. G. Hrubesky	Aug. 28	0.0
Fairfield Seep	Sec. 18-21-53	A. E. Johnston	Jan. 14	4.0

Stream	Location	Hydrographer	Date	Discharge
Fairfield Seep	Sec. 18-21-53	A. E. Johnston	Jan. 28	6.2
Fairfield Seep		A. E. Johnston	Feb. 13	3.1
Fairfield Seep		A. E. Johnston	Mar. 17	3.0
Fairfield Seep		A. E. Johnston	Apr. 9	2.9
Fairfield Seep		A. E. Johnston	Apr. 16	5.4
Fairfield Seep		A. E. Johnston	May 6	3.6
Fairfield Seep		A. E. Johnston	June 11	7.2
Fairfield Seep		A. E. Johnston	July 10	9.9
Fairfield Seep		C. G. Hrubesky	July 25	7.6
Fairfield Seep		C. G. Hrubesky	Aug. 9	12.7
Fairfield Seep		C. G. Hrubesky	Sept. 4	13.7
Fairfield Seep		A. E. Johnston	Sept. 19	14.4
Fanning Seep	Southeast corner 28-23-56	A. E. Johnston	Jan. 16	3.5
Fanning Seep		A. E. Johnston	Jan. 30	3.7
Fanning Seep		A. E. Johnston	Feb. 16	2.1
Fanning Seep		A. E. Johnston	Mar. 20	2.5
Fanning Seep		C. G. Hrubesky	July 26	4.2
Fanning Seep		C. G. Hrubesky	Aug. 11	5.0
Fanning Seep		C. G. Hrubesky	Sept. 5	5.1
Frenchman River	Below Inman Canal	A. E. Johnston	Feb. 5	12.0
Frenchman River		A. E. Johnston	Feb. 26	15.4
Frenchman River		A. E. Johnston	Apr. 3	20.9
Frenchman River		A. E. Johnston	Apr. 30	7.1
Frenchman River		A. E. Johnston	June 2	15.3
Frenchman River		A. E. Johnston	June 27	2.8
Frenchman River		A. E. Johnston	Aug. 6	8.6
Frenchman River		A. E. Johnston	Sept. 4	7.0
Frenchman River	Below Maranville Canal	A. E. Johnston	Feb. 5	9.6
Frenchman River		A. E. Johnston	Feb. 26	7.5

Stream	Location	Hydrographer	Date	Discharge
Frenchman River	Below Maranville Canal	A. E. Johnston	Apr. 3	6.2
Frenchman River		A. E. Johnston	Apr. 30	4.7
Frenchman River		A. E. Johnston	June 2	1.5
Frenchman River		A. E. Johnston	June 27	1.2
Frenchman River		A. E. Johnston	Aug. 6	1.1
Frenchman River		A. E. Johnston	Sept. 4	1.0
Frenchman River	Champion	A. E. Johnston	Feb. 5	53.7
Frenchman River		A. E. Johnston	Feb. 26	33.8
Frenchman River		A. E. Johnston	Apr. 3	65.4
Frenchman River		A. E. Johnston	Apr. 30	34.0
Frenchman River		A. E. Johnston	June 2	41.0
Frenchman River		A. E. Johnston	June 27	26.4
Frenchman River		A. E. Johnston	Aug. 6	24.9
Frenchman River		A. E. Johnston	Sept. 4	39.9
Frenchman River	South of Imperial	A. E. Johnston	Feb. 5	79.3
Frenchman River		A. E. Johnston	Feb. 26	50.1
Frenchman River		A. E. Johnston	Apr. 3	78.0
Frenchman River		A. E. Johnston	Apr. 29	80.9
Frenchman River		A. E. Johnston	June 2	75.6
Frenchman River		A. E. Johnston	June 27	30.2
Frenchman River		A. E. Johnston	Aug. 6	55.8
Frenchman River		A. E. Johnston	Sept. 4	52.3
Frenchman River	East of Wauneta	A. E. Johnston	Feb. 5	99.0
Frenchman River		A. E. Johnston	Feb. 26	79.7
Frenchman River		A. E. Johnston	Apr. 2	97.8
Frenchman River		A. E. Johnston	Apr. 28	90.7
Frenchman River		A. E. Johnston	May 29	100.5
Frenchman River		A. E. Johnston	June 25	76.6
Frenchman River		A. E. Johnston	Aug. 6	96.5
Frenchman River		A. E. Johnston	Sept. 5	74.7
Frenchman River	East of Palisade	A. E. Johnston	Feb. 5	132.1

Stream	Location	Hydrographer	Date	Discharge
Frenchman River	East of Palisade	A. E. Johnston	Feb. 26	159.4
Frenchman River		A. E. Johnston	Apr. 2	166.0
Frenchman River		A. E. Johnston	Apr. 28	138.9
Frenchman River		A. E. Johnston	May 29	40.6
Frenchman River		A. E. Johnston	June 25	78.3
Frenchman River		A. E. Johnston	Aug. 7	78.9
Frenchman River		A. E. Johnston	Sept. 6	7.7
Frenchman River	Culbertson	A. E. Johnston	Feb. 22	216.3
Frenchman River		A. E. Johnston	Apr. 2	170.6
Frenchman River		A. E. Johnston	Apr. 28	150.3
Frenchman River		A. E. Johnston	May 29	115.2
Frenchman River		A. E. Johnston	June 25	103.7
Frenchman River		A. E. Johnston	Aug. 8	107.0
Frenchman River		A. E. Johnston	Sept. 6	16.9
Gering Drain	Sec. 6-21-54	A. E. Johnston	Jan. 14	5.4
Gering Drain		A. E. Johnston	Jan. 28	6.3
Gering Drain		A. E. Johnston	Feb. 13	5.8
Gering Drain		A. E. Johnston	Mar. 18	6.8
Gering Drain		A. E. Johnston	Apr. 9	5.2
Gering Drain		A. E. Johnston	May 6	3.5
Gering Drain		A. E. Johnston	June 10	5.1
Gering Drain		A. E. Johnston	July 2	5.9
Gering Drain		A. E. Johnston	July 9	6.1
Gering Drain		C. G. Hrubesky	July 29	7.3
Gering Drain		C. G. Hrubesky	Aug. 13	7.0
Gering Drain		A. E. Johnston	Aug. 30	9.7
Gering Drain		C. G. Hrubesky	Sept. 9	13.9
Gravel Creek	NW¼ 9-14-37	A. E. Johnston	June 14	1.8
Gravel Creek		C. G. Hrubesky	Aug. 4	3.2

Stream	Location	Hydrographer	Date	Discharge
Greenwood Creek	Capron Headgate	A. E. Johnston	Aug. 22	8.6
Hat Creek	Sec. 26-33-55	J. D. Heywood	July 18	3.2
Hat Creek		A. E. Johnston	July 31	0.4
Hat Creek		A. E. Johnston	Sept. 23	1.4
Horse Creek	Sec. 14-1-29	A. E. Johnston	Feb. 27	1.2
Horse Creek	3 miles east Parks	A. E. Johnston	May 31	2.1
Horse Creek		A. E. Johnston	June 26	0.6
Horse Creek		A. E. Johnston	Aug. 7	1.8
Horse Creek		A. E. Johnston	Sept. 5	0.8
Horse Creek	Sec. 25-23-58	A. E. Johnston	Jan. 15	64.3
Horse Creek		A. E. Johnston	Jan. 29	102.6
Horse Creek		A. E. Johnston	Feb. 14	131.3
Horse Creek		A. E. Johnston	Mar. 19	79.2
Horse Creek		A. E. Johnston	Apr. 10	67.6
Horse Creek		A. E. Johnston	May 7	89.1
Horse Creek		A. E. Johnston	June 9	231.6
Horse Creek		A. E. Johnston	July 2	115.6
Horse Creek		A. E. Johnston	July 8	140.8
Horse Creek		C. G. Hrubesky	July 29	78.1
Horse Creek		C. G. Hrubesky	Aug. 12	98.3
Horse Creek		A. E. Johnston	Aug. 29	77.9
Horse Creek		C. G. Hrubesky	Sept. 6	101.0
Horse Creek		A. E. Johnston		
Horse Creek	1 mile East Caldwell	C. G. Hrubesky	July 29	4.0
Horse Creek		C. G. Hrubesky	Aug. 12	62.8
Horse Creek		C. G. Hrubesky	Sept. 9	34.0
Indian Creek	Northport Wye	A. E. Johnston	Jan. 31	3.6
Indian Creek		A. E. Johnston	Feb. 12	2.2

Stream	Location	Hydrographer	Date	Discharge
Indian Creek	Northport Wye	A. E. Johnston	June 6	17.7
Indian Creek		A. E. Johnston	July 1	3.0
Indian Creek		C. G. Hrubesky	July 24	9.3
Indian Creek		C. G. Hrubesky	Aug. 8	12.1
Indian Creek		C. G. Hrubesky	Sept. 3	16.0
Indian Creek		A. E. Johnston	Sept. 20	49.2
Lawrence Fork	North Side Sec. 36-19-52	W. F. Chaloupka	Aug. 25	0.2
Lawrence Fork	South Side 36-19-52	W. F. Chaloupka	Aug. 25	1.8
Lawrence Fork		A. E. Johnston	Sept. 13	1.0
Lawrence Fork	North Side 12-18-52	W. F. Chaloupka	Aug. 25	2.1
Lawrence Fork	Sec. 15-18-52	W. F. Chaloupka	Aug. 25	4.0
Lawrence Fork	Sec. 21-18-52	W. F. Chaloupka	Aug. 25	4.7
Lonergan Creek	19-15-39	A. E. Johnston	Feb. 9	8.2
Lonergan Creek		A. E. Johnston	Mar. 4	7.7
Lonergan Creek		A. E. Johnston	Mar. 13	9.5
Lonergan Creek		A. E. Johnston	Apr. 4	8.1
Lonergan Creek		A. E. Johnston	Apr. 21	8.1
Lonergan Creek		A. E. Johnston	May 21	1.4
Lonergan Creek		A. E. Johnston	June 14	4.0
Lonergan Creek		A. E. Johnston	July 16	0.3
Lonergan Creek		A. E. Johnston	July 24	3.3
Lonergan Creek		C. G. Hrubesky	Aug. 2	3.8
Lonergan Creek		C. G. Hrubesky	Aug. 16	0.8
Lonergan Creek		A. E. Johnston	Aug. 26	4.5
Lonergan Creek		C. G. Hrubesky	Sept. 1	4.4
Lodgepole Creek	Pine Bluffs, Wyo.	A. E. Johnston	Mar. 25	8.9
Lodgepole Creek		C. G. Hrubesky	Sept. 9	8.1
Lodgepole Creek	Above Kimball Reservoir	A. E. Johnston	Mar. 25	18.9

Stream	Location	Hydrographer	Date	Discharge
Lodgepole Creek	Above Kimball Reservoir	C. G. Hrubesky	Sept. 9	12.0
Lodgepole Creek		C. G. Hrubesky	Sept. 11	16.4
Lodgepole Creek	Below Kimball Reservoir	A. E. Johnston	Mar. 25	2.4
Lodgepole Creek		C. G. Hrubesky	Sept. 9	1.1
Lodgepole Creek	West Kimball 2 miles	C. G. Hrubesky	Sept. 11	12.7
Lodgepole Creek	North of Kimball	A. E. Johnston	Mar. 25	12.5
Lodgepole Creek	Above Bennett Reservoir	C. G. Hrubesky	Sept. 10	1.4
Lodgepole Creek	Below Bennett Reservoir	C. G. Hrubesky	Sept. 10	0.1
Lodgepole Creek	¼ mile North of Dix	A. E. Johnston	Mar. 25	15.1
Lodgepole Creek	South of Sidney	A. E. Johnston	Feb. 4	7.7
Lodgepole Creek		A. E. Johnston	Feb. 25	4.9
Lodgepole Creek		A. E. Johnston	Mar. 10	4.6
Lodgepole Creek		A. E. Johnston	Mar. 25	9.5
Lodgepole Creek		A. E. Johnston	May 1	5.3
Lodgepole Creek		A. E. Johnston	June 4	5.9
Lodgepole Creek		A. E. Johnston	June 28	1.0
Lodgepole Creek		A. E. Johnston	Aug. 15	0.9
Lodgepole Creek		A. E. Johnston	Sept. 3	5.7
Lodgepole Creek	1 mile West Lodgepole	A. E. Johnston	Mar. 10	27.3
Lodgepole Creek		A. E. Johnston	Mar. 26	34.7
Lodgepole Creek		A. E. Johnston	May 1	16.9
Lodgepole Creek		A. E. Johnston	June 4	25.6
Lodgepole Creek		A. E. Johnston	June 28	0.2
Lodgepole Creek		A. E. Johnston	Aug. 15	4.6
Lodgepole Creek	Ovid, Colorado	A. E. Johnston	Feb. 4	65.5
Lodgepole Creek		A. E. Johnston	Feb. 25	25.9
Lodgepole Creek		A. E. Johnston	Mar. 10	28.5
Lodgepole Creek		A. E. Johnston	Mar. 26	33.6
Lodgepole Creek		A. E. Johnston	May 1	29.5
Lodgepole Creek		A. E. Johnston	June 3	28.5
Lodgepole Creek		A. E. Johnston	June 28	6.6

Stream	Location	Hydrographer	Date	Discharge
Lodgepole Creek	Ovid, Colorado	A. E. Johnston	Aug. 5	5.4
Lodgepole Creek		C. G. Hrubesky	Aug. 18	8.9
Lodgepole Creek		A. E. Johnston	Aug. 25	5.1
Lodgepole Creek		C. G. Hrubesky	Aug. 30	7.5
Lodgepole Creek		A. E. Johnston	Sept. 3	4.9
Lodgepole Creek		C. G. Hrubesky	Sept. 15	.....
Lost Creek	Sec. 26-1-7	A. E. Johnston	June 23	59.0
Lincoln County Drain	Sec. 30-14-30	A. E. Johnston	Feb. 7	5.6
Lincoln County Drain		A. E. Johnston	Mar. 3	5.5
Lincoln County Drain		A. E. Johnston	Mar. 13	4.5
Lincoln County Drain		A. E. Johnston	Mar. 27	7.1
Lincoln County Drain		A. E. Johnston	Apr. 22	4.6
Lincoln County Drain		A. E. Johnston	May 22	6.4
Lincoln County Drain		A. E. Johnston	June 16	30.7
Lincoln County Drain		A. E. Johnston	July 17	36.8
Lincoln County Drain		A. E. Johnston	July 23	37.8
Lincoln County Drain		C. G. Hrubesky	Aug. 19	53.0
Lincoln County Drain		C. G. Hrubesky	Aug. 29	41.3
Monroe Creek	Sec. 33-33-56	A. E. Johnston	July 31	0.3
Monroe Creek	Below Junction	A. E. Johnston	July 31	0.1
Morrill Drain	Sec. 14-23-57	A. E. Johnston	Jan. 16	1.0
Morrill Drain		A. E. Johnston	Feb. 15	0.8
Morrill Drain		A. E. Johnston	Mar. 20	0.7
Morrill Drain		A. E. Johnston	June 9	0.7
Morrill Drain		C. G. Hrubesky	Sept. 5	4.0
Morrill Drain		A. E. Johnston	Sept. 17	.....

Stream	Location	Hydrographer	Date	Discharge
Melbeta Seep	Sec. 19-21-53	A. E. Johnston	Jan. 17	4.9
Melbeta Seep		A. E. Johnston	Jan. 28	8.3
Melbeta Seep		A. E. Johnston	Feb. 13	3.5
Melbeta Seep		A. E. Johnston	Mar. 18	4.3
Melbeta Seep		A. E. Johnston	Apr. 9	3.3
Melbeta Seep		A. E. Johnston	May 6	2.0
Melbeta Seep		A. E. Johnston	Jun 11	0.0
Melbeta Seep		A. E. Johnston	July 10	0.0
Melbeta Seep		C. G. Hrubesky	July 29	0.0
Melbeta Seep		C. G. Hrubesky	Aug. 13	0.0
Melbeta Seep		C. G. Hrubesky	Sept. 4	0.0
Melbeta Seep		C. G. Hrubesky	Sept. 8	0.0
Muddy Creek	Northwest of Arapahoe	A. E. Johnston	Feb. 28	5.3
Muddy Creek		A. E. Johnston	Apr. 2	13.2
Muddy Creek		A. E. Johnston	Apr. 26	6.0
Muddy Creek		A. E. Johnston	May 28	7.5
Muddy Creek		A. E. Johnston	June 24	3.5
Muddy Creek		A. E. Johnston	Aug. 8	5.9
Muddy Creek		A. E. Johnston	Sept. 8	2.5
Medicine Creek	Northwest of Cambridge	A. E. Johnston	Feb. 28	28.1
Medicine Creek		A. E. Johnston	Apr. 2	83.1
Medicine Creek		A. E. Johnston	Apr. 26	46.1
Medicine Creek		A. E. Johnston	May 28	55.0
Medicine Creek		A. E. Johnston	June 24	35.0
Medicine Creek		A. E. Johnston	Aug. 8	43.2
Medicine Creek		A. E. Johnston	Sept. 8	26.9
Niobrara River	Marsland	A. E. Johnston	Feb. 19	41.3
Niobrara River		A. E. Johnston	Apr. 15	138.8

Stream	Location	Hydrographer	Date	Discharge
Niobrara River	Marsland	A. E. Johnston	May 16	68.4
Niobrara River		A. E. Johnston	July 11	13.6
Niobrara River		A. E. Johnston	Aug. 1	23.1
Niobrara River		A. E. Johnston	Aug. 21	16.1
Niobrara River	Dunlap	A. E. Johnston	Jan. 22	30.3
Niobrara River		A. E. Johnston	Feb. 20	111.4
Niobrara River		A. E. Johnston	Apr. 14	266.1
Niobrara River		A. E. Johnston	May 12	87.9
Niobrara River		A. E. Johnston	July 13	39.3
Niobrara River		A. E. Johnston	July 28	33.8
Niobrara River		A. E. Johnston	Aug. 18	44.7
Niobrara River	South of Eli	A. E. Johnston	May 13	266.0
Niobrara River		A. E. Johnston	July 29	234.5
Niobrara River		A. E. Johnston	Aug. 19	240.0
Niobrara River	State line	A. E. Johnston	May 15	8.9
Niobrara River		J. D. Heywood	July 15	3.2
Niobrara River		A. E. Johnston	Aug. 1	6.8
Niobrara River		A. E. Johnston	Sept. 23	4.9
Niobrara River	Sec. 10-29-56	A. E. Johnston	May 15	26.1
Niobrara River		A. E. Johnston	Aug. 1	21.5
Niobrara River		A. E. Johnston	Sept. 23	0.0
Niobrara River	Agate	A. E. Johnston	May 15	35.5
Niobrara River		A. E. Johnston	Aug. 1	16.9
Niobrara River	Octave Harris Ranch	A. E. Johnston	May 16	33.9
Niobrara River		A. E. Johnston	Aug. 1	9.8
Niobrara River	Lower 33 Ranch	A. E. Johnston	May 16	52.3
Niobrara River		A. E. Johnston	Aug. 1	9.5
Niobrara River	Sec. 36-31-57	J. D. Heywood	July 15	5.5
Niobrara River		J. D. Heywood	July 15	8.6
Otter Creek	Sec. 9-15-40	A. E. Johnston	Feb. 9	21.3

Stream	Location	Hydrographer	Date	Discharge
Otter Creek	Sec. 9-15-40	A. E. Johnston	Mar. 4	25.7
Otter Creek		A. E. Johnston	Mar. 13	25.8
Otter Creek		A. E. Johnston	Apr. 4	26.8
Otter Creek		A. E. Johnston	Apr. 21	21.1
Otter Creek		A. E. Johnston	May 21	21.3
Otter Creek		A. E. Johnston	June 14	22.8
Otter Creek		A. E. Johnston	July 16	1.6
Otter Creek		A. E. Johnston	July 24	2.8
Otter Creek		C. G. Hrubesky	Aug. 2	1.0
Otter Creek		C. G. Hrubesky	Aug. 16	3.1
Otter Creek		A. E. Johnston	Aug. 26	18.9
Otter Creek		C. G. Hrubesky	Sept. 1	8.1
Pumpkinseed Creek	Sec. 12-19-50	A. E. Johnston	Jan. 18	50.4
Pumpkinseed Creek		A. E. Johnston	Feb. 1	48.9
Pumpkinseed Creek		A. E. Johnston	Feb. 11	51.3
Pumpkinseed Creek		A. E. Johnston	Mar. 3	53.8
Pumpkinseed Creek		A. E. Johnston	Mar. 24	60.4
Pumpkinseed Creek		A. E. Johnston	Apr. 7	60.3
Pumpkinseed Creek		A. E. Johnston	Apr. 18	51.7
Pumpkinseed Creek		A. E. Johnston	May 5	42.8
Pumpkinseed Creek		A. E. Johnston	July 14	27.8
Pumpkinseed Creek		A. E. Johnston	July 25	28.8
Pumpkinseed Creek		A. E. Johnston	Aug. 22	13.8
Pumpkinseed Creek		A. E. Johnston	Sept. 12	40.2
Pawnee Creek	Sec. 4-12-27	A. E. Johnston	Feb. 8	9.4
Pawnee Creek		A. E. Johnston	Mar. 28	20.1
Pawnee Creek		A. E. Johnston	Apr. 23	10.3
Pawnee Creek		A. E. Johnston	May 24	1.7
Pawnee Creek		A. E. Johnston	July 18	6.3

Stream	Location	Hydrographer	Date	Discharge
Pawnee Creek	Sec. 4-12-27	A. E. Johnston	July 18	2.1
Pawnee Creek		A. E. Johnston	July 21	3.0
Pawnee Creek		C. G. Hrubesky	Aug. 5	1.5
Pawnee Creek		C. G. Hrubesky	Aug. 20	0.2
Pawnee Creek		C. G. Hrubesky	Aug. 29	5.0
Pawnee Creek		A. E. Johnston	Sept. 10	4.2
Rock Creek	Parks	A. E. Johnston	Feb. 27	15.8
Rock Creek		A. E. Johnston	Apr. 29	15.8
Rock Creek		A. E. Johnston	May 31	14.4
Rock Creek		A. E. Johnston	June 26	13.0
Rock Creek		A. E. Johnston	Aug. 7	14.8
Rock Creek		A. E. Johnston	Sept. 5	12.0
Rock Creek	NE 25-2-40	A. E. Johnston	Apr. 29	5.1
Rock Creek		A. E. Johnston	May 30	5.6
Rock Creek	NE ¼ NE ¼ 25-2-40	A. E. Johnston	May 30	8.7
Red Willow Creek	East of McCook	A. E. Johnston	Feb. 28	33.2
Red Willow Creek		A. E. Johnston	Apr. 2	41.6
Red Willow Creek		A. E. Johnston	Apr. 26	18.8
Red Willow Creek		A. E. Johnston	May 28	19.1
Red Willow Creek		A. E. Johnston	June 24	11.7
Red Willow Creek		A. E. Johnston	Aug. 8	9.9
Red Willow Creek		A. E. Johnston	Sept. 8	5.7
Red Willow Creek	Sec. 12-20-51	A. E. Johnston	Jan. 14	35.1
Red Willow Creek		A. E. Johnston	Jan. 28	39.7
Red Willow Creek		A. E. Johnston	Jan. 31	47.2
Red Willow Creek		A. E. Johnston	Feb. 13	42.6
Red Willow Creek		A. E. Johnston	Mar. 18	36.0
Red Willow Creek		A. E. Johnston	Apr. 9	31.9
Red Willow Creek		A. E. Johnston	May 6	30.3

Stream	Location	Hydrographer	Date	Discharge
Red Willow Creek	Sec. 12-20-51	A. E. Johnston	June 6	110.5
Red Willow Creek		A. E. Johnston	July 1	10.2
Red Willow Creek		A. E. Johnston	July 10	6.8
Red Willow Creek		C. G. Hrubesky	July 24	11.4
Red Willow Creek		C. G. Hrubesky	Aug. 8	......
Red Willow Creek		A. E. Johnston	Aug. 28	27.4
Red Willow Creek		C. G. Hrubesky	Sept. 3	37.8
Red Willow Creek		A. E. Johnston	Sept. 20	124.0
Rawhide Creek	Lingle-Torrington	A. E. Johnston	Jan. 15	20.7
Rawhide Creek		A. E. Johnston	Jan. 29	20.2
Rawhide Creek		A. E. Johnston	Feb. 14	25.3
Rawhide Creek		A. E. Johnston	Mar. 19	20.3
Rawhide Creek		A. E. Johnston	Apr. 10	41.2
Rawhide Creek		A. E. Johnston	May 7	22.8
Rawhide Creek		A. E. Johnston	June 7	35.7
Rawhide Creek		A. E. Johnston	Sept. 16	......
Rush Creek	Road Crossing	C. G. Hrubesky	July 31	0.0
Rush Creek		C. G. Hrubesky	Aug. 14	0.5
Rush Creek		C. G. Hrubesky	Sept. 2	0.0
Republican River	S. B. Benkleman	A. E. Johnston	Feb. 27	87.3
Republican River		A. E. Johnston	Apr. 28	51.5
Republican River		A. E. Johnston	May 31	53.6
Republican River		A. E. Johnston	June 26	8.0
Republican River		A. E. Johnston	Aug. 7	63.1
Republican River		A. E. Johnston	Sept. 5	......
Republican River	Benkleman	A. E. Johnston	Feb. 27	190.7
Republican River		A. E. Johnston	Apr 28	90.4
Republican River		A. E. Johnston	May 31	93.3

Stream	Location	Hydrographer	Date	Discharge
Republican River	Benkleman	A. E. Johnston	June 26	25.9
Republican River		A. E. Johnston	Aug. 7	105.7
Republican River		A. E. Johnston	Sept. 5	10.5
Republican River	Culbertson	A. E. Johnston	Feb. 27	275.0
Republican River		A. E. Johnston	Apr. 2	354.3
Republican River		A. E. Johnston	Apr. 28	193.2
Republican River		A. E. Johnston	May 29	113.3
Republican River		A. E. Johnston	June 25	18.9
Republican River		A. E. Johnston	Aug. 8	129.1
Republican River		A. E. Johnston	Sept. 6	2.6
Republican River	Sanborn	A. E. Johnston	Feb. 27	75.8
Republican River		A. E. Johnston	Apr. 29	59.7
Republican River		A. E. Johnston	May 31	51.1
Republican River		A. E. Johnston	June 26	10.8
Republican River		A. E. Johnston	Aug. 7	22.4
Republican River		A. E. Johnston	Sept. 5	15.4
Republican River	McCook	A. E. Johnston	Feb. 28	515.6
Republican River		A. E. Johnston	Apr. 2	561.0
Republican River		A. E. Johnston	Apr. 28	299.0
Republican River		A. E. Johnston	May 29	151.1
Republican River		A. E. Johnston	June 24	84.2
Republican River		A. E. Johnston	Aug. 8	289.7
Republican River		A. E. Johnston	Sept. 6	0.0
Republican River	Arapahoe	A. E. Johnston	Feb. 28	605.7
Republican River		A. E. Johnston	Apr. 2	657.0
Republican River		A. E. Johnston	Apr. 26	343.5
Republican River		A. E. Johnston	May 28	82.0
Republican River		A. E. Johnston	June 24	21.9
Republican River		A. E. Johnston	Aug. 8	78.4
Republican River		A. E. Johnston	Feb. 28	10.7
Republican River	1 mile East Oxford	A. E. Johnston	Feb. 28	854.1

Stream	Location	Hydrographer	Date	Discharge
Republican River		A. E. Johnston	Apr. 1	1009.5
Republican River		A. E. Johnston	Apr. 26	502.4
Republican River		A. E. Johnston	May 28	171.8
Republican River		A. E. Johnston	June 24	114.2
Republican River		A. E. Johnston	Aug. 9	184.4
Republican River		A. E. Johnston	Sept. 8	36.4
Republican River	Superior	A. E. Johnston	June 23	41.5
Spotted Tail (Dry)	Sec. 21-23-56	A. E. Johnston	Jan. 16	24.2
Spotted Tail (Dry)		A. E. Johnston	Jan. 30	20.1
Spotted Tail (Dry)		A. E. Johnston	Feb. 15	40.8
Spotted Tail (Dry)		A. E. Johnston	Mar. 20	18.8
Spotted Tail (Dry)		A. E. Johnston	Apr. 11	26.7
Spotted Tail (Dry)		A. E. Johnston	May 8	35.1
Spotted Tail (Dry)		A. E. Johnston	June 9	25.3
Spotted Tail (Dry)		A. E. Johnston	July 3	56.9
Spotted Tail (Dry)		A. E. Johnston	July 9	29.7
Spotted Tail (Dry)		C. G. Hrubesky	July 26	61.2
Spotted Tail (Dry)		A. E. Johnston	Aug. 29	37.7
Spotted Tail (Dry)		C. G. Hrubesky	Sept. 5	82.8
Spotted Tail (Dry)		A. E. Johnston	Sept. 18	69.3
Spotted Tail (Wet)	Sec. 10-23-56	A. E. Johnston	Feb. 15	9.1
Spotted Tail (Wet)		A. E. Johnston	Apr. 11	10.5
Spotted Tail (Wet)		A. E. Johnston	May 8	4.7
Spotted Tail (Wet)		A. E. Johnston	June 9	10.8
Spotted Tail (Wet)		A. E. Johnston	July 3	39.7
Spotted Tail (Wet)		A. E. Johnston	July 9	25.9
Spotted Tail (Wet)		C. G. Hrubesky	July 26	17.7
Spotted Tail (Wet)		A. E. Johnston	Aug. 29	23.8
Spotted Tail (Wet)		C. G. Hrubesky	Sept. 5	37.1
Spotted Tail (Wet)		A. E. Johnston	Sept. 18	37.1

Stream	Location	Hydrographer	Date	Discharge
Spotted Tail—Kronberg Seep	Sec. 6-22-55	A. E. Johnston	Jan. 16	12.0
Spotted Tail—Kronberg Seep		A. E. Johnston	Jan. 30	10.6
Spotted Tail—Kronberg Seep		A. E. Johnston	Feb. 15	8.1
Spotted Tail—Kronberg Seep		A. E. Johnston	Mar. 20	8.4
Spotted Tail—Kronberg Seep		A. E. Johnston	Apr. 9	11.6
Spotted Tail—Kronberg Seep		A. E. Johnston	May 9	11.7
Spotted Tail—Kronberg Seep		A. E. Johnston	June 10	10.3
Spotted Tail—Kronberg Seep		A. E. Johnston	July 3	14.0
Spotted Tail—Kronberg Seep		A. E. Johnston	July 9	13.9
Spotted Tail—Kronberg Seep		C. G. Hrubesky	July 26	10.8
Spotted Tail—Kronberg Seep		C. G. Hrubesky	Aug. 11	14.0
Spotted Tail—Kronberg Seep		A. E. Johnston	Aug. 30	11.9
Spotted Tail—Kronberg Seep		C. G. Hrubesky	Sept. 5	4.9
Spotted Tail (Wet)	Above Enterprise	A. E. Johnston	May 8	25.9
Spotted Tail (Wet)		A. E. Johnston	June 9	5.7
Spotted Tail (Wet)		A. E. Johnston	July 3	9.3
Spotted Tail (Wet)		A. E. Johnston	July 9	14.7
Spotted Tail (Wet)		A. E. Johnston	Aug. 29	11.7
Spotted Tail (Wet)		A. E. Johnston	Sept. 18	......
Spotted Tail (Dry)	Above Enterprise	A. E. Johnston	Aug. 29	58.9
Spotted Tail (Wet)	On Highway	C. G. Hrubesky	Sept. 5	6.6
Stinking Water	North of Palisade	A. E. Johnston	Feb. 5	6.5
Stinking Water		A. E. Johnston	Feb. 26	32.0
Stinking Water		A. E. Johnston	Apr. 2	49.9
Stinking Water		A. E. Johnston	Apr. 28	31.8
Stinking Water		A. E. Johnston	May 29	23.6
Stinking Water		A. E. Johnston	June 25	17.5
Stinking Water		A. E. Johnston	Aug. 7	......
Stinking Water		A. E. Johnston	Sept. 6	12.5

Stream	Location	Hydrographer	Date	Discharge
Soldier Creek	Above Ft. Robinson	A. E. Johnston	July 12	1.0
Soldier Creek		A. E. Johnston	July 31	1.6
Soldier Creek	Below Soldier Creek Canal	Heywood & Johnston	July 31	0.0
Sou Belly Creek	Sec. 33-33-55	A. E. Johnston	July 31	2.4
Sou Belly Creek	Sec. 8-33-55	A. E. Johnston	July 31	3.0
Sou Belly Creek	Kanoi Bridge	A. E. Johnston	Sept. 23	1.5
Stewarts Drain	North line 24-23-57	A. E. Johnston	Jan. 16	3.3
Stewarts Drain		A. E. Johnston	Jan. 30	2.8
Stewarts Drain		A. E. Johnston	Feb. 15	0.9
Stewarts Drain		A. E. Johnston	Mar. 20	0.7
Stewarts Drain		A. E. Johnston	Apr. 11	0.8
Stewarts Drain		A. E. Johnston	May 8	0.8
Stewarts Drain		A. E. Johnston	June 9	1.0
Stewarts Drain		C. G. Hrubesky	July 26	2.0
Stewarts Drain		C. G. Hrubesky	Sept. 5	4.3
Stewarts Drain		A. E. Johnston	Sept. 17	......
Snell and Nine Mile	Southeast corner 23-21-53	A. E. Johnston	Jan. 14	86.9
Snell and Nine Mile		A. E. Johnston	Jan. 28	90.6
Snell and Nine Mile		A. E. Johnston	Feb. 13	89.4
Snell and Nine Mile		A. E. Johnston	Mar. 18	108.8
Snell and Nine Mile		A. E. Johnston	Apr. 9	99.1
Snell and Nine Mile		A. E. Johnston	Apr. 16	95.2
Snell and Nine Mile		A. E. Johnston	May 6	84.7
Snell and Nine Mile		A. E. Johnston	June 6	147.1
Snell and Nine Mile		A. E. Johnston	July 1	145.8
Snell and Nine Mile		A. E. Johnston	July 10	175.6
Snell and Nine Mile		C. G. Hrubesky	July 24	136.1
Snell and Nine Mile		C. G. Hrubesky	Aug. 9	......

Stream	Location	Hydrographer	Date	Discharge
Snell and Nine Mile	Southeast Corner 23-21-53	A. E. Johnston	Aug. 28	196.7
Snell and Nine Mile		C. G. Hrubesky	Sept. 3	204.7
Snell and Nine Mile		A. E. Johnston	Sept. 19	254.4
Snake Creek	Bridgeport-Alliance Highway	A. E. Johnston	Jan. 21	20.0
Snake Creek		A. E. Johnston	Feb. 18	23.4
Snake Creek		A. E. Johnston	Apr. 14	13.3
Snake Creek		A. E. Johnston	May 12	1.7
Snake Creek		A. E. Johnston	July 13	0.0
Snake Creek		A. E. Johnston	July 28	0.0
Snake Creek		A. E. Johnston	Aug. 18	0.0
Snake Creek	Sec. 6-24-51	A. E. Johnston	Apr. 15	13.3
Snake Creek		A. E. Johnston	July 11	14.1
Snake Creek		A. E. Johnston	Aug. 2	1.1
Snake Creek		A. E. Johnston	Aug. 21	0.3
Squaw Creek	At mouth	A. E. Johnston	Aug. 20	0.1
Spring Creek (West)	Sec. 25-2-40	A. E. Johnston	May 30	2.0
Spring Creek (East)	Sec. 25-2-40	A. E. Johnston	May 30	0.3
Spring Creek	Sec. 7-32-51	A. E. Johnston	July 30	1.3
Spring Creek	Sec. 13-32-52	A. E. Johnston	July 12	0.0
Spring Creek		J. D. Heywood	Aug. 5	0.0
Spring Creek		J. D. Heywood	Aug. 29	0.6
Sheep Creek	Southeast corner 8-23-57	A. E. Johnston	Jan. 16	76.5
Sheep Creek		A. E. Johnston	Jan. 30	74.9
Sheep Creek		A. E. Johnston	Feb. 15	80.9
Sheep Creek		A. E. Johnston	Mar. 20	75.1

Stream	Location	Hydrographer	Date	Discharge
Sheep Creek	Southeast corner 8-22-57	A. E. Johnston	Apr. 9	57.2
Sheep Creek	C. B. & Q. R. R. Bridge	A. E. Johnston	May 8	64.5
Sheep Creek		A. E. Johnston	June 7	0.0
Sheep Creek		A. E. Johnston	July 2	64.9
Sheep Creek		C. G. Hrubesky	July 26	7.1
Sheep Creek		A. E. Johnston	Aug. 29	9.9
Sheep Creek		C. G. Hrubesky	Sept. 5	11.7
Sheep Creek		A. E. Johnston	Sept. 17	122.0
Skunk Creek	South Line 1-14-37	A. E. Johnston	June 14	1.8
Scottsbluff Drain	Sec. 25-22-53	A. E. Johnston	Jan. 17	8.8
Scottsbluff Drain		A. E. Johnston	Jan. 31	8.3
Scottsbluff Drain		A. E. Johnston	Feb. 16	8.9
Scottsbluff Drain		A. E. Johnston	Mar. 21	5.7
Scottsbluff Drain		A. E. Johnston	Apr. 11	7.4
Scottsbluff Drain		A. E. Johnston	Apr. 16	5.4
Scottsbluff Drain		A. E. Johnston	May 9	4.9
Scottsbluff Drain		A. E. Johnston	June 10	13.7
Scottsbluff Drain		A. E. Johnston	July 3	14.9
Scottsbluff Drain		A. E. Johnston	July 9	13.0
Scottsbluff Drain		C. G. Hrubesky	July 25	18.9
Scottsbluff Drain		C. G. Hrubesky	Aug. 11	25.1
Scottsbluff Drain		A. E. Johnston	Aug. 28	26.3
Scottsbluff Drain		C. G. Hrubesky	Sept. 4	38.0
Scottsbluff Drain		A. E. Johnston	Sept. 19	29.3
Sand Creek	Sec. 15-15-40	A. E. Johnston	Feb. 9	3.5
Sand Creek		A. E. Johnston	Mar. 4	3.7
Sand Creek		A. E. Johnston	Mar. 13	2.4
Sand Creek		A. E. Johnston	Apr. 4	3.4

Stream	Location	Hydrographer	Date	Discharge
Sand Creek	Sec. 15-15-40	A. E. Johnston	Apr. 21	1.9
Sand Creek		A. E. Johnston	May 21	0.0
Sand Creek		A. E. Johnston	June 14	1.4
Sand Creek		A. E. Johnston	July 16	4.9
Sand Creek		A. E. Johnston	July 24	1.0
Sand Creek		C. G. Hrubesky	Aug. 2	0.0
Sand Creek		C. G. Hrubesky	Aug. 16	1.9
Sand Creek		A. E. Johnston	Aug. 26	3.4
Sand Creek		C. G. Hrubesky	Sept. 1	3.4
Turkey Creek	Naponee 8-1-16	A. E. Johnston	July 23	16.1
Turkey Creek	5 miles West Oxford	A. E. Johnston	Feb. 28	3.9
Turkey Creek		A. E. Johnston	Apr. 1	4.9
Turkey Creek		A. E. Johnston	Apr. 26	2.8
Turkey Creek		A. E. Johnston	May 28	2.2
Turkey Creek		A. E. Johnston	June 24	0.9
Turkey Creek		A. E. Johnston	Aug. 8	......
Turkey Creek		A. E. Johnston	Sept. 8	1.6
Thompson Creek	Sec. 2-1-13	A. E. Johnston	June 23	11.5
Tub Springs	South Side 5-22-55	A. E. Johnston	Jan. 16	32.0
Tub Springs		A. E. Johnston	Jan. 30	20.9
Tub Springs		A. E. Johnston	Feb. 15	34.3
Tub Springs		A. E. Johnston	Mar. 20	30.1
Tub Springs		A. E. Johnston	Apr. 9	30.3
Tub Springs		A. E. Johnston	May 9	32.6
Tub Springs		A. E. Johnston	June 10	50.6
Tub Springs		A. E. Johnston	July 3	52.3
Tub Springs		A. E. Johnston	July 9	11.1
Tub Springs		C. G. Hrubesky	July 25	8.4
Tub Springs		A. E. Johnston	Aug. 30	34.9

Stream	Location	Hydrographer	Date	Discharge
Tub Springs	South Side 5-22-55	C. G. Hrubesky	Sept. 4	28.3
Tub Springs		A. E. Johnston	Sept. 18	97.0
Tub Springs	Above Enterprise	C. G. Hrubesky	Aug. 11	16.9
Tub Springs		C. G. Hrubesky	Sept. 4	42.3
Tub Springs	Sec. 33-23-55	C. G. Hrubesky	Sept. 4	......
Toohey Drain	Southwest corner 20-23-56	A. E. Johnston	Jan. 1	3.3
Toohey Drain		A. E. Johnston	Jan. 30	2.4
Toohey Drain		A. E. Johnston	Feb. 15	3.8
Toohey Drain		A. E. Johnston	Mar. 20	2.4
Toohey Drain		A. E. Johnston	Apr. 11	2.1
Toohey Drain		A. E. Johnston	May 8	3.5
Toohey Drain		A. E. Johnston	June 9	3.8
Toohey Drain		A. E. Johnston	July 2	4.9
Toohey Drain		A. E. Johnston	July 8	11.0
Toohey Drain		C. G. Hrubesky	July 26	1.7
Toohey Drain		C. G. Hrubesky	Sept. 5	8.0
Toohey Drain		A. E. Johnston	July 18	......
Wild Horse Drain	Sec. 12-20-52	A. E. Johnston	Jan. 14	36.0
Wild Horse Drain		A. E. Johnston	Jan. 28	32.5
Wild Horse Drain		A. E. Johnston	Feb. 13	35.9
Wild Horse Drain		A. E. Johnston	Mar. 18	30.1
Wild Horse Drain		A. E. Johnston	Apr. 4	33.3
Wild Horse Drain		A. E. Johnston	May 6	26.8
Wild Horse Drain		A. E. Johnston	June 6	39.3
Wild Horse Drain		A. E. Johnston	July 1	52.6
Wild Horse Drain		A. E. Johnston	July 10	55.3
Wild Horse Drain		C. G. Hrubesky	July 24	68.8
Wild Horse Drain		C. G. Hrubesky	Aug. 8	106.1
Wild Horse Drain		A. E. Johnston	Aug. 28	95.0

Stream	Location	Hydrographer	Date	Discharge
Wild Horse Drain	Sec. 12-20-52	C. G. Hrubesky	Sept. 3	99.7
Wild Horse Drain		A. E. Johnston	Sept. 20	93.5
Winters Creek	South Side 19-22-54	A. E. Johnston	Jan. 17	43.8
Winters Creek		A. E. Johnston	Jan. 31	29.5
Winters Creek		A. E. Johnston	Feb. 16	55.5
Winters Creek		A. E. Johnston	Mar. 21	44.6
Winters Creek		A. E. Johnston	Apr. 11	53.9
Winters Creek		A. E. Johnston	Apr. 16	59.5
Winters Creek		A. E. Johnston	May 9	51.6
Winters Creek		A. E. Johnston	June 10	78.1
Winters Creek		A. E. Johnston	July 3	51.2
Winters Creek		A. E. Johnston	July 9	37.7
Winters Creek		C. G. Hrubesky	July 25	53.6
Winters Creek		C. G. Hrubesky	Aug. 11	91.4
Winters Creek		A. E. Johnston	Aug. 28	62.6
Winters Creek		C. G. Hrubesky	Sept. 4	136.1
Winters Creek		A. E. Johnston	Sept. 19	127.8
Winters Creek	Above Canal	A. E. Johnston	June 10	73.1
Winters Creek		A. E. Johnston	July 9	75.7
Winters Creek		C. G. Hrubesky	July 25	85.7
Winters Creek		C. G. Hrubesky	Aug. 11	113.4
Winters Creek		A. E. Johnston	Aug. 28	107.4
Winters Creek		C. G. Hrubesky	Sept. 4	134.6
White Clay Creek	East of Crawford	A. E. Johnston	Jan. 22	2.9
White Clay Creek		A. E. Johnston	Feb. 20	4.0
White Clay Creek		A. E. Johnston	Apr. 15	6.7
White Clay Creek		A. E. Johnston	May 14	3.7
White Clay Creek		A. E. Johnston	July 12	3.1
White Clay Creek		A. E. Johnston	July 30	2.1
White Clay Creek		J. D. Heywood	Aug. 5	......

Stream	Location	Hydrographer	Date	Discharge
Whitmans Fork	North of Champion	A. E. Johnston	Feb. 5	1.2
Whitmans Fork		A. E. Johnston	Feb. 26	1.0
Whitmans Fork		A. E. Johnston	Apr. 3	1.1
Whitmans Fork		A. E. Johnston	Apr. 30	1.1
Whitmans Fork		A. E. Johnston	June 2	1.0
Whitmans Fork		A. E. Johnston	June 27	0.7
White River	North of Crawford	A. E. Johnston	Feb. 20	17.8
White River		A. E. Johnston	Apr. 15	38.1
White River		A. E. Johnston	May 14	27.1
White River		A. E. Johnston	July 12	24.6
White River		A. E. Johnston	July 30	12.6
White River		J. D. Heywood	Aug. 5	......
White River		A. E. Johnston	Aug. 20	12.4
White River		J. D. Heywood	Aug. 29	8.4
White River	Andrews 25-31-55	J. D. Heywood	July 24	3.7
White River	Glen	J. D. Heywood	July 24	6.7
White River	Above City Intake	J. D. Heywood	Jan. 24	6.8
White River	City Intake	J. D. Heywood	July 24	7.3
White River	West of Chadron	A. E. Johnston	Apr. 15	73.3
White River		A. E. Johnston	May 14	25.4
White River		A. E. Johnston	July 12	3.8
White River		A. E. Johnston	July 30	3.2
White River		A. E. Johnston	Aug. 20	1.2
White River		J. D. Heywood	Aug. 27	0.0
White River	Above Whitney Div.	A. E. Johnston	Aug. 20	1.0
White River	Harris Cooper HG	A. E. Johnston	Aug. 29	0.5
White River	Military Road	A. E. Johnston	Jan. 22	29.4
White River		A. E. Johnston	Feb. 20	13.2
White River		J. D. Heywood	Apr. 15	37.6
White River		A. E. Johnston	May 14	24.7

Stream	Location	Hydrographer	Date	Discharge
White River	Military Road	A. E. Johnston	July 12	17.5
White River		J. D. Heywood	July 24	14.1
White River		A. E. Johnston	July 30	17.3
White River		A. E. Johnston	Aug. 21	10.2
White River	Below Whitney Div	A. E. Johnston	Jan. 22	50.7
White River		A. E. Johnston	Feb. 20	23.6
White River		A. E. Johnston	Apr. 15	44.5
White River		A. E. Johnston	July 12	0.0
White River		A. E. Johnston	July 30	0.0
White River		A. E. Johnston	Aug. 20	0.0
White River		J. D. Heywood	Aug. 29	0.1
White Horse Creek	Sec. 5-13-29	A. E. Johnston	Feb. 8	24.8
White Horse Creek		A. E. Johnston	Mar. 12	30.9
White Horse Creek		A. E. Johnston	Mar. 28	43.5
White Horse Creek		A. E. Johnston	Apr. 23	16.9
White Horse Creek		A. E. Johnston	May 24	13.4
White Horse Creek		A. E. Johnston	June 17	17.9
White Horse Creek		A. E. Johnston	July 18	5.2
White Horse Creek		A. E. Johnston	July 22	5.1
White Horse Creek		A. E. Johnston	Sept. 10	3.8
White Horse Creek	Sec. 5-14-30	A. E. Johnston	June 17	4.0
White Tail Creek	Sec. 36-15-38	A. E. Johnston	Feb. 9	26.6
White Tail Creek		A. E. Johnston	Mar. 4	30.0
White Tail Creek		A. E. Johnston	Apr. 22	31.4
White Tail Creek		A. E. Johnston	May 21	6.3
White Tail Creek		A. E. Johnston	June 14	24.5
White Tail Creek		A. E. Johnston	July 23	19.8
White Tail Creek		C. G. Hrubesky	Aug. 4	19.2
White Tail Creek		C. G. Hrubesky	Aug. 16	13.9

Stream	Location	Hydrographer	Date	Discharge
White Tail Creek	Sec. 36-15-38	C. G. Hrubesky	Sept. 1	9.8
Warbonnet Creek	Sec. 21-53-56	J. D. Heywood	July 17	1.5
Warbonnet Creek		A. E. Johnston	July 31	1.1
Whistle Creek	Lower 33 Ranch	A. E. Johnston	May 16	0.2
Whistle Creek		A. E. Johnston	Aug. 1	0.0
Wood River	South of Chapman	A. E. Johnston	May 27	22.7
Wood River		A. E. Johnston	June 21	60.1
Wood River	North of Wood River	A. E. Johnston	June 21	229.1
Willow Creek	Sec. 3-1-10	A. E. Johnston	June 23	19.7
Willow Creek	NW ¼ NE ¼ 15-14-35	A. E. Johnston	July 17	1.1

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HYDROGRAPHIC REPORT

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