surface water disposal drains and several disposal ponding areas have been constructed. Other surface water disposal and subsurface drainage facilities will be constructed as necessary.

Development

Authorization

The Ainsworth Unit was authorized as an integral part of the Missouri River Basin Project on August 21, 1954, by Presidential approval of Public Law 612, 83rd Congress, 2nd session (68 Stat. 757).

Construction

Construction of Merritt Dam and Reservoir began in August 1961, and storage of water was started in February 1964. Construction of the dam was completed in May 1964.

Operating Agencies

Merritt Dam and Reservoir, the Ainsworth Canal, and the laterals and drains are operated and maintained by the Ainsworth Irrigation District. The Nebraska Game and Parks Commission administers the recreation and fish and wildlife aspects of the reservoir.

Benefits

Irrigation

The principal crops being irrigated are feed grains, alfalfa, and small grains.

Recreation and Fish and Wildlife

An all-weather road provides access to Merritt Reservoir as well as picturesque Snake River Falls and to the downstream section of the Snake River.

Improvement of upland game bird habitat has increased the number of game birds in the area and the reservoir water surface attracts great numbers of waterfowl. Several varieties of game fish have been stocked in the reservoir. Opportunities for boating, water skiing, camping, and picnicking are plentiful during the warm summer months at Merritt Reservoir. Picnic and sanitary facilities, parking areas, and boat ramps have been provided to facilitate outdoor recreation.

Ainsworth Unit

FACILITIES TO BE TRANSFERRED

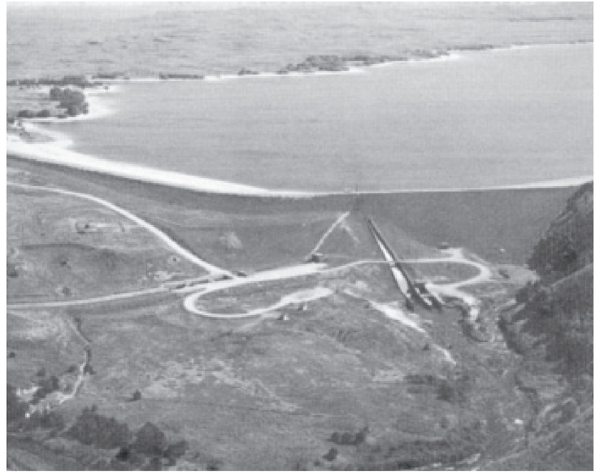
AINSWORTH UNIT

Nebraska: Cherry, Brown, and Rock Counties

The Ainsworth Unit is located in north-central Nebraska. The storage facilities are on the Snake River approximately 14 miles upstream from its confluence with the Niobrara River in Cherry County southwest of Valentine. The irrigable lands extend 22 miles from west to east and 14 miles from north to south, beginning near Johnstown and continuing eastward to a point near Long Pine, all in Brown and Rock Counties.

Plan

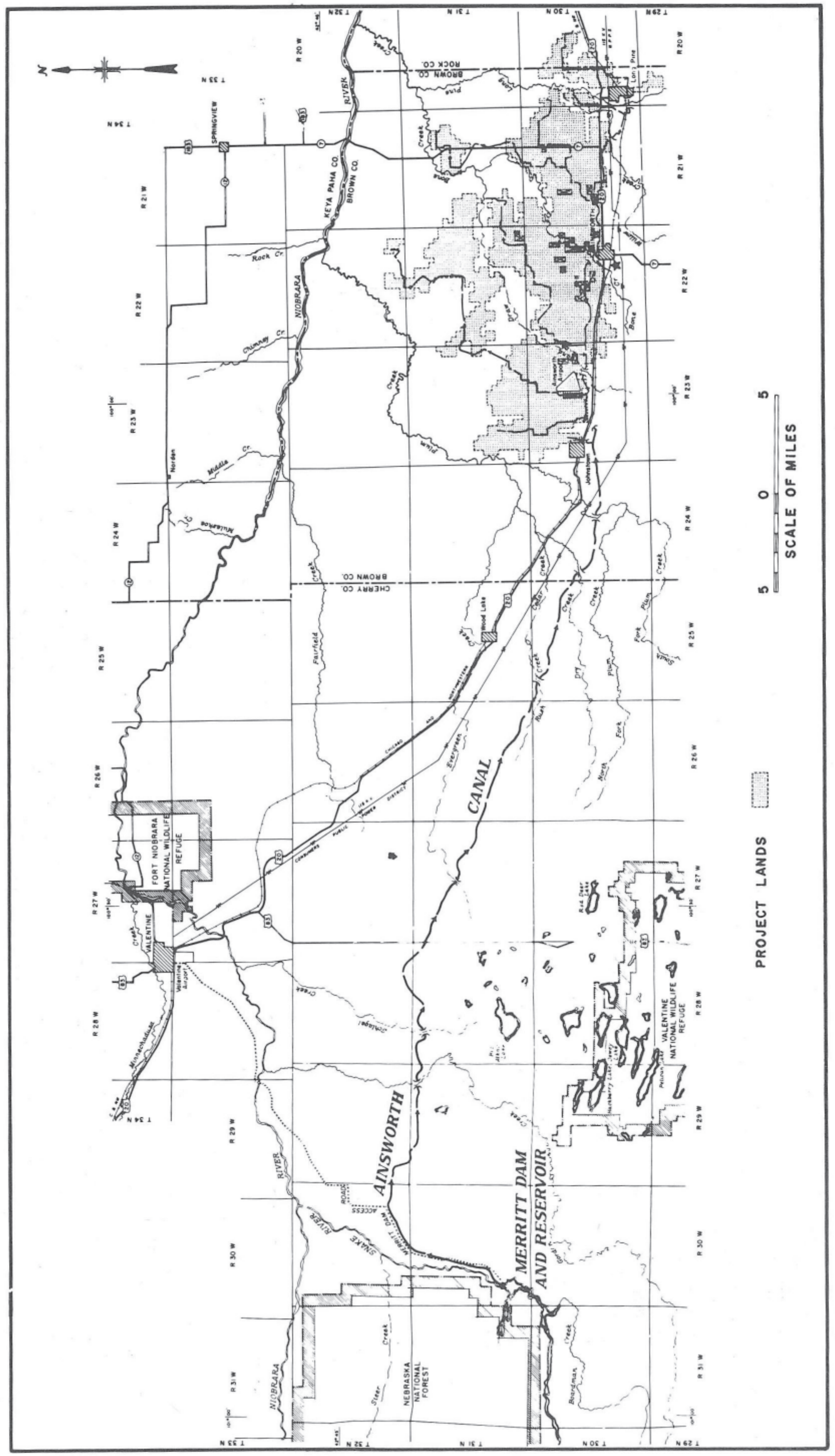
The unit provides a full water supply for the irrigation of 34,539 acres of land in the Ainsworth Irrigation District. Project facilities include Merritt Dam and Reservoir, the Ainsworth Canal, a system of laterals, and surface and subsurface drains. Although essentially a single-purpose irrigation development, additional benefits accrue from recreation, fish and wildlife, and water quality control.



Merritt Dam

Ainsworth Canal

Ainsworth Unit



The water supply for the unit comes from the Snake River and is stored in Merritt Reservoir for timely release into the Ainsworth Canal by which it is conveyed to project lands for irrigation. The Snake River originates in the Sandhills region of Nebraska, an area characterized by highly permeable sands and many closed basins. Precipitation falling into these basins seeps into the ground or ponds temporarily, and feeds the streams with a large, steady baseflow. Because of the underground flow, the total drainage area contribution to the Snake River above Merritt Dam is about 600 square miles. Of this, only 89 square miles contribute surface runoff. Average annual runoff was 184,000 acre-feet for the period 1947-1962. The average annual irrigation diversion requirement to provide a full supply for the 34,539 irrigable acres is 69,000 (30 year avg) acre-feet.

Merritt Dam and Reservoir

Merritt Dam has a structural height of 126 feet and a crest length of 3,222 feet. The zoned earthfill embankment consists of 1,548,000 cubic yards of material. It is the first Bureau of Reclamation earthfill dam to use soil cement instead of the traditional rock riprap to protect the upstream face.

The morning-glory ungated spillway protects the dam from damage by floods. It consists of a concrete in-take structure, concrete conduit, concrete chute and stilling basin, and outlet channel. The spillway has a capacity of 2,080 cubic feet per second at water surface elevation 2949.8 feet.

A branched outlet works in the dam provides for diverting water to the Ainsworth Canal or for controlling releases to the Snake River through the river outlet works stilling basin.

The canal outlet works consists of a 78-inch-diameter steel pipe, concrete control house for two 4-foot-square high-pressure gates, stilling basin, wave suppressor, gage house, and Parshall flume.

The river outlet works consists of a concrete intake structure, concrete conduit, gate chamber for one 5-by 6-foot high-pressure gate, access shaft and access house, a 54-inch-diameter steel pipe, control house for two 2.75-foot-square high-pressure gates, and a stilling basin.

Merritt Reservoir has a total capacity of 74,486 acre-feet at elevation 2946.0, an active conservation capacity of 67,686 acre-feet between elevations 2896.0 and 2946.0, and a surface area of 3,222 acres at elevation 2946.0.

Ainsworth Canal and Distribution Systems

The Ainsworth Canal originates at Merritt Dam outlet works and extends eastward through the Sandhills to the project lands. The canal is concrete lined for its entire length to minimize seepage losses in the sandy soils it traverses, is 52.8 miles long, and has an initial capacity of 580 cubic feet per second.

The lateral system which delivers the water to the project lands has a total length of 169.7 miles and the initial capacities range from 530 to 4 cubic feet per second. Five miles of