
6. Function or Use

Historic Functions (enter categories from instructions)

AGRICULTURE/watershed

Current Functions (enter categories from instructions)

Same

7. Description

Architectural Classification

(enter categories from instructions)

NO STYLE

Materials (enter categories from instructions)

foundation _____

walls _____

roof _____

other concrete flumes

earthen dams

Describe present and historic physical appearance.

8. Statement of Significance

Certifying official has considered the significance of this property in relation to other properties:

nationally statewide locally

Applicable National Register Criteria A B C D

Criteria Considerations (Exceptions) A B C D E F G

Areas of Significance (enter categories from instructions)

Agriculture
Conservation

Period of Significance

1937-1942

Significant Dates

n/a

Cultural Affiliation

n/a

Significant Person

n/a

Architect/Builder

Robert Mayberry, SCS Engineer
CCC Camp DPE-79, Moorhead, Iowa

State significance of property, and justify criteria, criteria considerations, and areas and periods of significance noted above.

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Section 7: Physical Description:

The Jones Creek Watershed lies six miles southwest of Moorhead, Iowa, and approximately two miles north of Pisgah. It is a small tributary of the Soldier River, which drains into the Missouri River; prior to the watershed project this tributary was unnamed. The watershed drainage area covers approximately 1400 acres, or 2.26 square miles, located above the Soldier River bottomlands. It occurs within the Missouri Basin Loess Hills, which are covered with loess deposits ranging from less than one to more than 200 feet in thickness. The topography of the watershed is typical of the Loess Hills, with 66 percent of the hillsides sloping more than 16' for every 100'. Geologically, the hills were gradually formed by wind-born silty loam, and these aeolian deposits are highly erosive.

The main structures of the Jones Creek Watershed Project were erected between 1937 (or 1938) and 1942. Moorhead CCC camp DPE-79, established in July 1934 and attached to the Soil Conservation Service, provided the labor up through the summer of 1941, when the camp was closed. Crews from a conscientious objector camp established at Denison during World War II completed the project in late 1941 and 1942.

Eight gully control dams (JCW-01 through -08) were built in order to stabilize upland soils. By the fall of 1940, five of the gully dams had been constructed. Three of them (JCW-01, -02, -04) had sod spillways. In design, these three dams consisted of an earthen berm built across a gully. The gully below was filled, and a flat area was built around the end of the dam at a lower elevation. Sod was established on the lower flat area in order to protect it from erosion if water ran past the dam. Two of these earthen dams no longer exist. The Monona County Soil Conservation District leveled the first earthen berm (JCW-01) in the early 1970s after it had filled in. Dam JCW-04 has been nearly obliterated by plowing. Dam JCW-02 is in excellent condition.

Five of the control dams consist of a concrete flume, basically an open, box-like concrete chute, situated near the center of an earthen berm. The upper end of each flume was built high enough to stabilize the land above it. The lower end reaches to the bottom of a former gully. The purpose of the flumes was to stop gully erosion by stepping the water down from a higher to a lower elevation. The size of each flume varies depending upon site conditions at the time of construction. Generally, however, the width at intake varies from 10' to 16' and length varies

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from 60' to 70'. The walls and floor, constructed of board-formed, poured-in-place concrete, are 8" thick. Walls vary from 3' to 6' high, reinforced with steel rods and constructed so the walls could be raised, although as of this date none has. Two underground pipes connect to each flume, collecting subsurface water which spills through the mouth of each pipe at two different levels on the stepped and sloping floor.

According to Charles and Hazel McCue Wallis, work began on the Roy McCue farm (now the Wallis farm), where two earthen berms (JCW-01,-02) and one concrete flume (JCW-03) were constructed. The actual dates of construction are undetermined, although work is believed to have begun during 1937 or 1938. McCue contributed about \$300 for the purchase of sand, gravel, cement, and reinforcing rods. At the same time the erosion control dams were being built, CCC crews also terraced the hillsides, planted trees, and shaped and planted grassy waterways. Before the work on McCue's farm was done, though, heavy rains fell. While some of the work was washed out, in general the structures proved effective. It was at this point that other farmers joined in the project. Another concrete flume (JCW-05) was constructed by September 1940 on the farm of Clayton McCue, Roy McCue's son (presently owned by Harry Rice). The sites for three additional concrete-flume dams (JCW-06,-07,-08), also on Clayton McCue's farm, had been prepared by fall of 1940, and these appear to have been constructed during the winter of 1940-41.

The detention dam (JCW-09), located on Wallace Jones's farm, was also begun in late 1940. This structure is an earthen-fill dam 350' long and 48' high, constructed with a capacity of 75.6 acre-feet. A three-foot square concrete outlet conduit drops 18' to carry water through the base of the dam to a grassy waterway below the berm. An emergency sod spillway rises 12' above the drop outlet. The dam originally formed a pool approximately nine acres in size, detaining runoff and sediment from upland farms. The size decreased over the years as sediment collected behind the dam, which is, of course, precisely what the dam was supposed to do. The reservoir was never intended to be permanent. Rather, it was engineered to silt up. As land conditions improved, a corresponding decrease in sediment was expected to eliminate the need for a desilting basin. However, conditions envisioned by engineers in 1940 were ideal conditions, and the dam is still considered necessary. Consequently, in 1972 a 10' length of metal pipe was added to the top of the concrete drop outlet, increasing the holding capacity and extending the life of the dam.

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At the same time the dams were being constructed, approximately three miles of gullies were shaped and seeded as grassed waterways. Some of these gullies reached depths of 40 feet. During the 1970s, about one mile of waterways were reshaped because they had silted full and were eroding along the sides.

Robert Mayberry, who served as the SCS construction engineer for the project, recalls preparing plans for all of the stabilizing and sediment control structures. An exhaustive search of records in local, state, regional, and national SCS offices as well as the National Archives failed to locate any plans or other project planning documents, indicating that none has survived in official repositories. However, it is clear that each one of the structures was individually engineered to correct site-specific problems.

CCC crews did most of the work by hand. Although small caterpillar tractors were used for some of the heavy work, the vast majority of earth moving was done with shovels and wheelbarrows. The five concrete flumes and the detention dam outlet were poured in place, with approximately 350 tons of concrete mixed on-site in batch mixers. Because the concrete could only be mixed and poured in small batches, most of the concrete work was done during the cold winter months when the curing time more nearly matched the speed of pouring, and crews worked around the clock when pouring the concrete structures.

Of the original three earthen berm dams with sod spillways, only one remains intact. All of the concrete-flume dams are intact, though in various states of physical repair. A ninth gully control dam was built in 1952 (JCW-10). Heavy rains in 1951 undermined flume JCW-07, and flume JCW-08 slipped downstream, necessitating repairs. SCS channel restoration funds were used to repair flume JCW-08, reshape the gullies below both JCW-07 and -08, reshape the waterway above JCW-08, and build dam JCW-10 just above the county road on the Clayton McCue farm. During the early 1970s, when earthen dam JCW-01 was leveled, Charles and Hazel Wallis also reshaped the waterway on their farm (above JCW-08) a second time and put in new terraces and erosion control dams in the back fields. These and other modifications are considered to be integral to the ongoing process of watershed maintenance.

Three farmsteads containing a total of nine major buildings are located within the watershed boundaries. These are excluded from the nomination as incidental to the historical context and are therefore counted as noncontributing structures.

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Section 8: Statement of Significance

The Jones Creek Watershed is significant under NRHP Criterion A as one of the earliest watershed protection projects undertaken by the Soil Conservation Service in the nation, and the first such project in the state. Its construction thus represents one of the first instances of cooperation between federal agencies and private landowners to achieve a soil conservation system which benefited an entire farming community. The original structures and landform modifications, built between 1937/8 and 1942, retain a remarkably high degree of historical integrity, and the watershed continues to function as it was engineered to do, although some structures are in need of repair. The project reversed the effects of farming practices that threatened to destroy the resource base supporting agriculture in the area; and the presence of an award-winning soil conservation farm in the watershed, that of Charles and Hazel McCue Wallis, is evidence of a long-term commitment to conservation among landowners.

The U.S. Department of Agriculture entered the arena of flood control in 1936, when the Flood Control Act of that year authorized the agency to conduct studies of watersheds and to submit plans for flood control works. Eleven of the USDA's proposed projects were constructed nationwide under the authority of the Flood Control Act of 1944, one of them being the Little Sioux Flood Control Project in northwestern Iowa. Since the mid-1950s, the Soil Conservation Service has operated a Small Watershed Program, authorized by the Watershed Protection and Flood Prevention Act of 1954. Even though most of the agency's small watershed projects post-date 1954, the SCS did undertake some small watershed projects in the 1930s in cooperation with conservation districts and using Civilian Conservation Corps or Works Progress Administration labor. The Jones Creek Watershed, begun in 1937 or 1938, would therefore have been among the earliest small watershed projects in the nation.

The history of Jones Creek Watershed between 1937 and 1940 is sketchy, probably because the Civilian Conservation Corps, which provided the labor, did not actually have statutory authority to carry out public works on private lands until 1939, although from the beginning of the CCC in 1933, camps were established for conducting private erosion control projects. Camp DPE-79 was one of many such camps, which were identified by a "PE" in the prefix. Between July 1934 and January 1935, enrollees assigned to Camp DPE-79 built 701 erosion control structures on a total of 32 farms. CCC crews planted trees and grassy waterways, dug diversion ditches, and constructed earthen dikes as well as "gully stopper" dams on individual farms. These "stopper" dams were built woven wire, creosoted timber, log, and concrete.

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Area farmers organized as the Moorhead Soil Improvement Association helped to plan and coordinate the work. This body, which included farmers from both Monona and Harrison counties was later reorganized as two: the Soldier-Maple Valley Soil Conservation District (now the Monona County Soil Conservation District) and the Harrison County Soil Conservation District.

Early in 1935, CCC crews were also assigned to construct buildings in the newly created Preparation Canyon State Park, which sits adjacent to Jones Creek Watershed. The genesis of the Jones Creek project appears to have come from informal discussions among Robert Mayberry, SCS engineer assigned to Camp DPE-79; Roy McCue, a farmer; and Ray Jones, who served as CCC camp superintendent. Some of the impetus for the project reportedly stemmed from the need to keep camp enrollees busy after state park work was completed.

A search of SCS and CCC records in official repositories yielded no planning documents or plans for the Jones Creek project, which further suggests that project planning evolved informally at the local level – at a time when conducting federally funded soil conservation work on private lands was under fire as an inappropriate use of taxpayer money. This changed in 1939, when Congress inserted a provision into the Emergency Relief Appropriations Act which allowed public funds to be used for conservation projects on private land if the projects were sponsored by conservation districts or other bodies organized under state law for soil erosion control and conservation purposes. It is important to note in this regard that farmers in the Moorhead area already had the requisite organization and that most of the work on the Jones Creek project was completed in 1940-41.

According to Robert Mayberry, the engineer for the Jones Creek project, he first worked for the U.S. Forest Service and was assigned to the project from the Greenfield, Iowa, office. Later, he was transferred to the Soil Conservation Service. Mayberry worked in conjunction with an agriculturist and a forester. He also drafted all the construction plans, which were approved by the SCS technical staff at Bethany, Missouri. Prior to 1940, the SCS generally limited its participation to providing individual farmers with technical assistance, helping them to improve land use on their farms and establish some cooperation among themselves. Before any structures were built in the Jones Creek drainage area, for instance, approximately 80 acres of badly eroded land were taken out of cultivation and placed into pasture or planted with trees. The SCS also helped farmers convert from straight-row cropping to contour farming on terraced benches.

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The degree of organization and cooperation farmers exercised to achieve this project is remarkable in itself, and it is no doubt attributable to the fact that Monona and Harrison counties already had a long history of flood control activities. Beginning in about 1910, several streambeds were straightened and drainage ditches were built in order to carry storm runoff and reduce the incidence of flooding along the Soldier River. In 1916, the U.S. Department of Agriculture got involved in local affairs through the Office of Public Roads and Rural Engineering, and plans were made to create a master drainage district that would include the entire two counties. The record is unclear as to what portion of the 1920 plan was carried out. In any case, drainage ditches built prior to 1930 were marginally effective because only half of the problem was being addressed. Topsoil and vegetation from eroding hillsides continually choked the ditches with silt. As a result, upland farms became increasingly gullied, and bottomland farmers routinely had to dredge away the silt. Upland farmers watched their farm productivity drop each year, while bottomland farmers spent thousands of dollars to clear the hillside topsoil from their ditches. By the early 1930s, some of the gullies reportedly were 60 feet deep, and bottomlands flooded almost every year. The farmers who organized as the Moorhead Soil Improvement Association immediately took advantage of the technical assistance offered by the Soil Conservation Service when it was organized in the early 1930s. A committee of eight farmers within the association promoted conservation locally and helped to plan the various structures that were built as part of the Jones Creek project.

As erosion control work progressed, so did the idea that a long-term solution lay not so much with improving individual farms as it did with improving entire drainage areas. The MSIA committee and the SCS first considered a drainage area west of Pisgah, but abandoned that plan because not all landowners in the area would commit to cooperation. The second drainage considered was an area southwest of Moorhead, located adjacent to Preparation Canyon State Park. After the structures built on Roy McCue's farm proved effective, the rest of the farmers in this drainage were willing to cooperate. The project subsequently was named Jones Creek Watershed for Wallace Jones, on whose farm the detention dam was built. CCC camp superintendent Ray Jones, who also played an important role in getting the project started, was his son.

Because Iowa's topography is, for the most part, flat or gently rolling, soil erosion has never seriously threatened to undermine the farming economy. Consequently, comparatively little federal attention was focused on the state during the 1930s when the U.S. Department of

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Agriculture began to address soil conservation on a national scale. This did not mean, however, that soil erosion was not a problem in Iowa. Two areas were targeted for special attention during the 1930s -- the hilly northeastern counties and the Loess Hills region of western Iowa. Iowa ECW director G.B. MacDonald, a forester with special interest in soil conservation, assigned nearly all of the 49 CCC camps organized in Iowa to soil conservation and/or forestry work at one time or another. The Jones Creek Watershed was one of two largest soil conservation projects in the state, the other being the soil erosion experiment station and demonstration farm established at Clarinda. Research carried out at Clarinda contributed substantially to scientists' understanding of sheet erosion and formed the basis for establishing soil conservation techniques applicable to approximately 20 million acres of land. Knowledge gained from the Jones Creek Watershed Project likewise was used in planning the Little Sioux Flood Control Project, the survey for which was authorized by the Flood Control Act of 1936, with construction authorized by the 1944 Flood Control Act.

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Section 9: Bibliography

Note: Very few official records pertaining to the planning and construction of Jones Creek Watershed appear to have been retained. A thorough search of records in the National Archives (Washington, D.C., Chicago, and Kansas City centers) and the Federal Records Center at Suitland, Maryland, produced one folder of material on the Moorhead CCC camp and three photographs of the Jones Creek Watershed taken after it was completed. The National Agriculture Library in Washington, D.C. contains two reports on the project, compiled in 1950 but nonetheless valuable. The best source of information is the file located at the Monona County SCS office, located in Onawa, Iowa, largely compiled by Bob Zimmerman, retired District Conservationist, who undertook extensive research on the project in the late 1970s. Zimmerman interviewed former CCC enrollees who worked on the project as well as from the project engineer, Robert Mayberry. The results of his investigation were published by the SCS district office in 1978. The Bethany, Missouri SCS project office which reportedly supplied technical assistance has retained no records of the project. The Des Moines, Iowa office, which was the SCS Upper Mississippi Regional Office from 1935-1939, holds less information than the district office in Onawa.

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Section 10: Geographical Data

Boundary Description: Jones Creek Watershed, located two miles north of Pisgah, comprises approximately 1400 acres in an irregular parcel covering portions of sections 23, 24, 25, 26, 27, 35, and 36 of T-82N, R-44W. The watershed encompasses five natural drainages arrayed like the fingers of a cupped hand, and these drainages are bounded by contiguous ridges which direct the flow of water toward the Soldier River, as shown on the map which follows. Beginning at a point on an unmarked gravel road in section 36 about .3 mile north of the Monona-Harrison section line, the easterly boundary follows a natural ridge at an elevation of 1300' through sections 36 and 25 in a north-northeasterly direction to the Preparation Canyon State Park perimeter road in section 24. At this point, the boundary turns in a northwesterly direction, following the state park perimeter road to the northwest corner of the park, then following another unmarked graveled county road through sections 24 and 23. This road connects to the park's rear entrance. At a point midway through section 23, the watershed boundary turns in a south-southwesterly direction following another natural ridge at an elevation of 1400' through sections 23, 26, and 27, crossing County Road E60 in section 26. In section 26, the ridge boundary descends to 1300' and turns in a southeasterly direction. It continues southeasterly through section 35, then turns eastward and descends to an elevation of 1200'. The ridge continues south of the detention dam to the point of beginning on the unmarked graveled road in section 36.

Boundary Justification: These are the geographical limits of the watershed project.

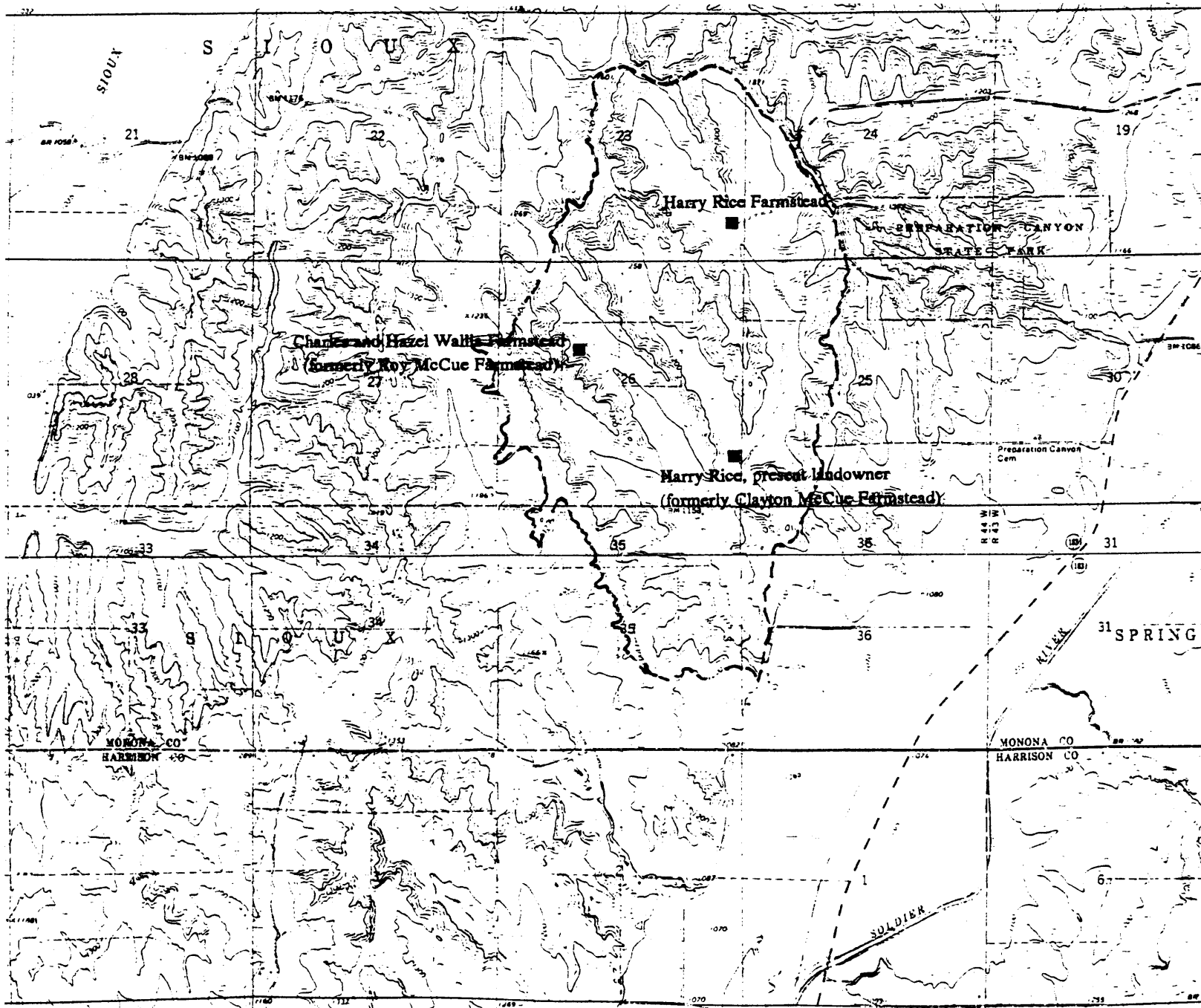
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Jones Creek Watershed Boundaries
Map Source: Moorhead Quadrangle, 7.5', 1971, and Pisgah Quadrangle, 7.5', 1971



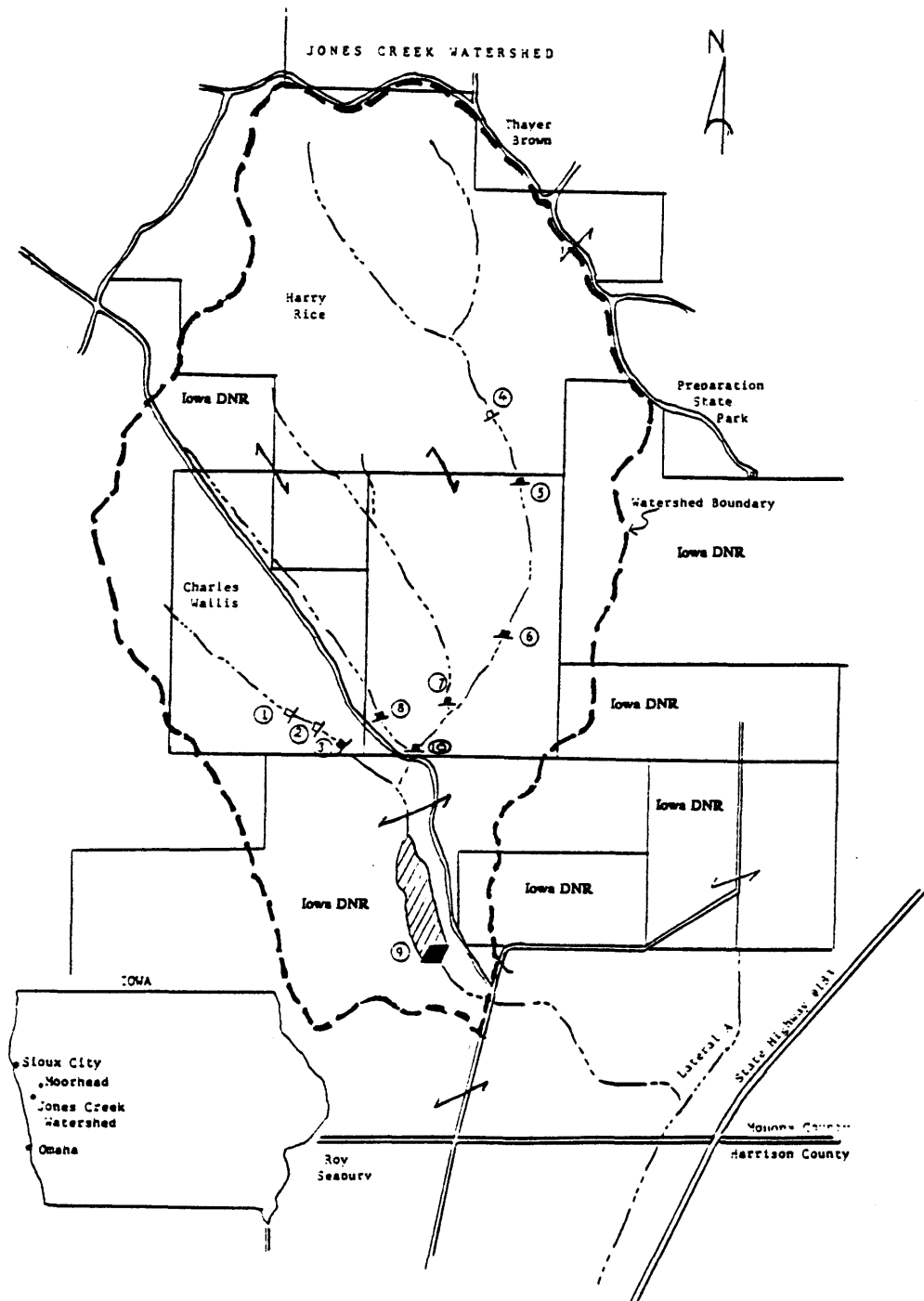
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Jones Creek Watershed
Contributing and Noncontributing Structures Keyed to Text
Map Source: *Zimmerman, JONES CREEK WATERSHED: A PIONEER*



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