

## **OVERVIEW OF THE LAC QUI PARLE PROJECT**

### **Project Location and Historic District Boundaries**

The Lac qui Parle Flood Control Project is located on the upper Minnesota River in west central Minnesota between the towns of Odessa and Granite Falls. (See Map 1.) The Minnesota River, which extends 340 miles across the state from Browns Valley to St. Paul, is a major tributary of the Upper Mississippi River.

The flood control project was originally about 62.5 miles long. It extended along the Minnesota River for about 62.5 miles, and also included a 6-mile diversion of the nearby Chippewa River. Gemini Research recommends that all but the northwestern one mile of the project retains historic physical integrity and is eligible for the National Register as the Lac qui Parle Flood Control Project Historic District.

The recommended boundary of the historic district encompasses about 25,000 acres and is about 61.5 miles long. The boundary is shown by the hatched gray line on Map 2 of this report.

The district is comprised primarily of the State of Minnesota's original land acquisition for the flood control project (about 22,800 acres) plus about 2,500 additional acres historically associated with the project. This is comprised primarily of the Minnesota River channel between Lac qui Parle Dam and the northern edge of Granite Falls, segments of roads and railroads, miscellaneous parcels of land acquired by the state by 1941, and a few parcels like the Volden Gravel Pit that were associated with the project but not owned by the state.

Only one part of the state's original acquisition area has been excluded from the boundaries. The upper mile near the town of Odessa was altered when the TH 75 Causeway was widened in 1955 (with associated bridge changes) and when an adjacent dam and reservoir were built in 1974. Gemini Research recommends that the northwestern boundary of the Lac qui Parle Flood Control Project Historic District be drawn on the eastern side of the TH 75 highway right-of-way. (See Map 2.)

As a starting point for determining boundaries, Gemini used a series of right-of-way maps on which the State of Minnesota's original acquisition was recorded in 1950 (Agreement 1950). Because of the large amount of territory involved and the complexity of the boundary line, the line on Map 2 is an approximation. It is recommended that future researchers review the boundaries and check property deeds near their particular area of interest.

### **Significance**

The Lac qui Parle Flood Control Project Historic District, built from 1933-1951, is eligible for the National Register under Criterion A, broad patterns of history, in the area of Politics/Government, Engineering, and Conservation. The project may also be significant under Criterion B, important people, for its association with hydraulic engineer Adolph F. Meyer. (See the Meyer biography at the end of this chapter.) The period of significance is 1933-1951.

---

## OVERVIEW OF THE LAC QUI PARLE PROJECT

---

At its peak employing 1,400 men, the Lac qui Parle Flood Control project was one of the largest federal relief projects undertaken in Minnesota (Anderson 1990/1993; amended Gemini Research 2002: F.17). It was the largest flood control project undertaken in the state and the largest pre-1970 engineering project on the Minnesota River. The National Register eligibility of the project was evaluated using the registration requirements in the Multiple Property Documentation Form (MPDF) entitled "Federal Relief Construction in Minnesota, 1933-1941." The property meets those registration requirements, especially "by representing a particularly important project through the size and scope of the work involved, or by the number of people employed" and by representing "an accomplishment in the field of conservation through a significant effort to manage the state's natural resources" (Anderson 1990/1993; amended Gemini Research 2002: F.20). Except for its scale – which was massive – the Lac qui Parle project was typical of New Deal public works projects undertaken in Minnesota whose dual purpose was to alleviate poverty and to build permanent, necessary public infrastructure. (See the MPDF on file at the State Historic Preservation Office.)

### **Background of Euro-American Settlement**

The five counties in which the flood control project operated are located along the Minnesota River (which serves as a county dividing line) near the South Dakota border. They include Big Stone, Chippewa, Lac qui Parle, Swift, and Yellow Medicine.

Euro-Americans first arrived in the area in significant numbers in the late 1860s. Settlement was prompted by railroads built between the early 1870s and the late 1880s that allowed goods and people to travel into this somewhat remote area, and allowed farm products to be shipped out. Each of the five counties was crossed by at least two railroad lines. They included some of the Midwest's major shippers including the Great Northern; the Chicago and Northwestern; and the Chicago, Milwaukee, St. Paul, and Pacific.

Most Euro-American settlers were of Norwegian and Swedish descent, with the Irish, Germans, and Dutch also represented. Historic county plat maps reveal that the majority of landowners within and near the Lac qui Parle Flood Control Project had Scandinavian surnames.

Farmers in west central Minnesota, like in most of the state, first operated on a subsistence level and then grew almost exclusively wheat as their first cash crop. Around the turn of the 20th century farms diversified into oats, corn, hay, dairy cows, and hogs. Feeder-cattle and -pigs became important after World War II.

Towns were platted between 1870 and about 1905. Most were located along railroad lines and developed as agricultural trade centers that supported surrounding farmland. Most off-farm industries were focused on agriculture. They included flour and grist mills, creameries, and a substantial canning factory at Ortonville.

One of few additions to the agricultural-based economy was a set of granite quarries that opened in the 1880s in southern Big Stone and northern Lac qui Parle counties near the northwestern end of the flood control project. (These quarries were the source for the granite riprap used extensively in the project.) A small recreational hunting and fishing industry also developed along the Minnesota River.

West central Minnesota suffered some of Minnesota's worst drought conditions in the 1930s, crippling farmers already hurt by the depressed farm prices of the 1920s. Droughts were especially critical in 1930, 1931, 1934, 1936, 1939, and 1940. During these periods 100 percent of the land in western Minnesota was categorized as under severe drought.

At the time of the flood control project, the five-county area was at its population peak. Beginning in 1940, as some farms failed, some farms mechanized, and World War II drew residents to urban jobs, the five counties began to steadily lose people. The population decline never reversed and continues today. In 2000 Big Stone and Lac qui Parle counties had only half as many people as they did in 1940, with the three other counties experiencing a similar decline. In 2000 the five-county area was home to only 0.1% of Minnesota's population, rather than the 2.7% of Minnesota residents it supported in 1940.

### **Geography**

The setting of the flood control project is agricultural. The landscape is characterized by a few small towns; widely-spaced farmsteads; pastures and tilled fields; and thousands of acres of wildlife management and waterfowl production areas, most state- and federally-owned.

Much of the land along the Minnesota River – naturally a grassland biome – was being tilled or grazed in the 1930s when it was acquired for the flood control project. Today this area is dominated by water (reservoirs, rivers, streams, and seasonal wetlands), unfenced grasslands (with some native prairie), row crops planted for wildlife feed, and large patches of shrubs, all managed by the state of Minnesota as part of Lac qui Parle Wildlife Management Area. In the river bottoms are stands of deciduous trees including cottonwood, willow, American elm, silver maple, green ash, bur oak, American linden, and boxelder. There are exposed rock outcrops in selected areas.

According to the Minnesota Department of Natural Resources (MnDNR):

The entire [Lac qui Parle] management area lies within the Minnesota River Valley, formed by the Glacial River Warren during the retreat of the Wisconsin glacier. The river originated from glacial Lake Agassiz and cut through glacial till, exposing bedrock in many locations along the valley. The Watson Sag, a marshy arm of Lac qui Parle Reservoir, is a former channel of the River Warren.

As the glacier retreated northwestward through the valley, it left a layer of alluvial deposits, rich in gravel and boulders, arranged in terraces, along the main river channel. Lac qui Parle Lake was created by an alluvial fan deposited in the Glacial River Warren Channel by the Chippewa River tributaries. Since glacial times, periodic flooding of the Minnesota River Valley has deposited more silt and sand over the glacial debris. . . .

. . . Along Lac qui Parle Lake, shorelines are steep to gradually sloping, with vegetation ranging from dense stands of cattail to sparse stands of grasses and sedges. Marsh Lake shorelines are more gradually sloping with dense vegetation up to the water's edge. The shorelines include smooth mud-sand or sand and coarse gravel beaches as well as areas with large, scattered boulders. Bottoms are sandy-mud or silt in shallows and become muck in deeper areas (MnDNR 1977: 3-4, 10).

---

## OVERVIEW OF THE LAC QUI PARLE PROJECT

---

According to the MnDNR, “soils range from productive soils conducive to intensive agriculture, through stony soils and rock outcrops, to poorly drained or frequently flooded soils.” Marshy soils are found in the bottomlands, drought-prone and easily eroded soils are found on the river terrace escarpment, and variable soils (some stony, some poorly drained, and some good for agriculture) are found on flat and rolling lands of the terrace (MnDNR 1977: 4).

The Minnesota River is nearly flat and descends only 10 feet in 26 miles as it slowly meanders through the Lac qui Parle area. Lac qui Parle and Marsh lakes (which were dammed for reservoirs) are natural widenings of the Minnesota River “created by alluvial fans of ancient tributaries” of the River Warren. Before the flood control project, Marsh Lake was an area of potholes and sloughs that seasonally flooded. Lac qui Parle had open water, but a much smaller footprint than it does today (MnDNR 1977: 9). The name Lac qui Parle or “Lake that Speaks” is a French translation of a Dakota name for the lake.

The watershed above the Marsh Lake and Lac qui Parle dams is comprised of more than 4,000 square miles in Minnesota and eastern South Dakota. Five major rivers (and many smaller streams) flow into the Minnesota River above and near Lac qui Parle. (See Fig. 1.) Two are outside the recommended boundaries of the historic district: the Whetstone (near Ortonville) and the Yellow Bank (near Odessa). Three rivers lie within the historic district, the Lac qui Parle, the Pomme de Terre, and the Chippewa. The latter two were diverted as part of the flood control project.

The Chippewa River’s drainage area is about 2,050 square miles. The Chippewa River approaches Watson (just east of Lac qui Parle Reservoir) from Benson, about 30 miles to the north. From here the Chippewa flows southward into the Minnesota River at Montevideo, about 8 miles south of Watson. Recurrent, severe flooding of Montevideo by the Chippewa River helped spur the flood control project. After the project, some of the Chippewa’s flow was diverted into the Lac qui Parle Reservoir so that it could be released downstream in a more controlled manner.

The Watson Sag is a linear waterway located between the Lac qui Parle Reservoir and the Chippewa River. The Sag is a remnant of a tributary channel of the River Warren. It was named the “Sag” because it has a natural low point (in about Section 8 of Kragero Township) that, before the project, collected water from both west (Lac qui Parle Lake) and east (the Chippewa River). As part of the flood control project, the Sag was deepened to carry a man-made channel to divert the Chippewa River into Lac qui Parle Reservoir. The floor of the channel was set at about the same elevation as the low point in the Sag.

### **Purpose and Need**

The Lac qui Parle Flood Control Project had four major goals: flood control, water conservation, recreation and wildlife propagation, and poverty relief.

**Flood Control.** The project was designed to control severe flooding of the Minnesota River (which contributed to flooding of the Upper Mississippi) by collecting flood water and releasing it downstream in a controlled but efficient manner. Floods had been a constant menace to farms and towns along the river. There had been 16 damaging floods during the 18-year period from 1903 to 1920, with an estimated 100,000 acres of land affected. The segment

from Browns Valley to New Ulm was especially hard-hit. According to project planners, "The flood which occurred in 1908 reached and contaminated the water supplies of the city of Mankato causing a typhoid epidemic with loss of life. The most persistent and damaging inundation perhaps occurred in 1919 when, because of a succession of high flood peaks, the greater portion of the entire [Minnesota River] valley was under water for more than 90 days, washing out a number of bridges, flooding large portions of the business sections of Mankato, New Ulm, Montevideo, Granite Falls, and [causing] backed water to flood the city of Marshall ("LQPFCP Physical Characteristics" ca. 1939). The 1919 flood was one of the highest ever recorded and caused an estimated \$2.65 million in damages (equivalent to about \$31.7 million in 2007 dollars). The high cost of flood damage was one justification for the Lac qui Parle project – even though the project was expensive, its cost would be exceeded by future flood losses if problems in the river were not alleviated.

**Water Conservation.** Drought was as serious a problem as flood, and the Lac qui Parle project was designed to conserve water during dry periods and slowly release it downstream. According to planners, "The cities of Appleton, Montevideo, and Granite Falls are directly dependent on an uninterrupted flow in the Minnesota River for sewage disposal purposes and to a large extent for water supplies [for drinking, fire control, and other purposes]. . . . In 1934 and 1935 the water supply for Granite Falls had all but been exhausted with no new source of supply in sight except through rains. The city of New Ulm situated farther down the valley was [also] facing a problem of water supply as a result of an almost complete cessation of flow in the Minnesota River" ("LQPFCP Physical Characteristics" ca. 1939).

**Recreation and Game and Fish Habitat.** Improving recreational opportunities and game habitat was also important to the project. This goal reflected both the New Deal's emphasis on recreation and conservation, but also new federal policies in which water projects were multi-dimensional with the potential for flood control, power generation, recreation, and conservation all considered.

The Lac qui Parle project was built in a place with "great public need and demand" for lakeshore recreation, but "an area of the state not known for its plentiful supply of lakes" (Wilson to Executive Council, May 24, 1946, Exec. Coun., LQP Flood Control Corres.; MacGregor to Knutson, June 4, 1936, Att. Gen., LQP Flood Control Files). Hunting and fishing were already popular, but there were no public parks or similar facilities, and the river sometimes ran nearly dry. The project would include parks, a scenic drive, beaches, fishing spots, and a public hunting grounds, and would "contribute immeasurably to the value of the lake as a community and regional asset" ("LQPFCP Physical Characteristics" ca. 1939).

From the beginning, planners consistently expressed their intention that land acquired for the flood control project should remain public. This notion was challenged periodically when it was suggested that land be sold to recoup project costs or boost private development, or when members of the public approached the state asking to buy lakeshore lots for cabins or resorts. In the words of the Department of Conservation: "we feel it would be unthinkable to allow these lands to again revert to private ownership, with attendant hunting and fishing privileges for a select few. Soon it would be lined with taverns and club houses, and plastered with 'No Trespassing' signs. Its scenic value would be destroyed. Upland game and waterfowl, most of which do best when undisturbed, would soon diminish in numbers" (Division 1939).

**Poverty Relief.** In the minds of many, alleviating poverty was the most important goal of the Lac qui Parle project. In the early 1930s the severe drought brought “an emergency situation in the territory . . . throwing upon relief agencies the burden of carrying a large number of farmers and other citizens on relief” (Wenzel to Schley, Aug. 3, 1938, Exec. Coun., LQP Flood Control Corres.). New Deal agencies tried to help with direct relief payments, various farm programs, and temporary employment through the State Emergency Relief Administration (SERA) and the Works Progress Administration (WPA). Federal relief workers improved and built sewer systems, roads, schools, and parks in the five-county area, but by far the largest work relief effort was the Lac qui Parle Flood Control Project.

### **Sponsorship and Personnel**

The Lac qui Parle Flood Control Project was built in 1933-1951 at a cost of more than \$2.5 million. (See the timeline in this report’s Appendix.) The vastness of the physical territory, the range of structures built, the number of agencies and individuals involved, and the number of years it took to build the project (with an interruption for World War II) required a Herculean job of planning, coordinating, fund-raising, acquiring land and materials, hiring, and supervising – all in a remote rural area at a time of poor roads, few telephones, and no copy machines or cell phones. Early correspondence among staff contains numerous references to a shortage of maps and plans giving the impression that there were just barely enough copies to get the project built.

The federal government paid for labor and most materials, while the State of Minnesota acquired the land and paid for most parks and roads. By December 15, 1938, the state had allocated \$780,000 (equivalent to about \$11.5 million in 2007 dollars) comprised of \$677,485 for land acquisition, \$4,800 for state park development, and \$97,715 for railroad construction (“Lac qui Parle Project Fund” 1938). Flowage rights and the flood control structures were eventually “purchased” by the federal government as a form of reimbursement to the state. After 1950, the federal government owned the flood control structures, but the State of Minnesota retained ownership of the majority of more than 22,000 acres acquired for the project.

While the state acquired the land, ultimate responsibility for design and construction of the flood control portion of the project rested with the U.S. Army Corps. The Corps participated in planning, approved major designs, and inspected the project, but passed its construction responsibilities to another federal agency, the WPA. John W. Moreland was District Engineer for the St. Paul District of the Corps from 1939-1943 (although the district had nine heads over the course of the project). The Corps itself, using private contractors (which was its usual method), built parts of the project in 1941-1942 and 1950-1951. The Army Corps assumed ownership of the flood control structures and began to operate the project in 1950. According to one source the Corps spent about \$933,100 on the Lac qui Parle project, including its reimbursement to the state in 1950 (WRCC 1969: 324).

The State of Minnesota was the non-federal sponsor, and several state agencies were involved. The Minnesota Executive Council, comprised of the governor, state auditor, attorney general, and other top officials, had legal authority, ran the finances, provided overall coordination, and communicated with the legislature and the federal government. A central figure was W. H. Lamson who was Executive Secretary of the Council during much of the period. After 1939, a Legislative Emergency Committee took over the finances and some coordination.

The Minnesota Department of Conservation, established two years earlier in 1931, was the lead state agency. (It was renamed the Department of Natural Resources or MnDNR in 1971.) E. V. Willard was Commissioner from 1933-1937. (Subsequent commissioners who worked on the project included Herman C. Wenzel and William L. Strunk.) The department's Division of Drainage and Water, directed by Walter S. Olson, planned most of the project, supervised construction, and operated the dams until the Army Corps took over in 1950. Hydraulic engineers Adolph P. Meyer and Sven A. Norling (see below) designed most of the project for the division. S. A. Frellsen (later longtime director of the division) also served as a designing engineer. The division hired a Montevideo civil engineer, S. L. Moyer, to serve as a "resident engineer" on the project. He was also on the WPA payroll. Moyer prepared the drawing that appears as Fig. 1 of this report.

The Division of State Parks, led by director Harold W. Lathrop, designed and supervised construction of park and recreation elements. The Division of Game and Fish planned and supervised the improvement of wildlife habitat and made plans for the public hunting grounds.

The State Emergency Relief Agency (SERA) (which in January 1936 was renamed the State Relief Agency or SRA) was the state agency responsible for Depression relief programs. The SERA/SRA was the state's primary interface with federal relief agencies, worked on funding, and was initially in charge of land acquisition. The agency also provided overall coordination and supervision of workers. During the first three years of the project (until the WPA became involved in 1936), the SERA employed the workers. Lester P. Zimmerman led the SERA/SRA during much of the period, and Walter F. MacGregor was head of the work division. George H. Wood was Senior Negotiator for Land Acquisition. Appleton real estate agent Lester A. Hancock worked under contract on land acquisition and other matters. SRA field engineers included Julian J. Idzorek and Abbott G. Smith. Many of the SRA employees worked for other state agencies before and after the New Deal.

Other state agencies were involved as well. The Minnesota Department of Highways assisted with right-of-way acquisition, designed and supervised the construction of roads, and designed and built trunk highway bridges (some with WPA help and some under private contract). The Minnesota Attorney General's office sorted out the complex legal matters, prepared deeds, and guided land acquisition through the courts.

Local county governments, which were generally small and short of cash, were only minimally involved except in the construction of some roads.

The Works Progress Administration (WPA) provided labor from 1936-1942, with its most intense period of construction being 1936-1939. The WPA was the largest of the New Deal employment agencies, operating nationwide from 1935-1943. (It was actually reorganized in 1939 as the Work Projects Administration but kept the initials "WPA" for continuity.) Victor Christgau was WPA State Administrator during much of the period. S. L. Stolte was Director of Operations and later State Administrator. Harry Phinney, director of the WPA district office in Morris, was in charge of hiring. The WPA employed a number of supervising engineers including Lowell M. Anderson, James D. Gray, Karl Moulton, and A. M. McIntyre. L. E. Fiero supervised the two WPA work camps. Many WPA officials worked for other state agencies before and after the Depression.

### **Public Involvement**

West central Minnesota residents and the local press were generally enthusiastic about the project, especially its potential to create jobs, alleviate floods and water shortages, and help permanently develop the area. Local residents spent many years in planning and lobbying, and local governments, civic groups, and businesses raised money to defray planning costs. Around 1930 a local multi-county organization called the Lac qui Parle Protective League formed as a lobby group. In October 1933, League members formed the Minnesota Valley Water Control Association to serve as the official local sponsor for the flood control project. (Ultimately the State of Minnesota served as sponsor instead.) Appleton real estate and insurance agent Lester A. Hancock was president of both groups. Local citizens also served on committees such as the Upper Minnesota River Development Association that helped advise government agencies on local water policy issues including operation of the flood control project (“Organize Five County” 1933; “Air” 1948; “Farmers” 1948).

An impressive crowd of 3,000 people attended a ground-breaking ceremony in May of 1936 to mark the start of WPA construction on the project. Held at the future site of the Chippewa River Control Works, the event included speeches, prayers, musical performances, and banquet in Montevideo. (See Fig. 58.)

### **Design**

Much of the flood control project was designed by hydraulic engineers Adolph F. Meyer and Sven A. Norling. (See biographies below.) After the major design work was completed, Meyer’s role was limited to occasional consultation, while Norling worked on the project for many years as a state employee.

The flood control portion of the project was based on two earlier engineering studies of the Minnesota River. Meyer was consultant for both of them. The first was a navigational study conducted in 1909-1910 for the Army Corps which proposed a dam above Montevideo. Meyer topographically surveyed the river between from Mankato to Big Stone Lake, and his measurements were also used for the Lac qui Parle project. The second project was a flood control study conducted in 1919-1920 by the Department of Conservation’s Division of Drainage and Water following the flood of 1919. This project, a more direct predecessor of the Lac qui Parle project, planned reservoirs for flood control and proposed diverting the Chippewa River into Lac qui Parle Lake, but did not contemplate water conservation. Following the 1919-1920 study, the state rebuilt and improved roads across the river (including at TH 119 and TH 40) and built a small dam about one mile north of the eventual location of the Lac qui Parle Dam. (The small dam was removed when the Lac qui Parle Dam was built.)

The design and functioning of the Lac qui Parle project was predicated on successful operation of the Whetstone Diversion Project, another federal relief flood control project built at about the same time. The Whetstone Diversion was a project of the WPA and the State of Minnesota with more limited participation from the State of South Dakota. It diverted South Dakota’s Whetstone River into the Minnesota River at Big Stone Lake. (Water from the Whetstone River had been a significant contributor to the 1919 flood.) The Whetstone project was built in 1934-1937, with some construction lasting through 1948. Adolph F. Meyer was the consulting engineer. Some of the other supervising engineers on the Lac qui Parle project first worked on the Whetstone.

(The project had an unintended consequence, the degradation of Big Stone Lake, which prompted construction in 1974 of the Highway 75 Dam near Odessa at the northern end of the Lac qui Parle project.)

The six parks and beaches built by the Lac qui Parle project were designed by the Minnesota Department of Conservation's Division of State Parks. Staff from the National Park Service, which consulted on other Minnesota state parks during the Depression, contributed to the design of Lac qui Parle State Park and Watson State Scenic Wayside. The Division of State Parks also designed the South Park Road (LQP CSAH 33).

### **Land Acquisition**

Buying land for the flood control project was a monumental task that took more than 11 years. The state began negotiating with landowners in August of 1934, and the last of the state's disputed cases was settled by the Minnesota Supreme Court (in favor of the state) in 1945 ("Decision" 1945). The Army Corps acquired some additional land between 1950 and 1961.

In the spring of 1935, the state estimated it needed to buy 17,000 acres. By November of 1935 the estimate had risen to 19,000 acres, and in May 1936 it was 20,000 acres. More than 22,000 acres were eventually acquired and the land ultimately cost about \$10 million in terms of 2007 dollars.

The logistics of surveying, mapping, and buying so much land the difficulties of transportation and communication, the lack of maps, delays in funding, and disputes over land value made the process very slow. In August of 1934, with the engineering work nearly done, two lawyers and five right-of-way negotiators were dispatched from St. Paul to negotiate with landowners and examine land titles held in local county courthouses. The group established an office in Madison and opened a second in Montevideo. As one example of the technical challenges, land negotiator Fred W. VanKrevelen reported to St. Paul in February 1936 that he had to ski into farmsteads to meet with owners because storms and deep snow had made the roads impassable (VanKrevelen to MacGregor, Feb. 26, 1936, Att. Gen., LQP Flood Control Files).

In general the state tried to minimize its land purchase, closely following the 945' contour elevation in most areas and thus creating the project's complex boundary. (See Map 2.) Land was purchased for inundation (both permanent and occasional) and for dikes, roads, parks, and borrow pits. The acquisition totalled about 365 separate parcels. Most ranged from 5 and 40 acres, although some were as small as a half-acre and a few were more than 400. The acquisition boundary twisted and turned along the contours of the land rather than following orthogonal lines. For some farmers this resulted in fields cut in half or pastures marooned from barns. In some cases farmers traded, rented, or bought neighbors' land to piece together more practical fields. The WPA had to build miles of fencing to close gaps in fence lines created by the state buying oddly-shaped parcels (Wenzel to Executive Council, March 14, 1938, Exec. Coun., LQP Flood Control Corres.). To prepare land for inundation, WPA workers also cut acres of timber for firewood and fenceposts. In many cases wood was shared with the landowners as part of the purchase.

When negotiations began, disputes over value arose almost immediately. Many farmers protested that the state's appraisals were too low, a charge initially supported by newspaper editors in

---

## OVERVIEW OF THE LAC QUI PARLE PROJECT

---

Watson, Appleton, and Milan, although the editors later deemed the negotiators to be fair ("Farmers Protest" 1936). State officials appealed to the public to resist hiking prices, arguing that if the cost of land rose too high the project would be canceled and thousands of relief jobs would not materialize ("Surveying Crew" 1934; "Rise in Land" 1934; "Change Noted" 1934; "Executive Council Allots" 1934).

In the end, agreement could not be reached and most land was condemned. Condemnations were filed in local courts beginning in the spring of 1935 and court hearings were held in September 1935 through March 1936. Many appeals followed. Unhappiness with the land acquisition process lingered for many years – as late as 1977 MnDNR noted opposition to state land purchases (this time for wildlife management) that had persisted since the 1930s (MnDNR 1977: 29).

Most of the purchasing was delayed until the spring of 1936 after federal funding for the project was assured. Acquisition generally began along the Watson Sag and at the foot of Lac qui Parle Lake and proceeded to the northwest. For more than two years the slow speed of land purchase impeded construction.

About a dozen parcels acquired by the state contained farm buildings and residents had to move. The WPA demolished many dilapidated structures and others were rented to local farmers and later sold for removal. No substantial buildings remain today.

The state planned to offset some of its land costs by selling cut timber and renting land back to local farmers. For more than 20 years, until the formal establishment of the wildlife management area in the 1957, the state rented thousands of acres of workable land to local farmers for fields, pastures, and hay cutting. For much of this time the state contracted with Appleton businessman Oscar Bergstad to find tenants, collect rent, and serve as the state's agent when state-owned roads or buildings needed repair. Bergstad was still the state's agent at Lac qui Parle in 1955 (Correspondence from 1954 and 1955, Exec. Coun., LQP Flood Control Corres.).

### **Construction Overview**

Actual construction of the flood control project occurred from 1934-1942, paused during World War II and while the transfer from state to federal government was finalized, and was completed in 1950-1951.

During the most intense period from 1936-1939, the amount of simultaneous construction was staggering. The WPA's work, for example, was divided into about 30 separate jobs or tasks, each based on a separate application filed with the WPA. Planners used "non-critical" tasks such as park construction to help absorb and utilize a work force whose numbers varied through time. Jobs like park development were also useful for keeping everyone employed when all laborers couldn't be used on "heavy construction" jobs more reliant on large equipment (Christgau to Willard, June 29, 1936, Exec. Coun., LQP Flood Control Corres.; Frellsen 1936).

Construction work continued through several winters during the project. Remarkably, Gemini Research did not encounter any references to construction failures or accidents except in April of 1937 when an earthen plug broke in the unfinished Lac qui Parle Dam and high spring waters rushed through ("Marsh Lake" 1937).

The first physical tasks in 1934-1935 were confined to land already owned by the state. They included clearing the Lac qui Parle and Marsh Lake reservoir basins and working on the TH 119 and TH 40 causeways. Workers were paid with SERA funds.

Work stalled for several more months while funding was being arranged. Finally in May 1936, WPA workers broke ground near the Chippewa River Control Works. In 1936-1937 structures related to the diversion of the Chippewa River including the Chippewa River Control Works, Watson Sag Weir, and Chippewa River Diversion Channel were built.

When the first contingent of Twin Cities WPA workers (see below) occupied WPA Camp No. 1 in August 1936, work began in earnest on the Lac qui Parle Dam and Dike. The dam and dike were built in 1936-1939. The WPA work camp was adjacent.

In the spring of 1937 a second WPA camp for Twin Cities workers opened at the future site of the Marsh Lake Dam, about 17 miles north of the Lac qui Parle Dam at the other end of the future reservoir. Here the Pomme de Terre River was diverted and the Marsh Lake Dam and Dike were built in 1937-1938.

Also in 1937-1938, the WPA, state highway department, and CMSPP Railroad worked to raise the CMSPP Railroad and TH 7 over the Watson Sag and across the Chippewa River Diversion Underpass. The WPA, state highway department, and a private bridge contractor built the bulk of the TH 40 Causeway and its bridge (5380) in 1937-1939.

The principal flood control structures were basically operable by April of 1939 when the Marsh Lake and Lac qui Parle reservoirs were first flooded. In 1938-1939 the WPA concentrated on completing these projects and building roads such as the South Park Road (LQP CSAH 33) and segments of Chippewa CSAH 9, Chippewa CSAH 13, and Chippewa CSAH 32. The roads linked the control structures, gave the public access to the Lac qui Parle Reservoir, and served local farmers. Most recreational properties were built in 1938-1939, including Milan Beach, a small set of tourist cottages (razed), Watson State Scenic Wayside (which had begun earlier), and Lac qui Parle State Park (whose construction continued through 1940). Some miscellaneous WPA jobs such as tree planting for wildlife habitat and building the unusual Concrete Fence Post Boundary Line occurred in 1938-1939. Bronze plaques were installed on the major water control structures in 1940. Some miscellaneous projects such as a game bird farm and a fish rearing pond were never built.

In 1939-1942 the WPA and the Minnesota Department of Conservation built short segments of road to maintain access to farmsteads and fields after land was inundated and planners could determine where flooding would occur.

In 1940-1942 the WPA completed Lac qui Parle State Park, built Lac qui Parle Mission State Wayside, and collaborated with Chippewa County to build present-day CSAH 32 adjacent to the mission wayside.

In 1941 through early 1942, after WPA funding ended and just as World War II began, the Army Corps of Engineers built the Marsh Lake Dam emergency spillway and added two gauging stations; dug the Marsh Lake Dam outflow channel; helped raise the Great Northern railroad

---

## OVERVIEW OF THE LAC QUI PARLE PROJECT

---

tracks; worked on the Lac qui Parle Dam, outflow channel and gauging station; and improved the Minnesota River channel south of Lac qui Parle Dam.

In 1945-1946 the state highway department reinforced and riprapped the TH 119 Causeway, probably after ice or water damage.

In 1948-1951, after World War II had ended, the Army Corps and the Minnesota Department of Conservation built final roads and bridges, repaired and reinforced a damaged Marsh Lake Dam and a weakened Lac qui Parle Dam, installed a Tainter gate on the Chippewa River Control Works, and finished improving the river channel south of Lac qui Parle Dam. (Channel improvement was a critical tool for flood control that kept a river from spilling over its banks and increased its water-carrying capacity.)

WPA applications provide detailed estimates of labor and materials needed for many of the jobs. Construction methods were based on labor-intensive techniques that employed large number of workers. Local farmers were paid to use their own teams of draft horses to help with scraping, hauling, and other heavy work (Gray to Phinney, Oct. 5, 1936, Att. Gen., LQP Flood Control Files). (A few farmers also owned trucks.) Because of the scale of the project, plenty of heavy equipment was used including a large steam-powered suction dredge that dug a new Pomme de Terre River channel and deposited the spoils along the future Marsh Lake Dike. (See Fig. 92.)

An application for part of WPA Job 20 – construction of the TH 40 Causeway – specified 3 gasoline-powered shovels, 30 trucks, and 1.5 tons of dynamite among its equipment needs. The labor estimate included 132 unskilled laborers, 9 dumpmen, 50 riprappers, 2 air compressor operators, 12 hand drill operators, 2 blasters, 3 stonecutters, 1 superintendent, 2 foremen, and 1 timekeeper. Similarly, an application for WPA Job 18A – part of the South Park Road – estimated 220 unskilled laborers plus 20 truck drivers, 8 heavy equipment operators, 16 riprappers, 4 stone masons, 2 mechanics, 10 carpenters, and a number of other workers (WPA Project Proposals).

Most construction materials were obtained on site. Sand and gravel were mined from several borrow pits along the length of the project. Most pits were located on state-acquired land, but some were leased by the state. Concrete culverts and other objects were made within the pits. In general, dredged spoils were used to built nearby dikes and causeways. Stone for riprap was purchased from local quarries.

### **Federal Relief Funding and Labor**

By September 1933, a flood control project in the Lac qui Parle area had been “sought for a number of years” by the Lac qui Parle Protective League and other interests. Preliminary engineering plans and cost estimates were “on file” with the Army Corps of Engineers in Washington, and interested parties were working with the Minnesota Department of Conservation and the federal Public Works Administration (PWA) “to have the project included in the federal public works program” (“Lac qui Parle Project” 1933). League president L. A. Hancock and Conservation Commissioner E. V. Willard lobbied officials in Washington in late September or early October 1933. The site was inspected by a PWA engineer in October 1933, and at the end of the month a crowd of 500 registered support at a public hearing held in Montevideo by the Army Corps. On October 30, 1933, the PWA and Army Corps approved a project that was

expected to employ 300 men for three years (“Urge Lac qui Parle” 1933; “Will Inspect” 1933; “Will Send” 1933; “Lac qui Parle Project” 1933; “River Project” 1933; “Lac qui Parle Project Is Given” 1933).

While still in the planning stages the project was transferred from the PWA to the State Emergency Relief Administration (SERA) in the summer of 1934. SERA funds paid for final survey work in July and August of that year. A Minnesota National Guard airplane was sent to take aerial photos. Engineering work and cost estimates were developed in the fall and winter of 1934-1935 (“Prospect for Employment” 1934; “Engineers Go” 1934; “Surveying Crew” 1934).

The first laborers on the Lac qui Parle project were employed by the SERA. In the fall of 1934 they began working along the Minnesota River cutting trees, removing outcroppings and lake boulders, and grubbing stumps. They stockpiled rocks suitable for riprap, cut and stacked wood for firewood and fenceposts, and salvaged lengths of barbed-wire fencing (“Olson Hopes” 1934; “Federal Approval” 1934; “Lac qui Parle Control” 1934). The SERA built at least eight small construction shacks (some about 12' x 16') for use as “warming houses and tool sheds for clearing operations in the Lac qui Parle basin.” When the WPA took over construction, the shacks were moved to other locations including the site of the Chippewa River Control Works (MacGregor to Harkins, Sept. 4, 1936, Att. Gen., LQP Flood Control Files). (See Fig. 65.)

By the summer of 1935, SERA work projects nationwide were being transferred to the Works Progress Administration (WPA) which had been established that spring. In Minnesota, officials worked to prepare proposals for a Lac qui Parle project somewhat larger than that envisioned in 1933.

In September of 1935, at the same time that plans for a WPA grant were being finalized, the project hit a new snag when the mayors of Minneapolis, St. Paul, and Duluth tried to stop the project. They argued that too much money was being allocated to sparsely-populated western Minnesota and that the state’s three largest cities were in much greater need of relief (“Lac qui Parle Project Gets” 1935).

Another delay occurred about the same time when the WPA application had to be rewritten after it was determined that the project as planned would provide too little in relief wages relative to the total costs of the project. The revised application reduced the use of heavy equipment in favor of more hand labor, and made other adjustments to bring the estimates in line.

A \$2.1 million WPA project was finally approved by President Roosevelt in January of 1936 and assigned WPA project number 2848. Construction began in May 1936 with a work force of about 70 men. They began by cutting trees along the banks of the future Chippewa River Diversion Channel. Heavy dirt-moving equipment soon arrived to supplement the hand labor.

In October of 1936 there were 500 to 700 workers on the job (sources vary) with a goal of increasing to 1,500 men. The payroll was highest in 1937 and 1938. According to the *Appleton Press*, the WPA employed an average of 1,000 men per month on the project between May 1936 and October 1939, and peak employment was 1,400 workers. According to the article, “These included men on relief rolls from 22 counties. About 600 were from the direct relief rolls of St. Paul and Minneapolis” (“Lac qui Parle Project Was” 1940).

---

## OVERVIEW OF THE LAC QUI PARLE PROJECT

---

Under federal relief rules, about 90% of project workers (all of whom were men) needed to qualify for federal relief. An exception was made for planners, supervisors, draftsmen, stone masons, and other skilled workers. WPA rules initially excluded farmers, but in 1936 the severity of the drought forced a change in policy and farmers on drought relief could also get work.

Between August of 1936 and October of 1939, WPA workers who lived in the area were supplemented by hundreds of so-called transient workers, many of them homeless men, who had registered for work in the Twin Cities. The first contingent of 92 transient workers arrived in August 1936 to occupy the first of two 250-man WPA work camps. This camp operated for more than three years, and the second camp for 28 months. Despite the existence of the camps, maintaining a large enough labor force was a continuing challenge for the project. In July 1939 the second work camp at Marsh Lake Dam was closed because of "lack of sufficient men to make camp operation practical" ("Lack of Men" 1939).

WPA transient camps were relatively rare in Minnesota, where most WPA employees worked close to their homes. Sometimes called "tramp camps," the camps were operated similar to Civilian Conservation Corps (CCC) camps with multiple barracks, a dining hall, and a headquarters building (Anderson Sept. 1988: E27). The first camp, located at the Lac qui Parle Dam, is described in some detail in the August 14, 1936, edition of the *Montevideo News*.

**Labor Strike.** In September of 1936, WPA workers in District 8 struck for about 10 days. Many of the grievances echoed statewide issues that had been mounting for some time, but the local strike was touched off by the hiring of the WPA transient workers – the first "single, unattached" men to receive jobs in WPA District 8. About 1,700 of the 4,500 men employed by the WPA in District 8 went on strike for at least part of the time, including virtually all of the men on the Lac qui Parle job.

The strike was led by members of the Minnesota Labor Association, which had two state officers living in Montevideo. Local members of the Farmers' Holiday Association also supported the strike.

The most significant grievances were that outside workers were given jobs while local men were still unemployed, and that wages paid to workers in rural areas were less than those paid to WPA workers in the Twin Cities. Workers were disgruntled at methods of distribution for relief commodities, and were angry that wood cut as part of the Lac qui Parle project was not being made available to local families who needed fuel for the winter. Publicity posters for the strike made reference to the "poor class" of men the WPA transient camps would bring to the area.

On September 18th one project official wrote that "work has been shut down entirely, only one man being employed on the project and he is there to serve as a watchman to prevent fire" (MacGregor to Willwercheid and Bright, Sept. 18, 1936, Att. Gen., LQP Flood Control Files). A settlement was negotiated and workers returned to the job on September 21st.

Workers on the Lac qui Parle project threatened to strike at least two more times, once in December 1937 to protest rippers' wages, and again in April 1939 in a dispute over the hiring of trucks ("Strike Threatened" 1937; "High Bidders" 1939).

### **Completion of the Project**

By late 1936 there were signs that state and federal sources would have difficulty fully funding the project. By the summer of 1938 the state knew it would soon exhaust its ability to provide the local sponsor's match.

In June of that year, Congress had passed the Flood Control Act of 1938 which reduced the financial burden on states by removing requirements that states pay for land acquisition. The federal government then agreed to reimburse the State of Minnesota for its share of land costs related to the flood control portion of the Lac qui Parle project.

In August of 1938 the state submitted a request for \$1.6 million representing a 70% reimbursement for the costs of land acquisition, raising the two railroads, and building roads and bridges. The state could not seek reimbursement for land not strictly needed for flood control (i.e., costs related to conservation, recreation, and the building of some roads). The state planned to use the funds as match for more WPA funding to complete the project. Left undone were necessary improvements to three of the four dams, deepening the river channel between Lac qui Parle Dam and Granite Falls, raising the Great Northern tracks, completing the Correll-Louisburg Road, and raising additional local roads threatened by potential flood waters (Kooiman and Slatterly "Lac qui Parle Dam" 1994).

By June of 1939 project organizers were seeking additional funds to continue the project beyond the fall of 1939 when WPA funds were scheduled to run out. In July 1939 Congress appropriated \$85,000 for channel improvement from the Lac qui Parle Dam downstream to Granite Falls. The Army Corps of Engineers would do the work using a private contractor ("Lack of Men" 1939). In September of 1939, the Department of Conservation applied for a \$300,000 project (\$250,000 in WPA funds and a \$50,000 state match) to continue unfinished road-building and park development ("Lac qui Parle Project to Close" 1939). In October and November of 1939 the *Appleton Press* described a proposed WPA project (evidently related) that would employ 600 to 700 relief workers and complete five unfinished tasks: 1) straightening the Minnesota River channel between the Lac qui Parle Dam and Granite Falls; 2) building numerous short sections of road; 3) building four concrete bridges; 4) straightening the Minnesota River channel between the Marsh Lake and Ortonville, and 5) "other smaller items of improvement" ("Five County" 1939). Citizens and officials lobbied the legislature for the matching funds, but in January 1940 the Legislative Emergency Committee rejected the plans and no further WPA projects materialized ("Group Meets" 1939; "Ask State Aid" 1939; "Lac qui Parle Project to Close" 1939; "County Board Chairmen" 1939).

In October of 1939 it was announced that WPA work on the project would stop at the end of the month. Nearly \$2.5 million had been spent. During the next two years, the WPA, Army Corps, state highway department, and Department of Conservation completed the parks, built roads, raised the railroad, and worked on the water control structures.

In the meantime, the state was still negotiating with the federal government for reimbursement. The parties agreed that the Army Corps would "purchase" the flood control structures from the state, pay the state for flowage rights, and take over operation of the flood control project. An agreement was written and the federal government began several years of reexamining land titles and preparing deeds, a process postponed for several years during World War II. In 1948, as

finalization drew near, the Upper Minnesota River Development Association formally requested that, when received, the federal reimbursement money be directly applied to finishing the flood control project rather than being “diverted to projects elsewhere in the state” (“Air” 1948). The agreement was finally executed in September 1950. The State of Minnesota received \$358,000 in payment for flowage rights and 516 acres comprised largely of the flood control structures.

The Army Corps of Engineers still owns and operate the flood control structures and adjacent dam recreation areas. The State of Minnesota still owns and operates the parks and the vast wildlife management area.

### **Physical Accomplishments**

The Lac qui Parle Flood Control Project was a mammoth undertaking that involved diverting two rivers, creating two reservoirs, building four dams and weirs, raising two railroads, raising and reinforcing three state highways, building and raising numerous local roads and bridges, developing 570 acres of park land, and planning the improvement of thousands of acres of wildlife habitat.

Gemini Research identified an historic district of about 25,000 acres that is recommended eligible for the National Register. Within the district Gemini inventoried 62 separate properties built as part of the flood control project (as well as 19 properties in the district not built by the project and 3 properties outside of the historic district).

The pivotal structures are those related to flood control. They include two reservoirs, four dams and weirs, and two river diversion channels – all with accompanying dikes, ditches, bridges, causeways, and underpass structures. The Lac qui Parle project employed nearly all engineering methods typical of flood control: dams and reservoirs, dikes or levees, diversion channels, and channel deepening and straightening (including oxbow cut-offs) (Merritt 1979: 354-360). (The only common flood control technique not employed in the project was the alteration of land use practices, such as farm drainage, in neighboring areas.) The Lac qui Parle flood control structures were designed to work in concert, and the system generally continues to function as planned.

**Design Consistency.** Many of the structures share a design consistency that helps make the project visually cohesive. The four major dams were built of poured concrete with utilitarian forms, simple pipe railings, and little if any ornamentation other than stone riprap. Bridges across these structures also had simple designs made more interesting with open railings. Bridge 5380 on the TH 40 Causeway, the only truss bridge built, is the most intact of the major bridges and remains a visual landmark within the project.

Three of the parks, Lac qui Parle Mission State Wayside, Watson State Scenic Wayside, and Lac qui Parle State Park, are examples of the National Park Service Rustic Style. The latter two have matching park buildings.

In several locations within the project, planners used interesting concrete fence posts, cast by the WPA in a local gravel pit. The fence posts were used as guardrail on CSAH 13 just east of Lac qui Parle Dam (see Fig. 42), along the South Park Road (see Fig. 204), on CSAH 13 near the Chippewa River Control Works (see Fig. 231). Gemini Research found extant posts in three

locations: Watson State Scenic Wayside, the Concrete Fence Post Boundary Line, and two salvaged posts on Chippewa CSAH 13 East of Lac qui Parle Dam.

Large amounts of hand-fit stone riprap are also characteristic of the project. (The use of indigenous materials is also typical of National Park Service Rustic Style design.) Lake boulders gathered on site comprises some of the riprap, but most is waste rock purchased from local granite quarries and split by jackhammer and chisel. Hand-fit riprap, while labor-intensive to install, used fewer stones than dumped riprap to provide similar bank protection, and was preferably in some situations for the way it withstood the action of water and ice. The hand-fit riprap is closely-fit in an almost interlocking pattern. In many cases the rocks were set so that quarry drill marks were exposed. Seven structures in the flood control project have similar hand-fit riprap.

Three structures in the project have granite steps: Chippewa River Control Works, Watson Sag Weir, and the northeast end of the TH 40 Causeway. (Lac qui Parle Dam had poured concrete steps and Marsh Lake Dam had no steps.) The TH 40 Causeway steps are the most elaborate and well-preserved of the stone examples.

Local stone was also used for culverts on the South Park Road (LQP CSAH 33); check dams on Chippewa CSAH 13; and flumes on CSAH 13, in the Lac qui Parle Dam Recreation Area, and at the northeastern end of the TH 40 Causeway. Lac qui Parle Mission State Wayside has a stone-lined parking area. (Its stone entrance sign is a later addition.)

**Integrity.** The flood control project's man-made structures and landscape features are remarkably intact given their scale and number, as is the setting. Very few structures have been removed or replaced and few have been added. Alterations to the structures are not sufficient to disrupt the project's ability to continue to convey its historic design, function, and significance.

### **A Context of Flood Control**

The State of Minnesota has limited its flood control activities to only a few projects, deferring to the U.S. Army Corps of Engineers for most flood work. The state participated in only four major projects through 1969, all on the Minnesota River. The four were the 1919-1920 flood control study following the 1919 flood; the Lac qui Parle Flood Control Project (1933-1951); the Whetstone Diversion Project (1934-1937, 1948); and channel improvement between Big Stone Lake and a portion of Marsh Lake (ca. 1955) ("Report" 1955; WRCC 1969).

Congress began to formulate serious plans for comprehensive flood control after Mississippi River floods in 1917 and 1922, and was spurred to greater action after the Mississippi Flood of 1927 – called the greatest peacetime disaster in U.S. history by Secretary of Commerce Herbert Hoover. However it took until the East Coast itself flooded in the spring of 1936 for Congress to finally pass the large and controversial Flood Control Act of 1936 (Arnold 1979: 18).

The flood control bill represented the federal government's first real entrance into flood control policy that was national in focus. Flood control had traditionally been considered a local issue, and building local dikes or levees was the standard control method. By the Great Flood of 1927, however, it was becoming evident that confining the Lower Mississippi in a corridor of dikes and flood walls was not preventing floods and was possibly making them worse. In 1936 the federal

---

## OVERVIEW OF THE LAC QUI PARLE PROJECT

---

government began to shift to a wider range of prevention techniques including engineering much farther upstream, and building dams, reservoirs, and diversion channels (Arnold 1979: 19).

According to historian Joseph Arnold, the Flood Control Act of 1936 “was part of the profusion of important Depression era legislation enacted by the 74th Congress in 1935-1936.” These bills included “the Social Security Act, the National Labor Relations Act, the Banking Act of 1935, the Wealth Tax Act, the Public Utilities Holding Company Act, the Rural Electrification Act, the Soil Conservation Service Act, and the \$4.8 billion Emergency Relief Appropriation Act of 1935. Out of this last act, designed to create public work relief programs, came the Works Progress Administration (WPA) programs, the National Youth Administration, the Resettlement Administration, and, ultimately, the Flood Control Act of 1936” (Arnold 1989: 23).

Preliminary engineering work for the Lac qui Parle project had been completed by the start of the New Deal, and final planning and early construction began in 1933-1934 using federal work relief dollars funneled through the State Emergency Relief Administration or SERA. One month after the WPA started worked at Lac qui Parle, federal commitment to the project was confirmed when Lac qui Parle was included as one of the 285 flood control projects included in the bill. The Flood Control Act of 1936 authorized the Army Corps of Engineers to conduct the projects.

To reduce the number of undeserving or “pork barrel” projects, the 1936 law required that local interests pay a portion of the project costs. This burden on local governments was reduced by the Flood Control Act of 1938, which paved the way for partial reimbursement to the State of Minnesota for its Lac qui Parle costs.

According to Joseph Arnold: “The Flood Control Act of 1936 established an enormous commitment by the federal government to protect people and property.” The “remarkable engineering projects” built in subsequent years “today comprise one of the largest single additions to the nation’s physical plant – rivaled only by the highway system” (Arnold 1989: 91).

In Minnesota the 1936 law meant changes for the St. Paul District of the Army Corps. The district shifted from an emphasis on navigation to an agenda dominated by flood control (Merritt 1979: 347). Established in 1866, St. Paul District’s territory extended from the Wisconsin River on the east to the Missouri River on the west. In 1969 Lac qui Parle was one of the Corps’ 21 flood control projects in Minnesota. Twelve of the projects had been completed, 7 were underway, and 2 were about to begin. The Lac qui Parle Project was the oldest and most extensive of the 21 projects and one of five that included reservoirs (WRCC 1969).

### **Hydraulic Engineer Sven A. Norling**

Sven Norling reworked and drew many plans for the project. Norling was a hydraulic engineer who worked as a civil engineer for various state agencies, maintained a private practice in Minneapolis, and taught at the University of Minnesota.

He was born in Sweden ca. 1894 and immigrated to the U.S. in 1920. One source, written in 1932, calls Norling a “successful hydraulic engineer” and indicates “He is a graduate of a famous University in Sweden” (*National Greenkeeper*, April 1932: 29). Norling was married to Norwegian immigrant Borgney Norling and had at least three children.

Norling did graduate work at the University of Wisconsin and is “believed to be the first student receiving a PhD in Agricultural Engineering in the US,” according to a University of Wisconsin publication (*Update* [newsletter of University of Wisconsin-Madison, Biological Systems Engineering Dept.], Summer 2004: 3).

In 1921-1922 Norling worked for the University of Minnesota’s Division of Agricultural Engineering. In 1930 he was employed by the State of Minnesota as a civil engineer. In 1930 he consulted for the city of Rochester on the feasibility of installing the Silver Lake Dam.

Norling’s publications include *Hydrological Data of Lake Minnetonka, 1906-1933* (1934), a report on the hydrology of the Lac qui Parle project (November 1935), and *Final Engineering Report on the Restoration and Preservation of Lake Minnetonka and Minnehaha Creek* (year unknown). The latter was cowritten with Theodore Wirth and Harold W. Lathrop.

#### **Hydraulic Engineer Adolph F. Meyer**

Adolph F. Meyer was a prominent Minnesota hydraulic engineer, educator, author, and inventor. He worked on many of the state’s major public water projects during the first half of the 20th century, making important contributions to flood control, hydroelectric power development, drainage, and water resources conservation. He founded the firm that is now Barr Engineering.

The Lac qui Parle Flood Control Project may be eligible for the National Register under Criterion B (association with an important person) for its association with Meyer. However, research to evaluate the Lac qui Parle project within the body of Meyer’s work was beyond the scope of this inventory.

Meyer was born in 1880 in Wisconsin, was educated at the Oshkosh Normal School, and taught school in Wisconsin from 1898 to 1901. He attended the University of Wisconsin, earning civil engineering degrees in 1905 and 1909. In 1905 he and Ethel R. McGilvra were married. They had three children.

In 1912, Meyer opened an office in St. Paul as a consulting engineer. He was an associate professor of hydraulic engineering at the University of Minnesota from 1914 to 1917. He continued to teach at the University as a special lecturer from 1918 to 1919. In the early 1900s, Meyer developed the methodology still used in Minnesota to determine the Ordinary High Water Level of lakes, rivers, wetlands, and other water basins.

Meyer was in partnership in Minneapolis with engineer Frances C. Shenehon from 1918-1923. After that Meyer practiced alone for more than two decades. By the 1950s, Douglas W. Barr had joined Meyer as an associate engineer. After Meyer’s death in July 1962, Barr continued the practice, which became Barr Engineering. Today, Minneapolis-based Barr Engineering employs nearly 400 engineers, scientists, and support staff.

Meyer was a consulting hydraulic engineer on a wide array of projects for state and local governments. He also worked for railroad, paper milling, mining, and power companies. He designed sewer and storm water systems, hydroelectric projects, irrigation systems, drainage ditches, and dams and reservoirs. His projects included Mississippi River locks and dams, hydroelectric power in Minnesota’s Rainy River region, mining operations near Gilbert and Aurora,

---

## OVERVIEW OF THE LAC QUI PARLE PROJECT

---

and flood control projects and power generation on the Minnesota River (MHS "Scope and Content").

Meyer's studies of the Minnesota River in 1909-1910 and 1919-1920 laid the groundwork for the Lac qui Parle Flood Control Project. Meyer also worked on two other nearby projects: the Minnesota River/Big Stone Lake's Whetstone Diversion Project (1934-1948) and the Lake Traverse-Boix de Sioux Project, a \$1.3 million dollar Red River flood control project completed in 1948.

Early in his career, Meyer worked on the Wisconsin River levees (1904), and contributed to a flood control investigation at the Mississippi River headwaters (1905). From 1906 to 1911, Meyer worked on the design and construction of a government lock and dam between Minneapolis and St. Paul. From 1912 to 1917, Meyer was a consulting engineer for the International Joint Commission hydroelectric power project in the U.S.-Canada boundary waters. Other water power projects in this period included Government Dam on the Mississippi River at Minneapolis-St. Paul (1914), and a Zumbro River power project at Rochester (1915) (Leonard 1922).

In 1918 and 1919, Meyer was a consulting engineer for the Minnesota and Ontario Paper Company, which operated pulp and paper mills at International Falls and Fort Frances, Ontario. Meyer invented several machines for use in paper milling including the Meyer Governor, a tool for regulating the speed of pulp grinders, and invented gauges, gauge protectors, speed and load regulators, and differential pressure valves, all used in milling. In 1920, Meyer started the Meyer Governor Company to manufacture his inventions. Meyer also invented and patented a process for making poured concrete walls for buildings (Leonard 1922; MHS "Scope and Content").

In the 1940s and 1950s, Meyer consulted on a project to restore Lake Minnetonka by raising the lake level through stream diversion, water pumping, and other means. In the late 1950s, he was involved with a municipal sewer project on the Red River at Grand Forks.

Meyer also worked on water projects in at least nine other states. Major projects included irrigation and hydroelectric power on the Loup River Basin in Nebraska and a railroad relocation project in Texas.

Meyer wrote two books and many technical papers. His *Elements of Hydrology* was a well-respected early text on hydrology published in 1917 and revised in 1928. In 1899, while still a teenager, Meyer published *A Field Guide to our Common Birds* (Leonard 1922).

Meyer served on the Governor's Advisory Committee on Waters and worked with the Legislative Interim Commission on Water Conservation, Drainage and Flood Control. He was a life member of the American Society of Civil Engineers and the American Society of Mechanical Engineers. He belonged to the Engineers Society of St. Paul, the Minneapolis Engineers Club, the Minnesota Engineers and Surveyors Society, the American Meteorological Society, and the St. Paul Athletic Club (Leonard 1922).

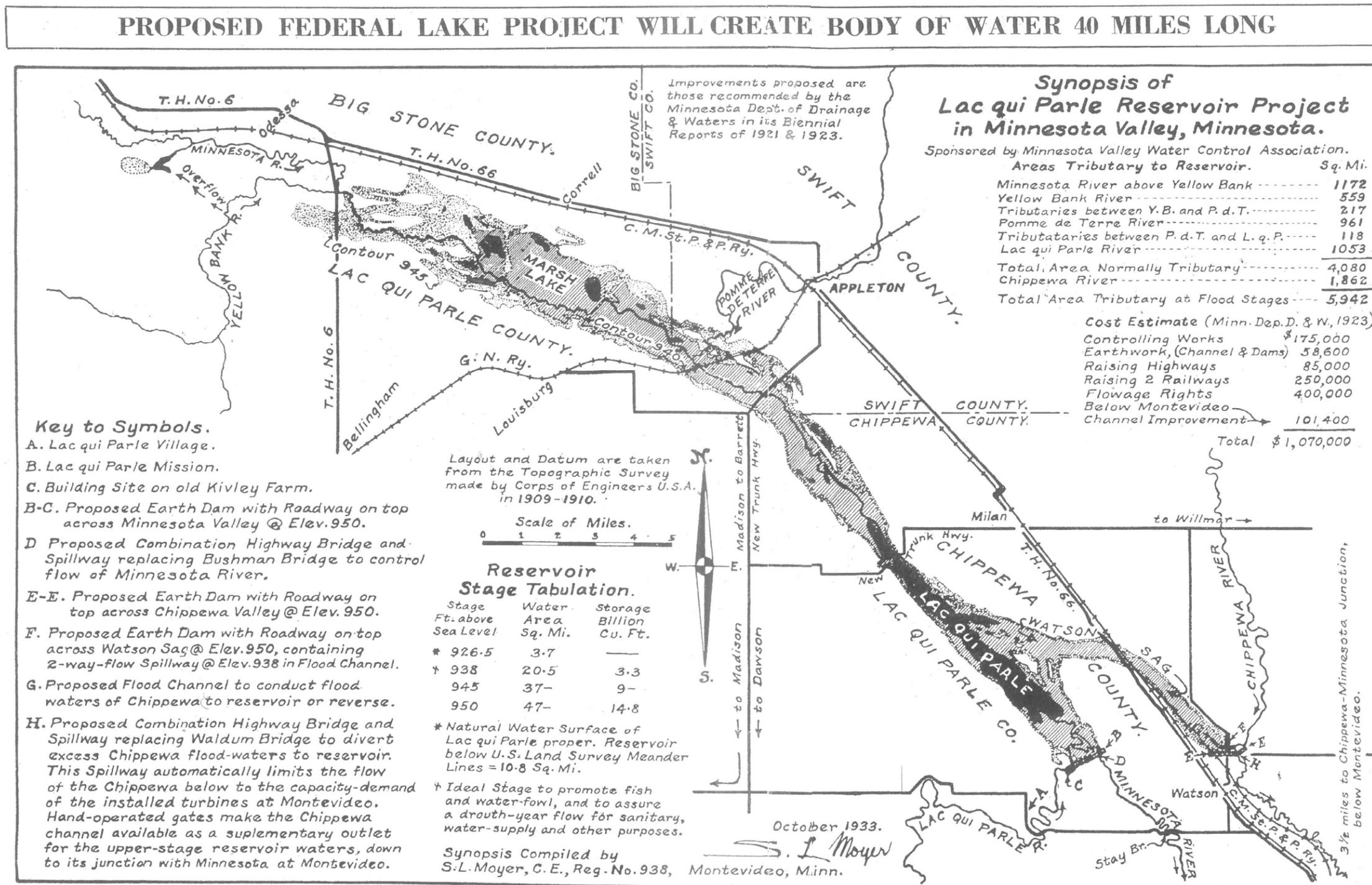


Fig. 1. Early concept map of the LQP flood control project drawn by S. L. Moyer, Montevideo resident and project engineer, in 1933 (Appleton Press, Nov. 3, 1933).

