NPS Form 10-900 OMB No. 1024-0018

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NAT. REGISTER OF HISTORIC PLACES
NATIONAL PARK SERVICE

United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in National Register Bulletin, *How to Complete the National Register of Historic Places Registration Form.* If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. **Place additional certification comments, entries, and narrative items on continuation sheets if needed (NPS Form 10-900a).**

1. Name of Property

historic name Lower Souris National Wildlife Refuge Airplane Hangar

other names/site number J. Clark Salyer National Wildlife Refuge Airplane Hangar/32MH51

2. Location

street & number 681 Salyer Road ☐ not for publication

city or town Upham ☒ Vicinity

state ND code ND county McHenry code 049 zip code 58789-0066

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended,

I hereby certify that this _x_ nomination ___ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60.

In my opinion, the property _x_ meets ___ does not meet the National Register Criteria. I recommend that this property be considered significant at the following level(s) of significance:

__ national _x_ statewide __ local

Signature of certifying official/Title — Date 5/2/11

USFWS Deputy Federal Preservation Officer
State or Federal agency/bureau or Tribal Government

In my opinion, the property ✓ meets ___ does not meet the National Register criteria.

Signature of commenting official — Date 4-26-11

ND-SHPO
Title — State or Federal agency/bureau or Tribal Government

4. National Park Service Certification

I hereby certify that this property is:

✓ entered in the National Register
__ determined eligible for the National Register
__ determined not eligible for the National Register
__ removed from the National Register
__ other (explain:) _____

Signature of the Keeper — Date of Action 9/20/11

5. Classification

Ownership of Property
(Check as many boxes as apply.)

- [ ] private
- [ ] public - Local
- [ ] public - State
- [x] public - Federal

Category of Property
(Check only **one** box.)

- [ ] building(s)
- [ ] district
- [ ] site
- [x] structure
- [ ] object

Number of Resources within Property
(Do not include previously listed resources in the count.)

Contributing	Noncontributing	
		buildings
		district
		site
1		structure
		object
1		**Total**

Name of related multiple property listing
(Enter "N/A" if property is not part of a multiple property listing)

N/A

Number of contributing resources previously listed in the National Register

0

6. Function or Use

Historic Functions
(Enter categories from instructions.)

Transportation / Air-related

Current Functions
(Enter categories from instructions.)

Other: Storage

7. Description

Architectural Classification
(Enter categories from instructions.)

Other: Rounded-arch prefabricated metal

Materials
(Enter categories from instructions.)

foundation: concrete
walls: metal
roof: metal
other:

Narrative Description

(Describe the historic and current physical appearance of the property. Explain contributing and noncontributing resources if necessary. Begin with **a summary paragraph** that briefly describes the general characteristics of the property, such as its location, setting, size, and significant features.)

Summary Paragraph

The Lower Souris National Wildlife Refuge (now called the J. Clark Salyer NWR) airplane hangar is located at the refuge headquarters in McHenry County, North Dakota. It sits on the west side of the Souris River (commonly called the Mouse River locally; "souris" is French for "mouse") adjacent to a large flat grassy field, where the runway was located. The refuge is the largest in North Dakota with approximately 58,700 acres. The elevation of the site is 1433 feet above sea level. The nearest town, Upham, is three miles south.

The structure is a small, rigid-frame metal airplane hangar, T-shaped in plan with a rounded-arch roof. It was designed and fabricated by the Butler Manufacturing Company. The hangar is located at the south end of refuge headquarters complex. Nearby buildings and structures include storage facilities and a fenced compound for equipment; other buildings at the headquarters include a visitors' center, residences, garages, grain bins, storage sheds, and machine sheds. The site is accessed by a gravel roadway from the refuge visitors' center, which sits just east of North Dakota Highway 14.

Narrative Description

This small airplane hangar sits on a concrete slab. The walls and roof consist of pre-fabricated metal panels attached to interior rigid steel beam framing. It has a total of 768 square feet of interior space.

The structure is T-shaped so that the airplane could be backed into the space with its tail fitting inside the smaller rear (north) volume and the airplane wings fitting inside the larger main (south) portion of the structure (as illustrated in the drawing below). The main volume measures 16.5 feet wide by 34 feet in length. It is approximately 12.5 feet in height at the tallest point. The smaller rear volume measures 13 x 13 feet. It is approximately 9 feet in height.

The rear portion of the structure consists of a rounded arch forming the side walls and roof; the end (north) wall is flat with a rounded top that fits into the arch. The arched roof and walls intersect with the rounded-arch portion of the main volume of the structure. The main volume consists of a rounded arch that forms the north wall and roof of this portion of the structure; the south wall consists of the sliding doors, which create a flat wall surface on this side of the structure. The end walls (east and west) of the main volume are also flat.

The interior framing consists of vertically-placed steel I-beams and horizontally-placed steel L-beams (smaller in dimension than the I-beams) in the larger main volume. Tie-rods with turn buckles cross at the center of the main volume, providing support from torquing. The rear volume is framed with steel beams only at the north end wall.

The sheathing consists of steel panels that are bolted together and attached to the framing. Each panel has two sections with one rib; each section is 12" wide and each panel is 24" wide. The ribs are rounded and when overlapped formed a tight seal from panel to panel. To span the arch of the main volume of the structure, three panels are attached end-to-end. At the south edge of the roof, the panels roll over the end of the arch and are flattened to create the upper portion of the south walls. The arch of the rear (north) volume of the structure has longer panels that reach across the entire arch. The flat end walls consist of the same type of panel without the arch and include small louvered vents. There are no windows.

The south wall of the structure is actually four sliding doors mounted on rails; two doors slide toward each end of the structure. When closed, they form the south wall. The rails extend beyond the end walls by 10'8" so that the doors can be pulled back leaving the south wall completely open for maneuvering the airplane in and out of the structure. Each door is ten feet in width and approximately nine feet in height. There are narrow concrete pads extending from each end of the structure beneath the extended rails along which the door could roll. There is also a concrete ramp located on the south side of the structure; it measures 14'4" along the south wall of the structure and 8'5" out from the structure. The door hardware consists of wheels mounted on the rails, all of which is intact. A metal hasp has been attached to the outside of the doors in order to secure the structure with a padlock.

Located on the outside surface of each door is a metal tag that reads " Butler Built, Product of Butler Manufacturing Company, Kansas City Galesburg Minneapolis USA, B-1005." A pole sits atop the structure centered over the door opening. Its purpose was to hold the wind sock that provided wind direction and strength information to the pilots.

The structure retains a very high degree of historic integrity and is in relatively good condition. There is some rust that has developed on the structural framing, but the panels appear to be in good condition. The exterior has been painted with a silver paint to protect it from deterioration. There are only a few dents in the metal panels of the walls, roofs, and doors. The structure is currently used for storage.

Associated with the hangar, but not being nominated as part of this property, is the original landing strip used by the airplane for take-off and landing. It is located south of the hangar parallel to the river on a grassy field. It is no longer visible and has been allowed to revert to native grass covering, although the hard-pack strip is apparently intact beneath the grasses.

8. Statement of Significance

Applicable National Register Criteria
(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

- [x] A Property is associated with events that have made a significant contribution to the broad patterns of our history.
- [ ] B Property is associated with the lives of persons significant in our past.
- [x] C Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- [ ] D Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations
(Mark "x" in all the boxes that apply.)

Property is:

- [ ] A Owned by a religious institution or used for religious purposes.
- [ ] B removed from its original location.
- [ ] C a birthplace or grave.
- [ ] D a cemetery.
- [ ] E a reconstructed building, object, or structure.
- [ ] F a commemorative property.
- [ ] G less than 50 years old or achieving significance within the past 50 years.

Areas of Significance
(Enter categories from instructions.)

Conservation
Engineering

Period of Significance

1947 - 1952

Significant Dates

1947

Significant Person
(Complete only if Criterion B is marked above.)

Cultural Affiliation

Architect/Builder

Butler Metal Manufacturing Company

Period of Significance (justification)

The period of significance begins in April 1947, the year the hangar was erected, and ends in December 1952, the year the plane was relocated to Minneapolis, the site from which further air-related work was conducted at this wildlife refuge.

Criteria Considerations (explanation, if necessary)

Not applicable

Statement of Significance Summary Paragraph (Provide a summary paragraph that includes level of significance and applicable criteria.)

The Lower Souris National Wildlife Refuge Airplane Hangar is being nominated to the National Register of Historic Places under Criterion A for its significance in the area of Conservation as the only airplane hangar erected in a wildlife refuge in North Dakota historically. The plane located at the Lower Souris NWR was used for a variety of conservation management activities throughout the state, as well as areas in neighboring states.

The hangar is also being nominated under Criterion C for its significance with Engineering as an intact example of a pre-fabricated metal airplane hangar designed by the Butler Manufacturing Company. It is an early example of a Butler T-shaped, single plane, rounded-arch hangar in North Dakota.

The period of significance is from 1947 to 1952. It should be considered significant on a state-wide level.

Narrative Statement of Significance (Provide at least **one** paragraph for each area of significance.)

Criterion A

Rachel Carson was a champion of conservation. From 1939 to 1952 she served as a scientist and chief editor for the U.S. Fish & Wildlife Service during which time she wrote several essays on the importance of preserving native wildlife and their habitat. In her introductory essay to a series entitled "Conservation in Action," she wrote:

> "Wherever you meet this sign [the flying goose emblem of the National Wildlife Refuges], respect it. It means that the land behind the sign has been dedicated by the American people to preserving, for themselves and their children, as much of our native wildlife as can be retained along with our modern civilization. Wild creatures, like men, must have a place to live. As civilization creates cities, builds highways, and drains marshes, it takes away, little by little, the land that is suitable for wildlife. And as their space for living dwindles, the wildlife populations themselves decline. Refuges resist this trend by saving some areas from encroachment, and by preserving in them, or restoring where necessary, the conditions that wild things need in order to live" (U.S. Fish & Wildlife Service website, History of the National Wildife Refuge System, http://www.fws.gov/refuges/history , accessed 7.02.2010).

These words summarize the strong conservation ethic and efforts of the U.S. Fish & Wildlife Service in managing the refuges. They echo earlier sentiment that resulted in Presidential Executive Orders and Congressional acts that provided for the acquisition, designation, and management of wildlife refuges (a brief history is included in the following section of this nomination), as well as the continued support and efforts through the decades. As a result of the people's concern for the protection and management of wildlife and natural resources, the U.S. now has 540 federal refuges, 62 of which are located in North Dakota (more than any other state).

The Lower Souris (J. Clark Salyer) NWR is the largest and most diverse refuge in North Dakota. Its 58,700 acres stretch approximately 45 miles along the Souris River in Bottineau and McHenry counties and includes freshwater marshes, open grasslands, riparian corridors, flood plains, wet meadows, and sandhill formations with oak and aspen forests and sand

prairie. It is one of the most important regions to migratory birds in the country and in 2001 was designated as a regional site in the Western Hemisphere Shorebird Reserve Network and was one of the first 100 "Globally Important Bird Areas" named by the American Bird Conservancy.

The Lower Souris River Migratory Bird and Waterfowl Refuge was established on September 4, 1935. On April 24, 1946, the first airplane assigned to the refuge arrived. It was initially used for census counts of the waterfowl population and the advantages to having a plane were immediately evident. In the quarterly report for January-April of that year, refuge manager Cordia J. Henry noted that the use of the plane for census counts was "much better than old methods... it is far more accurate and many times quicker." He also noted that the plane was used to investigate evidence of botulism and that "we made a more thorough search in two hours by plane than we could have made in several days on foot and by boat. The uses of an airplane on a large refuge are almost unlimited" (C.J. Henry, Lower Souris National Wildlife Refuge Narrative Report for January/February/March/April 1946; 10-11).

The use of the airplane fell into two categories: observation and control. Observation included game inventories, brood counts, botulism surveys, mapping and photography. Control included such activities as hunting, dusting, law enforcement, and duck depredations. Each of these tasks was accomplished in less time and with greater accuracy than previously employed ground methods. It was only a matter of months before it was clear that the "usefulness of the airplane in wildlife management is no longer a matter of conjecture. Its use will continue to increase in spite of some prejudice and in due time will be considered one of the most useful tools in wildlife management. It is indeed fortunate and undoubtedly appropriate that the Service should choose to be a leader in the development of the use of the airplane in wildlife work" (C.J. Henry, Lower Souris National Wildlife Refuge Narrative Report for May/June/July/August 1946; 18).

A permanent hangar - a rounded-arch metal structure fabricated by the Butler Manufacturing Company - was installed in the spring of 1947 (see additional information in the following section of this nomination). Its installation signaled the importance of the airplane and acknowledged that the plane was to be a permanent fixture.

The airplane's success at Lower Souris NWR paved the way for its use with similar work at nearby refuges. Initially used to conduct waterfowl counts in central North Dakota, the airplane stationed at Lower Souris eventually assisted with other observation and control activities throughout North Dakota and at sites in South Dakota, Nebraska, Minnesota, and Wisconsin.

The airplane changed the nature of the conservation by the U.S. Fish & Wildlife Service in significant and permanent ways. The installation of an airplane at the Lower Souris NWR is significant in that it was one of the first to be used by the Service following World War II when the Service moved toward the use of airplanes in their conservation work. It is also significant in having been the first and only airplane installed at a wildlife refuge in North Dakota. Although the airplane itself was relocated to Minneapolis in December 1952, the hangar continues to occupy its original site and signifies the importance that the airplane stationed at Lower Souris NWR had to the conservation practices through the wildlife refuges in the region.

Criterion C

The airplane hangar at the Lower Souris NWR is an intact example of a rigid-framed, rounded-arch, T-shape, metal hangar fabricated by the Butler Manufacturing Company for a single-plane. Although the Butler company began manufacturing airplane hangars as early as the late 1920s, it was not until 1939 when Butler's chief engineer, Wilbur Larkin, along with his brother Kenneth, developed a system to successfully apply rigid-frame designs to pre-engineered buildings. Their success was an industry first – one that marked a major breakthrough in the building business ("A Century of Excellence" in *Building Profit*, Spring 2001, 4, 6).

This rigid-frame design was immediately used for structures and buildings such as barracks, warehouses and airplane hangars in response to government contracts for large quantities of these buildings with the U.S. entry into World War II. Butler's airplane hangar designs ranged from small, single-plane structures to large hangars designed to shelter larger or multiple planes. The rounded-arch design worked well for in-field installation and was a design most commonly associated with the Quonset huts of World War II.

Following World War II, when the U.S. Fish & Wildlife Service began using airplanes for conservation work, they were able to obtain surplus airplanes from the war. It stands to reason that the Service would have looked to shelter those

planes in hangars designed for those planes during the war. A hangar fabricated by the Butler Manufacturing Company was the logical choice for an airplane stationed at a wildlife refuge.

The Lower Souris NWR Airplane Hangar is significant as one of few (perhaps the only?) intact examples of a 1940s Butler metal, rounded-arch, single-plane hangar in North Dakota. It is clearly the only Butler metal hangar located within the boundaries of a wildlife refuge in the state. It is possible that it is also one of the earliest installed by the U.S. Fish & Wildlife Service at a refuge. The hangar's historic integrity is very high and its condition is very good. The rigid-frame structure remains as it was designed and erected, as does the ribbed metal cladding. The doors and hardware are intact and operable. The associated landing strip (not included in this nomination) remains in its original location, although it has been allowed to revert to native grasses (in an effort to discourage use by private pilots). The hangar is currently used for storage, but appears much as it did between 1947 and 1952.

Developmental history/additional historic context information (if appropriate)

A Brief History of U.S. Fish & Wildlife and the National Wildlife Refuge System

President Grant's action in 1868 to protect the Pribilof Islands in Alaska as a reserve for the northern fur seal was the first effort to set aside Federally-owned land specifically for wildlife. Congress formally enacted legislation for this purpose in 1869. These efforts marked the recognition of "the need to protect and manage wildlife resources." Additional federal actions followed including the establishment of the Afognak Island Forest and Fish Culture Reserve in Alaska (the first reservation for fish) in 1881 and the creation of Pelican Island Federal Bird Reservation in 1903, which is considered the first bona fide "refuge" (History of the National Wildlife Refuge System, http://www.fws.gov/refuges/history, accessed 7.3.2010).

In 1905, in response to the need for sound management of these reservations and refuges, the Bureau of Biological Survey was established in the Department of Agriculture. President Theodore Roosevelt was conservation-minded and by the end of his administration in 1909, he had issued 51 Executive Orders that established wildlife reservations in 17 states and three territories. Continuing Roosevelt's efforts, Congress established the National Elk Refuge in 1912; this was the first unit of the present system to be referred to specifically as a "refuge" (History of the National Wildlife Refuge System, http://www.fws.gov/refuges/history, accessed 7.3.2010).

Attempts to authorize acquisition for lands for refuges began in Congress in 1921; the bill known as the Migratory Bird Conservation Act was not passed until 1929, but it established the National Wildlife Refuge System upon passage. In 1934, the Migratory Bird Hunting and Conservation Stamp Act (commonly known as the Duck Stamp Act) was passed and the revenue was earmarked for acquisition of migratory bird habitat. Also in 1934, President Franklin Roosevelt appointed a committee to study and advise him on waterfowl concerns. The committee was chaired by Jay Norwood ("Ding") Darling, who in 1935 was appointed head of the Bureau of Biological Survey. Darling appointed J. Clark Salyer II to manage the refuge program. Until his death in 1966, Salyer was the driving force behind the national wildlife refuge system where he was instrumental in efforts to identify and acquire new refuge land and to develop and implement sound management practices (History of the National Wildlife Refuge System, http://www.fws.gov/refuges/history, accessed 7.3.2010).

In 1939, the Bureau of Biological Survey (Department of Agriculture) and the Bureau of Fisheries (Department of Commerce) were transferred to the Department of the Interior through a branch reorganization. The following year, 1940, they were merged to officially form the U.S. Fish & Wildlife Service (History of the National Wildlife Refuge System, http://www.fws.gov/refuges/history, accessed 7.3.2010).

Today, there are 540 federal refuges in the United States. Eleven percent of those refuges are located within North Dakota.

The History of Conservation in North Dakota and the Lower Souris National Wildlife Refuge

Conservation efforts began early in North Dakota's history. On June 2, 1904, President Roosevelt established the Sullys Hills Game Preserve near Devils Lake. It was not officially classified as a "refuge" but had it been, it would have been the second in the country. The first official national wildlife refuge in North Dakota was established on March 4, 1905 when Roosevelt created the Stump Lake Reservation, a group of four islands set aside as a preserve and breeding ground for ducks and native birds. Chase Lake refuge became the twentieth bird refuge nationally in 1908 (*North Dakota Outdoors*, March 2003, 3-4).

North Dakota has an ideal combination of wetlands and grasslands and is a significant location for migratory birds. Over time, the state became the home of 62 refuges, more than any other state (California ranks number two with 38, followed by Florida with 29). The majority of refuges were created as part of the expansion following the 1934 Migratory Bird Hunting and Conservation Stamp Act. In 1935, the U.S. Biological Survey added six refuges in North Dakota and the state was identified as the most important state for waterfowl production (*North Dakota Outdoors*, March 2003, 6).

The Lower Souris River Migratory Bird and Waterfowl Refuge was established by Executive Order No. 7170 on September 4, 1935. The refuge included approximately 58,700 acres, the largest of North Dakota's refuges, along the Souris (Mouse) River in north central North Dakota in Bottineau and McHenry counties. Portions of the land were owned by settlers moving to the area in the late 1880s and early 1890s; among these were James and Sarah Acheson and Edmund H. Thursby. In 1912, the farmers in the area implemented a project to drain the marshes of the Souris River in order to expand the land on which they could grow crops. Although the marshes were successfully drained, it turned out the land did not make good farm land. Eventually the land along the river was identified as an important part of a significant migratory flyway and breeding area and the land was purchased with an eye toward conservation.

Prior to the area's designation as a wildlife refuge, however, efforts were made to re-establish the wetlands. In the summer of 1935, two Civilian Conservation Corps (CCC) camps (BF-1 and BF-5) were established in the area. They built dams to impound waters, dikes and jetties, and nesting islands; built buildings; graded roads; strung telephone lines; collected seeds and planted acres to food and wildlife cover. After its official designation, the Lower Souris refuge had additional improvements made by the men from another CCC camp (BF-4), which was responsible for much work through March 1937. The Works Progress Administration (WPA) also had a hand in the efforts at the refuge. They planted trees and shrubs to create windbreaks, and planted seed to provide food and shelter for the wildlife (R. Bethke and M. Giese, *Upham Diamond Jubilee, 1905-1980*, 106).

Cordia J. Henry was appointed as the first refuge manager, a position he held until 1949. The Lower Souris River Migratory Bird and Waterfowl Refuge became known as the Lower Souris National Wildlife Refuge after 1940. The refuge was renamed the J. Clark Salyer National Wildlife Refuge in 1967 in honor of Salyer and his work as the "Father of the Refuge System" (paper by Sharon Wallace, J. Clark Salyer NWR volunteer, September 2004).

The refuge is one of the most diverse in the country and includes mixed grass prairie, river valley, marshes, sandhills, and woodlands habitat. Over 250 species of bird are found at the refuge. Waterfowl, shore birds, raptors, and songbirds visit or live here, as well as several mammals, including deer, moose, coyotes, beavers, muskrats, and weasels.

The Use of Airplanes at National Wildlife Refuges and at the Lower Souris NWR

In 1931, Frederick C. Lincoln, a biologist with the U.S. Biological Survey got the U.S. Army to take him and a photographer on a test flight to survey waterfowl wintering on the Potomac River. He had envisioned the use of airplanes in waterfowl survey work and this test flight convinced him that aerial surveys would indeed be a valuable improvement. For the next several years, aerial surveys were conducted by biologists in cooperation with pilots from the military (USFWS, History of North American Waterfowl Surveys, http://library.fws.gov/Bird_Publications/waterfowlpop_surveys_history.pdf, December 2004).

After its official creation in 1940, the U.S. Fish & Wildlife Service obtained their first plane. It was a Monocoupe for use in Alaska. Following World War II, the service eventually acquired a fleet of planes, buying surplus military airplanes. To fly the planes, the service hired military-trained pilots who usually had prior wildlife or conservation experience; their titles were usually "Pilot-Biologist." The planes included single-engine planes mounted on wheels, floats or skis and twin-engine amphibians. The planes were used primarily for census counts and wildlife management (USFWS, History of

North American Waterfowl Surveys, http://library.fws.gov/Bird_Publications/ waterfowlpop_surveys_history.pdf, December 2004).

The first airplane to be stationed at the Lower Souris NWR arrived on April 24, 1946. It was a Stinson-Vultee L-5 airplane. A landing strip, temporary hangar and gasoline storage tank and pump had been installed that spring in anticipation of the plane's arrival. Edward G. Wellein, the biologist at the refuge, was listed in the quarterly reports as the pilot. The plane immediately proved itself useful in the time-savings related to covering large expanses within the refuge and in greater accuracy in obtaining information on game populations.

A quarterly report prepared by Cordia J. Henry, the Refuge Manager, in September 1946 notes that "The usefulness of the airplane in wildlife management is no longer a matter of conjecture. Its use will continue to increase in spite of some prejudice and in due time will be considered one of the most useful tools in wildlife management" (C.J. Henry, Lower Souris National Wildlife Refuge Narrative Report for May/June/July/August 1946; 16).

There was a sidenote in Henry's report questioning if Lower Souris NWR was the first refuge (in the continental US) to have an airplane. As of the writing of this nomination, no information has been found that decidedly confirms this possibility, but it is known that the refuge was among the earliest and possibly the first or second to have an airplane with which to conduct conservation observation and management (another early installation was at the Sacramento NWR complex).

By the following spring, four of the refuge staff were taking coursework toward obtaining their pilot licenses through the Minot Flying School, a program offered under the "G.I. Bill." That spring, the plane was used for census counts and botulism surveys at several wildlife management areas throughout the state (C.J. Henry, Lower Souris National Wildlife Refuge Narrative Report for January/February/March/April 1947; 12).

Sometime during the quarter from May through August 1947, the metal Butler Manufacturing Company hangar was erected. Reports indicated that staff at the refuge assisted with the construction. The installation included the concrete slab floor and ramp (C.J. Henry, Lower Souris National Wildlife Refuge Narrative Report for May/June/July/August 1947; 12).

Quarterly reports prepared by the refuge staff and manager continued to indicate that the plane was used extensively for aerial counts, as well as aerial photography. By 1948, the plane's use extended to refuges in nearby states, including excursions to Minnesota, Nebraska and South Dakota. The plane was used year-round and was equipped with skis during the winter. The first pilot, biologist Edward G. Wellein, resigned in October 1948 to go into private business. At that time, refuge manager Henry took over pilot responsibilities until biologist M.C. Hammond also received his pilot's license (C.J. Henry, Lower Souris National Wildlife Refuge Narrative Report for September/October/November/December 1948; 23).

In April 1949, the Lower Souris and Sacramento refuges traded airplanes. The L-5 went to Sacramento, while the L-4 was reassigned to Lower Souris. The L-4 airplane was a more economical plane. During the summer of 1949, Lower Souris experienced a change in staff. Clarence S. Johnson became the refuge manager and Raymond M. Glahn became a pilot-biologist at the refuge (C.S. Johnson, Lower Souris National Wildlife Refuge Narrative Report for January/ February/March/April 1949; 31).

On August 24, 1949, tragedy struck. During a duck depredation exercise the plane crashed near Westhope. Both Clarence Johnson, who had been the refuge manager for only two months, and Roy R. Ferguson, a pilot who assisted with duck depredation and game management problems, were killed in the crash (Lower Souris National Wildlife Refuge Narrative Report for May/June/July/August 1949; 13). Donald V. Gray became the Refuge Manager on November 21, 1949 (Lower Souris National Wildlife Refuge Narrative Report for September/October/ November/December 1949; 1).

The airplane was replaced with an L-4H and in early spring 1950, refuge personnel constructed a winch and harness to pull the airplane into the hangar. From 1950 through 1952, the airplane continued to be used for various refuge management activities including census counts, aerial photography, aerial seeding, depredations, law enforcement, and weed spraying. These activities occurred not only at the Lower Souris refuge, but at refuges throughout North Dakota and

in South Dakota, Nebraska, Minnesota, and Wisconsin (Lower Souris National Wildlife Refuge Narrative Reports for 1950 - 1952).

On December 1, 1952 pilot-biologist J. Donald Smith was hired and at that time, the airplane was relocated to a new berth in Minneapolis and all air-related refuge management activities in North Dakota were initiated from Minneapolis. The plane continued to be used for the same kinds of activities in the Lower Souris refuge, but it was housed at a hangar in Minneapolis (D.V. Gray, Lower Souris National Wildlife Refuge Narrative Report for September/October/November/ December 1952, 24). The landing strip continued to be used by the plane, as well as other small airplanes, for a number of years, but the hangar at Lower Souris never again sheltered a plane. The landing strip was eventually allowed to revert to native grasses to discourage the use of the strip by private pilots.

Today there are about twelve USFWS pilot-biologists and there are airplanes stationed within four waterfowl flyways in the continental U.S. There are an additional five pilot-biologists and four planes stationed in Alaska (USFWS, History of North American Waterfowl Surveys, http://library.fws.gov/Bird_Publications/ waterfowlpop_surveys_history.pdf, December 2004).

The Butler Manufacturing Company and Their Prefabricated Metal Airplane Hangars

The Butler Manufacturing Company was an early leader in the industry of prefabricated metal buildings and structures. The company got its start in 1901 when Charles Butler, an entrepreneur and salesman, formed a partnership with Emanuel Norquist, an inventor whose first efforts with metal structures was to improve steel watering tanks for livestock. The company was incorporated in 1902 and the first products were the improved metal tanks.

The first efforts to design and manufacture metal buildings happened in 1909 when Norquist developed a steel garage with a rounded arch roof for his new open-top Metz automobile. The company recognized the growing need for garages, adapted Norquist's design for mass production, and in 1910 began selling its single-car version of the metal garage. The company soon introduced a two-car garage (http://butlermfg.com/about/history.asp; accessed 7.03.2010).

In addition to watering tanks and garages, the Butler company manufactured galvanized portable grain bins. Its first was in 1907, and in 1908 the company successfully bid on the production of 30,666 bins for the U.S. Department of Agriculture. The success of this patented product secured Butler's place in the industry and by the early 1920s, the net worth of the company had surpassed one million dollars. In addition to the watering tanks and grain bins, the Butler building line had grown to include "everything from hamburger stands to airplane hangars" ("A Century of Excellence" in *Building Profit*, Spring 2001; 3).

In 1939, at the request of the U.S. Navy, Butler's chief engineer, Wilbur Larkin, along with his brother, Kenneth, a civil engineer from the Burns & McDonnell firm, successfully developed a rigid-frame design for buildings that could be pre-engineered. It was an industry first and it changed the future of the company and pre-fabricated metal buildings throughout the industry. By 1940, the Butler Manufacturing Company had a complete line of rigid-frame buildings ready for the market. With the U.S. entry into World War II, the government placed large contracts with Butler for buildings such as barracks, warehouses, and airplane hangars. By 1941, the company's building production had grown so substantially that the company established a separate Buildings Division. By the time the war ended, nearly 90 percent of the airplane hangars used by the U.S. armed forces had been produced by Butler Manufacturing Company (*Building Profit*, 4-5).

Following the war, the Butler company implemented a model for marketing and sales through selected contractors. This group of contractors became known as the Butler Builders, an organization that today includes approximately 1500 independent contractors. As the metal building industry continued to grow, the need for a trade association grew. In May 1955, Butler invited ten other metal building manufacturers to discuss this prospect and in December 1955, the Metal Building Manufacturer's Association (MBMA) was formed with thirteen charter members (*Building Profit*, 6).

Today, Butler continues to be a leader in the metal building industry. Many of Butler's early structures survive – one need only to travel through the heartland of America to see dozens of Butler grain bins. Although there were many hangars

produced for the war, several of which were surplused and used following the war, the development and usage of larger planes resulted in the demolition of many of the small, single-plane hangars.

9. Major Bibliographical References

Bibliography (Cite the books, articles, and other sources used in preparing this form.)

"A Century of Excellence" in Building Profit, Vol. 21, No. 1 (Spring 2001) [Special history edition].

Bethke, R. and M. Giese, *Upham Diamond Jubilee, 1905-1980.*

Butler Manufacturing Company website, http://butlermfg.com/about/history.asp; (accessed 7.03.2010).

Lower Souris National Wildlife Refuge Narrative Quarterly Reports (on file at the J.Clark Salyer NWR office).

North Dakota Outdoors, March 2003. [Special issue featuring North Dakota's role in the National Wildlife Refuge system centennial].

U.S. Fish & Wildlife Service website, History of North American Waterfowl Surveys, http://library.fws.gov/Bird_Publications/waterfowlpop_surveys_history.pdf, (December 2004) (accessed 7.03.2010).

U.S. Fish & Wildlife Service website, History of the National Wildife Refuge System, http://www.fws.gov/refuges/history (accessed 7.03.2010).

Wallace, Sharon. (J. Clark Salyer NWR volunteer) Paper prepared September 2004.

Previous documentation on file (NPS):

___ preliminary determination of individual listing (36 CFR 67 has been requested)
___ previously listed in the National Register
___ previously determined eligible by the National Register
___ designated a National Historic Landmark
___ recorded by Historic American Buildings Survey #_____
___ recorded by Historic American Engineering Record #_____
___ recorded by Historic American Landscape Survey #_____

Primary location of additional data:

___ State Historic Preservation Office
___ Other State agency
_x_ Federal agency
___ Local government
___ University
___ Other
Name of repository: _____

Historic Resources Survey Number (if assigned): _____

10. Geographical Data

Acreage of Property Less than one acre
(Do not include previously listed resource acreage.)

UTM References
(Place additional UTM references on a continuation sheet.)

	Zone	Easting	Northing		Zone	Easting	Northing
1	14	373264	5385620	3			
2				4			

Verbal Boundary Description (Describe the boundaries of the property.)

The nominated property includes the airplane hangar and the footprint on which it sits. The boundary includes the rails and concrete pads for the doors when extended open, as well as the concrete ramp that sits in front of the structure on the south façade. The shape of the boundary is irregular to include the features mentioned here.

Boundary Justification (Explain why the boundaries were selected.)

The boundary includes the property historically associated with the airplane hangar.

11. Form Prepared By

name/title Michelle L. Dennis
organization M.L. Dennis Consulting date August 2010
street & number 513 Meade St. telephone 605.342.8286
city or town Rapid City state SD zip code 57701
e-mail michdenn@msn.com

Additional Documentation

Submit the following items with the completed form:

- **Maps:** A **USGS map** (7.5 or 15 minute series) indicating the property's location.

  A **Sketch map** for historic districts and properties having large acreage or numerous resources. Key all photographs to this map.
- **Continuation Sheets**
- **Additional items:** (Check with the SHPO or FPO for any additional items.)

Photographs:

Submit clear and descriptive photographs. The size of each image must be 1600x1200 pixels at 300 ppi (pixels per inch) or larger. Key all photographs to the sketch map.

Name of Property: Lower Souris National Wildlife Refuge Airplane Hangar
City or Vicinity: Upham vicinity
County: McHenry **State:** North Dakota
Photographer: Michelle L. Dennis
Date Photographed: July 2010

Description of Photograph(s) and number:

1 of 10. View from southeast looking northwest. South (front) elevation with doors partially open; door rails extending from front; concrete ramp in front of door; east end of hangar.

2 of 10. View from northeast looking southwest. Rear (north) volume attached to north wall of larger, main volume; east wall.

3 of 10. View from northwest looking southeast. Rear (north) volume attached to north wall of larger, main volume; west wall.

4 of 10. Close-up of east end showing the extended rail for the sliding door.

5 of 10. View of hangar from gravel road. Shows north and west elevations.

6 of 10. Interior of main volume, looking toward west end of structure.

7 of 10. Interior looking into the rear (north) volume of the structure.

8 of 10. One of the "Butler Built" tags on the sliding doors.

9 of 10. Historic photo of the construction of the hangar 1947; view looking northeast from southwest.

10 of 10. Historic photo of the construction of the hangar 1947; view southeast from northwest.

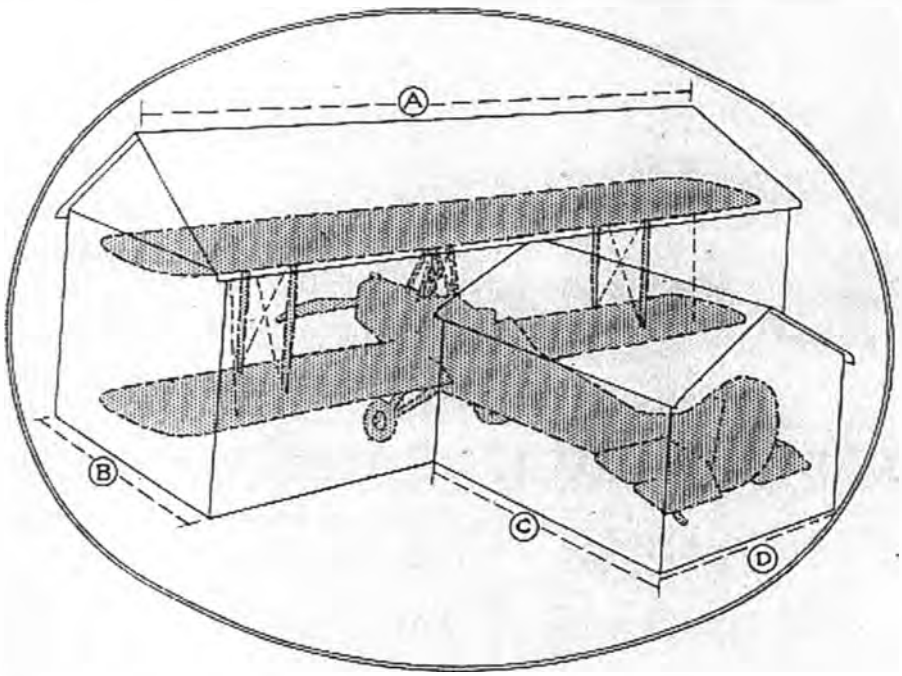
Property Owner:

(Complete this item at the request of the SHPO or FPO.)

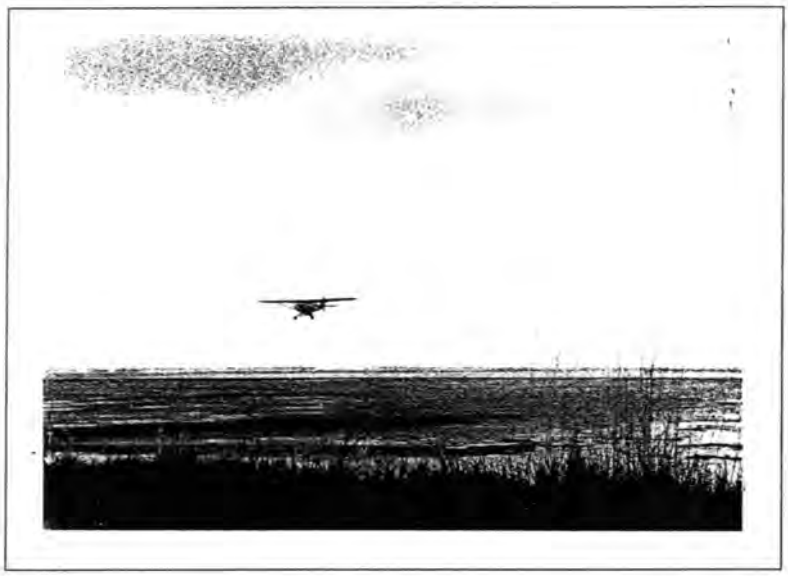
name J. Clark Salyer NWR, US Fish & Wildlife Service

street & number 681 Salyer Road telephone 701.768.2548

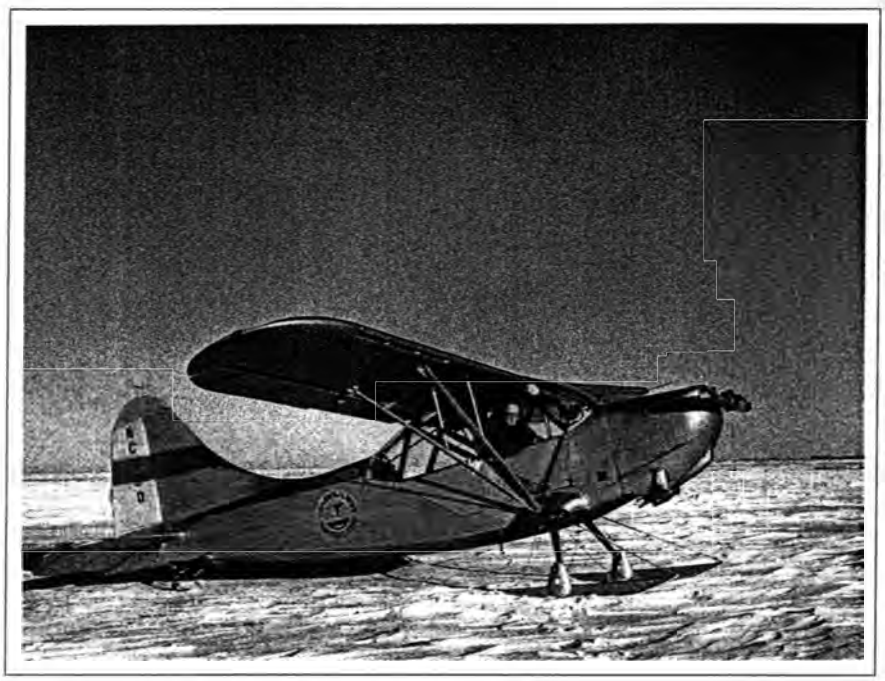
city or town Upham state ND zip code 58789-0066



This drawing from a Butler Manufacturing Company catalog illustrates how a small plane would fit into their single-plane hangar (note: this drawing shows a structure with a gabled roof rather than the rounded-arch form as found at the Salyer NWR).



The Stinson-Vultee L-5 flying over the river at Lower Souris NWR, c. 1946



The airplane equipped with skis for use in the winter.

Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C.460 et seq.).
Estimated Burden Statement: Public reporting burden for this form is estimated to average 18 hours per response including time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to the Office of Planning and Performance Management. U.S. Dept. of the Interior, 1849 C. Street, NW, Washington, DC.

Recommendation: / **SLR** **Return** **Action:** **SLR** **Return** **None**

Documentation Issues-Discussion Sheet

State Name: ND **County Name** McHenry **Resource Name** Lower Souris NWR Airplane Hangar

Reference No. 11-140 **Multiple Name**

Solution:

Problem: Fed property (FWS) No FPO signature.
Functions incorrect coded "Transportation/Air Related" and "Agriculture/Storage" based on nomination

Resolution:

SLR: **Yes** **No**

Database Change:

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES
EVALUATION/RETURN SHEET

REQUESTED ACTION: NOMINATION

PROPERTY NAME: Lower Souris National Wildlife Refuge Airplane Hangar

MULTIPLE NAME:

STATE & COUNTY: NORTH DAKOTA, McHenry

DATE RECEIVED: 2/07/11 DATE OF PENDING LIST: 3/16/11
DATE OF 16TH DAY: 3/31/11 DATE OF 45TH DAY: 3/25/11
DATE OF WEEKLY LIST:

REFERENCE NUMBER: 11000140

REASONS FOR REVIEW:

APPEAL:	N	DATA PROBLEM:	N	LANDSCAPE:	N	LESS THAN 50 YEARS:	N
OTHER:	N	PDIL:	N	PERIOD:	N	PROGRAM UNAPPROVED:	N
REQUEST:	Y	SAMPLE:	N	SLR DRAFT:	Y	NATIONAL:	N

COMMENT WAIVER: N

___ACCEPT ___RETURN ___REJECT _____DATE

ABSTRACT/SUMMARY COMMENTS:

• Return for PPO sign

• Also – enter "Transportation & air-related" for historic function and "Other with storage" for current function

RECOM./CRITERIA Return

REVIEWER Lyccellard DISCIPLINE _____

TELEPHONE 202-354-2255 DATE 3/24/11

DOCUMENTATION see attached comments (Y)/N see attached SLR Y/(N)

If a nomination is returned to the nominating authority, the nomination is no longer under consideration by the NPS.

Lower Souris National Wildlife Refuge Airplane Hangar
McHenry County, North Dakota

Recommendation: Return

This nomination is being returned for the FPO Signature and the revision of the data entries for Section 6: Function and Use.

Section 6: Please use the category "Transportation" and subcategory "air-related" for the historic function and enter "Other" as the category with "storage" as the subcategory for the current function.

Section 3: Nominations of Federal property that are initiated by the SHPO must include the signature of the FPO for the agency as a commenting official. Please note that the FPO may sign 1) the second signature block under Section 3 indicating that he or she concurs that the property meets the NR criteria or listing, or 2) a letter indicating the same. For further information please consult Appendix VII of *How to Complete the NR Registration Form* and the National Register regs. 36 CFR Part 60.

The FPO for the U.S. Fish and Wildlife Service is --

Mr. Kevin Kilcullen
Federal Historic Preservation Officer
Chief
Branch of Visitor Services
National Wildlife Refuge System
United States Fish and Wildlife Service
4401 N. Fairfax Drive
Mail Stop 634
Arlington, VA 22203
Phone: 703.358.2382
Fax: 703.358.2517
Email: kevin_kilcullen@fws.gov

If you have any questions, please contact:

Linda McClelland
Historian
National Register of Historic Places
202-354-2258
202-371-6447 (FAX)
linda_mcclelland@nps.gov

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES
EVALUATION/RETURN SHEET

REQUESTED ACTION: RESUBMISSION

PROPERTY NAME: Lower Souris National Wildlife Refuge Airplane Hangar

MULTIPLE NAME:

STATE & COUNTY: NORTH DAKOTA, McHenry

DATE RECEIVED: 8/05/11 DATE OF PENDING LIST:
DATE OF 16TH DAY: DATE OF 45TH DAY: 9/20/11
DATE OF WEEKLY LIST:

REFERENCE NUMBER: 11000140

DETAILED EVALUATION:

___ACCEPT ___RETURN ___REJECT _____DATE

ABSTRACT/SUMMARY COMMENTS:

Airplane hangar manufactured by Butler Metal Manufacturing Company served the air operations on the Lower Souris National Wildlife Refuge from 1947 to 1952. It represents a rare resource in North Dakota and the USF&WS Service's earliest use of airplanes to assist in activities ~~such as~~ including census counts and wildlife management (aerial photography, predatory animal control, weed spraying and law enforcement)

RECOM./CRITERIA Accept A&C

REVIEWER SMcClellard DISCIPLINE _____

TELEPHONE _____ DATE 9-20-11

DOCUMENTATION see attached comments Y/N see attached SLR Y/N

Lower Souris NWR Airplane Hangar
McHenry County, ND
Photo #1

Lower Souris NWR Airplane Hangar
McHenry County, ND
Photo #2

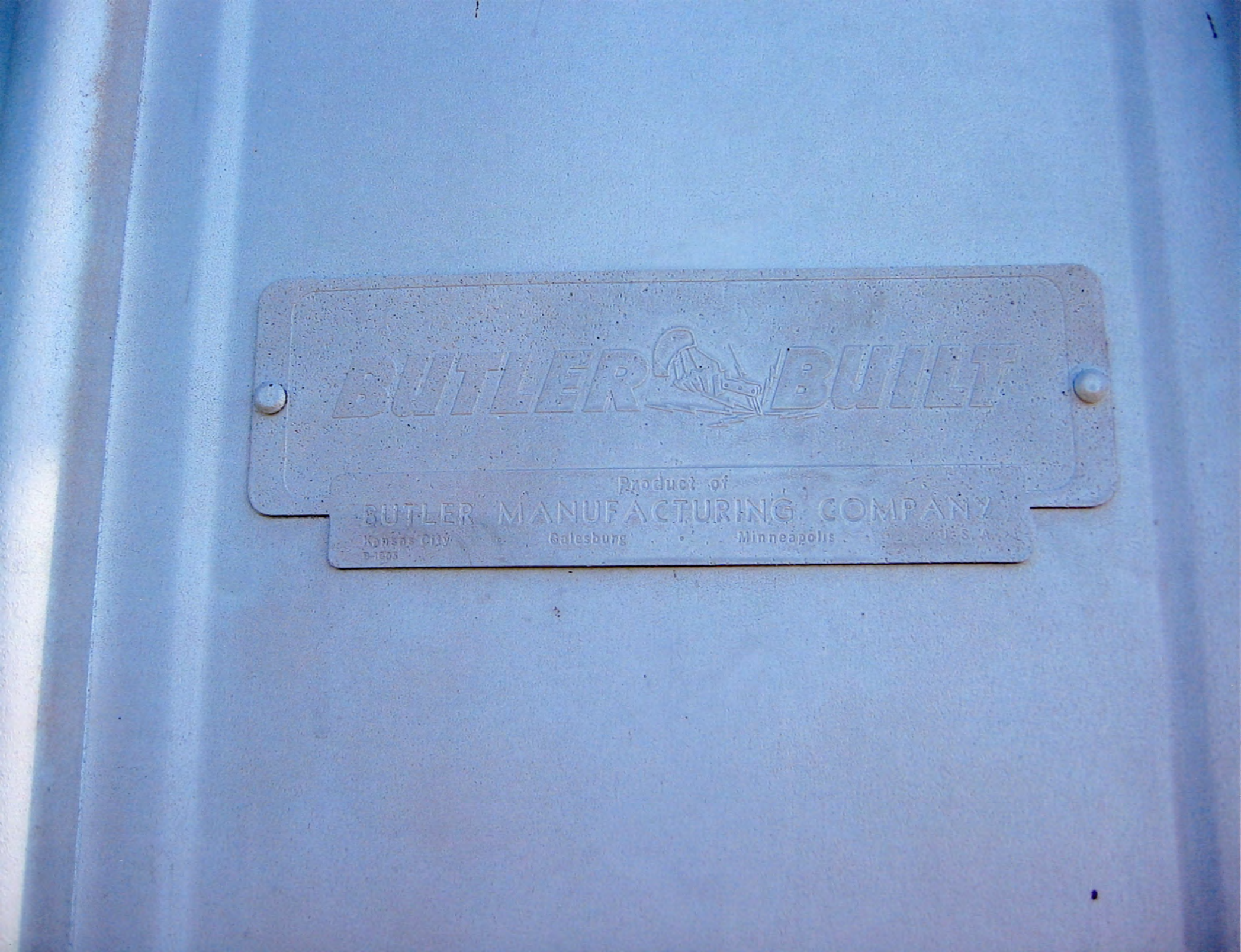
Lower Souris NWR Airplane Hangar
McHenry County, ND
Photo #3

Lower Souris NWR Airplane Hangar
McHenry County, ND
Photo #4

Lower Souris NWR Airplane Hangar
McHenry County, ND
Photo #5

Lower Souris NWR Airplane Hanga
McHenry County, ND
Photo #6

Lower Souris NWR Airplane Hangar
McHenry County, ND
Photo #7


BUTLER BUILT
Product of
BUTLER MANUFACTURING COMPANY
Kansas City
Galesburg
Minneapolis
U.S.A.

Lower Souris NWR Airplane Hangar
McHenry County, ND
Photo #8

Lower Souris NWR Airplane Hangar
McHenry County, ND
Photo #9


JAEGER

Lower Souris NWR Airplane Hangar
McHenry County, ND
Photo #10

Lower Souris NWR Airplane Hangar
14 373264 5385620

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UPHAM QUADRANGLE
NORTH DAKOTA-MC HENRY CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

100°45′ 48°37′30″ 42′30″ (KRAMER) R. 78 W. 40′ 1960000 FEET R. 77 W. 100°37′30″ 48°37′30″

590000 FEET

35′

32′30″

560000 FEET

T. 159 N.
T. 158 N.

48°30′ 100°45′ 1940000 FEET 42′30″ (BANTRY NW) R. 78 W. 40′ R. 77 W. 48°30′ 100°37′30″

(DEEP) (GRANVILLE NE) (NEWBURG SE) (UPHAM SE) (BANTRY)

14 MI. TO NORTH DAKOTA 5
KRAMER 5.2 MI.

WILLOW CITY 15 MI.

25 MI. TO U.S. 83
GLENBURN 22 MI.

BANTRY 1.8 MI.
TOWNER 16 MI.

BANTRY 6.9 MI.

Lookout Tower
Refuge Headquarters
Freeman Bridge
Melankton Cem.
Gaging Station
Bloomfield Cem
Upham
School No 1

LOWER SOURIS NATIONAL WILDLIFE REFUGE
SOURIS RIVER
MOUSE RIVER
MEADOW
LAYTON
BANTRY
Bank Cut Creek
Bank Cut Creek
Creek

REFUGE BOUNDARY
REF BDY
DAM NO 326 SPILLWAY
DAM NO 320 SPILLWAY W25
GREAT NORTHERN

Mapped, edited, and published by the Geological Survey
as part of the Department of the Interior program
for the development of the Missouri River Basin

Control by USGS and USC&GS

Culture and drainage in part compiled from
aerial photographs taken 1948
Topography by plane-table methods 1949

Polyconic projection. 1927 North American datum
10,000-foot grid based on North Dakota coordinate system,
north zone

13°
TRUE NORTH
MAGNETIC NORTH
APPROXIMATE MEAN
DECLINATION, 1949

SCALE 1:24000

1 0 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 .5 0 1 KILOMETER

CONTOUR INTERVAL 5 FEET
DATUM IS MEAN SEA LEVEL

ROAD CLASSIFICATION

HARD-SURFACE ALL WEATHER ROADS		DRY WEATHER ROADS
Heavy-duty	4 LANE 2 LANE	Improved dirt
Medium-duty	4 LANE 2 LANE	Unimproved dirt
Loose-surface, graded, or narrow hard-surface		

U. S. Route State Route

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS

FOR SALE BY U. S. GEOLOGICAL SURVEY, FEDERAL CENTER, DENVER, COLORADO OR WASHINGTON 25, D. C.
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.

UPHAM, N. DAK.
N4830—W10037.5/7.5

EDITION OF 1950

RECE 2280
FEB 07 2011
NAT REGISTER OF HISTORIC PLACES

To: Keeper, National Register of Historic Places
From: Merlan E. Paaverud, Jr./ Amy Bellefeuille
Date: 3 February 2011
Subject: National Register Nomination

The following materials are submitted on this 3rd day of February 2011, for the nomination of the Lower Souris National Wildlife Refuge (NWR) Airplane Hangar to the National Register of Historic Places.

1 National Register of Historic Places nomination form on archival paper

_____ Multiple Property Nomination form on archival paper

10 Photographs

1 Original USGS map(s)

_____ Sketch map(s)/figure(s)/exhibit(s)

_____ Pieces of correspondence

1 Other: Photo CD

COMMENTS:

_____ Please insure that this nomination is reviewed

_____ This property has been certified under 36 CFR 67

_____ The enclosed owner objections ____ do ____ do not constitute a majority of property owners.

_____ Other:

Linda McClelland/WASO/NPS

03/24/2011 04:50 PM

To lbmeidinger@nd.gov

cc

bcc

Subject Lower Souris NWR Airplane Hangar

Lorna--

I just wanted to let you know that this nomination is being returned to you. Nominations of Federal property that are initiated by the SHPO must include the signature of the FPO for the agency as a commenting official. Please note that the FPO may sign 1) the second signature block under Section 3 indicating that they concur that the property meets the NR criteria or listing, or 2) a letter indicating the same. For further information please consult Appendix VII of *How to Complete the NR Registration Form* and the National Register regs. 36 CFR Part 60. Let me know if you have any questions.

Linda McClelland
Historian
National Register of Historic Places
202-354-2258
202-371-6447 (FAX)
linda_mcclelland@nps.gov

The FWS FPO is --

Mr. Kevin Kilcullen
Federal Historic Preservation Officer
Chief
Branch of Visitor Services
National Wildlife Refuge System
United States Fish and Wildlife Service
4401 N. Fairfax Drive
Mail Stop 634
Arlington, VA 22203
Phone: 703.358.2382
Fax: 703.358.2517
Email: kevin_kilcullen@fws.gov

RECEIVED 2280
AUG 05 2011
NATIONAL REGISTER OF HISTORIC PLACES
NATIONAL PARK SERVICE

To: Keeper, National Register of Historic Places
From: Merlan E. Paaverud, Jr./ Lorna Meidinger
Date: 3 August 2011
Subject: National Register Nomination

The following materials are submitted on this 3rd day of August 2011, for the nomination of the Lower Souris National Wildlife Refuge Airplane Hangar to the National Register of Historic Places.

1 National Register of Historic Places nomination form on archival paper

_____ Multiple Property Nomination form on archival paper

10 Photographs

1 Original USGS map(s)

_____ Sketch map(s)/figure(s)/exhibit(s)

_____ Pieces of correspondence

1 Other: Photo cd

COMMENTS:

_____ Please insure that this nomination is reviewed

_____ This property has been certified under 36 CFR 67

_____ The enclosed owner objections ____ do ____ do not constitute a majority of property owners.

_____ Other: