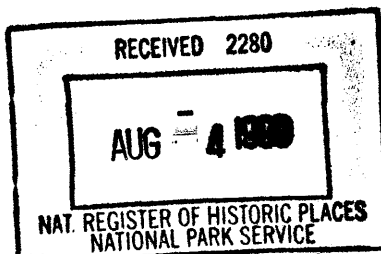


United States Department of the Interior
National Park Service



Resub
98000311

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 *How to Complete the National Register of Historic Places Registration Form* (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If an 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 entries and narrative items on continuation sheets (NPS Form 10-900a). Use a typewriter, word processor, or computer, to complete all items.

1. Name of Property

historic name Dairy Building, Granary/Root Cellar and auxiliary buildings, North Oaks Farm

other names/site number N/A

2. Location

street & number Red Barn Road at Hill Farm Circle not for publication N/A

city or town North Oaks vicinity

state Minnesota code MN county Ramsey code 123 zip code 55127

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended, I hereby certify that this 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 meets does not meet the National Register criteria. I recommend that this property be considered significant nationally statewide locally. (See continuation sheet for additional comments.)

[Signature] Date 7/30/99
Signature of certifying official/Title Ian R. Stewart
Deputy State Historic Preservation Officer
State of Federal agency and bureau Minnesota Historical Society

In my opinion, the property meets does not meet the National Register criteria. (See continuation sheet for additional comments.)

Signature of certifying official/Title Date

State or Federal agency and bureau

4. National Park Service Certification

I hereby certify that the property is:

- entered in the National Register.
 See continuation sheet.
- determined eligible for the National Register
 See continuation sheet.
- determined not eligible for the National Register.
- removed from the National Register.
- other, (explain:)

Signature of the Keeper

Date of Action

Beth Boland

9/10/99

Dairy Building, Granary/Root Cellar and auxiliary
Name of Property buildings, North Oaks Farm

Ramsey County, MN
County and State

5. Classification

Ownership of Property
(Check as many boxes as apply)

- private
- public-local
- public-State
- public-Federal

Category of Property
(Check only one box)

- building(s)
- district
- site
- structure
- object

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

| | | |
|--------------|-----------------|------------|
| Contributing | Noncontributing | |
| _____ | _____ | buildings |
| _____ | _____ | sites |
| _____ | _____ | structures |
| _____ | _____ | objects |
| 5 | 0 | 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

1 (Dairy Building, 5/16/97)

6. Function or Use

Historic Functions
(Enter categories from instructions)

Dairy Building: AGRICULTURE: processing

Granary/Root Cellar: AGRICULTURE: storage

auxiliary buildings: AGRICULTURE: outbuilding

Current Functions
(Enter categories from instructions)

Work in progress

7. Description

Architectural Classification
(Enter categories from instructions)

No style

Materials
(Enter categories from instructions) See continuation sheet

foundation all buildings: STONE

walls _____

roof _____

other _____

Narrative Description

(Describe the historic and current condition of the property on one or more continuation sheets.)

Dairy Building, Granary/Root Cellar and auxiliary
Name of Property buildings, North Oaks Farm

Ramsey County, MN
County and State

10. Geographical Data

Acreage of Property 5.6 acres

White Bear Lake West, Minn.
1967, Revised 1993

UTM References

(Place additional UTM references on a continuation sheet.)

1

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Zone Easting Northing

3

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Zone Easting Northing

2

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4

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| 4 | 9 | 1 | 3 | 2 | 0 |
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|---|---|---|---|---|---|---|
| 4 | 9 | 9 | 4 | 1 | 6 | 0 |
|---|---|---|---|---|---|---|

See continuation sheet

Verbal Boundary Description

(Describe the boundaries of the property on a continuation sheet.)

Boundary Justification

(Explain why the boundaries were selected on a continuation sheet.)

11. Form Prepared By

name/title Mary A. West, President

organization Hill Farm Historical Society

date July 21, 1999

street & number 3 Hill Farm Court

telephone 651/484-9088

city or town North Oaks

state MN

zip code 55127

Additional Documentation

Submit the following items with the completed form:

Continuation Sheets

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.

Photographs

Representative **black and white photographs** of the property.

Additional items

(Check with the SHPO or FPO for any additional items)

Property Owner

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

name _____

street & number _____ telephone _____

city or town _____ state _____ zip code _____

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. 470 *et seq.*).

Estimated Burden Statement: Public reporting burden for this form is estimated to average 18.1 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 Chief, Administrative Services Division, National Park Service, P.O. Box 37127, Washington, DC 20013-7127; and the Office of Management and Budget, Paperwork Reductions Projects (1024-0018), Washington, DC 20503.

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.)

- 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.
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 of age or achieved significance within the past 50 years.

Areas of Significance

(Enter categories from instructions)

AGRICULTURE

Period of Significance

1884-1916

Significant Dates

1884

Significant Person

(Complete if Criterion B is marked above)

N/A

Cultural Affiliation

N/A

Architect/Builder

N/A

Narrative Statement of Significance

(Explain the significance of the property on one or more continuation sheets.)

9. Major Bibliographical References

Bibliography

(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

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 #

Primary location of additional data:

- State Historic Preservation Office
Other State agency
Federal agency
Local government
University
Other

Name of repository:

Hill Farm Historical Society

**United States Department of the Interior
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**National Register of Historic Places
Continuation Sheet**

Dairy Building, Granary/Root Cellar
and auxiliary buildings
North Oaks Farm
Ramsey County, MN

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MATERIALS

Granary/Root Cellar

foundation: STONE (Limestone)
walls: WOOD (Weatherboard)
roof: WOOD (Wood Shingle)

Blacksmith/Machine Shop

foundation: STONE (Limestone)
walls: BRICK
roof: WOOD (Wood Shingle)

Gas House

foundation: STONE (Field Stone)
walls: BRICK
roof: WOOD (Cedar Shingle)

Smoke House

foundation: STONE (Cobblestone)
walls: TILE BLOCK
roof: CONCRETE

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Dairy Building, Granary/Root Cellar
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North Oaks Farm
Ramsey County, MN

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THE GRANARY/ROOT CELLAR**Building Description****Type of building**

This is a description of a Granary/Root Cellar completed in 1884. It was used to store grain on the main level and root vegetables and legumes in an elaborate Root Cellar. It also contains a large pigeon roost.

Setting

This Granary/Root Cellar is located at the north end of the main north/south central axis of the original farm complex. The Granary is a rectangular wood frame building found within the boundaries of the remaining 5.6-acre North Oaks Farm site. It is located between the Dairy building and the Blacksmith/Machine Shop. The main entrance of the Granary faces south directly toward Red Barn Road. (See Site Plan, Attachment A)

General Characteristics

Measuring 40 feet wide and 60 feet long the building is a red, wooden, rectangular two story Granary built on top of a Root Cellar. The two stories of the Granary are above ground. The Root Cellar is also above ground, but covered by a sloped, grass covered berm that measures 9 feet above the surrounding land. Because it is raised up in this fashion, visually the Granary/Root Cellar appears "in the air." (See Granary Photos, Attachment B and C) The south and north walls have outward opening double doors. The roof is a simple gabled design with cedar shingles. At each end of the roof ridge is a louvered, four-sided cupola with a gabled roof. The roof ridge is 35 feet above the main floor. (See North/South Granary Walls, Attachment D and E) The exterior walls of the Root Cellar are made of fieldstones that were stacked and mortared tight; then earth was pushed up around the sides to create the berm around the four sides of the building. There is an access into the Root Cellar through a doorway placed in the east side of the berm that is made of quarried limestone. (See East Wall Root Cellar Entrance, Entrance Detail and Elevations, Attachment F, G and H)

The interior spaces are arranged differently on each level of the building. The Root Cellar has a center loading room with doors into interior bays that are arranged five across the length and three across the width. (See Floor Plans, Attachment I) The main floor of the Granary has a

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Dairy Building, Granary/Root Cellar
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25-foot wide drive through center alley that runs between the south and north outward opening doors with grain storage bins to the sides. (See Center Alley Photo, Attachment J) The west side of the center alley has a small office at the southwest corner which has a storage loft in it accessed by a built-in wall ladder. Adjacent to the office is a stairway leading to the upper loft with a tiny storeroom under the stairwell. Two large grain storage bins without a dividing wall complete the west side. The east side of the center alley is divided into three grain storage areas. The upper level loft of the Granary is completely open except along the south wall where there is a walled off room that was a pigeon roosting facility. There is a large opening to the center alley below for loading and unloading between levels.

The Granary/Root Cellars' structural system consists of timber support beams and wall girts, heavy timber columns and structural bents, assembled with mortise and tenon joints with dowel pins. The exterior siding of the Granary is vertical board and batten with horizontal skirt boards around the base of the four walls. The exterior stud walls are 2" by 8" and the interior stud walls are 2" by 4" and 6". The interior of the grain storage bins found on the main level had horizontal tongue and groove boards over the stud walls from the floor almost up to the loft floor. The Granary floor and roof structure used stock dimensional lumber sizes, appropriate to standard frame construction. The roof is 8.25 in 12 pitch. Timber purlins run the north/south direction from the end walls to the two center bents and carry the roof rafters. Granary floors are constructed of wood joist with plank flooring. The Root Cellar has an earth floor. The interior partitions of the Root Cellar are constructed of solid brick masonry that fills the area between structural posts.

Specific Features

Windows - There is one six-pane window on the west wall of the small office located in the southwest corner. Above each of the north and south double doors are transom units with ten lights in a row. Also above the north and south double doors, but at the loft level, are two six-pane windows. (See West/South Wall Photo, Attachment K)

Doors - The outward opening double doors found at each end of the center alley are hinged rather than sliding doors. They are made up of tongue and groove boards with large decorative strap hinges. The south door has an inset smaller man-door for easy access. They hook onto the exterior Granary walls to stay open. Set into the south door is a horizontal board above each double door entrance that serves as a "drip" to deflect water outward over the doors. The drip extends beyond the doors to cover the doors when in the open position. The Root Cellar

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Dairy Building, Granary/Root Cellar
and auxiliary buildings
North Oaks Farm
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door is currently a door made of plywood panels. (See Door Detail Photo, Attachment L and M)

Ventilation Ducts/Cupolas - The Root Cellar was vented vertically by the chimney effect of four wooden ducts which extend upward from the Root Cellar to the two ridge cupolas, one at each gable end of the Granary roof.

Plank Hatches - Along the floor of the main level are plank hatches with metal handles. These open into chutes that lead down into the Root Cellar below.

Pigeon Roost - The entire south end of the loft is enclosed and contains numerous nesting niches and food storage bins for pigeons. There is an interior door with windows leading into the pigeon roost. Six pigeon ports for flying into and out of the roost are a specific feature of the south wall above the center doors. Roosting ledges line the room, including the sloped roof.

Alterations or changes to the property

Circa 1975 the Granary/Root Cellar ceased to be used for grain and root storage and became a maintenance/storage building. Despite the change in use, there have been no major alterations to the original floor plan, design, general or significant features. The Granary/Root Cellar is intact today with original materials throughout. Physical alterations and repairs to the building have been limited. Roof shingles have been replaced, portions of the skirt board siding have been repaired, and the transoms and upper windows are boarded. In the Root Cellar a number of added wood posts and temporary beams are used to support the additional added weight of vehicles being stored above. The following is a summary of the alterations and the approximate date:

- 1950's Removed east access rain cover
- C1975 Removed main floor grain bin interior partitions, added built-in tool bench
- C1975 Removed and boarded up windows
- 1980's Removed and disposed of east access double doors
- 1986 Replaced roof shingles

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Dairy Building, Granary/Root Cellar
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Deterioration

The roof is fairly straight with no significant sagging. The cupolas require repair and painting. The exterior wall surfaces are weather-beaten, but battens are secure. Portions of the horizontal drip members between the vertical siding and the skirt-boards, at the horizontal bands above the end doors and transoms, and between the upper gable end siding and lower siding (for example just below the pigeon holes) are missing or damaged. The lowest run of the skirting, next to the earth, is deteriorated. All the windows need repair or replacement. Parts of the main level office window sash remain and transom frames are repairable, but the loft level windows have been removed. The door hinges and hardware are original but need repair. The man-door has had heavy use and also requires repair work. There is deterioration of the sill beams in contact with the stone foundation walls and the earth at each doorway of the Granary.

The timber structural system is generally plumb and level with all bearing members present, though a few have slipped from broken tenons or tenon pins. On the main level, the wood plank flooring appears very worn from use but is sound and secure. The loft floor planking is in good shape. The interior door to the pigeon roost is worn, but reparable.

At the east Root Cellar access, the limestone retaining walls are deteriorating due to the growth of saplings whose root structures are competing with the stone work. The west stone wall of the Root Cellar is bowed inward from pressure and weakening of the mortar. Moisture has deteriorated the stone work along the east wall. Horizontal board liners that covered the interior perimeter of the Root Cellar walls are decayed or missing due to vandalism. The wood ventilation chases rising to the cupolas are intact. In spite of the deterioration and minimal alterations to the building, there has been little negative effect on the building's historic integrity.

Building Function

The Granary/Root Cellar had three primary functions; store grain, store root crops, and raise and house pigeons in the loft pigeon roost. The combination of these three functions in the same building is unusual. The storage function required that the grain and root vegetables be unloaded into storage, stored in a dry, well ventilated building and subsequently reloaded and removed when needed on the farm for livestock feed.

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Ramsey County, MN

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The Root Cellar was very effective for storage due to its design and layout. Wagons easily arrived on ground level at the east access double doors of the Root Cellar because it was designed "above ground" inside the berm. The wagons backed into a center room that connected to the interior storage bays. The root crops, primarily turnips and rutabagas, were loaded or unloaded by shovel into or out of the wagons. The root crops could also be loaded into the cellar down chutes through the plank hatches from the main level. In addition, grain could be loaded into these wagons through chutes connected to the cellar through the plank hatches. The wagons exited through the same east access doors. The cellar was very effective as a storage area because it stayed cool due to the four ventilation ducts venting out the roof through the cupolas and stayed dry because of the horizontal boards connected to the stone walls which acted as a moisture barrier. The earthen berm around the Root Cellar walls also contributed to the function of the Root Cellar by providing a measure of cooling in an era preceding mechanical or environmental controls.

Wagons entered the Granary's main level through the south entrance door. The Granary's center alley provided the means for wagons to enter and exit without having to turn or back up. Business was conducted at the office strategically placed at the main door. Bulk grain was stored in the main level storage bins with hay and sacked goods stored in the loft. Wagonloads of root crops was dropped off here and loaded into the cellar through the plank hatches. Grain was loaded into the wagons from the main level or hay and sacked goods was loaded down into the wagons through the loft opening directly above the center alley. Grain was shoveled into bins. There were no elevators or conveyor mechanisms, only the gravity fed chutes. Materials stored in the loft were loaded in and out through the opening in the floor above the center alley. Along the floor and on one of the center side walls are rings for securing wagons and their animals while loading and unloading. There are built-in block and tackle pulleys but it is unknown if a wagon dump mechanism may have been used, or the wagons were hoisted.

The pigeon roost was part of the original function of the building beginning in 1884 when an initial stock of 18 pigeons was purchased. The pigeon roost area is physically large enough to handle many more than 18 pigeons. It is not known at this time the function of the pigeon roost other than as a feeding, nesting, and housing area for the pigeons. Further research is required.

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THE BLACKSMITH/MACHINE SHOP

Building Description

Type of Building

This is a description of a combination Blacksmith/Machine Shop that was constructed in 1884. It supported all general farm operations, in particular the on-site fabrication of hardware for horses and wagons.

Setting

This Blacksmith/Machine Shop is found within the boundaries of the remaining 5.6-acre North Oaks Farm site. (See Site Plan, Attachment A) It is located 90 feet west of the Granary/Root Cellar and northwest of the Dairy Building. The Shop is oriented lengthwise north to south, parallel to the Granary/Root Cellar with a main door to the south facing the main part of the original farm complex.

General characteristics

The building is a red, brick, rectangular one story structure measuring 24 feet wide and 64 feet long. It has a Blacksmith Shop in the north end of the building and a Machine Shop in the south end. The east entrance wall has a set of wooden, outward opening double doors placed to the north leading into the Blacksmith Shop and a single wooden, inward opening entry door placed to the south leading into the Machine Shop. There are windows on each side of the double doors and one to the south of the single door. (See Attachment N) The north wall has two windows equally spaced from the center. (See Attachment O) The west wall has a single wooden door opening outward with windows on each side. (See Attachment P) The south wall has a single wooden door opening inward with windows on each side centered in the remaining space. (See Attachment Q) The roof is medium slope with minimal overhang and cedar shingles. (See Attachment R)

The inside of the Shop is divided by an interior brick wall into two rooms--the north room (the Blacksmith Shop) is 22 feet wide by 35 feet and the south room (Machine Shop) is 22 feet wide by 25 feet. There is a doorway at the east end of the interior brick wall, allowing one to pass between the rooms. The Machine Shop has a 12-foot ceiling constructed of 3/8-inch thick beaded ceiling paneling. The Blacksmith Shop has no ceiling. A storage area above the

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Dairy Building, Granary/Root Cellar
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Machine Shop created by its ceiling can be accessed from the Blacksmith Shop. (See Floor Plan and Building Elevations, Attachment S)

The 15 inch thick, unadorned brick walls provide the building's structural support. The interior walls are painted. The brick partition wall is two wythes thick and unpainted. The Shop is built on a limestone foundation. The floor is a poured concrete slab on grade. The roof has clear span wood roof trusses 24" on center. Exterior trim includes top of wall fascia, soffit covering and roof eave edge molding and drip.

Specific features

Windows - The windows have brick lintels with a keystone made of alternating soldier and two half bricks extending one brick length beyond openings. Windowsill brick is laid in an unusual flat orientation (which continued the coursing on each side) with a one-inch drop overhang. Horizontal paired windows on the east and west walls of the Blacksmith Shop used single 6 light sashes side by side, separated by a narrow structural mullion one brick wide. All other windows are double hung (6 over 6) vertical windows arranged as follows; two on the north wall of the Blacksmith Shop, two on the south wall and one on the east wall of the Machine Shop. (See Window Photos, Attachment T and U)

Doors - The doors are made of horizontal and vertical beaded paneling: vertical on the exterior, horizontal on the interior. The south and west doors are 36" wide.

Chimney and forge - The base of the original brick forge hearth remains outlined in the floor. It was 4-4 ½ feet by 2 feet high and located 6 feet away from the center wall. The chimney was located a few feet south of the center of the forge hearth. The original forge was fueled by coal and provided the heat to the room.

Ceiling - The ceiling that still exists in the Machine Shop is original and is constructed from beaded paneling (or car siding.)

Equipment - Numerous accessories include; vertical iron bars on middle pair of east wall windows spanning the window frames to prevent window breakage by animals tied to the rings for shoeing, harness hooks and anchor rings used inside and out, wood ceiling blocks which still remain for suspending machinery of unknown uses, belt drive axle at west wall on ceiling of machine shop room and numerous wrought iron accessories.

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Dairy Building, Granary/Root Cellar
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Roof - The roof ridge is trimmed with ridge metal and gable end metal ornamental balls.

Alterations to the property

The basic structure is original and has not been significantly changed since its construction in 1884. However, there have been the following alterations:

1911 - Electrical service added to the south wall, replacing engine power and providing electrical lights.

1920s - Brick chimney added at forge area.

1920s - East door to blacksmith space is widened to small garage door size.

1930s - Electric service is upgraded with larger, higher weather head above west window on south wall.

1930s - Interior fixed window sash installed.

1950s - Electric service upgrade, the third. Diamond pattern composition roofing applied.

1975 - Window opening exteriors are covered with plywood panels.

1987 - Equipment and forge and brick chimney removed. Roof is patched to cover holes. Interior brick wall is removed. Paperboard ceiling in Blacksmith Shop removed.

1987 - An opening is cut in the north wall between the outer window edges for a 10 foot high and 14 foot wide vehicle door.

Deterioration

Although much of the building is original, the Blacksmith/Machine Shop had deteriorated and its condition was prime for conservation and restoration that took place from 1996 - 1998. This restoration effort eliminated the most significant deterioration that had taken place on the building over the past 100 years to the exterior walls, roof, doors and windows. The condition of the interior was improved by the replacement of the windows, doors and roof. However, the interior of the building has had no specific restoration work done except to replace the interior

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Dairy Building, Granary/Root Cellar
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dividing wall between the two shops and the professional clean-up of hundreds of bats, bat feces, and years of dirt on the walls and floors. There are only a few settlement cracks evident, especially near corners, and these by visual assessment are not problematic.

Restoration and Reconstruction

In 1996 the Hill Farm Historical Society created a master plan for the long-term restoration of the Blacksmith/Machine Shop. First priority was the restoration of the exterior, using and repairing original materials versus replacement whenever possible. The second priority was to thoroughly remove the hundreds of bats and bat feces in order to create a safe interior environment. The third priority was to clean walls, floors and artifacts so that they could be inventoried. This plan was begun in 1996 and completed in September 1998. Phase two of the restoration plan will cover the interior of this building but will not begin until the exterior of the Granary/Root Cellar is completed first.

- Plywood panels on windows are removed and restored to a divided light window configuration as seen on original photographs.

- Doors are restored back to the original design. Secure hardware is added to secure the building.

- Door on north wall which was added in 1987 is removed and the wall is restored to original brick with the windows replaced as in the original photographs.

- Original wood shingles and metal ridge trim are restored.

- Interior brick wall is replaced.

- A paperboard ceiling later added to the Blacksmith Shop (date unknown) is removed.

- Oldest photographs suggest dark trim on window sash and doors and a light-reflective weathered shingle color. Now the trim, doors and windows have been painted red (similar to the brick color and that used on the Dairy Building) around the entire building.

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Dairy Building, Granary/Root Cellar
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Building Function

This Blacksmith/Machine Shop functioned primarily as an important contributing building to the overall farm operations driven primarily by the significant activities taking place at the Dairy and Granary/Root Cellar buildings. Due to the activities taking place in the Dairy Building and Granary/Root Cellar, and the number of horses and wagons that were used in these structures, the Blacksmith Shop would have been in constant use. Even though its function was not unique, it supported the significant activities associated with the Dairy and Granary buildings.

THE GAS HOUSE

Building Description

Type of Building

This is a description of a gas storage building constructed in 1884. This building provided a separate, safe storage structure for flammable liquids, in particular gasoline, and has always been referred to as the 'gas house'.

Setting

The gas house is found within the boundaries of the remaining 5.6-acre North Oaks Farm site. It is located 150 feet northwest of the Granary/Root Cellar and 65 feet north of the Blacksmith/Machine Shop. The building is oriented east to west, parallel to the Granary/Root Cellar with its main door to the east. (See Site Plan, Attachment A and Site Photo, Attachment V)

General Characteristics

The building is a red brick, square, one story structure measuring 10 feet x 10 feet. The east entrance wall has a centered door accessed by two concrete steps. The north and west walls have no openings. The south wall has one currently boarded up window opening. The roof is medium slope with minimal overhand and cedar shingles. The inside of the gas house is a single room of unadorned brick walls formed by the exterior

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walls of the building. There is no ceiling. The floor is earthen. It is built on a field stone foundation. (See Attachment W)

Specific Features

Window - The window opening on the south wall measures 37 inch wide x 32 inch long. It has brick lintels made of alternating soldier and two half bricks extending one brick length beyond the upper opening. Similar to the Blacksmith/Machine Shop, the window sill brick is laid in a flat orientation with a one inch drop overhang. It is currently boarded up with a wood plank covering painted red.

Door - The door on the east wall measures 30 inch wide x 80 inch long. It has brick lintels made of alternating soldier and two half bricks extending one brick length beyond the upper opening, identical to the window opening. The door is outward opening and made of wood plank painted red.

Roof - The gable style roof measures 8 ½ feet at the corners rising to 9 ½ feet at the roof ridge, has cedar shingles and roof eave edge molding painted red.

Alternations to the property

The basic structure is original and has not been changed since its construction in 1884. Restoration work done in 1997-98 detailed below did not alter the structure and its design.

Deterioration

Although much of the building is original, the gas house structure had deteriorated and its condition was prime for basic restoration which took place during 1997 and 1998. This effort eliminated the most significant deterioration what had taken place to the exterior walls, roof, door and window over the past 100 years.

Restoration and Reconstruction 1997/1998

In 1996 the Hill Farm Historical Society decided to restore the exterior of the gas house at the same time as the Blacksmith/Machine Shop. Restoration included replacing missing and damaged brick, replacing the entire roof, adding a secure, wood plank door and boarding up

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the window opening with a wood plank covering that matched the style of the door. Beyond simple cleaning, no further restoration work is required in the interior.

Building Function

The function of the gas house was always to store gasoline and other flammable liquids. It primarily contributed to the function of adjacent Blacksmith/Machine Shop that had a gasoline powered engine in its building according to insurance reports in 1905. These same insurance reports state that gasoline was stored in 50-gallon iron tanks inside this building. In later years, gas was dispensed through a gasoline pump located outside the building and small quantities of flammable liquids were stored inside the gashouse.

THE SMOKE HOUSE**Building Description****Type of Building**

This is a description of a smoke house constructed circa 1890.

Setting

The smoke house is found within the boundaries of the remaining 5.6-acre North Oaks Farm site. It is located 90 feet northwest of the Blacksmith/Machine Shop. The building is oriented north to south, parallel to the Granary/Root Cellar with its main door to the south. (See Site Plan, Attachment A)

General Characteristics

The building is constructed of cord structural wall tile and slack-lime mortar. It is a sandy colored, square, single story structure measuring 6 feet wide x 6 feet long with a barrel vault roof. The south entrance wall has a centered doorway at ground level. The building is 6 feet tall at the corners raising to 8 feet at the peak of the barrel vault. It is built on foundation of red, purington cobblestone pavers and has an earthen floor.

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The north, east and west walls have no openings. The tiles in the 12-inch thick walls are laid in stretcher courses with a rowlock every tenth row. The sandy colored tile has two $\frac{3}{4}$ inch round holes running the length of the tile that are visible in the interior of the building on the rowlocks. This is a low-fired and very porous tile produced in Chaska, Minnesota, during this period. The tile is capable of 20-25% absorption and very high breathability, ideal for a smokehouse application. They are mortared together by slack-lime mortar with $\frac{3}{8}$ minus aggregate. On the exterior, the exposed holes on the rowlock are filled with concrete. (See Attachment X)

Specific Features

Door - Only the metal clad door jam remains on the south wall. The opening is 34 inches wide x 64 inches long with a metal sheathed wood frame. The fastener holes left in the door jam indicate that the door was hung with metal strap hinges.

Roof - The roof is a barrel vault constructed of the same brick as the walls and covered with 3 inches of exterior concrete.

Walls - Located six feet above the earthen floor are 3 one-inch metal rods a foot apart running parallel to the south opening. These were used first to support the form for the construction of the barrel vault and subsequently for hanging items to be smoked.

Alternations to the property

The basic structure is original. The 3inch concrete exterior on the barrel vault roof was replaced circa 1940. The door is missing. Otherwise, no alterations have occurred.

Deterioration

This building has deteriorated and requires future restoration work. The vaulted roof is in good condition. There is a sizeable area of broken brick at the southwest corner. In the center of the back wall at least one brick is out and the brick surrounding the opening is broken. The remaining brick are solid, though many are cracked and pock marked.

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Building Function

The name of this building indicates it functioned as a smoke house, however, no research has been completed yet on this building to provide information on how specifically this building functioned as a smokehouse. The Hill Farm Historical Society plans to begin that research in the future.

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STATEMENT OF SIGNIFICANCE

Granary/Root Cellar

With the Dairy Building (NRHP, 5/16/97) the Granary/Root Cellar at North Oaks Farm is historically significant under National Register Criterion A under the agricultural area of significance because it is a tangible link to James J. Hill's efforts to promote agricultural diversification among farmers of the Northwest. Acceptance by wheat farmers of a more diversified operation that included livestock and dairy would provide them a greater measure of financial security that dependence on one-crop agriculture could not guarantee. The Granary/Root Cellar is directly linked to the North Oaks Farm's effort to promote diversification by improving the quality of its own livestock herd and the dual purpose Ayrshire cow being bred on the farm and by simultaneously developing a high quality feed that combined root crops, particularly turnips, with grain. A fundamental aspect of this program was the development of a combined storage facility that would prevent feed loss due to spoilage.

Early in the 1880's, agricultural science was in its infancy. Farming conditions in the western states were primitive and stockbreeders proceeded by trial and error. Farm journals covered debates over the most suitable breed, most economical feeds and the causes of various crop and livestock diseases. The "Breeder's Gazette" urged wealthy gentlemen farmers like Hill to experiment with cross breeding and to test various feeds and methods of curing disease. Mostly farmers of very modest means, benefited from this effort.³⁰ North Oaks Farm accepted this challenge and from its beginning the farm conducted crop and stock breeding experiments, working to develop a feed mix of root crops and grain that would support the farm's prize cattle imported from England and Scotland that were used for breeding the dual purpose cow.

It was Hill's plan to not only introduce such a cow, but the feed formulation necessary to support it. Hill realized that the prosperity of his railroad depended on the success of the farms located along the rail line and the key to this success lie in the diversification of the farming operation. During this period, the cultivation of wheat represented 70% of the tilled land, and failure of the wheat crop in a given year could be disastrous.³¹ Providing a breed of cow that could withstand the rigors of a northern climate and produce marketable beef and milk would assist farmers in diversifying their operation and supplementing their income. Furthermore, growing root and forage crops and rotating them with existing crops would prevent soil depletion.³²

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The Granary/Root Cellar, constructed to store both root crops and grain grown on the North Oaks Farm, was an integral component of the agricultural experiments conducted on the farm during the 1884-1916 period of significance. This building stored the root crops and grains that were combined to create what Hill and his experts believed to be a superior feed for the dual purpose cows being experimentally bred on the farm during the same period. The Granary/Root Cellar building is one of only 5 buildings that remain of the original North Oaks Farm that contributed to this goal of agricultural diversification.

This root crop/grain feed concept came to Hill from Great Britain, through Ontario, Canada where it was used extensively. From 1883 to 1893 the North Oaks Farm experimented mainly through trial and error to determine the optimum feed to maximize livestock production.³³ The trial and error experimentation was not haphazard. Mr. Gibson, the farm superintendent in the 1880's was publicly recognized by the agricultural editor of the New England Farmer as "...a close student of modern theories of balanced food rations, and thus so to mingle foods..."³⁴ Hill frequently emphasized the "experimentation" being performed. "I am satisfied from my own experiments that I can feed five of either of these breeds and keep them fed during the Winter on the same weight and value of food..."³⁵ Hill worked extensively with agricultural experts, in particular with University of Minnesota experts Andrew Boss and Thomas Shaw of the school of animal husbandry who were strong proponents of the feed and breeding concepts being pursued at the North Oaks Farm.³⁶

By spring, 1886, the farm superintendent had determined the optimal methods for growing and processing the root vegetables that Hill detailed for a committee representing the Montana Stock Growers' Association visiting St. Paul. Root crops were planted and raised according to carefully defined specifications optimizing labor and yield. Seed for turnips was purchased in Toronto, Canada.³⁷ Hill provided detailed information about the optimal process used for preparing the land, planting and growing turnips and beets. "I beg to say that for turnips the land should be well plowed in the fall, and, if old land or light soil, should be thoroughly manured with well rotted barn-yard manure, or what is quite as good, a dressing of black soil from low land. In the spring the land should be thoroughly cultivated to kill all weed, and formed into drills of from 30 to 32 inches apart. Sow from June 10th to 25th with about 2 ½ to 3 pounds of seed to the acre. When the plants are strong, cultivate once and thin them, cut single from about 12 to 16 inches apart. This is done with hoes, killing whatever weeds are in the drills. Two weeks after singling cultivate again and if the ground is full of weeds, hoe them again. The singling and hoeing will take about two men to the acre per day: one man can go over the second hoeing for an acre a day. The turnips should be taken up just before the frost

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comes in the fall, but if they are caught with a light frost, let them remain in the ground until warmer weather and the frost will not injure them.”³⁸

Even though root-cleaning equipment was commercially available to cut off the leaves and clean the roots, Hill had determined that it was speedier and cost effective to do it manually while harvesting. “The quickest and cheapest way to take them up is to use hoes, ground to a knife edge, going along the drills and cutting off the tops; then take a spring tooth harrow and go cross-wise of the drills, which will throw the turnips out and roll them enough to dust off dry soil attached to the roots.”³⁹

For cabbages and beets, the land was prepared in the same manner as for turnips, but the crop was gathered manually. Beets were raised for summer and winter feed and large flat Dutch cabbages made excellent feed up until Christmas. “Sow beets for summer use as early as possible, and for winter use from middle to the last of may. Cultivate the same as turnips, and single from 10-12 inches apart. They should be gathered by hand so as not to bruise them, or they will not keep.” The cabbages were planted 12-16 inches apart between the 10th and 25th of June and 26 to 28 ton were raised to the acre. Using Scotland as a guide, Hill predicted that farmers should expect to get over thirty tons of roots to the acre given careful cultivation and heavy use of manure.⁴⁰ In 1885 the Farm yielded 860 bushels to the acre and in 1887 produced 15,000 bushels.⁴¹

After the harvest the root crops were stored in the dry, well-ventilated Root Cellar below the Granary for use in feed formulations using roots, grains and oil-cake. Beginning in 1884, three pieces of equipment prepped the ingredients; the root vegetables were pulverized by a Root Pulper imported from Ontario, grains were ground in a Mill for Grinding Grain and oil-cake was broken up by a cake breaking machine.⁴² Formulations varied depending on the season. The Farm was combining turnips, beets, cabbages, hay, and oil-cake, ground oats and corn meal, and later, roots vegetables with clover and corn. The ratio of ingredients for 100 steers on a daily basis was as follows: 1,000 lbs. of hay to 4,200 lbs. of roots to 400 lbs. of ground grain to 200 lbs. of oil-cake.⁴³

The public discussion through local journals of this root-based feed concept in May 1886, sparked enormous interest in Minnesota from farmers and requests for more information.⁴⁴ In response to the Editor of the Farmer’s Advocate for more information, Hill closed the letter, “The decided advantage in favor of beef fed with roots and a light portion of grain and oil-cake is well recognized in the principal markets of the old world. In London, cattle fed in this

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manner will sell for 2 cents a pound more than corn fed beef: cattle keep healthier and do better than with any other feed.”⁴⁵

To the Montana stockmen visiting St. Paul, Hill related the number of awards his cattle had recently taken at the Illinois Fat Stock Show in Chicago and said it was done without using any corn for feed; only cabbages, turnips and ground oats. “Switch to cattle, he pleaded: ‘We shall have a market, feed our own fodder, and not go broke on wheat.’”⁴⁶ The Committee of Stockmen visited the North Oaks Farm to see the system and verify the concept. Their comments afterward were, “Our visit to Mr. J. J. Hill’s farm has satisfied us that this business, so generally neglected, is capable of being conducted with profit to both feeders and growers. At Mr. Hill’s farm we found in practice a system of feeding with prepared ? consisting largely of rutabagas and cut hay, with a small ad-mixture of corn meal, ground oats and oil-cake, costing but 8.9 cents per day per animal, with the result ascertained by continued experimental feeding by Mr. Hill, of putting on about two and three-fourths pounds per day per animal.”⁴⁷ They were convinced that cattle could be profitably fattened in Minnesota during the winter months. This visit became instrumental to the formation of the St. Paul stockyards, creating a market for fattening cattle and changing the city from being a simple weigh station on the way to Chicago.

The advantage of root crops for feed and diversifying a farm operation was also described in an article written about the North Oaks Farm in the “St. Paul Pioneer Press.” It explained in detail how turnips fit into the agricultural seasonal cycle. They can be planted after wheat is seeded in June and harvested after hay and wheat. Any farmer “without hiring any help, without any labor on his own part save such as fills hours otherwise unemployed, can carry from twenty to thirty head of cattle” by feeding them turnips. Even if the grain crop failed, the farmer could sell dairy products to meet family expenses, and at the same time “refurnish his land and improve his system of farming”⁴⁸

In addition to the cattle/grain diversification program demonstrated on the North Oaks Farm, the use of root crops was also tied into soil conservation achieved through crop rotation, a second major theme advocated by Hill.⁴⁹ By planting and growing root crops for feed, fields were planted with alternating crops, renewing and restoring essential nutrients to the soil. The use of root crops in feed benefited more than just the cattle/grain diversification agenda being demonstrated by the North Oaks Farm.

In 1893, the extensive breeding and feed experimentation that had been taking place at the North Oaks Farm began to diminish as Hill became discouraged with the Farmer’s lack of

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acceptance of his diversification and soil conservation practices. Large-scale, specialized farming won out over Hill's promotion of the small, highly diversified farm, and specialized beef and dairy cattle breeding won acceptance over the dual-purpose cow advocated by Hill and promoted by animal husbandry experts, Boss and Shaw.⁵⁰ In addition, root vegetable-based feed formulations was not a concept that lent itself easily to scaled-up mechanization for the large plains farmers during this period and competed against other forages more conducive to this trend. Diseases such as black rot affecting root crops and odor tainting the taste of milk presented additional difficulties that prevented wider adoption of this concept.⁵¹

Even though root vegetable/grain formulation being pursued and promoted by the North Oaks Farm between 1885 and 1895 didn't prevail, it represents an historically important effort to demonstrate the benefits of agricultural diversification and soil conservation, both important components of sustainable agriculture being valued and promoted today. This Granary/Root Cellar that combined in one building the root crops and grains needed for this feed formulation concept is a rare existing building that met the storage and processing needs of this important demonstration farm.

Blacksmith/Machine Shop, Gas House and Smoke House

These three buildings included on this site supported general farm operations and did not directly contribute to the agricultural diversification being driven by the function of the Dairy and Granary/Root Cellar buildings. The Blacksmith/Machine Shop was necessary to the day to day operations being driven by the significant Granary/Root Cellar. The Gas House in turn supported directly the Blacksmith/Machine Shop. Any importance of the Smokehouse to the overall operation has not yet been determined. These building were plainly utilitarian and their importance was limited to the on-going operation and maintenance of a large farm during this period.

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Endnotes

- ³⁰ Dickman, 74.
- ³¹ Dickman, 54, 68.
- ³² Dickman, 70.
- ³³ Strom, Claire M. "Unattainable Edens: James J. Hill, the Great Northern Railway, and changing notions of agricultural expertise." Ph.D. dissertation, Iowa State University, 1998. 26.
- ³⁴ *The National Livestock Journal*, July 1888.
- ³⁵ Letter to C. L. Van Fleet from Jas. J. Hill, January 27, 1885, LetterPress Book P.11. James J. Hill Papers (JJHP). James J. Hill Reference Library. St. Paul, Minnesota.
- ³⁶ Strom, "Unattainable Edens:" 22-23.
- ³⁷ Letter to A.M. Sherman from Jas. J. Hill, May 7, 1886, LetterPress Book P. 14. JJHP.
- ³⁸ Letter to Editor of the Avocate and Stockman from James J. Hill, May 17, 1886, LetterPress Book P. 14. JJHP.
- ³⁹ Blandford, Percy W. *Old Farm Tools and Machinery An Illustrated History*. Fort Lauderdale: Gale Research Company. 161; Letter to Editor, May 17, 1886.
- ⁴⁰ Letter to Editor, May 17, 1886.
- ⁴¹ Letter to A.M. Sherman, May 7, 1886; *The National Livestock Journal*, July, 1888.
- ⁴² Letter to W. A. Dolby from David Maxwell, October 8, 1884, JJHP; Letter to W. A. Dolby from David Maxwell, October 17, 1884, JJHP; Letter to Jno. Dalquest from Jas. J. Hill, October 27, 1884, JJHP; Blandford, 162.
- ⁴³ "The Question Agitating St. Paul Business Men and Montana Ranchmen." *Farmer's Advocate and Northwestern Stockman*, Vol. 1 No. 45, May 6, 1886; *The National Livestock Journal*, July, 1888.
- ⁴⁴ Letter to Jas. J. Hill from J. Lemudge, June 15, 1886, LetterPress Book P.330, JJHP; "Root Crops," *Farmer's Advocate and Northwestern Stockman*, Vol. 1 No. 47, May 20, 1886.
- ⁴⁵ Letter to Editor, May 17, 1886.
- ⁴⁶ *Farmer's Advocate and Northwestern Stockman*, May 6, 1886.
- ⁴⁷ "Stockyards at St. Paul," *Farmer's Advocate and Northwestern Stockman*, Vol.1 No. 46, May 13, 1886.
- ⁴⁸ *St. Paul Pioneer Press*, December 6, 1885.
- ⁴⁹ Dickman, 68, 70.
- ⁵⁰ Strom, "Unattainable Edens:" 42.
- ⁵¹ Interviews by Hill Farm Historical Society with Dr. Charles P. West, Professor of Forages, University of Arkansas, February -March 1999.

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VERBAL BOUNDARY DESCRIPTION

The boundary of the Dairy Building, Granary/Root Cellar and auxiliary buildings, North Oaks Farm is shown as the solid black line on the accompanying map entitled, "BOUNDARY MAP Dairy Building, Granary/Root Cellar and auxiliary buildings, North Oaks Farm, Ramsey County, MN July 21, 1999."

BOUNDARY JUSTIFICATION

This boundary description expands the boundary established for the Dairy Building in the 1997 National Register Registration Form to include additional acreage and buildings. This expanded boundary for the Dairy Building, Granary/Root Cellar and auxiliary buildings, North Oaks Farm is established by the Hill Farm Historical Society's property line. Property boundaries in North Oaks extend to the center of adjacent streets because all roads are private and used by easements granted by the North Oaks Company. The boundary line includes the 5.6 acre parcel and the five buildings that have historically been part of the North Oaks Farm and that maintain historic integrity. The parcel and buildings are all that remain from the original 5,000+ acre farm with its some 34 buildings. Since the 1950s most of the farm has been developed into the residential community of North Oaks. The Dairy Building and the Granary/Root Cellar, in particular, represent James J. Hill's efforts in the experimentation and promotion of agricultural diversification. The auxiliary buildings did not contribute directly to these efforts, but contributed to the on-going operation of the farm.

PLEASANT LAKE

Hardwood trees

Smoke House

Open Meadow

Gas House

Grass Road & Walkways

Blacksmith Machine Shop

Oak trees

Granary Root Cellar

Open Meadow

HILL FARM

Gate

Dairy

Oak trees

Open Meadow

Historic Fence

EVERGREEN ROAD

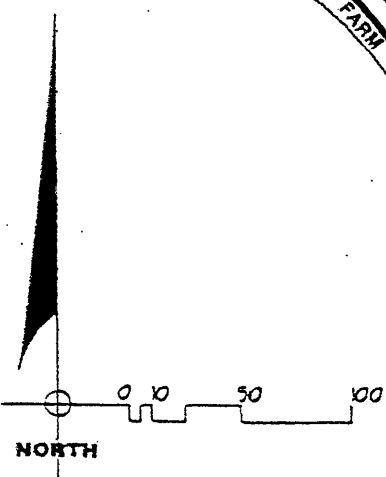
RED BARN RD

JAMES J. HILL'S
NORTH OAKS FARM
BUILDINGS
1997

HILL FARM HISTORICAL SOCIETY

BOUNDARY MAP

Dairy Building, Granary/Root Cellar and auxiliary buildings, North Oaks Farm Ramsey County, MN July 21, 1999



PORTFOLIO
DESIGN SERVICES
12 EMPIRE DRIVE ST. PAUL, MN 55109
(612) 223-8514 FAX (612) 223-8517

PLEASANT LAKE

Hardwood trees

Smoke House

Open Meadow

**JAMES J. HILL'S
NORTH OAKS FARM
BUILDINGS
1997**

HILL FARM HISTORICAL SOCIETY

Attachment A Site Plan
Dairy Building, Granary/Root
Cellar and auxiliary buildings,
North Oaks Farm
Ramsey County, MN

Grass Road & Walkways

Gas House

Blacksmith
Machine Shop

Oak trees

Granary
Root Cellar

Open Meadow

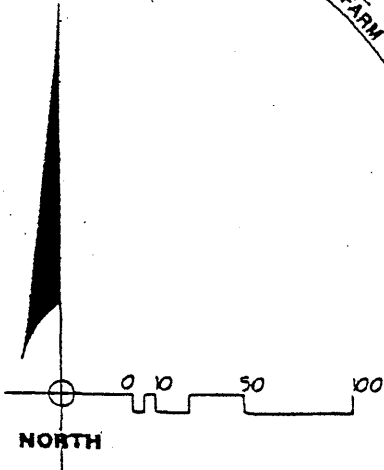
Historic Fence
HILL FARM

Gate

Dairy

Oak trees

Open Meadow



Historic Fence

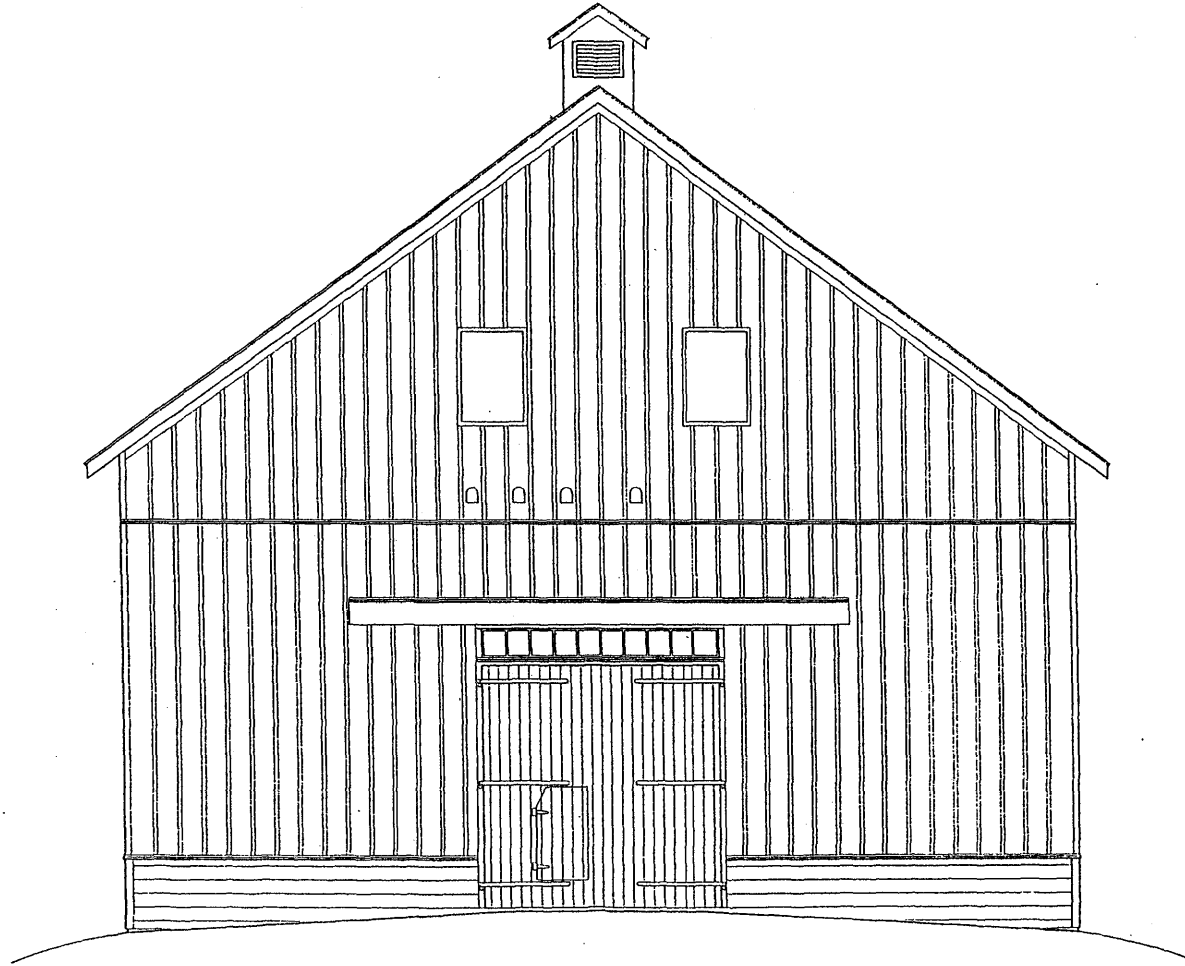
CIRCLE

RED BARN RD

EVERGREEN ROAD

**PORTFOLIO
DESIGN SERVICES**

23 EMPEROR DRIVE ST. PAUL, MN 55109
(612) 223-6516 FAX (612) 223-6517



① SOUTH ELEVATION - EXISTING
GRANARY STRUCTURE SCALE 1/8" = 1'-0"

Attachment H

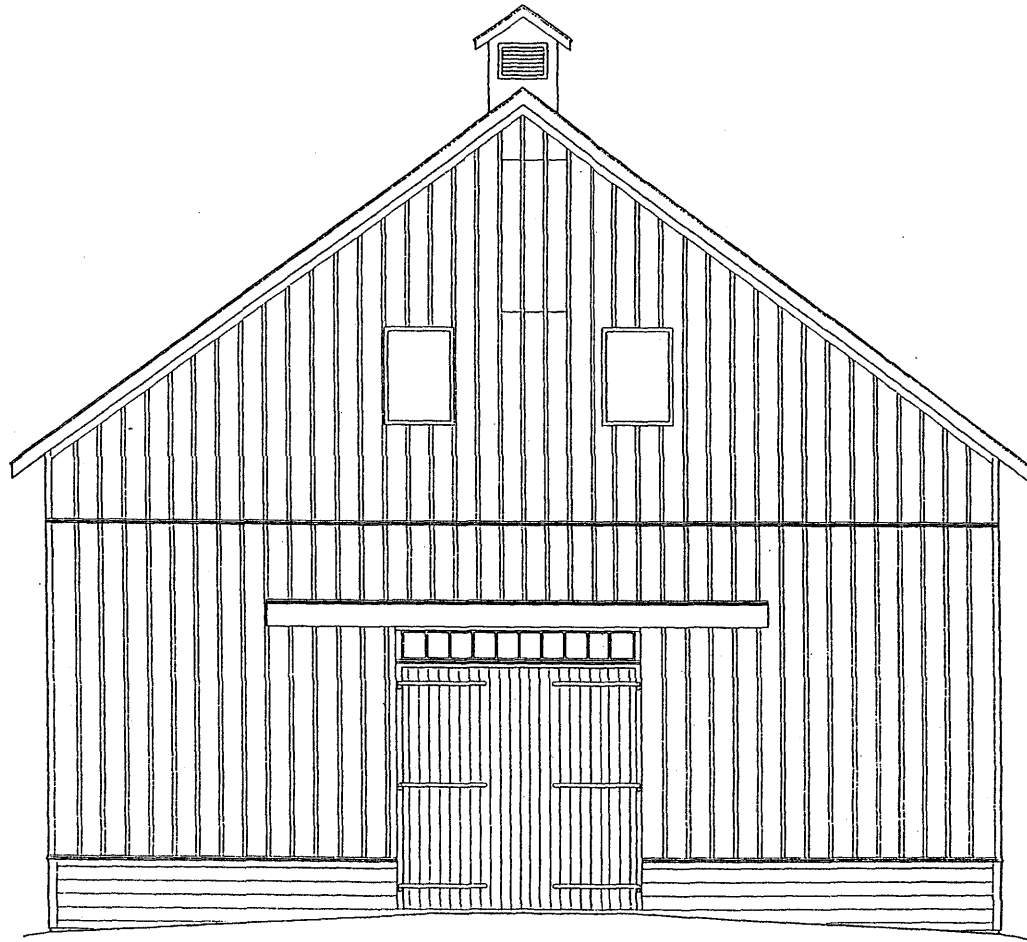
HILL FARM
HISTORIC STRUCTURES REPORT

S M S O Architects

Northfield, Minnesota

Dairy Building, Granary/Root Cellar
and auxiliary buildings

North Oaks Farm
Ramsey County, MN



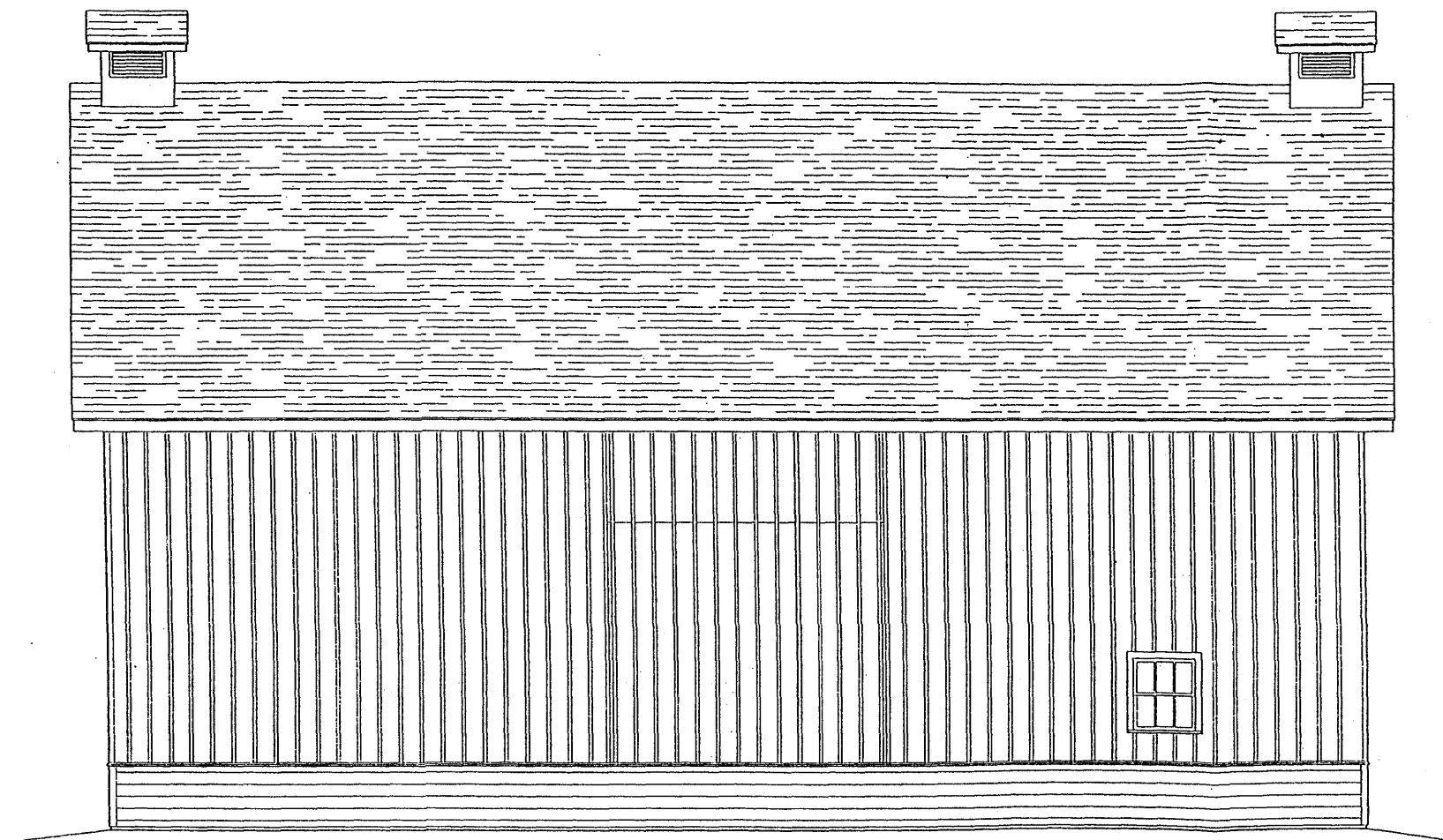
Attachment H

2 NORTH ELEVATION - EXISTING
GRANARY STRUCTURE SCALE 1/8" = 1'

HILL FARM
HISTORIC STRUCTURES REPORT

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Attachment H

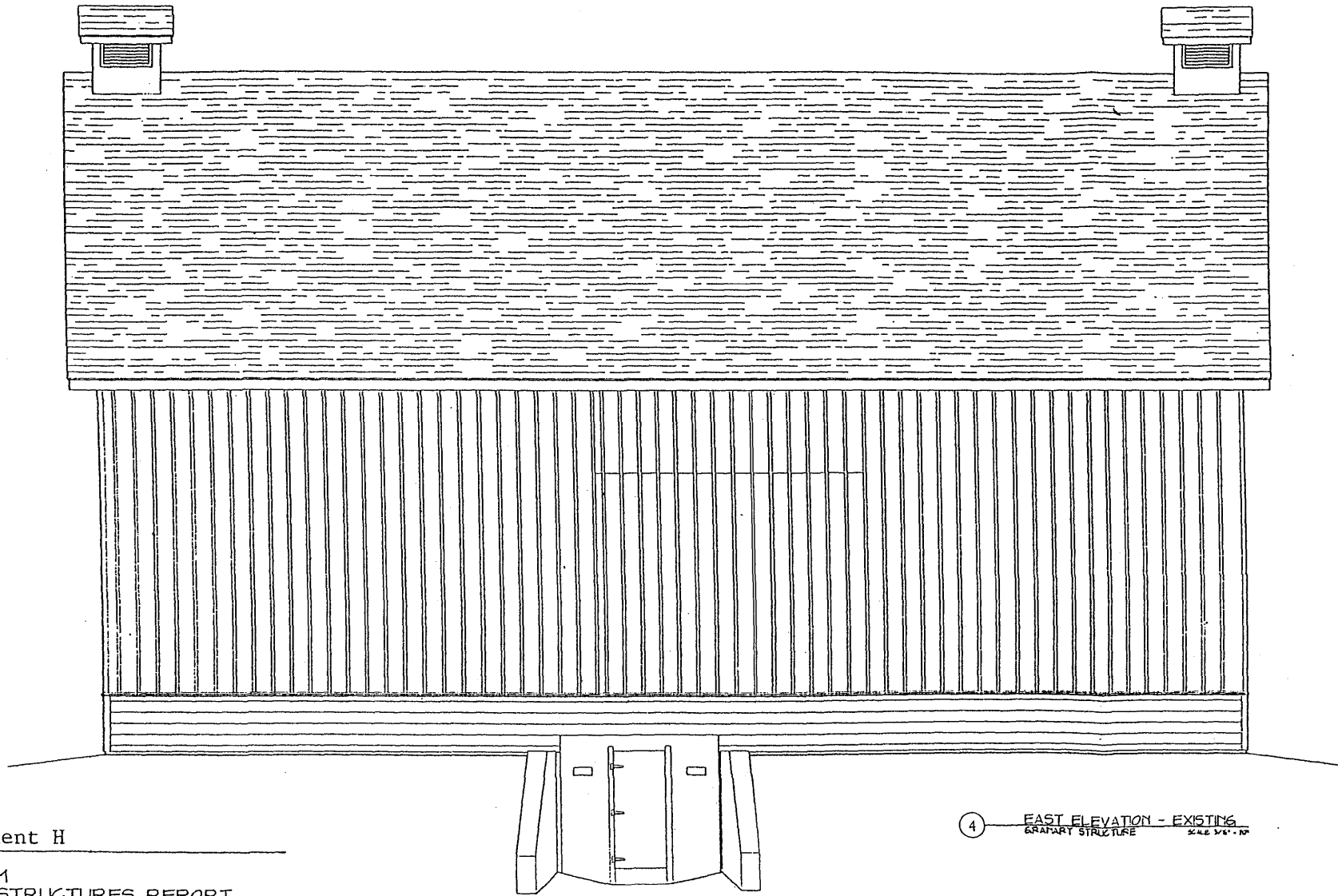
HILL FARM
HISTORIC STRUCTURES REPORT

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3 WEST ELEVATION - EXISTING
GRANARY STRUCTURE SCALE 3/8" = 1'



4 EAST ELEVATION - EXISTING
GRANARY STRUCTURE SCALE 3/8" = 1'-0"

Attachment H

HILL FARM
HISTORIC STRUCTURES REPORT

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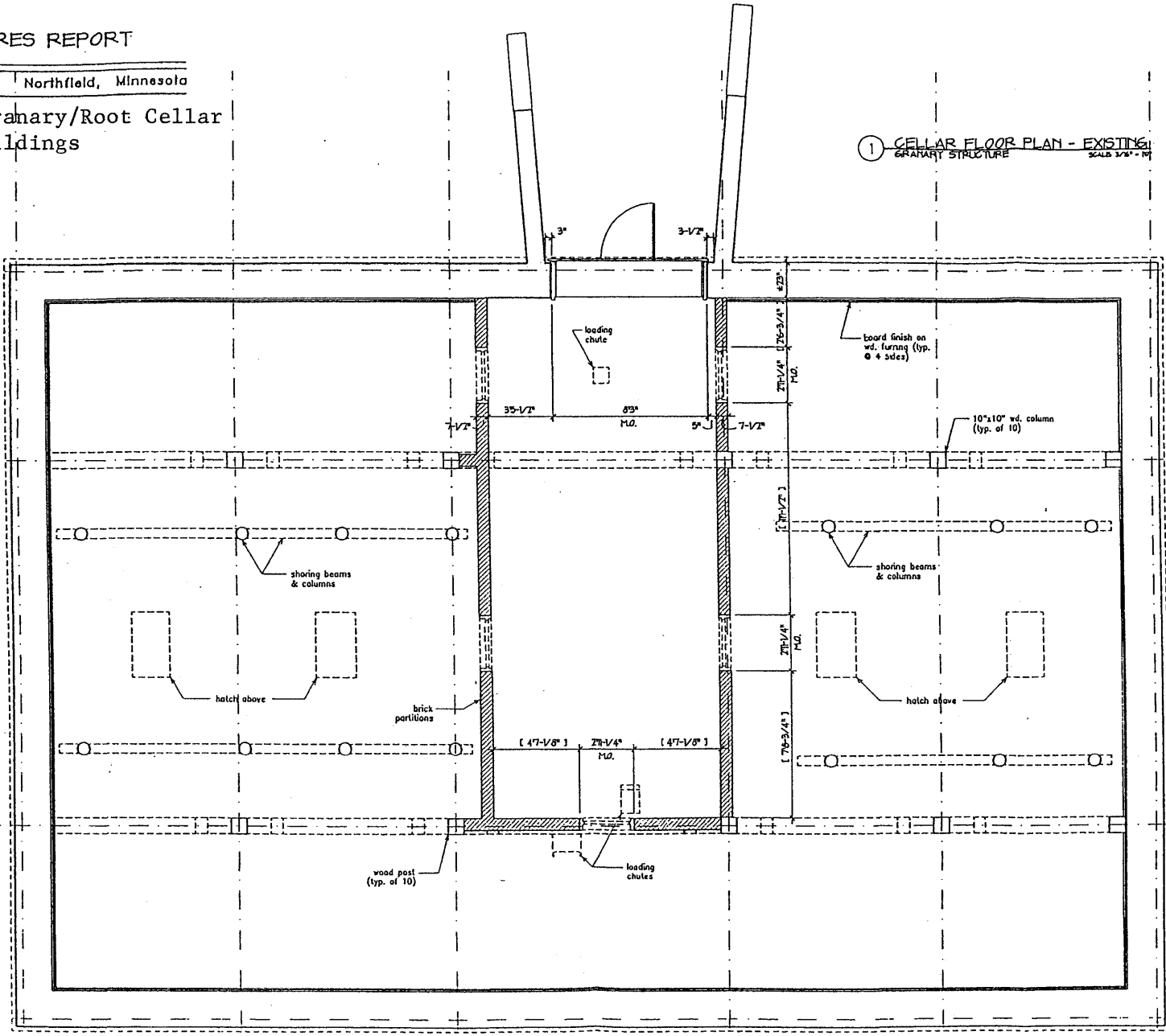
Dairy Building, Granary/Root Cellar
and auxiliary buildings
North Oaks Farm
Ramsey County, MN

HILL FARM
HISTORIC STRUCTURES REPORT

S M S Q Architects Northfield, Minnesota

Dairy Building, Granary/Root Cellar
and auxiliary buildings
North Oaks Farm
Ramsey County, MN

① CELLAR FLOOR PLAN - EXISTING
GRANARY STRUCTURE
SCALE 1/4" = 1'



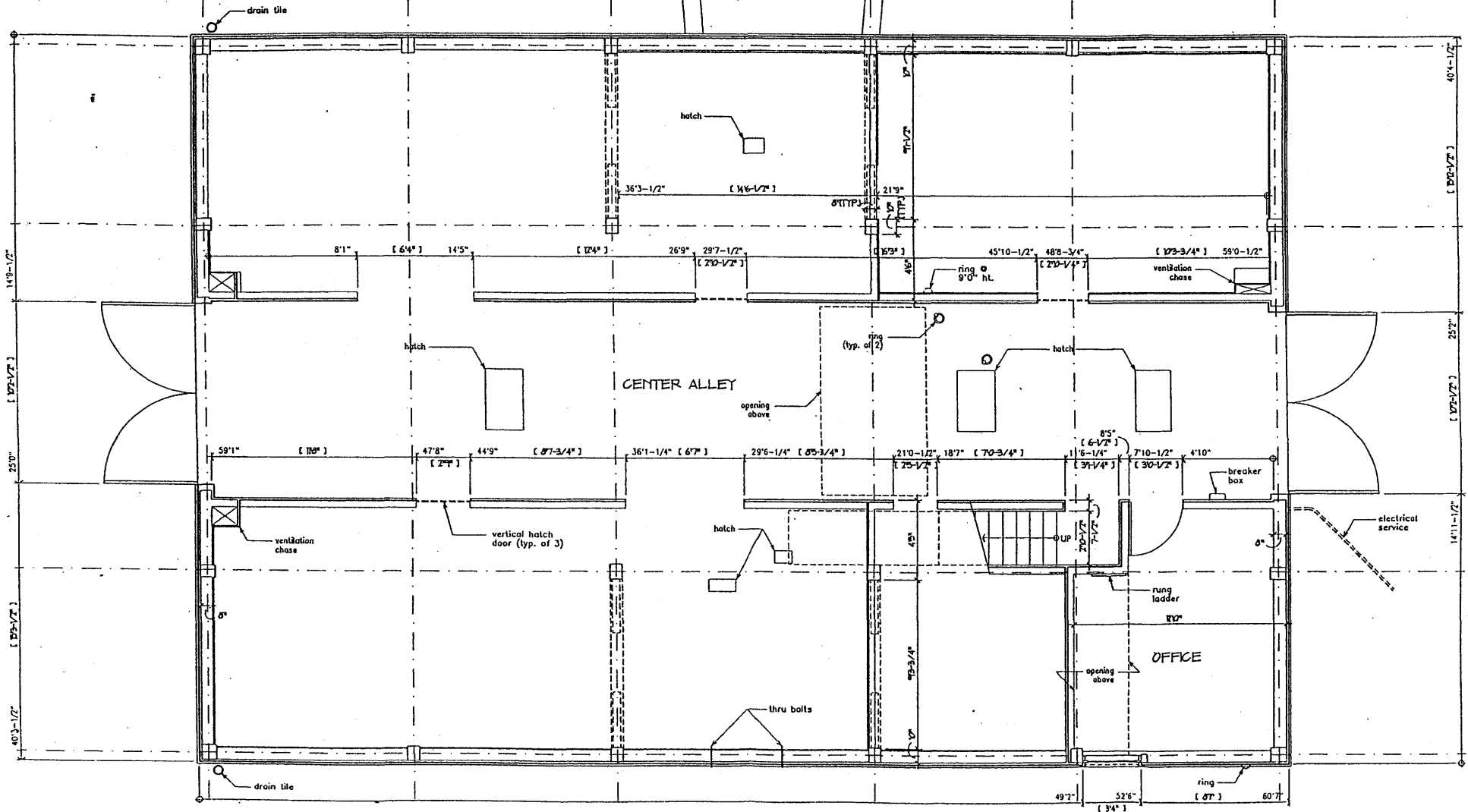
HILL FARM Attachment I
 HISTORIC STRUCTURES REPORT

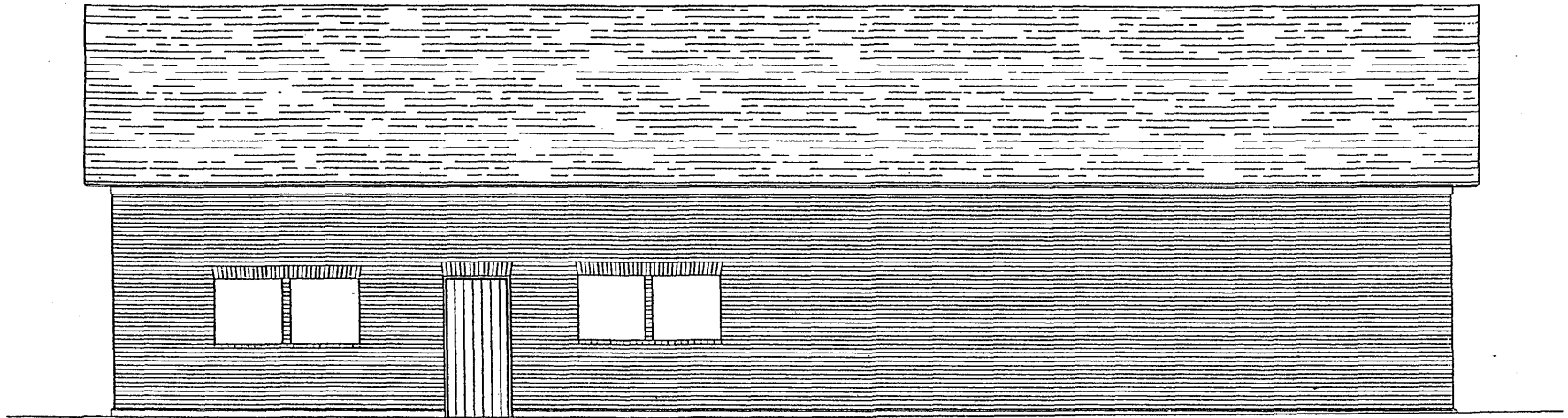
S M S Q Architects

Northfield, Minnesota

Dairy Building, Granary/Root Cellar
 and auxiliary buildings
 North Oaks Farm
 Ramsey County, MN

1 FIRST FLOOR PLAN - EXISTING
 GRANARY STRUCTURE SCALE 3/8" = 1'-0"





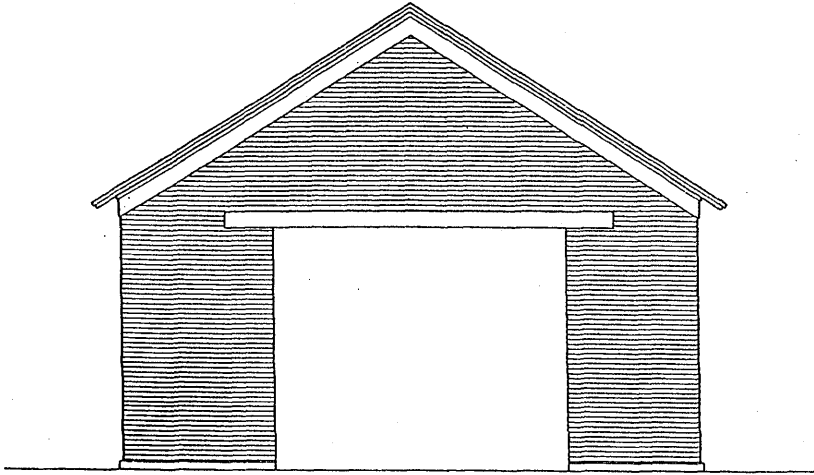
3 WEST ELEVATION - EXISTING
BLACKSMITH STRUCTURE SCALE 3/8" = 1'-0"

Attachment S

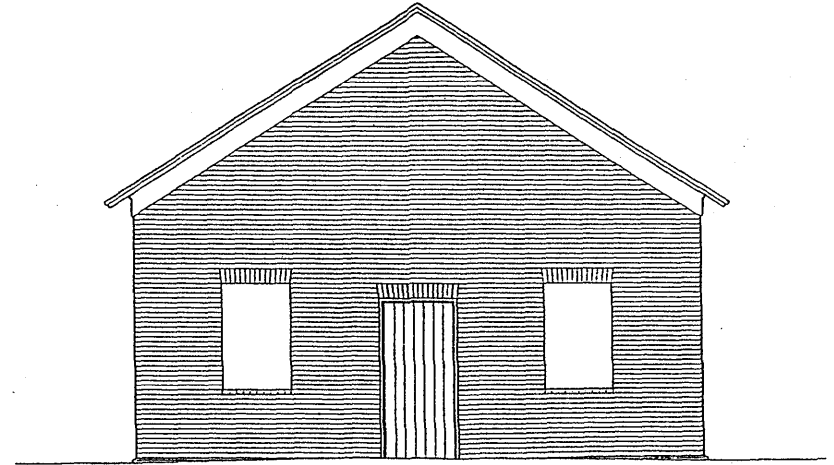
HILL FARM
HISTORIC STRUCTURES REPORT

S M S O Architects Northfield, Minnesota

Dairy Building, Granary/Root Cellar
and auxiliary buildings
North Oaks Farm
Ramsey County, MN



② — NORTH ELEVATION - EXISTING
BLACKSMITH STRUCTURE SCALE 3/8" = 1'



① — SOUTH ELEVATION - EXISTING
BLACKSMITH STRUCTURE SCALE 3/8" = 1'

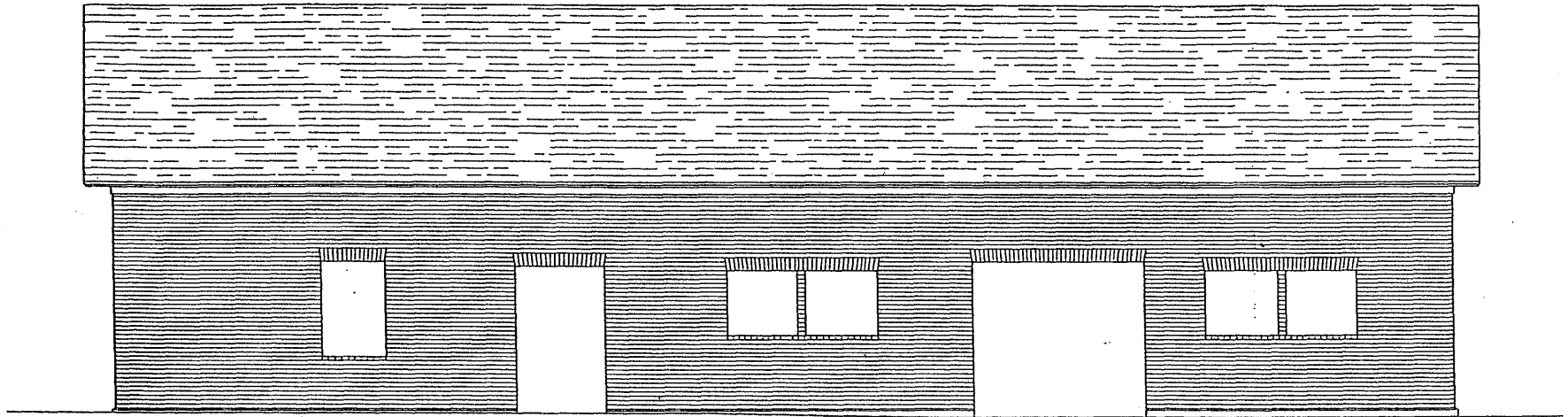
Attachment S

HILL FARM
HISTORIC STRUCTURES REPORT

S M S Q Architects Northfield, Minnesota

Dairy Building, Granary/Root Cellar
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Ramsey County, MN



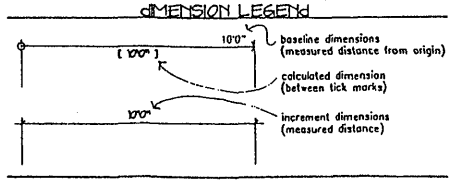
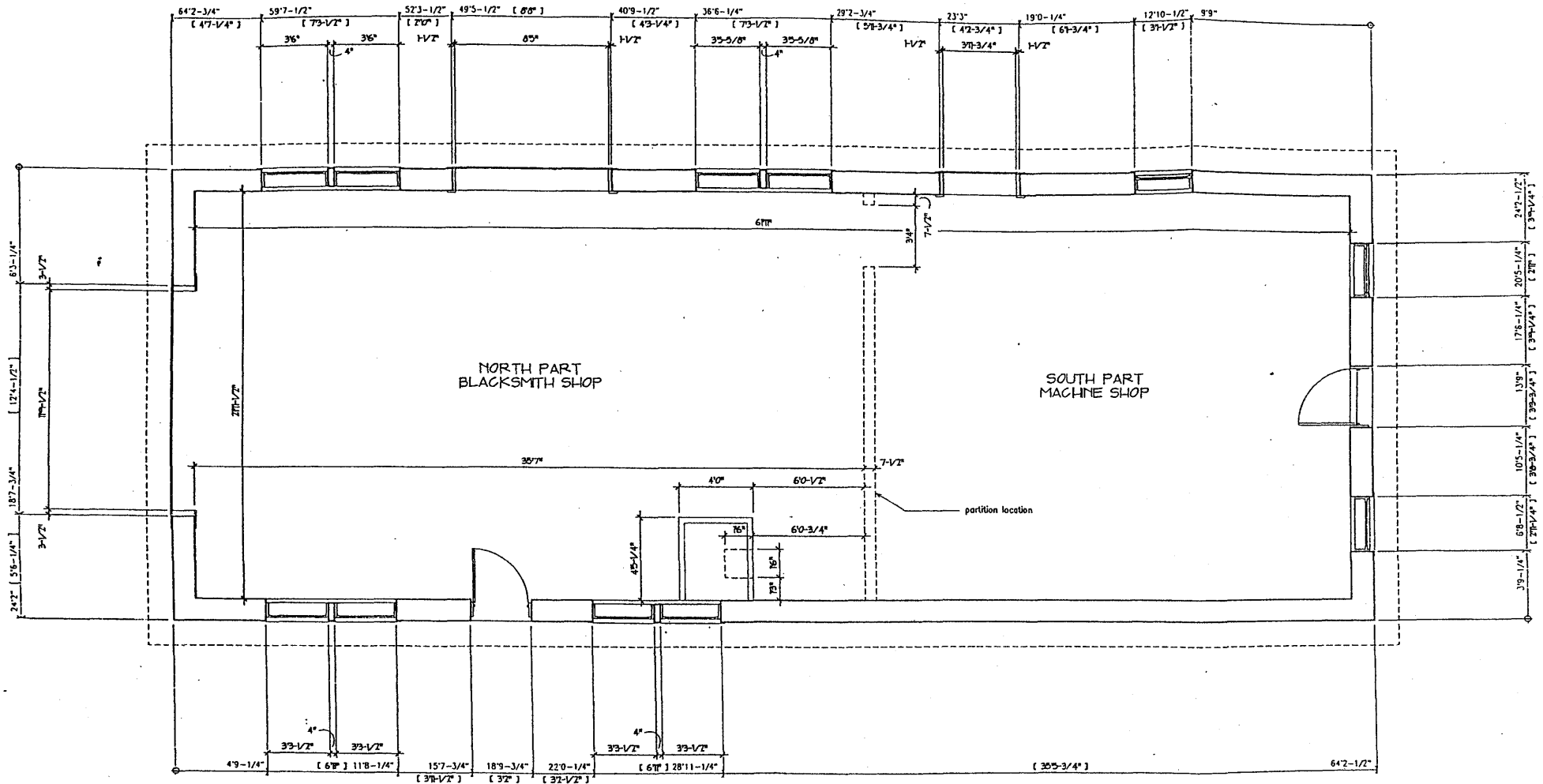
④ EAST ELEVATION - EXISTING
BLACKSMITH STRUCTURE SCALE 3/8" = 1'-0"

Attachment S

HILL FARM
HISTORIC STRUCTURES REPORT

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1 — **FIRST FLOOR PLAN - EXISTING**
 BLACKSMITH STRUCTURE
 SCALE 3/8" = 1'-0"
 NORTH

Attachment S

HILL FARM
 HISTORIC STRUCTURES REPORT

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