STRUCTURES ANALYSIS
of the
SIBLEY HOUSE
HISTORIC SITE

Mendota, Minnesota

for
The Sibley House Association
and the
Minnesota Historical Society

by
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December 1, 1978

Table of Contents

Report on Observations of Existing Conditions and Recommendations for Preservative Action for the Sibley, Faribault and DuPuis Houses and Attendant Structures

In the fall of 1978, the Henry Hastings Sibley House, the Jean Baptiste Faribault House and the Hypolite DuPuis House (more familiarly known as the Sibley Tea House), together with the Caretaker's Residence, the icehouse, garage and several small outbuildings on the site in Mendota, Minnesota administered by the Sibley House Association were examined by the project architect, structural, mechanical and electrical engineers and cost estimators of Setter, Leach & Lindstrom, Inc. The purpose of the study was to determine the current condition of the buildings and the grounds. The following is a report of these observations together with recommendations and preliminary cost estimates for repairs, modifications and improvements consistant with the status of the complex as one of Minnesota's most historic and frequently visited sites.

The importance of these structures, which together form part of the nucleus of the State's oldest permanent white settlement outside Fort Snelling, has been recognized by a number of prestigious surveys. The Sibley House is listed on the National Survey of Historic Sites and Buildings established by the Historic Sites Act of 1935 to identify places of national significance. Detailed records of the Faribault House, including measured drawings and photographs prepared by the Historic American Building Survey are deposited in the Library of Congress. The entire site is included within the Mendota Historic District as defined by both the Minnesota Inventory of Historic Places and the National Register of Historic Places.

I. Henry Hastings Sibley House

A. General Description

The Sibley House was constructed in 1835 of local limestone as the home of a fur trader who was later to become the first state governor of Minnesota. The gable roofed, Greek Revival structure has two stories with a full attic and a partial basement. A two-story kitchen, dining and bedroom wing to the rear; and a one story study/office wing to the east were added in the 1840's. After serving a number of uses, the house was reduced to the state of near ruin until its acquisition and restoration in 1909-1910 by The Sibley House Association, a member organization of the Minnesota Chapter of the Daughters of the American Revolution.

B. Observations of Structural Conditions

The interior construction is of timber frame with timber joists and rafters. Framing in all areas other than the cellar and attic areas is covered by wall, floor and ceiling finishes. In the first floor assembly room (south of the front parlor and stair hall), plaster has been removed in several locations. The exposed areas covered by glass panels, indicate that interior partitions and ceilings are constructed of primitive lathing spanning between the studs and the joists with intervening spaces packed with mud and straw held together with interwoven willow branches.

1. Basement

Foundations and the barrel vaulted ceilings of the two basement rooms under the east side of the original building are of stone masonry construction. Those foundation mortar joints which had been painted show water penetration. An opening on the foundation wall at the floor in the north wall of the northeast basement room suggest the remnants of some ancient drainage system. As a source of water, vermin and small animal intrusion, it should be sealed.

First floor wood joists exposed in the basement are 6" by 6", spaced on 24" centers with 1" by 6" floor boards. Portions of the original floor joists at the stairway and southwest

basement window have been removed and reframed. A 12" by 12" wood girder was added between the fireplace and east basement wall, probably in the 1910 restoration. More recently, a north-south girder has been installed down the center of the basement.

Insect infestation, probably powder-post beetles, was noted in the floor joists. The wood headers over window openings of the rooms having vaulted ceilings have deteriorated.

2. First Floor

Only minor cracking was observed in walls and ceilings with the greatest cracking apparent in the kitchen. It was suggested by the caretakers that effects of high humidity have been observed in summer on the south and west interior walls of the east wing ("Capitol" Room) and on the east interior wall of the Dining Room where the latter adjoins the Capitol Room. This condition has persisted even after a new roof was installed on the building about a year ago. The problem has been alleviated to some degree by the use of a dehumidifier. While the condition on the south wall of the Capitol Room may result from water penetration through the wall since the floor of the room is below grade in that area, it is suggested that humidity appearing on the walls between the dining room and the "Capitol" Room is probably the result of condensation on the cold surface of thick masonry that was once an exterior wall until the east wing was built and which is warming up more slowly than the rest of the construction after a winter in a mininally heated house. Should the dehumidifier prove inadequate it is recommended that insulation with a vapor barrier facing to the wall be installed between the masonry and the finish wall surface.

3. Second Floor

Walls and ceilings of the second floor show more cracking and especially with general vertical corner cracking than is noted on the floor below. The most severe condition occurs at the northwest corner of the west central bedroom where the adjacent exterior walls shows a bulge. Cracks also appear in the south wall of the same room.

Plaster damage was also noted in the following specific locations:

a. In the southwest bedroom where cracking appears on the north and south walls.
b. In the northeast (Sibley) bedroom where there is a ceiling crack near the southeast corner of the room and a bulge in the plaster in the northwest corner of the room.
c. In the southeast bedroom where there is a hole in the ceiling near the northwest corner of the room.

Cracked window glass was noted in the southwest bedroom (3 panes), east central room (1 pane) and northeast bedroom (1 pane).

4. Attic

The roof framing of the original 1835 building consists of 4" by 4" rafters and collar beams on 24" center with intermediate 4" by 4" beams and column supports.

The south addition roof is framed with 2" by 4" rafters and collar beams. One by six inch board flooring covers both areas.

Roof framing fits loosely to the supporting masonry exterior walls permitting moisture, insect and rodent penetration to the building.

5. Exterior

Mortar joints of all walls show extensive deterioration. The vertical construction joint between the original building and the south addition has opened.

Cracks have developed over masonry wall areas and at door and window openings.

Window sash, sills and trim requires scraping and painting.

Existing surrounding grades to the southwest result in run-off water from those long slopes draining against the south and east walls of the building. The extent of resulting water damage to the back half of the house could not be determined since the inside of the foundation wall and first

floor framing were inaccessible. Signs of water penetration were noted in walls of the basement located under the northwest area of the building.

C. Observations of Mechanical Systems

Mechanical systems in the Sibley House are minimal and consist essentially of the following:

1. Plumbing

There are no plumbing fixtures or domestic water in the house.

2. Heating

There are two LP gas space heaters in the house to maintain minimum temperature during the winter months when the house is closed to visitors. One heater is located in the kitchen and is built into the outside wall to vent directly outside. The second heater is located in the first floor assembly hall. It has a vent pipe that extends into the living room (parlor) where it connects to a chimney with a 4" aluminum vent pipe liner which in extending above the top of the chimney is visually inappropriate to the character of a period house. An LP gas tank behind the house supplies both heaters.

3. Ventilation

A propellor exhaust fan in the attic discharges to the outside through a rear window which is equipped with a gravity discharge louver. Intake air for this fan appears to be supplied through cracks and other such leaks in the attic, and up the attic stairway when the attic door from the second floor is open.

4. Dehumidifier

There are currently three portable dehumidifiers in the house. One is located in the cellar, the second is in the dining room, and the third is in the "Capitol" Room (study). The drain pans on these units are emptied periodically as the need arises.

D. Observations of Electrical System

Electric service to the Sibley House is from a 60 ampere, 2 pole fused switch.(60 ampere fuses) in the Caretaker's Residence, and runs underground in a 1" conduit with 3 #6TW to the Sibley House basement where it terminates in an open fuse panel to serve the building 120/240 volts, single phase, 3 wire. The service entrance is in good condition but the open fuse panel should be replaced. Open wiring occurs in some areas of the building. There is a shortage of convenience outlets.

E. Recommendations

From the above noted observations the following recommendations for corrective actions are made. Included also are the estimated costs of such work based on December 1, 1978, costs.

1. Structural

In general, the building appears to be in good condition in view of its age, for which past restoration and good maintenance are responsible. It is recommended, however, that corrective action be taken on the following deficiencies:

	Recommendations	Estimated Cost
a.	The effects of past reframing and insect damage combine to require repair and replacement of some of the first floor framing in the basement. Measures must be taken to immediately arrest insect infestation in the timber framing.	$1600.
b.	Deteriorated timber headers over the window openings in the basement rooms having vaulted ceilings require replacement with matching masonry construction.	1100.
c.	Plaster cracks require repair throughout. Repair and, where necessary, replace wallpaper.	$11,000.
d.	Seal openings at the junction of the roof and the exterior masonry walls to prevent water, insect and rodent intrusion.	1225.

e.	Exterior walls and foundations require repointing to prevent water intrusion. An appropriate mortar matching the original in color, texture and type of joint must be specified.	$17,300.
f.	Regrading of the area toward the southwest is necessary to divert water run-off for the building. Topographic data is required for the investigation (See IX).	--
g.	Replace cracked window panes.	$400.
h.	Scrape and repaint wood window sash, sills, frames, portico, outside stairway and other exterior wood trim.	$6000.
i.	Cover chimney to keep out birds, squirrels, etc., except chimney vent used by heater in parlor.	200.
j.	Replace facia boards at roof edge.	3800.

Based on the observations of this study, more detailed investigatons of the following conditions are recommended.

k.	Floor framing from conditions observed in the basement and in light of probable increases in floor loading by large tour groups, the construction and condition of inaccessible first floor areas and the covered second floor should be determined. This would necessitate the taking up of sections of flooring. The first floor area above those basement rooms with vaulted masonry ceilings is also such an area.	$23,300.
l.	Interior walls - Since little is known of the structure and condition of interior walls all load bearing walls should be surveyed in detail.	2500.
m.	Exterior walls - A more detailed examination should be made of the bulge in the exterior masonry wall of the west central, second floor bedroom to determine its scope of severity.	$9650.

Estimated Cost of Recommended General Work (Based on Dec. 1, 1978, Costs) $78,075.

2. Mechanical

Recommendations	Estimated Cost
a. Plumbing No.plumbing work is required.	$0
b. Heating The two existing LP gas space heaters should be throughly checked to verify that they are in good operating condition. From this check it would be determined whether they should be retained, repaired or replaced. Cost of condition analysis of LP space heaters.	$350.
c. Ventilation An air intake register, as inconspiciously located as possible, set in an area where there is air circulation, should be installed between the second floor and the attic to improve the operation of the attic exhaust system. This register would be closed in the winter. Cost of installation of register into attic:	$275.
d. Dehumidifier No changes are required in this system.	
Estimated Cost of Recommended Mechanical Work (Based on Dec. 1, 1978, Costs)	$625.

3. Electrical

Recommendations	Estimated Cost
a. Replace the open fuse panel with a 60 ampere circuit breaker panel.	$350.
b. Replace the open wiring with wiring in conduit.	$1500.
c. Add convenience outlets (concealed as possible) for cleaning and display purposes. Assume 15.	$750.
d. Install a fire detection system consisting of manual stations, automatic detectors and alarm signals.	$3500.
e. Install a building security system.	$5500.
Estimated Cost of Recommended Electrical Work	$11,600.
TOTAL ESTIMATED COST OF RECOMMENDED CORRECTIVE WORK ON SIBLEY HOUSE	$90,300.

II. Jean Baptiste Faribault House

A. General Description

The history of the Faribault House closely parallels that of the Sibley House, a few dozen yards to the east. As was his neighbor, Henry Sibley; Jean Baptiste Faribault was a fur trader. His two story house was probably erected around 1839-1840 of materials and construction methods similar to those of the Sibley House. It is American Georgian with a central hall plan typical of that style. There are traces of Greek Revival influence, primarily in the detail at the north entrance. The Faribault House suffered a similar fate to that of its neighbor in that it housed a number of uses after its original owner's had moved out. It was deserted and in the state of near ruin when The Sibley House Association, Federal Public Works Agencies, and the Minnesota Highway Department acquired it in 1934 and started restoration. After the house was deeded to the Sibley House Association, that organization completed the restoration and opened it in 1937 as an Indian Museum and a meeting hall for the Daughters of the American Revolution.

B. Observations of Structural Condition

The two story house has a full attic and basement. Exterior masonry walls are of native limestone. The interior of the structure is of timber frame construction. All floor framing, except those areas over the basement rooms having vaulted masonry ceilings, is exposed and all wall construction is covered by plaster finishes. Finish plaster appears to date from the 1930's restoration. That plaster has been removed in the 2nd floor, southeast bedroom, to exposed sections of exterior wall and interior partition construction.

1. Basement

Building foundations and the barrel vaulted ceilings of the two rooms in the west half of the basement are of masonry construction. The first floor in the exposed east area of the building is framed with 6" by 8" joists spaced 24" to 26" on center.

Areas of the foundation show deteriorated mortar joints and water intrusion. Some cracking in the east room concrete floor is evident. Long term deflection is evident in the first floor joists of the same room. The wood construction of the grade entrance to the basement has deteriorated badly.

2. First Floor

The fireplace in the Assembly Room occupying the west half of the building appears to be a restored or reconstructed element. A 12" by 12" timber girder framing between the fireplace and the west wall of the central hall appears also to be a later addition to support a load bearing second story wall. The girder appears to replace a first story load bearing wall.

The exposed first floor ceiling system consists of 7" by 7" wood joists spaced 26" on center supporting a single thickness board floor above. Joists frame in an east-west direction between the end masonry walls and the parallel walls enclosing the central hall. Long term deflection is apparent in the joists and the 12" by 12" girder.

The ceiling of the first floor central hall is also an apparent reconstruction.

Water penetration which occurred before the new roof was installed about a year ago is evident in the interior trim surrounding south wall windows on both the first and second floors. This is especially noticeable in the western most window in the southeast room of each floor. No evidence of water has been reported since the roof was repaired.

Window shades in most windows are in poor condition. These are not original to the house. Since such elements were extremely rare in American Houses of the period, it is suggested that a more appropriate form of window shading, such as curtaining, be considered.

3. Second Floor

The exposed second floor system is similar to that of the first floor, but spans in a north-south direction between the

front and the rear exterior walls and the frame walls separating the north and south bedrooms. Both of these interior partitions are bearing walls supporting ceiling and roof construction.

A general and sometimes substantial twisting of the timber joists is common. It is unknown when this warpage occurred since joists bearings at the masonry walls are unbroken. Minor wall cracking has occurred.

Long term deflection in the second floor ceiling, similar to that of the first floor ceiling is noted with a general sagging of ceiling systems from the north and south exterior walls to the center of the building.

Observations of water damage around windows in the south wall and about window shades made for the First Floor and described in II.B.2 above pertain to the Second Floor as well.

An inappropriate metal pole attached to ceiling construction above and fastened to the handrail at the top of the flight of stairs linking the second and first floors in apparently a comporatively recent effort to strengthen and stabilize the handrail for safety.

4. Attic

The roof frame is composed of 4" by 4" rafters with collar beams on 32" centers with intermediate supports of 4" by 6" girders on 4" by 4" columns.

The general sagging noted in Second Floor room ceilings is especially apparent in the attic.

There are several cracked window panes requiring replacement.

5. Exterior

A crack ranging in width from hairline to 1/8", extends the full height of the west wall in the approximate location of the west chimney. There are localized cracks in the exterior masonry walls which occur generally at window openings. this is especially evident at west wall windows although several such cracks are visible in the north and south walls.

An outward bowing has occurred in the south exterior wall near the second floor level. This condition is confirmed on the inside face of the south wall in the second story south bedrooms.

A shutter dog is missing at the western most window on the first floor, north wall.

Window sash, wood trim, and metal down spouts require scraping and repainting.

Exterior masonry walls require repointing, especially near grade level.

C. Observations of Mechanical Systems

Mechanical systems in the Faribault House are minimal and consist essentially of the following:

1. Plumbing

There are no plumbing fixtures or domestic water in the house.

2. Heating

One LP gas space heater is located in the house to maintain minimum temperature during the winter months when the house is closed to visitors. The heater is located in the north-east first floor room and is built into the outside wall. It vents directly to the outside. The LP gas supply is underground and comes from the central tank behind the Sibley House.

3. Ventilation

There is no ventilation system in the house other than that provided by openable exterior doors and windows.

4. Dehumidification

There is a moisture problem in the basement probably resulting from site drainage problems and poorly sealed exterior masonry walls. No dehumidification is provided. Portable dehumidifiers can be used here as in the Sibley House.

D. Observations of Electrical System

Service to the Faribault House is from a 60 ampere 2 pole fused switch (60 ampere fuses) in the Caretaker's Residence. It is

routed underground from the latter to the basement of the Faribault House and terminates in a circuit breaker panel to service the building 120/240 volt, single phase, 3 wire. This service is in good condition. There is a shortage of convenience outlets.

E. Recommendations

From the above noted observations, the following recommendations for corrective actions are made. Included also are the estimated costs of such work based on December 1, 1978, costs.

1. Structural

For its age the building is basically in good condition. Past restoration work in the 1930's, which appears to be extensive, has preserved the building.

	Recommendations	Estimated Cost
a.	Repair exterior wall cracks and repoint exterior masonry.	$13,650.
b.	Seal openings at the juncture of the roof and the exterior masonry walls to prevent water, insect and rodent intrusion	1,225.
c.	Replace cracked window panes.	400.
d.	Repair and repaint water damaged plaster and wood trim around windows at interior face of south wall.	6,200.
e.	Scrape and repaint exterior wood window sash, sills, frames and other exterior wood trim and metal down spouts.	6,000.
f.	Remove metal pipe support at second floor stairlanding and stabilize handrail.	600.
g.	Replace missing shutter dog at window shutter on north wall. Match existing.	100.
h.	Modify grading at cellar door entrance to divert water from building foundation. (See IX.)	900.
i.	Rebuild cellar door and frame.	1,100.

Based on the observation of this study, more detailed investigations of the following conditions are recommended.

j.	General sagging of the floors at the center of the building indicate the need of a more extensive structural investigation of floor and interior wall framing especially since potential live load from large tour groups may exceed normal "design conditions" for such residential construction.	$23,300.
Estimated Cost of Recommended General Work		$53,475.

2. Mechanical	Recommendations	Estimated Cost
a.	Plumbing No plumbing work is required.	$0.
b.	Heating The existing LP gas space heater should be given a thorough check to verify that it is in good operating condition. Based on this study, it should be determined whether it should be retained, repaired or replaced. Cost of heater check:	$175.
Estimated Cost of Recommended Mechanical Work (Based on December 1, 1978, Costs)		$175.

3. Electrical	Recommendations	Estimated Cost
a.	Add convenience outlets for cleaning and display purposes (12)	$600.
b.	Install a fire detection system consisting of manual stations, automatic detectors and alarm system.	3150.
c.	Install a complete building security system.	$4,000.
d.	Improve and install additional display lighting.	$800.
Estimated Cost of Recommended Electrical Work (Based on Dec. 1, 1978, Costs)		$8,550.

TOTAL ESTIMATED COST OF RECOMMENDED CORRECTIVE WORK ON FARIBAULT HOUSE $62,200.

III. Hypolite DuPuis (Sibley Tea) House

A. General Description

In 1854, Hypolite Du Puis, Henry Sibley's secretary, erected his two story, Wisconsin brick house on the hill above that of his employer. The square shaped building has the central stairhall plan and is simple in form and detail. It may be described as Greek Revival primarily because of the design of its front entrance and portico. The present hip roof is said to be a replacement of the original which was damaged in a high wind. The structure was acquired by the Minnesota Daughters of the American Revolution in 1924 and has, with several additions, been used since 1928 until recently as a Tea Room.

B. Observations of Structural Condition

The original two story structure has a full attic and partial basement. The interior is of frame construction. A center two-story frame kitchen addition with basement, to the rear of the original house is flanked to the east and west by single-story dining additions of frame construction and without basements. There are no special access or toilet room facility provisions for the handicapped should the Tea Room be reopened.

1. Basement

Foundations of the 1854 building are of limestone masonry. There is evidence of extensive past water penetration and deteriorated mortar joints. In the basement area, the first floor framing consists of 2" by 8" joists spaced 16" on center supported at the center by timber girders. A supplementary laminated girder of three 2" by 10" 's is installed adjacent to the original 10" by 10" timber girder. Both girders bear on makeshift interior supports of 2" by 10" bolsters over 4" by 6" columns bearing on small brick bases. Foundation of the kitchen addition are of concrete block. The floor of that addition is framed in 2" by 10" joists at 16" spacing with a structural steel center girder.

2. First Floor

There is water damage in cane-fiber ceilings in both one-story dining additions, east and west of the kitchen indicating past roof leak problems.

There is a wall crack in the brick wall over the west end of the cased opening between the original house and the east dining addition.

Panels in the front door at the main (south) entrance to the 1854 structure require repair.

One window pane is cracked in the west dining room.

3. Second Floor

The noticeable sagging of the central hallway floor toward the stairway appears to be a long term condition. The second floor houses a live-in caretaker and is not open to the public.

4. Attic

The present hip roof is framed in 2" by 6" 's, spaced 16" on center. It is a replacement of the original roof destroyed in a storm.

5. Exterior

Mortar joints in the brickwork of the 1854 building show deterioration. The lintel in the northern most first floor window in the original building is cracked. The sill of the same window is rotted.

The entrance portico shows evidence of dryrot and insect infestation.

One of the window shutters on the south facade is missing. (Note: it is doubtful that the remaining shutters are original as solid shutters with cut-out designs were more characteristic of 1920-1930 "Colonial Revival" than of the 1850's when louvered blinds were more commonly used.)

The vents in the hip roof are open and unscreened allowing insect, bird and animal intrusion into the attic. The roofing material is asbestos shingles.

All exterior exposed wood including window sash and frames, addition siding, facias, etc., require scraping and painting. Gutters and downspouts are in poor condition and require replacement.

The yard area at the front of the house is below the adjacent street level. Curbs have been added in an attempt to divert water from the main entrance.

C. Observations of Mechanical Systems

1. Plumbing

a. Sewage Disposal

Available records indicate that the sewage disposal system for this building consists of an drain field installed in the slope of the hill below the house. The system includes a grease trap, septic tank, underground piping, diverting boxes and metal drain pipe. This system reportedly was installed in 1937.

b. Water Supply

Domestic water supply for the building consists of a well with a submersible pump and a pressure tank. The well is located in a small enclosure attached to the building, and the pressure tank is in the building.

c. Plumbing Fixtures

There are several toilet rooms in the building with fixtures ranging from fair to good. The commercial kitchen contains sinks as required for such an operation.

d. Water Heaters

The building has two natural gas fired water heaters of which one is a storage tank type for general hot water use and the second is an instantaneous horizontal immersion type for supplying booster water to the dishwasher. Both heaters use a common vent stack located on the outside of the building.

e. Equipment

A water softener and a sump pump for lifting basement drainage up to the sanitary sewer drain are both located in the basement.

f. Heating

The heating system consists of a natural gas-fired hot water boiler and hot water baseboard. The system includes two circulation pumps and four zone valves. The boiler has a transite stack up to the first floor where it connects to an existing chimney.

One of the dining rooms on the first floor has a natural gas-fired space heater for supplemental heating.

g. Ventilating and Air Conditioning

An exhaust fan in the kitchen provides range hood exhaust. Air conditioning is provided by several window air conditioner units spotted throughout the building.

D. Observations of Electrical Systems

Overhead service to the building is 120/240 volt, single phase, 3 wire and has a 150 ampere capacity. Service conductors are #1/0 THW. The service entrance is in good condition.

Lighting is mostly incandescent with some fluorescent fixtures.

E. Recommendations

As with the Sibley and Faribault Houses, the DuPuis House is generally in good condition but the following preservation action is recommended:

Recommendations	Estimated Cost
1. Structural	
a. Exterior brick walls and masonry foundations of the original house require repointing.	$7,325.
b. Reconstruct new entrance portico to match existing element.	5,125.
c. Replace existing cracked window glass.	400.

d.	Replace rotted window sill on east wall of original building.	$450.
e.	Replace missing window shutter on south wall (it is suggested that further research be made to determine whether louvered window blinds are original to the house, rather than solid shutters)	180.
f.	Install bird screen over attic louvers.	80.
g.	Reputty window sash	550.
h.	Scrape and paint window sash and frames and all other exterior wood trim, siding, etc.	4,000.
i.	Replace downspouts and gutters.	2,000.
j.	Review grades and curbs at front entrance to better control water run-off so that it is diverted away from the building.	5,350.
k.	Replace existing girder in first floor system of original house.	3,550.
l.	Investigate more thoroughly the construction and condition of the first floor of the original house (take up flooring, if necessary, to accomplish this study).	2,500.
m.	Remove existing roofing and replace w/new cedar shingle roof.	2,840.
Estimated cost of Recommended Structural Work*		$34,350.

2. Mechanical	Recommendations	Estimated Cost
a.	Plumbing	
1.	Due to the age of the installation, it is recommended that the existing septic tank and drain field system be rebuilt and modernized.	$25,000.
2.	Because of its age and condition, it is recommended that the existing dishwasher booster heater be replaced with a modern unit.	$2,000.
b.	Heating No changes are suggested for this system other than to give the boiler and control system a thorough check to verify that all component parts are in good operating order.	$250.
Estimated Cost of Recommended Mechanical Work*		$27,250.

* Based on Dec. 1, 1978, Costs)

3. Electrical

	Recommendations	Estimated Cost
a.	Service to this building is adequate for the present use of the building.	No change
b.	Install exit and egress lighting on the first floor if the building is to continue as a public restaurant.	$1,500.
c.	Install a fire detection system consisting of manual stations, automatic detectors and alarm signals.	$5,200.
d.	Install a building security system.	$6,500.
Estimated Cost of Recommended Electrical Work (Based on Dec. 1, 1978, Costs)		$13,200.
TOTAL ESTIMATED COST OF RECOMMENDED CORRECTIVE WORK ON DuPUIS HOUSE		$74,800.

IV. Caretaker's Residence

A. General Description

The small, one story brick structure located immediately to the south-west of the Sibley House originally functioned as the wash house for that household. It has since been expanded by several brick veneered additions and converted into the caretaker's residence. The interior is of frame construction.

B. Observation of Structural Condition

1. Interior

No significant structural difficulties were observed.

2. Exterior

Cracking and deteriorated mortar joints are general on all sides. Exterior trims and millwork finishes including the front door, window sash and frames and screens have deteriorated extensively. Several of the slates on the slate roof are cracked or missing.

There are cracked window panes in the north-east bedroom . Like the Sibley House, the Caretaker's Residence is subjected to direct water run-off from the slope of the hill to the south and east.

C. Observations of Mechanical Systems

1. Plumbing

a. Sewage Disposal

Available records indicate that the sewage disposal system for this buiding consists of a septic tank together with a system of drywalls or disposal pits. It is reported that the septic tank is pumped out twice a year on a regular basis. This system is said to have been installed in 1941.

b. Water Supply

Domestic water is supplied from the central well located elsewhere on the site. The water service enters the building in the basement.

c. Equipment

An LP gas water heater, a water softener and a sump pump for lifting basement drainage up to the sanitary sewer drain are all located in the basement.

2. Heating

The building heating system consists of an oil-fired, forced air furnace located in the basement with a system of supply and return ductwork. The system is reported to be functioning without problems.

D. Observation of Electrical System

The main service is overhead to the building and enters the basement through a 1¼" conduit with 3 #2TW conductors to serve the buildings 100 amperes at 120/240 volt, single phase, 3 wire. This service has a 100 ampere fusible main switch, a 60 ampere fusible switch that feeds out to the Faribault House, a 60 ampere fusible switch that feeds out to the Sibley House, and a residential panel for the Caretaker's House. This service is in good condition. Standard residential type fixtures comprise the lighting in this house.

E. Recommendations

While no structural deficiencies are apparent, the building exterior requires the following corrective action to arrest present deterioration:

1. Structural

	Recommendations	Estimated Cost
a.	All exterior brick must be repointed and wall cracks filled.	$5,500.
b.	Wood trim and millwork required scraping and repainting.	2,840.

c. Replace broken window glass.	$1,375.
d. Replace broken roof tiles.	1,500.
Estimated Cost of Recommended Structural Work (Base on Dec. 1, 1978, Costs)	$11,215.

Note: Estimated cost of drainage modification at perimeter of building included in Sibley House estimate.

2. Mechanical

Recommendations	Estimated Cost
a. Plumbing	
1. Because of the age of the installation, it is recommended that the existing septic tank and drainage pit system be rebuilt and modernized.	$15,000.
2. It is also recommended that the basement sump pump and concrete drain pit be replaced with a new pump and fiberglas tank.	$500.
b. Heating No changes are recommended for this system other than to have the furnace and oil burner thoroughly checked to verify that all parts are in good operating order.	$250.
Estimated Cost of Recommended Mechanical Work (Based on Dec. 1, 1978, Costs)	$15,750.

3. Electrical

Recommendations	Estimated Cost
a. Service for the residence is adequate and does not have to be replaced or modified.	No change
b. Standard residential type smoke detectors should be installed in the basement and the first floor. (Install 2)	$235.
c. The capital expenditure for a security system for this building is not recommended as the building has permanent residents.	No change
Estimated Cost of Electrical Recommendations (Based on Dec. 1, 1978, Costs)	$235.

TOTAL ESTIMATED COST OF RECOMMENDED CORRECTIVE WORK ON CARETAKER'S HOUSE	$27,200.

V. Carriage House (Icehouse)

A. General Description and Observations of Structural Condition

The building immediately to the east of the Sibley House is currently used to display a Concord stagecoach. It was originally built as the icehouse. Exterior walls are of stone, matching that of the Sibley House. The wood roof is frames of 2" by 6" rafters. There are remmants of a former timber-framed intermediate floor. Rot is apparent at the west end bearing of the single 12" by 12" east-west girder spanning the building length. Six of the original north-south timber joists are missing with the remaining three rotted and without bearing at their north ends.

Mortar joints of masonry walls show general deterioration on all sides. Old cracks are also evident in the walls. Window sash and frames, and most exterior wood trim and lintels over masonry openings are also deteriorated. There are holes in the roof with some of the slates from the slate roof missing.

B. Observation of Mechanical Systems

There are no mechanical systems in this building.

C. Observations of Electrical Systems

Service to the Carriage House is one circuit underground from the Sibley House which is in good condition. The building wiring is exposed conduit to outlet boxes with incandescent spot lights for the display.

D. Recommendations

The building is in the poorest condition of all of the structures on the site and requires immediately attention.

1. Structural

	Recommendations	Estimated Cost
a.	The deteriorated remains of the intermediate timber framing must be removed for personnel safety.	$1,600.

b.	Masonry walls require repointing.	$5,650.
c.	Replace window sash and frames and wood lintels and rotted facia boards.	6,725.
d.	Repair doors, door frames and glazed assembly comprising carriage entrance.	3,175.
e.	Remove existing slate roofing and substitute cedar shingle roof to match that of the Sibley House.	2,750.

It is further recommended that a more detailed structural study be made to determine whether there is a need for ties between masonry walls to replace the removed intermediate wood framing. 5,000.

Estimated Cost of Recommended Structural Work (Based on Dec. 1, 1978, Costs) $24,900

2. Mechanical

Recommendations	Estimated Cost
No mechanical work is required.	

3. Electrical

	Recommendations	Estimated Cost
a.	Electrical service to the building is adequate for the present use and no new work is required.	No change
b.	Automatic fire detectors should be installed and connected to the Sibley House panel.	$600.
c.	Install building security system connected to Sibley House panel.	$700.

Estimated Cost of Electrical Recommendations (Based on Dec. 1, 1978, Costs) $1,300.

TOTAL ESTIMATED COST OF RECOMMENDED CORRECTIVE WORK ON CARRIAGE HOUSE $26,200.

VI. Public Rest Rooms Building

A. General Description and Observation of Structural Condition

This low single-story structure combines an old limestone masonry building that once served as the smokehouse, with a frame lean-to shed attached to its west wall. Public toilets are now housed in the masonry structure. The shed is used for tool and grounds maintenance equipment storage.

Masonry walls have deteriorated over the years as evidenced by general cracking and the condition of the mortar. In addition, differential settlement between the east and west halves of the masonry building has occurred. A metal tie rod was installed in the past near the north wall to restrain outward movements at the tops of the east and west walls.

The frame lean-to has separated from the masonry building. There is a comparatively new asphalt single roof.

B. Observations of Mechanical Systems

1. Plumbing

The installation consists of a men's toilet room containing one water closet and one lavatory; and a women's toilet room having two water closets and two lavatories. The water closets are of the tank type. The lavatories have cold water faucets only. The fixtures are old but generally in serviceable condition, although the tank top of the men's water closet is broken. The sewage system ties into that described for the Caretaker's Residence. The water supply is underground from the central well system. Neither of the public rest rooms meet current regulations for the handicapped.

2. Heating

There is no heating system as these facilities are drained and unused in the winter months.

3. Ventilation

Ventilation for both of the toilet rooms consists of a ceiling grille with a gravity outlet on the roof.

C. Observations for Electrical Work

Service to this facility is a single 20 ampere circuit fed overhead from the Sibley House. This service is in fair condition. There are no convenience outlets in either the women's or men's rest rooms. The lighting is each rest room consists of an open incandescent lamp.

D. Recommendations

1. Structural

	Recommendations	Estimated Cost
a.	Masonry walls, including cracks, must be repointed to prevent water intrusion.	$2,500.
b.	Since the apparent cause of the separation of the lean-to shed from the masonry structure is an inadequate foundation, added foundation support should be provided if the frame building is to be preserved.	1,850.
c.	Scrape and repaint wood doors and trim.	800.
	Estimated Cost of Recommended Structural Work (Based on Dec. 1, 1978, Costs)	$5,150.

2. Mechanical

	Recommendations	Estimated Cost
a.	The toilets are in serviceable condition and no changes are required other than to replace the broken tank top.	$100.
b.	Reconnect the sewage drain line to the new sewage disposal system recommended for the caretaker's residence.	(included in IV E-2)
	Estimated Cost of Recommended Mechanical Work (Based on Dec. 1, 1978, Costs)	$100.

3. Electrical

	Recommendations	Estimated Cost
a.	While overhead service to the building is in fair condition, it is not consistant with the historic character of the complex. The circuit should be removed and routed underground.	$300.

b. One convenience outlet in each rest room should be added for cleaning purposes.	$100.
c. The bare lamp bulb and porcelain socket in each of the restrooms should be replaced with a vandal proof fixture.	$150.
Estimated Cost of Recommended Electrical Work (Based on Dec. 1, 1978, Costs)	$550.
TOTAL ESTIMATED COST OF RECOMMENDED CORRECTIVE WORK ON PUBLIC REST ROOMS BUILDING	$5,800.

VII Pump House

A. General Description and Observation of Structural Condition

The single story pump house appears to be of much more recent vintage than all of the rest of the structures, except the DuPuis House garage, but it is designed to be visually compatible with its neighbors. It is a one story, masonry structure with a wood framed, asphalt shingled roof and a concrete slab-on-grade floor.

No structural difficulties were observed.

Exterior masonry walls require repointing.

The wood cornice and frieze boards require repair.

All exterior wood windows, doors and trim require scraping and painting.

B. Observations of Mechanical Systems

1. Water Supply System

The water supply system consists of a deep well with a 5 HP turbine pump, a large hydropneumatic tank and a small air compressor for maintaining the tank pressure and necessary controls. It is reported that the system performs adequately and that the water supply and pressure are good.

2. Well House Heating

There is an LP gas space heater in the well house for heating the building. It has a vent flue through the outside wall and up the exterior face of the building to a rain cap. The LP gas supply is underground from the central tank behind the Sibley House.

C. Observations of Electrical Work

The building is served overhead with a 240 volt, 3 phase, 3 wire service and has a small dry type transformer, 240 x 480 volts primary to 120/240 volts secondary, single phase, 3 wire to serve the lights and a small air compressor. The service conductors are in

good condition but the service equipment is in poor condition due to corrosion. At some time a short circuit in the room light switch has occurred, thus burning the wiring such that lights do not work.

D. Recommendations

1. Structural

	Recommendations	Estimated Cost
a.	Repoint exterior masonry walls.	$1,575.
b.	Repair wood cornice and frieze boards.	975.
c.	Scrape and repaint all exterior wood surfaces of windows, doors and trim.	600.
d.	Remove asphalt shingles and reroof with cedar shingles	775.
Estimated Cost of Recommended Structural Work		$3,925.

2. Mechanical

	Recommendations	Estimated Cost
a.	Water Supply System It is recommended that the well pumping system, tank and controls be thoroughly examined to determine whether all parts are functioning well or need to be repaired or replaced.	$500.
b.	Pump House Heating The LP gas space heater should be given a thorough check to verify that it is in good operating condition. From this examination, it should be concluded whether to retain, repair or replace the unit. A new vent for the heater should be installed through the roof.	$500.
Estimated Cost of Recommended Mechanical Work (Based on Dec. 1, 1978, Costs)		$1,000.

3. Electrical

	Recommendations	Estimated Cost
a.	Replace the service entrance equipment. Due to the apparent high humidity in the building, the new replacement equipment should be of the weatherproof variety.	$350.
b.	Replace the room light switch. Lighting fixtures should be replaced with new vapor proof fixtures.	$150.

c. Ground-fault protected convenience outlets should be installed to replace existing convenience outlets.	$175.
Estimated Cost of Recommended Electrical Work (Based on Dec. 1, 1978, Costs)	$675.
TOTAL ESTIMATED COST OF RECOMMENDED CORRECTIVE WORK ON PUMP HOUSE	$5,600.

VIII Garage

A relatively new garage structure is located immediately to the north-east of the DuPuis House. It is a clapboard sided, frame structure with asphalt shingled roof and a concrete slab-on-grade floor. It appears to be in good condition with only the following remedial action recommended.

	Recommendation	Estimated Cost
A.	Scrape and repaint exterior	$800.
B.	Refit door in west wall	$125.
	ESTIMATED COST OF REMEDIAL ACTION ON GARAGE	$925.

IX Site

The large area comprising The Sibley House Historic Site slopes sharply down from Highway 13 to the south, on which the DuPuis House faces to the parallel street one block to the north on which front the Sibley and Faribault Houses. The resultant natural drainage is directed especially toward the southeast corners of the Sibley, the Caretakers, and the Carriage Houses. There are inadequate provisions, whether in the form of site grading and/or retaining walls, to divert water from the foundations of these buildings. The humidity problem in the pump house is, in at least part, the result of water directed to the base of that structure. The first floor of the DuPuis House is below the grade of the nearby street and the installation of curbs to prevent water from entering the south foundation wall has not been completely successful.

It is recommended that a topographic survey of the site, followed by a complete engineering study, be made to correct this problem. While the scope, and consequently the cost, of the work necessary to correct the drainage problem depends on the design resulting from such an engineering study, assume a combined cost including topographic survey, engineering; earth moving, such construction as may be required as retaining walls, relocation of paths, etc. and landscaping.

$50,000.

The following additional recommendations are made.

	Recommendation	Estimated Cost
A.	There are 16 dead elm trees of which 4 are said to be on city property which must be removed.	4,500.
B.	Replace support posts in picket fence in front of Sibley House. Repair gate. Scrape and repaint picket fence.	1,800.
C.	Replace missing and defective slats in grape arbor adjacent to the Sibley House. Scrape and repaint.	325.
D.	Replace rotted studs and sheating boards at well house (north of caretakers residence) scrape and paint structure.	350.
	Estimated Cost of Recommendation for Sitework (Excluding Grading Modification)	$6,975.

X. Summary of Estimated Cost of Recommendations

A.	SIBLEY HOUSE	
	Structural	78,075.
	Mechanical	625.
	Electrical	11,600.
	Total - Sibley House	90,300.
B.	FARIBAULT HOUSE	
	Structural	53,475.
	Mechanical	175.
	Electrical	8,550.
	Total - Faribault House	62,200.
C.	DuPUIS (SIBLEY TEA) HOUSE	
	Structural	34,350.
	Mechanical	27,250.
	Electrical	13,200.
	Total - DuPuis House	74,800.
D.	CARETAKER'S RESIDENCE	
	Structural	11,215.
	Mechanical	15,750.
	Electrical	235.
	Total - Caretaker's Residence	27,200.
E.	CARRIAGE HOUSE	
	Structural	24,900.
	Mechanical	00.
	Electrical	1,300.
	Total - Carriage House	26,200.
F.	PUBLIC REST ROOM BUILDING	
	Structural	5,150.
	Mechanical	100.
	Electrical	550.
	Total - Public Rest Room Building	5,800.
G.	PUMP HOUSE	
	Structural	3,925.
	Mechanical	1,000.
	Electrical	675
	Total - Pump House	5,600
H.	GARAGE	
	Total - Garage	925.
I.	SITE	
	Total - Site	6,975.
	Total estimated costs of recommendations for all work (Based on December 1, 1978, Costs)	$300,000.
	Overhead and Profit	45,000.
	Total Construction Cost	345,000.
	Architectural/Engineering Fees	41,400.
	Total Construction Cost	386,400.
	Assumed cost of grading modifications (See IX) Architectural/Engineering Fees, and Survey Included	50,000.
	GRAND TOTAL	436,400.