

Historic Structure Assessment Report



Bishop Barn

Gettysburg, Pennsylvania

Gettysburg National Military Park

June 2018

Cover Photo by HPTC, 06/20/17.

Historic Structure Assessment Report

Bishop Barn 2065 Emmitsburg Road Adams County, PA

Project Agreement for Bishop Farm House & Barn HSAR
Between
Gettysburg National Military Park
and
the National Park Service
Historic Preservation Training Center

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CHAPTER 1

Overview

The National Park Service's Historic Preservation Training Center (HPTC) was engaged by the Gettysburg National Military Park (GETT) to prepare a Historic Structure Assessment Report (HSAR) for the Bishop Barn in Gettysburg, PA, in fulfillment of Final Project Agreement (March 30, 2017): *Bishop Farm House & Barn HSAR*. The HSAR also includes baseline drawings (see Appendix A).

An HSAR provides an assessment survey of the architectural fabric and building systems of a particular structure. It identifies maintenance deficiencies in the physical condition of the features, materials and building systems. It also provides a written and illustrated narrative of the important character-defining features as required by National Park Service policies and guidelines.

The HSAR team uses non-destructive, observation-based architectural fabric investigation and evaluation survey techniques to determine condition ratings for all building features. Subsequently the HSAR presents treatment recommendations for building features and components (extant historic architectural fabric/materials) and important building systems with maintenance deficiencies to return them to good condition.

This report will also recommend an appropriate level of treatment for the Bishop Barn to meet the agency's mission requirements as outlined in NPS-28 *Guidelines for the Management of Cultural Resources* (NPS-28) and *The Secretary of the Interior's Standards for the Treatment of Historic Properties* (the Standards).

Scope and Objectives

This project consists of the preparation of a Historic Structure Assessment Report as defined by the project agreement. The HSAR includes the following chapters:

1. *Project Overview* (administrative information)
2. *Physical Description, Context & Chronology*: brief architectural description; definition of the character-defining features; summary of the evolution of the building (context is derived from referenced National Register and HABS History Data materials for the building)
3. *Standards and Definitions*: references for agency systems, policies, and guidelines that inform the project
4. *Condition Assessment Survey*: description of fabric investigation; architectural fabric survey and assessment; summary of condition ratings (maintenance deficiencies)

5. *Recommended Treatments*: prioritized recommendations for treatment (Preservation Maintenance/Rehabilitation) to meet the stated project goals for treatment

The HSAR team conducts the inspection and assessment during a series of field visits to the building. The character-defining features of the structure are determined through the field survey referencing the NPS Preservation Brief No. 17: *Architectural Character: Identifying the Visual Aspects of Historic Character as an Aid to Preserving Their Character*. An established Building Feature Master List (adjusted specifically for the Bishop Barn from the NPS Building Feature Master List) is used as a guide for conducting the inspection and assessment, and for preparing recommended treatments.

The condition assessment survey is part of a larger administrative process known throughout the federal government as the asset management process, and internally in the agency as the Capitol Asset Management process. The NPS and other federal agencies apply this process to their historic structure portfolio in an effort to determine their condition, inform the management process, and maintain them in good condition.

The historic structure assessment process includes establishing a Building Feature Master List. This list is derived from *Uniformat II*¹ as developed and widely adopted by the federal government for use in the asset management process. The list is used as the guideline for the inspection and condition assessment.

Once identified, the building features are assigned a Qualitative Condition Rating of *Good*, *Fair*, or *Poor* condition and a Maintenance Deficiency Rating of *Critical*, *Serious*, or *Minor*. This allows for development of immediate, short- and long-term treatment strategies. An approximate time period is selected in which the life-cycle assessment (service life) is assessed and on which the treatment recommendations are prioritized for planning purposes. In this project a three- to five-year time period was selected for long-term treatment cycle and a one- to three- year time period represents the short-term lifecycle assessment and treatment period. Those features with an immediate need should be addressed within one year; this includes features requiring alterations for immediate mothballing/stabilization treatment.

An HSAR uses these industry-wide standards for the assessment criterion. The methodology used to determine building system features as well as the NPS system to identify and document character-defining features are included in the appendices.

¹ *Uniformat II Work Breakdown Structure (WBS) (Rev 02.13.08)*.

Definitions of the previously listed terminology are derived from the NPS asset management process and adopted for use for this project. Definitions are provided in Chapter 3 and detailed more thoroughly in Appendix B.

Development of recommended treatments is based on the maintenance deficiencies and condition ratings of the features and their significance as character-defining features. All recommended treatments meet *The Secretary of the Interior's Standards for the Treatment of Historic Properties* and NPS-28 as it pertains to historic buildings. All treatments are intended for general execution by trained historic preservation professionals.

The HSAR team has completed the following services:

- Provided non-destructive, observation-based architectural fabric survey and assessment of the Bishop Barn;
- Building Feature Master List (BFML checklist) customized for the building condition assessment survey;
- Condition assessment of extant fabric based on BFML checklist;
- Identification of character-defining features;
- General treatment recommendations for preservation maintenance/rehabilitation of extant fabric based on *The Secretary of the Interiors Standards for the Treatment of Historic Properties (2017²)* used for the management of historic structures;
- An illustrated narrative that depicts building conditions and provides recommendations for treatment;
- Documentation of the structure through measured drawings.

Methodology

The feature inventory and condition assessment for the Bishop Barn includes these project tasks and steps:

- Field research and documentation;
- Inspection and condition assessment;
- Review historical building records (architectural documentation);
- Development of the HSAR for the documentation and planned implementation of the recommended preservation maintenance and rehabilitation treatments.

The following is a more detailed description of the methodology involved in the development of the recommended treatments provided for consideration.

² This is the most current edition of The Standards.

Field Research

The HSAR team worked collaboratively to research, gather, and review existing available background documents, drawings, and photographs to be used for reference and the depiction of the recommended treatments.

Inspection and Condition Assessment

The HSAR team conducted a site visit to the Bishop Barn in June 2017 to perform the assessment based on the Building Feature Master List (BFML). The BFML list is field adjusted to accommodate special or additional features of the building; it is included in Appendix C. Each building feature is inspected, assessed, and photographed. Maintenance deficiencies were determined using primarily non-destructive investigation and evaluation techniques and visual observation.

Historic Structure Assessment Report

Results of the feature inventory, character-defining feature description, and condition assessment are compiled into this report. Preservation maintenance/rehabilitation treatments are recommended to correct existing maintenance deficiencies. A three-to-five-year treatment period is used for the purposes of this report after which time periodic routine and cyclic maintenance will be required. During the five-year period, preservation maintenance and monitoring should suffice under normal conditions.

Recommended work tasks are prioritized according to condition rating and maintenance deficiencies. All recommended treatment decisions for preservation maintenance and rehabilitation are recorded in the HSAR.

The recommended treatment determinations are arranged in similar prioritized order with the most deficient features requiring the highest levels of intervention at the top of the list. Treatments address all the building features including simple housekeeping and maintenance tasks.

Recommended treatments were developed based on the investigation of the structure and the understanding/determination that Mothballing/Stabilization (immediate) and Preservation Maintenance/Rehabilitation (long-term) are the preferred immediate and long-term treatments, respectively, to maintain and improve the overall condition of the structure from "*Poor*" or "*Fair*" to "*Good*."

The overall goal of the project is to provide prioritized recommended treatments, based on the specific condition of the building, that allow GETT and the NPS to maintain and preserve this National Register property.

The recommended treatments are designed to ensure, upon their implementation, a stabilized building in good repair where character-defining features are preserved and respected. Exterior treatments are designed to present a building that is resistant to vandalism and weather, with an exterior building envelope that sheds water, allows for proper ventilation, and is structurally sound. Goals for the interior are to present a clean, safe, and well-cared for environment, able to be visited and used by agency personnel during an interim period of mothballing or temporary stabilization treatment not to exceed five years.

Project Participants (HSAR Team)

The following individuals contributed to the report or field investigation:

Historic Preservation Training Center (NPS)

Rebecca Cybularz, Project Historical Architect

Tatum Clinton-Selin, Exhibits Specialist

Justin Clevenger, NCPE Intern

Gettysburg National Military Park

Marcus Pratt, Chief of Facility Management

Winona Peterson, Cultural Resources Program Manager

Northeast Regional Office

Jack Glassman, Historical Architect

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National Park Service Selected Preservation Briefs (Appendix D)

Preservation Brief No. 2. "Repointing Mortar Joints in Historic Masonry Buildings." Robert C. Mack, FAIA, John P. Speweik. October 1998.

Preservation Brief No. 4, "Roofing for Historic Buildings." Lee H. Nelson, FAIA. February 1978.

Preservation Brief No. 9, "The Repair of Historic Wooden Windows." John H. Myers. 1981.

Preservation Brief No. 10, "Exterior Paint Problems on Historic Woodwork." Kay D. Weeks and David W. Look, AIA. September 1982.

Preservation Brief No. 16, "The Use of Substitute Materials on Historic Building Exteriors." Sharon C. Park, AIA. September 1988.

Preservation Brief No. 17, "Architectural Character: Identifying the Visual Aspects of Historic Character as an Aid to Preserving Their Character." Sarah M. Sweetser and Lee H. Nelson, FAIA. 1982.

Preservation Brief No. 19, "The Repair and Replacement of Historic Wooden Shingle Roofs." Sharon C. Park, AIA. September 1989.

Preservation Brief No. 20, "The Preservation of Historic Barns." Michael J. Auer. October 1989.

Preservation Brief No. 35, "Understanding Old Buildings: The Process of Architectural Investigation." Travis. C. McDonald, Jr. September 1994.

Preservation Brief No. 37, "Appropriate Methods for Reducing Lead-Paint Hazards in Historic Housing." Sharon C. Park, FAIA, and Douglas C. Hicks. 2006.

Preservation Brief No. 39, "Holding the Line: Controlling Unwanted Moisture in Historic Buildings." Sharon C. Park, AIA. October 1996.

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The Secretary of the Interior Standards for the Treatment of Historic Properties with Standards and Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings. Revised by Anne E. Grimmer. From *the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings* by Kay D. Weeks and Anne E. Grimmer (1995). U.S.

Department of the Interior, National Park Service, Technical Preservation Services, Washington, D.C., 1995.

Uniformat II Work Breakdown Structure (WBS) (Rev 04.19.07) developed by the National Institute of Standards and Technology (NIST), the American Society of Testing Materials (ASTM) the American Institute of Architects (AIA), the General Services Administration (GSA), and the Construction Specification Institute (CSI). See NIST report *UNIFORMAT II Elemental Classification for Building Specifications, Cost Estimating, and Cost Analysis*.

End of Chapter 1.

CHAPTER 2

Resource Information

The following information is used to identify the Bishop Barn. The date of construction, National Register status, period of significance, and building number were gathered through various sources (see footnotes throughout following context and chronology sections for citations). The current and intended uses and the intended treatment were determined by Gettysburg National Military Park (GETT).

Administrative Data

<i>Preferred Structure Name</i>	Bishop Barn
<i>Other Structure Name</i>	George Bishop Barn, (William) Currens Barn, Smith Barn
<i>Address</i>	2065 Emmitsburg Road, Gettysburg, PA, Cumberland Township
<i>NPS Structure Number</i>	TBD
<i>Park</i>	Gettysburg National Military Park
<i>Structure State</i>	Pennsylvania
<i>Structure County</i>	Adams
<i>NPS Region</i>	Northeast
<i>Cluster</i>	Chesapeake
<i>Administrative Unit</i>	Gettysburg National Military Park
<i>LCS ID</i>	TBD
<i>Date of Construction</i>	1884 ¹

Cultural Resource Data

	Bishop Barn
<i>National Register Status</i>	Entered – Not Documented (Gettysburg National Military Park/Soldiers National Cemetery)
<i>National Register Date</i>	January 23, 2004
<i>National Historic Landmark?</i>	No
<i>National Historic Landmark Date</i>	N/A
<i>Significance Level</i>	National
<i>NR Period of Significance</i>	1863-1938

¹ Dendrochronology performed specifically for this project dates the felling of the main timbers to the winter of 1883/1884. It is likely the timbers were then used to construct the barn during the spring of 1884.

<i>NR Criteria</i>	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.
<i>NR Information System #</i>	66000642

Note: The National Register Supplementary Listing Record for the Gettysburg National Battlefield, accepted into the Register in 2004, lists the Bishop Barn as a contributing structure to the district. Unlike the adjacent house, the historic core of the bank barn retains a large amount of integrity and its status as a contributing does not need to be reexamined.

Management Data Summary (Executive Summary)

Current Use: The Bishop Barn is currently vacant.

Intended Use: Short-Term: Vacant.
Long-Term: Re-use.

Intended Treatment:
Short-Term: Vacant.
Long-term: Exterior and interior preservation maintenance/rehabilitation including repairs, replacement in kind, and preservation of character-defining features.

Summary of the Findings

The **Bishop Barn** achieves an Overall Quality Condition Rating of **POOR** and an overall Maintenance Deficiency Priority Rating categorized as **SERIOUS**.

The **Overall Quality Condition Rating** of **POOR** given to the building indicates routine maintenance is needed at a much higher level of effort to meet significant safety and legal requirements; cyclic maintenance should be scheduled for the current year; and/or a special repair/rehabilitation project should be requested

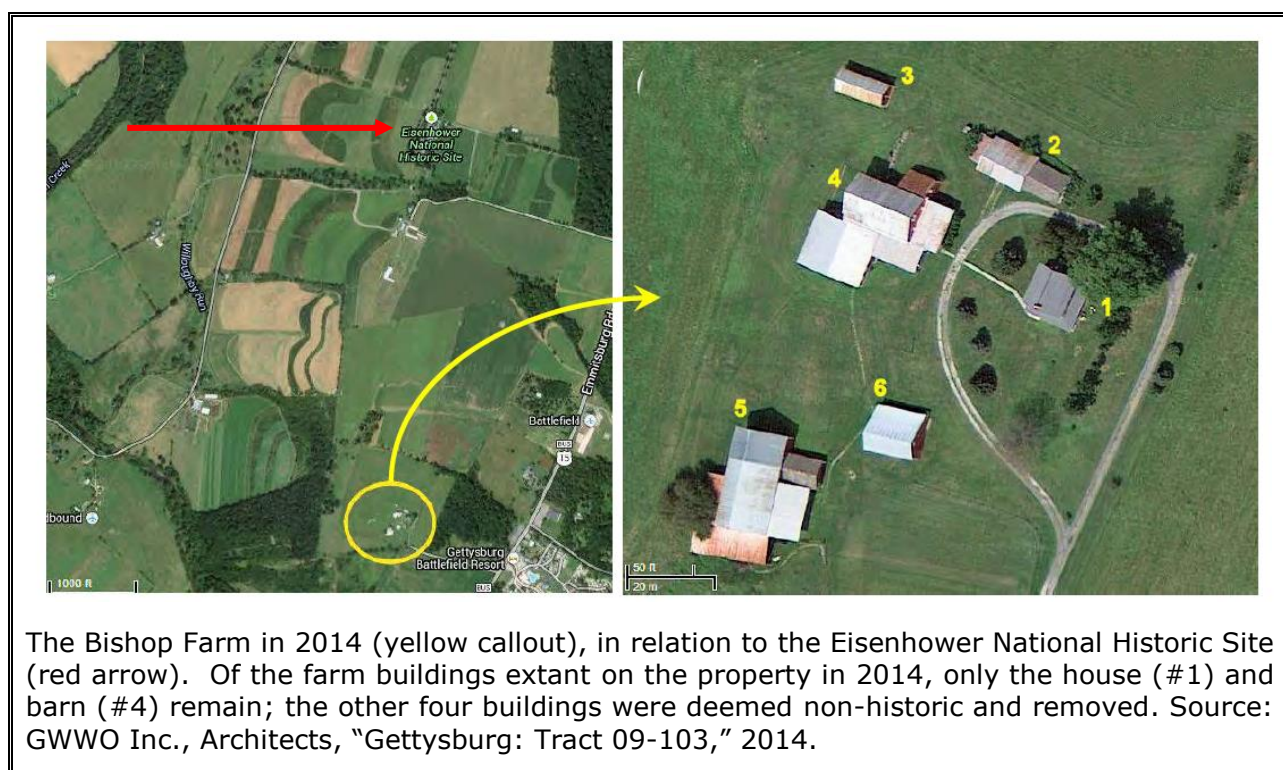
consistent with park requirements, priorities, and long-term management objectives.

The Maintenance Deficiency Priority Rating of *SERIOUS* given to the building indicates that aspects of the building are deficient and if not corrected within one to three years will result in the failure of a building component; a threat to the health and/or safety of users if the ongoing deterioration is not corrected; and/or there is ongoing deterioration of adjacent or related materials and/or features as a result of the feature's deficiency. This will result in the continued loss or damage to character-defining features.

See *Chapter 4, Condition Assessment Survey* for complete building feature component assessment.

Physical Description

The current setting of the Bishop Barn is similar in its rural, agrarian feel to that which existed at the time of the Battle of Gettysburg. The property's narrow extant driveway, located south of Ridge Road on the west side of Emmitsburg Road, likely runs along the border of the original George Bishop farm.² The barn is located approximately 1200 feet west of Emmitsburg Road, about three miles south of the town of Gettysburg and 0.8 miles from Eisenhower National Historic Site (EISE). The EISE Show Barn and Seminary Ridge are visible from the property. The setting is rural and agrarian in feel, much as it was at the time of the Battle of Gettysburg and throughout the Gettysburg National Military Park's Period of Significance (1863-1938).



Exterior Overall

Although a great deal of the original core of the Bishop Barn is now hidden behind four additions (one historic; three not historic), the bank barn form can still be appreciated. The prominent overall visual aspects of the barn are its one-and-a-half

² Gwinn, Christopher (Supervisory Ranger). "A Victory on South Cavalry Field." The Blog of Gettysburg National Military Park. <https://npsgnmp.wordpress.com/2016/09/03/a-victory-on-south-cavalry-field>. Accessed June 12, 2017.

story rectangular mass with stone foundation walls (walk-out level under forebay), vertical wood board siding, and metal roof coverings.

A concrete paved area extends the entire length of the south elevation in front of the forebay wall. A gravel drive leads from the east elevation of the barn east toward the farmhouse. This road leads to Emmitsburg Pike – the road which leads to downtown Gettysburg (to the north) or Route 15 (to the south).



The north elevation with historic outshed granary addition. Photo: HPTC, 06/21/17.



The south elevation with modern milking parlor (left) and modern garage (right). Photo: HPTC, 06/21/17.



The east elevation of the bank barn and outshed granary is obscured by a modern loading shed and vegetation. Photo: HPTC, 06/21/17.

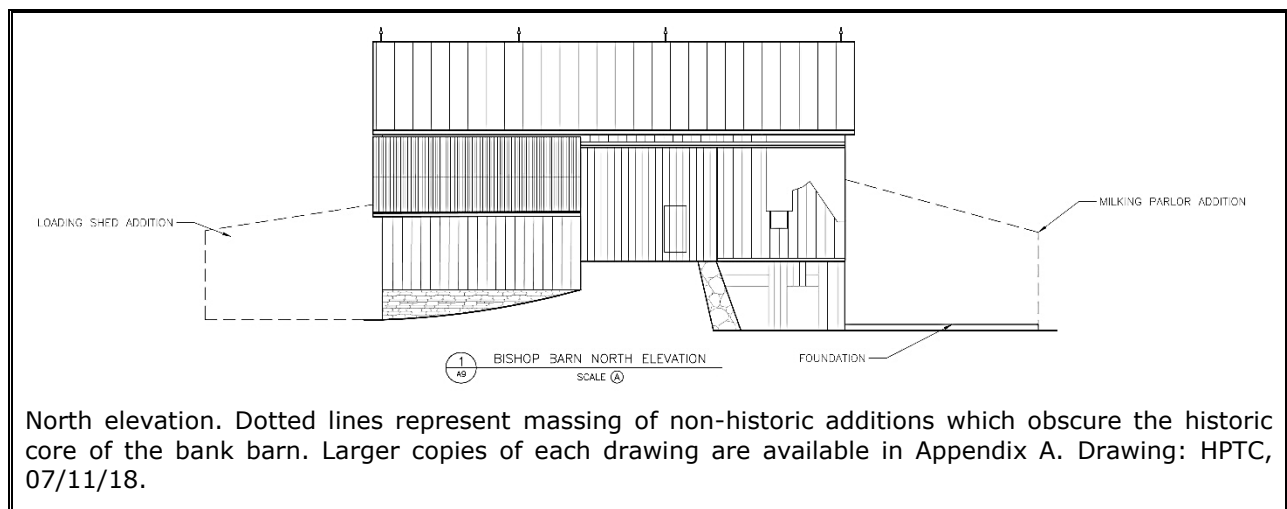


The west elevation. Remnants of concrete foundations are located in front of the main barn. The modern milking parlor is at left. Photo: HPTC, 06/21/17.

North Elevation

The north (bank) elevation of the barn is three bays wide (50'-3"), two-and-a-half stories tall, and sits on a stone foundation under a steep gable roof. The central bay is anchored by a large corrugated metal barn door; a smaller operable man door is located within the larger door. The central bay also includes the long bank which allows access to the second floor. A historic outshed granary addition (21'-6" wide) projects 16'-4" out from this elevation, at the east bay.

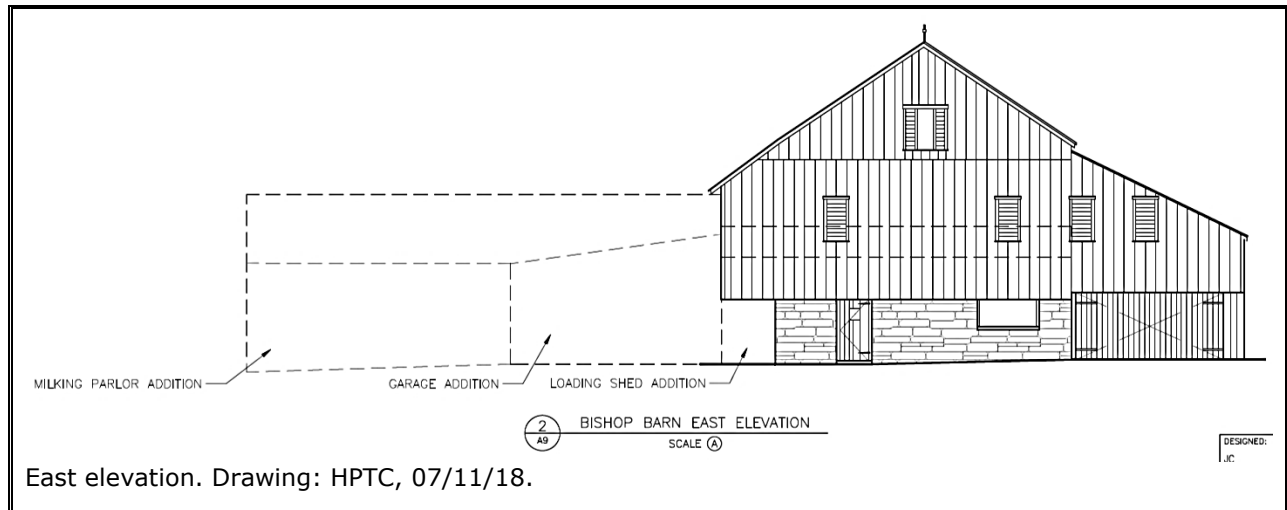
A non-historic loading shed is attached to the east elevation. Remnants of a concrete foundation (use unknown) are located at the west elevation, behind which sits a non-historic milking parlor.



East Elevation

The east elevation of the bank barn is one bay wide (28'-2"), two-and-a-half stories tall, and sits on a stone foundation (6'-0" high) under a steep and asymmetric gable roof. The foundation level includes a door opening (likely historic) and a window opening (modern alteration). A pair of louvered openings are located in the upper level within the wood-sided exterior wall. A tripartite louver/window is located below the peak of the gable. A majority of the east elevation of the bank barn is obscured by the modern loading shed addition.

A historic outshed granary addition (16'-4" wide) projects from the north elevation. This addition is one-story tall and sits on a stone foundation under a steep shed roof. Two wood louvers are located within the wood-sided exterior wall on the upper floor. One large opening with a pair of swinging (inoperable) doors is located at the ground floor level.

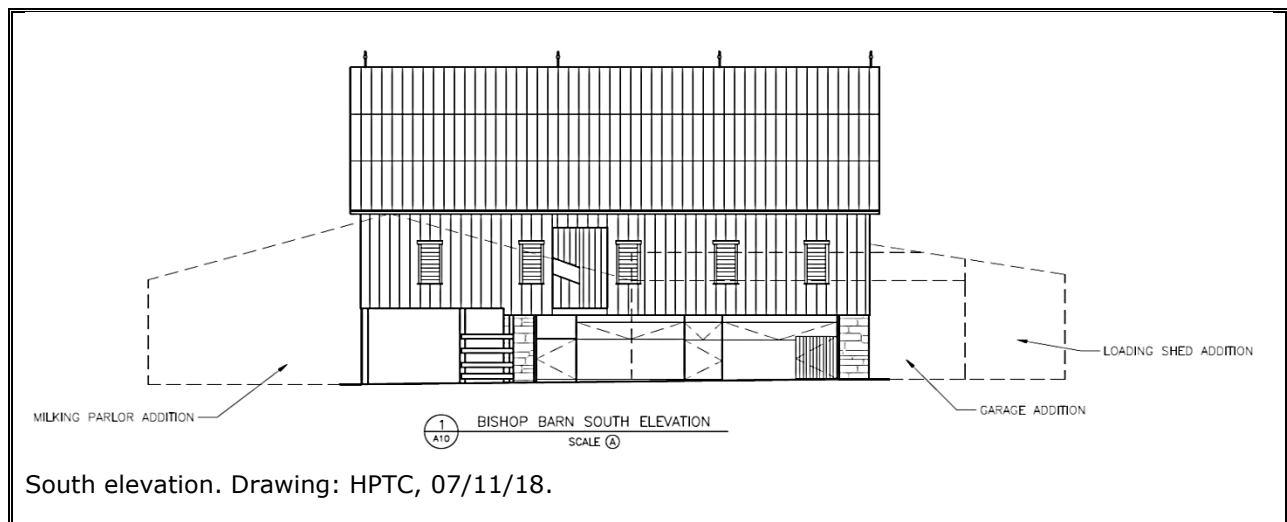


South Elevation

The south (forebay) elevation of the barn is three bays wide (50'-3"), two-and-a-half stories tall, and sits on a stone foundation under a steep gable roof. On the upper floor, the central bay is anchored by a pair of swinging doors (now inoperable due to addition roof), which are flanked by a louvered opening on each side. The east and west bays each include an additional louver.

The lower-level forebay wall has been heavily altered and is considered modern. Three doors are located at the lower level with window openings in between. Vertical swinging doors are located above the doors.

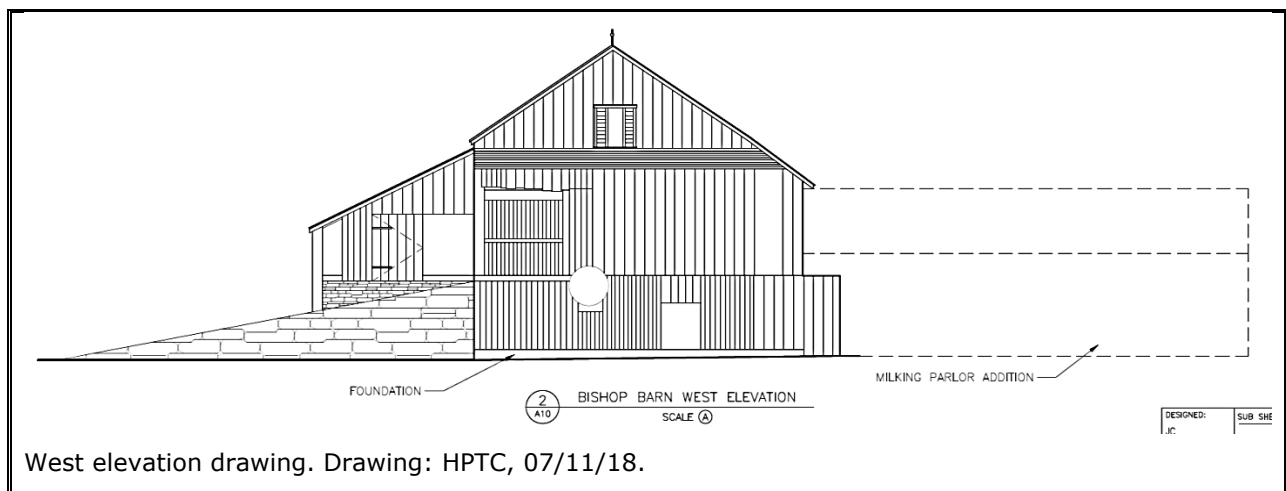
The entire elevation is obscured by a modern milking parlor and modern garage to the south.



West Elevation

The west elevation of the barn is one bay wide (28'-2"), two-and-a-half stories tall, and sits on a stone foundation under a steep and asymmetric gable roof. Both the lower level and upper level are covered with a variety of wood siding ranging from 6" to 12" wide. Also, several sheets of metal, both corrugated and smooth, have replaced the original wood siding, including a metal "Conoco" sign. A 9'-0" by 8'-0" section of the wall was removed in order to construct the interior granary. The granary's west wall, covered with 6'-0"-wide interior vertical wood siding, now serves as the exterior siding.

The bank to the upper floor projects from the north elevation and is withheld via a large rubble retaining wall. Beyond, the historic outshed granary addition can be seen, with a pair of large swinging doors outletting onto the bank. In front of the west elevation lies the remnants of a concrete foundation (use unknown). The modern milking parlor is located to the south.



Interior Organization

Ground (Lower) Level

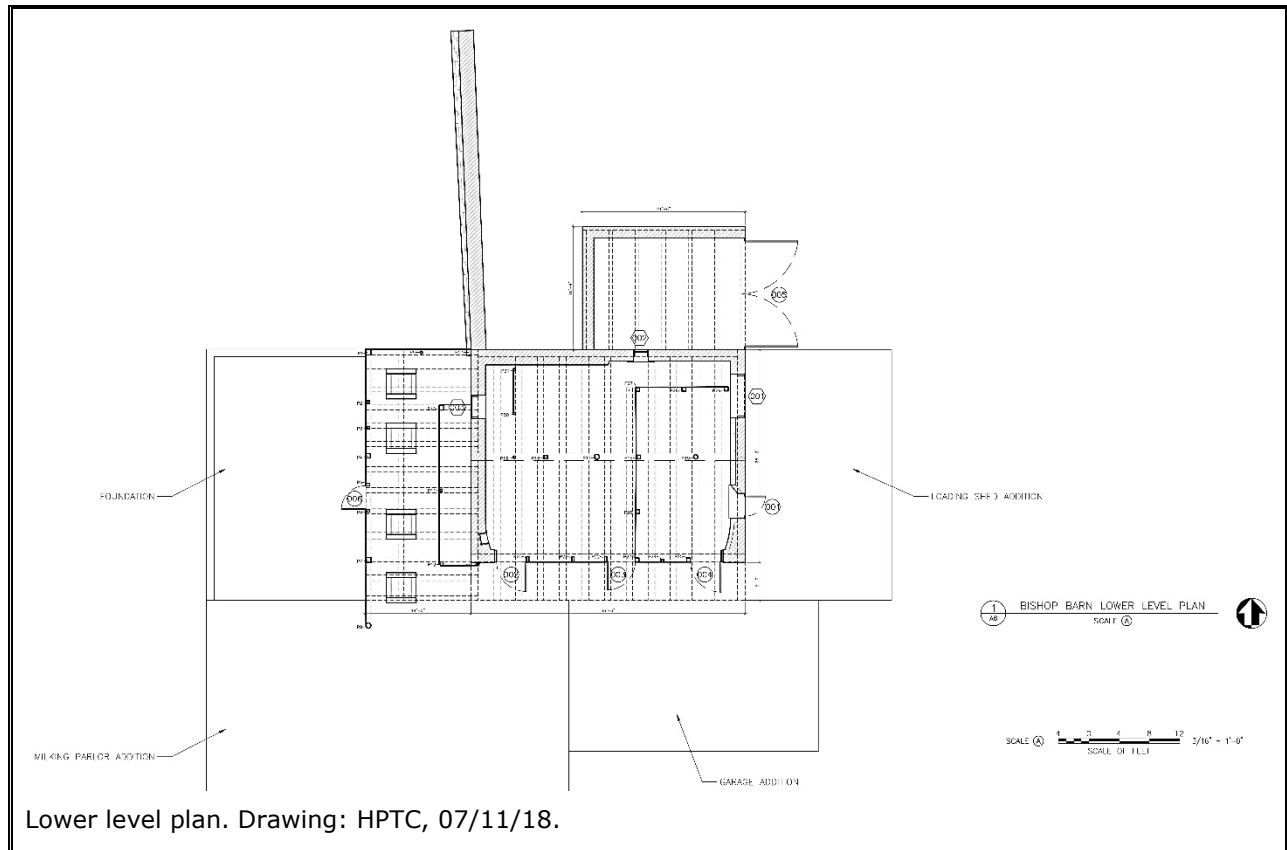
The ground level, or lower, foundation level, of the barn retains both of its original foundation systems.

The first foundation system is a stone wall foundation supporting the central and east mows above. These walls are mostly original except for the east wall which has been heavily modified on the interior with cinder blocks and brick masonry. Originally this area of the barn would have been divided into rows with feeding troughs. An original door opening is located on the east elevation. The forebay wall has been heavily modified and is considered modern.

The second foundation system supports the west mow above. It is composed of timber-frame construction and has been heavily modified. Originally this space would have been a pass-through wagonshed from the south barnyard to the north bank side. Currently it is only accessible from the south and was converted to include a feeding trough (not an original feature). Several modern cribs are located in this space to support the floor system above, due to the compromised timber-frame wall at the lower level.

The ground level of the outshed granary addition (north elevation) is only accessible from the east exterior. A pair of large, swinging doors (inoperable) allow access into the stone foundation.

The ground level also includes access to the loading shed (east elevation), the garage (southeast corner), the milking parlor (southwest corner), and a concrete foundation (west elevation).

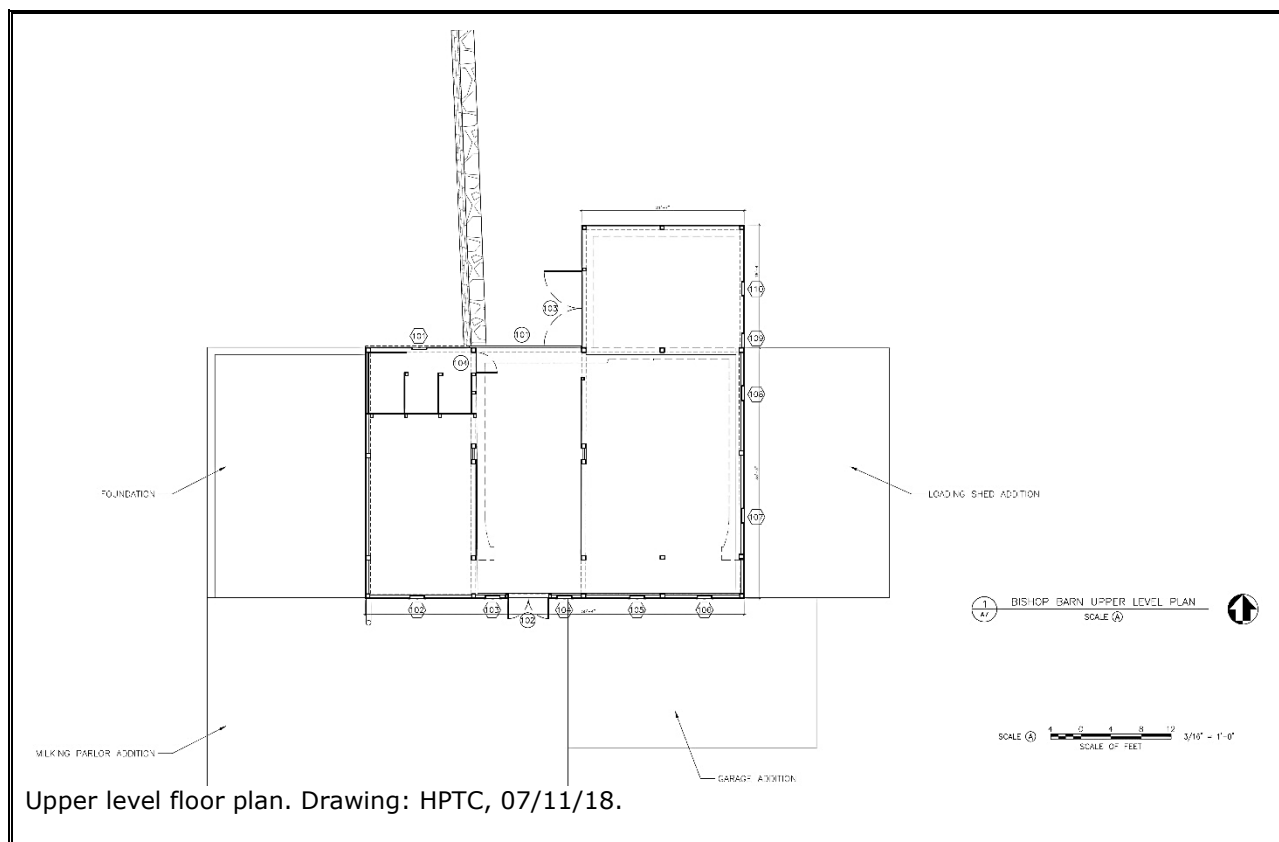


Upper Level

The upper level of the bank barn likely retains its original layout. The space is divided into three bays, or mows, divided by timber-frame bents. The west and east bays were grain mows; the center bay was the threshing mow. A built-in granary is located at the northwest corner of the barn space (northern third of the west mow). The granary is not original, but is likely a historic addition. The interior of the granary is accessed via the center threshing floor.

Access to the bank barn is through a large, modern sliding corrugated metal door on the north elevation, at the bank, which opens into the center threshing floor. A swinging man door is located within the larger sliding door. Originally a pair of wood swinging doors or a single wood sliding door would have occupied the opening. Additional exterior doors are located on the south elevation of the center threshing floor, which would have originally been used to remove threshed grain from the interior into carts or the barnyard below. These doors are currently inoperable due to modern additions. The west and east grain mows are not accessible from the exterior; access to these mows is achieved through the central threshing floor.

The upper level of the outshed granary addition is accessible from the exterior on the west side of the addition from the bank via a pair of swinging doors. The granary addition is also accessed via the east grain mow of the barn because the original siding in this area of the barn has been removed.



Context

Civil War

A short historical context for Adams County can be found in the National Register Multiple Property Documentation Form for Properties Associated with the Battle of Gettysburg.³ A condensed version follows:

Adams County was created in the year 1800 from York County, but it has a history of settlement, which extends far back into the 18th century. The initial settlers were a blend of German, Scots-Irish and English Quakers. Generally, the Germans located in the southeastern part of the county, the Scots-Irish in the mid and western sections and English Quakers, the least numerous, scattered throughout. ...

By 1850, Adams County yielded 318,848 bushels of wheat, 261,779 of oats, and 183,978 of corn. These figures show a marked increase between 1830 and 1850 of wheat and oats production, with a concurrent reduction of corn production, illustrating the importance of flour milling as a leading aspect of the emerging regional agricultural economy. The county's industries and production were agricultural-based through the 19th century. Flour, saw and fulling mills dominated, and continued throughout the 19th century. Yet, despite this agricultural productivity, Adams Countians on the eve of the Civil War were less affluent than their immediate neighbors. Their per capita value of property in 1860 was \$59 compared with \$70 in Cumberland County, \$63 in Franklin County and \$61 in York County.⁴ ...

Quoting a newspaper, Robert L. Bloom in his History of Adams County says: "A reader of the Compiler wrote in 1850 to the editor and claimed that 'the fruit of Adams County has a better reputation in Philadelphia than that of any other county in the state, or any other state.'"⁵

The ability to develop these agricultural markets depended upon a system of transportation routes through the county. By the late 18th century, a network of roads crisscrossed Adams County, some established in the 1740s and '50s. ... These and subsequent roads form a web of 10 roads radiating out from the county seat, Gettysburg. ... The town prospered as a market center for the surrounding countryside. By 1860 at the eve of the Civil War, its population had grown to 2,390.

[End of quoted material]

³ Reed, Paula S (Architectural Historian). "Adams County, PA Properties Associated with the Battle of Gettysburg, July 1-3, 1863." *National Register of Historic Places Multiple Property Documentation Form*. Date Entered: April 11, 2000. Section E.

⁴ Bloom, Robert L. A History of Adams County, Pennsylvania, 1700-1990. Gettysburg, PA: Adams County Historical Society. 1992.

⁵ Ibid.

During the Battle of Gettysburg, the Bishop Farm witnessed skirmishes and sparring between federal Brigadier General Wesley Merritt and a detachment of the 1st South Carolina Cavalry in the fields and farms bordering Emmitsburg Road, known as South Cavalry Field.⁶

[Brig. Gen. Merritt's] brigade of federal cavalry, belonging to the division of Gen. John Buford, arrived on July 3rd ... The Union cavalry temporarily drove the rebel skirmish line back (across lands that would one day belong to President Dwight Eisenhower) but timely reinforcements from Brig. Gen. Evander Law's Confederate division stalled and rebuffed their advance. Thus the fighting in that sector of South Cavalry Field ended, as did the larger Battle of Gettysburg.

On July 18, near the town of Petersville, Maryland, Merritt penned his official report on the Campaign, dedicating only a single paragraph to the fighting the men of his Reserve Cavalry Brigade participated in:

"...I marched with the brigade about 12m. to attach the enemy's right and rear, and annoy him, while the battle was progressing on the right. I marched on the Gettysburg Road about 4 miles, where my advance and skirmishers were engaged. Here the brigade drove the enemy more than a mile, routing him from strong places, stone fences, and barricades. This flight last about four hours (some time after the cannonading had ceased on the right), and was finally brought to a close by heavy rain."

[End of quoted material]

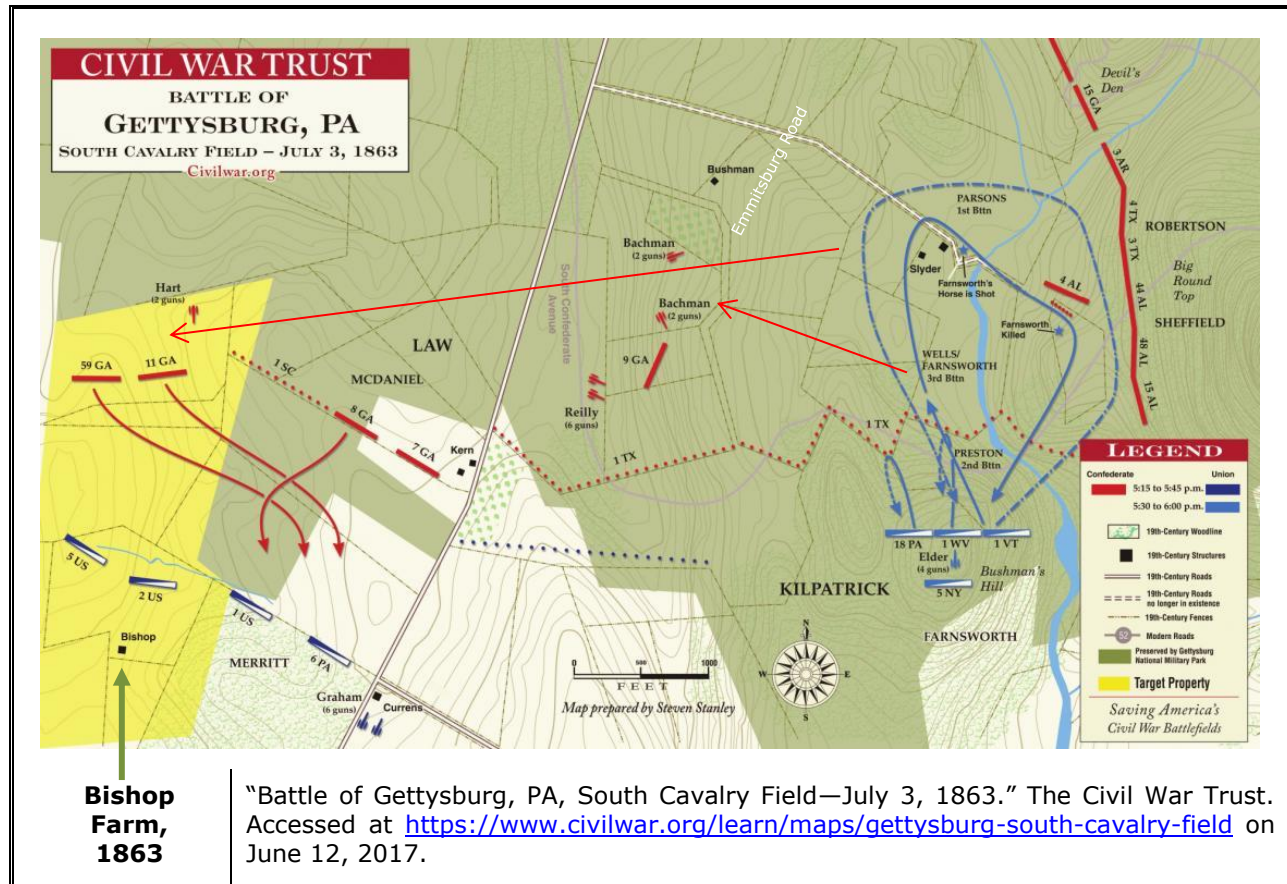
However, military action on South Cavalry Field has been overshadowed in the annals of history:

The historiography of the battle of Gettysburg, like Merritt himself, has largely glossed over the role his men played at Gettysburg. The size, scope, and carnage of Pickett's charge, which occurred at the same time, captured far more attention and played a far more significant role in dictating the ultimate outcome of the battle. Likewise, preservation efforts in the late 19th century were more focused on securing iconic locations such as Little Round Top, Culp's Hill, and Cemetery Hill, than the fringe of the battlefield.

Geographical isolation, and the difficulty of visiting the scene where Merritt's men battled has further obscured South Cavalry Field. Merritt's brigade tablet, a sort of bronze and stone island unto itself, is virtually isolated from the rest of the National Military Park. A small strip of park land, numbering only a few acres, sits to the east of the Emmitsburg Road. ... The fields, farms, and woodlots where Merritt's men engaged their Confederate foes was never preserved or protected in the same manner as other areas of the battlefield, though fortunately, much of it retains its 19th century agrarian appearance.⁷

⁶ Gwinn. "A Victory on South Cavalry Field."

⁷ Ibid.



Bank Barn Typology

The Bishop Barn is considered a typical example of the bank barn typology.

Bank barns, or Pennsylvania barns, Pennsylvania German barns, Swisser, or Sweitzer barns,⁸ became the primary barn type in southeastern Pennsylvania by the end of the eighteenth century. "The range of these barns extended farther south and west during the nineteenth century and spread to many states beyond Pennsylvania."⁹

"The general functional design of the Pennsylvania barn has remained fairly constant through time. It is always banked to provide access to the upper level. This level is used to process and store feed grains, hay, and straw. The upper-level

⁸ Mroszczyk, Lisa J. "Typology of Barns in Mid-Maryland." Washington, DC: Historic American Building Survey, HABS No. MD-1275, 2007, p.12. Refer to pp. 12-13 for more information on the origins of the Pennsylvania/Bank Barn.

⁹ Enslinger, Robert F. "The Pennsylvania Barn: Its Origin, Evolution, and Distribution in North America." Baltimore, MD/London: The Johns Hopkins University Press, 1992, p. 1. Refer to pp. 1-50 for more information on the origins of the Pennsylvania/Bank Barn.

space to the fore of the barn, extending over the stable wall below, is the forebay."¹⁰



A typical bank barn has a bank to provide access to the upper level, seen at the Bishop Barn on the north elevation. Photo: HPTC, 06/21/17.



A typical bank barn includes an overhanging forebay. At the Bishop Barn, the forebay is located on the south elevation. Photo: HPTC, 06/21/17.

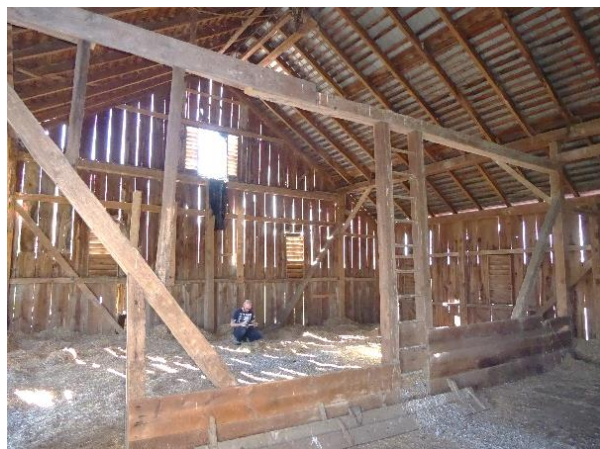
Threshing occurred in the center bays of the upper floor, or the threshing floor. The process required door openings on either side of the threshing floor (bank and forebay sides) for airflow through the space, and the use of tight tongue-and-groove flooring to prevent the loss of grain through the floor boards to the ground floor below. Flailing, or mowstead, walls approximately 3'-0" in height "separated the threshing floor from the mows, which were spaces for storing hay and straw. The walls also helped to contain the threshed and winnowed grain in the center bays."¹¹

Grain was stored in granaries. "Many barns had granaries constructed with partition walls within the mows to store the winnowed grain." The granaries could be located at several locations inside the barn. These locations include above the overhanging forebay, along the ramp wall, and as projecting outsheds on either side of the ramp.¹²

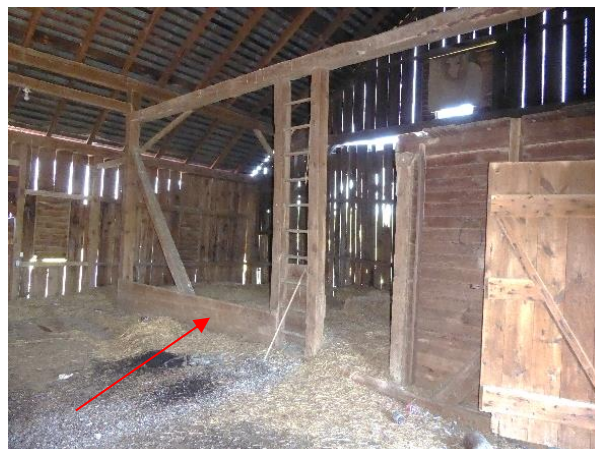
¹⁰ Ensminger, p. 53.

¹¹ Mroszczyk, pp. 13-14.

¹² Mroszczyk, p. 15.



From the threshing floor looking toward the west grain mow. Photo: HPTC, 06/21/17.



Low flailing walls separate the threshing floor (foreground) from the grain mows beyond. Photo: HPTC, 06/21/17.



Attached outshed granary on the north elevation of Bishop Barn. Photo: HPTC, 06/21/17.



Interior perspective of attached outshed granary on north elevation, as seen from the east grain mow of the barn. Photo: HPTC, 06/21/17.



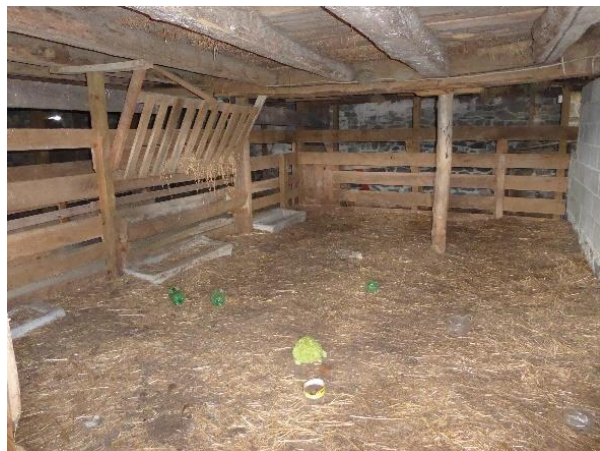
Interior granary at the northern of the west grain mow of the barn. Photo: HPTC, 06/21/17.

Right: Interior of interior barn granary. Photo: HPTC, 06/21/17.



The lower level of a bank barn was used to shelter and feed livestock.¹³ The space “was usually arranged with stalls running perpendicular to the forebay with an aisle along the back wall, which may have been accessible from a set of stairs descending from the threshing floor and may in some cases also been accessible from a door in the foundation. Aisles ran between stalls to access feeding troughs. Two-part Dutch doors were commonly used, one for each row of stalls and one for each aisle, opening onto the barnyard so as to allow light in while still containing the animals. The overhanging forebay provided protection for these entrances.”¹⁴ The forebay and barnyard were typically located on the south or southeast elevation of the barn.¹⁵

Typology of Barns in Mid-Maryland includes typical construction methods of foundations, framing and exterior walls for bank barns. Foundations were rubble or fieldstone; coursed and non-coursed; some presence of quoins; typically, thick in dimension; not tied into the barn frame, but merely supported it. Framing was typically mortise-and-tenon timber; varying bent configurations (including post-to-purlin, queen-post, and king-post systems). Exterior Walls: brick exterior walls rare; log exterior walls were common; stone exterior walls were common; timber-framed, wood-siding-clad exterior walls were common; forebay wall always timber-framed.¹⁶



The lower level of a bank barn was used for livestock purposes. It has since been altered for domestic purposes. Photo: HPTC, 06/21/17.



The mortise-and-tenon timber frame of the Bishop Barn is typical for bank barns. Photo: HPTC, 06/21/17.

¹³ Ensminger, p. 55.

¹⁴ Mroszczyk, p. 15.

¹⁵ Ensminger, p. 55.

¹⁶ Mroszczyk, pp. 16-17.



The stone foundation walls, in a random rubble pattern, seen at the Bishop barn in granite, are a typical foundation material for bank barns. Photo: HPTC, 06/21/17.

Typology of Barns in Mid-Maryland, The Pennsylvania Barn, and Barns sort the bank barn into types for classification purposes. According to *Typology of Barns in Mid-Maryland*, Bishop Barn is classified as **Type A4: Asymmetrical Gable/Open Forebay (Timber)**.¹⁷ Characteristics are as follows:

The asymmetrical gable is reminiscent of saltbox-style roof although in other types of buildings the extended roof plane is placed on the northern side to provide protection from the weather while opening up to warmer southern side. This is not the case for barns in mid-Maryland as the extended roof plane is generally observed to be on the forebay side and therefore facing south, east, or southeast. This is a result of the forebay framing not being constructed within the main framing structure of the barn. The extended roof is only seen on the ramp side when there are projecting granaries or other outsheds built on that side and these are classified separately (Type G). Barns with the asymmetrical gable configuration are likely to be earlier than those with symmetrical gables. The roofs of these barns have steeper slopes than barns with symmetrical gables and the forebay wall is generally



The Bishop Barn has asymmetrical gable-end walls to compensate for the extended forebay on the south elevation. Photo: HPTC, 06/21/17.

¹⁷ Mroszczyk, p. 17, 18

much shorter. All heavy timber construction was the second most popular construction method for this type, also largely seen in Washington County [MD] and mainly built in the period from 1840-1900 with the Newcomer Barn on the grounds of the Antietam National Battlefield in Sharpsburg built as early as 1790.

According to *The Pennsylvania Barn*, Bishop Barn is classified as **Type B**, a *Classic Sweitzer Barn (Dornbusch Type F)*, 1730-1830. Characteristics are as follows:

Heavy bents of hewn oak, mortise-and-tenoned and pinned, provide inner support for barn and roof. Bents were either constructed in place, timber by timber, or prefabricated on the barn floor to be raised and connected to complete the framework. The typical bent configuration consists of one or two upper cross beams connected to end and inner posts, plus heavy diagonal braces reaching from cross beams, or end posts to floor. In early bents, the end post, top cross, or tie beam and the roof plate are articulated at the top of the post in a complicated mortise-and-tenon tying joint. Mow ladders reaching from the floor to the top beam are incorporated into those bents that stand between the threshing floor and the mows. Most early examples of the classic Sweitzer barn utilize a heavy, truncated principal rafter and braced double collar beam truss system instead of queen posts for roof support. This is called, "liegender stuhl", lying chair. The forebay is 6 to 9 feet deep and is supported by heavy forebay beams under the forebay sill that extend back over the front stable wall, under the heavy timber frame, and on to the rear stable wall.¹⁸

According to *Barns*, Bishop Barn is classified as a Cantilevered Forebay Barn. Characteristics are as follows:

The forebay consists of the portion of the upper level of the barn that extends over the foundation, supported only by the strength of the floor joists. The forebay may extend out from the barn as much as 6 to 8 feet. Its purpose is to shelter the entrances of the stables or milking stalls from the weather as well as to provide additional storage or work space on the upper level. If the upper level is a frame or log structure, the forebay consists of that portion that extends past the front wall of the semi-subterranean foundation.¹⁹

Similar Barns in the Area

Two other barns of very similar styles are owned and managed by Gettysburg National Military Park. These include the Joseph Sherfy Farm Barn and the Basil Biggs Farm Barn.

The Joseph Sherfy Barn is also located on Emmitsburg Pike, approximately one mile north of the Bishop Barn. It is a two-story timber-framed Pennsylvania bank barn which measures 53'-6" (bank and forebay elevations) x 40'-5" (gable-end

¹⁸ Ensminger, pp. 60-63.

¹⁹ John Michael Vlach. *Barns*. W.W. Norton & Company, New York and London, 2003, pp. 96.

elevations) x 33'-11" tall. The forebay is located on the south elevation; the bank is located on the north elevation. The gable roof is symmetrical. The stone foundation is located only under two thirds of the upper level with a timber-frame wagon shed under the other third.

The Sherfy Barn was not extant during the Battle of Gettysburg. The original English-style barn was burned by the Confederates on the second day of the battle. Owner Joseph Sherfy rebuilt the barn in 1868, but it burned again in 1869. The current barn, the third on the foundation, dates to 1869.

The Basil Biggs Barn is located further from the Bishop Barn, on Taneytown Road. It is a two-story, timber-framed Pennsylvania bank barn which measures 54'-0" (bank and forebay elevations) x 39'-0" (gable-end elevations). The forebay is located on the south elevation; the bank is located on the north elevation. The gable roof is symmetrical. The stone foundation is located only under two thirds of the upper level with a timber-frame wagon shed under the other third.

The Biggs Barn was not extant during the Battle of Gettysburg. The original English-style barn was used as a hospital during the second and third days of battle. The extant bank barn was built ca. 1890 likely on the original barn's foundations.



The Joseph Sherfy barn is similar in construction as the Bishop Barn down the road. Photo: HPTC, 06/21/17.



The Basil Biggs Farm Barn is also similar in construction as the Bishop Barn. Photo: HPTC, 06/21/17.

Chronology

Little is known about the architectural history of the Bishop Barn itself. The current barn was not extant at the time of the Battle of Gettysburg. Based on dendrochronology performed on the timbers of the barn, the wood members were felled during the winter of 1883/1884.²⁰ This pre-dates original estimates of ca. 1890-1920, which was based on the barn's architectural features and methods of construction.²¹

By the 1850s, the William Currans farm was located on the site of the later Bishop Farm. This is based on an 1858 atlas of the area by G.M. Hopkins, which denotes the farm site with "Wm. Currans" and a small dot probably representing a building. Currans (1822-1879) was a farmer in the Gettysburg area who later moved to Mount Joy Township.²²

During the summer of 1854, Currans advertised a farm at public sale. Described as "adjoining lands of Alexander Currans, heirs of George Toot, George Waybright, and others, lying upon the Emmitsburg road, about four miles from Gettysburg and containing 120 acres, more or less," this farm is believed to be the later George Bishop farm. Improvements on the premises are described as "a one and a half story dwelling, part stone and part log, a log Barn, with Sheds and out-buildings." Orchard, timbered, and cleared land are noted, to be sold together or separately. Based on the later 1858 atlas, it appears that the farm was not sold in 1854.

The barn, described in the sale advertisement as being of log in no way represents what was found at the Bishop Farm today. It has been conjectured that the stone portion of the foundation of the extant barn could have been the foundation of the former log barn.

²⁰ Dendrochronology report is forthcoming.

²¹ Harrison, Kathleen Georg (Senior Historian, Gettysburg National Military Park). "National Register of Historic Places Nomination Form: Gettysburg National Military Park/National Soldiers Cemetery." Supplementary Listing Record. Signed by the Keeper January 23, 2004. GWWO Inc., Architects. "Gettysburg: Tract 09-103 (Smith Farm): Existing Condition Evaluation and Age Analysis." March 2014.

²² GWWO. "Gettysburg: Tract 09-103 (Smith Farm)."

A Valuable Farm
AT PUBLIC SALE.

THE subscriber, desiring to quit Farming, will expose to Public Sale, on *Tuesday the 1st day of August next*, at 1 o'clock, P. M.,

THE FARM.
on which he now resides, situate in Cumberland township, Adams county, Pa., adjoining lands of Alexander Currans, heirs of George Toot, George Waybright, and others, lying upon the Emmitsburg road, about four miles from Gettysburg, and containing

120 Acres,
more or less. The improvements on the premises, are a one and a half story

DUPLEXED. 

part stone and part log, a log Barn, with Sheds and out-buildings. There are two good Springs of water convenient to the door, and a young Orchard of choice fruit, on the premises. About 20 Acres are in good TIMBER, the balance cleared and under good cultivation, with a fair proportion of meadow.

The property is so located, that it can be conveniently divided into two parts, with meadow and timber land in each. It will be sold entire or in parts, to suit purchasers.

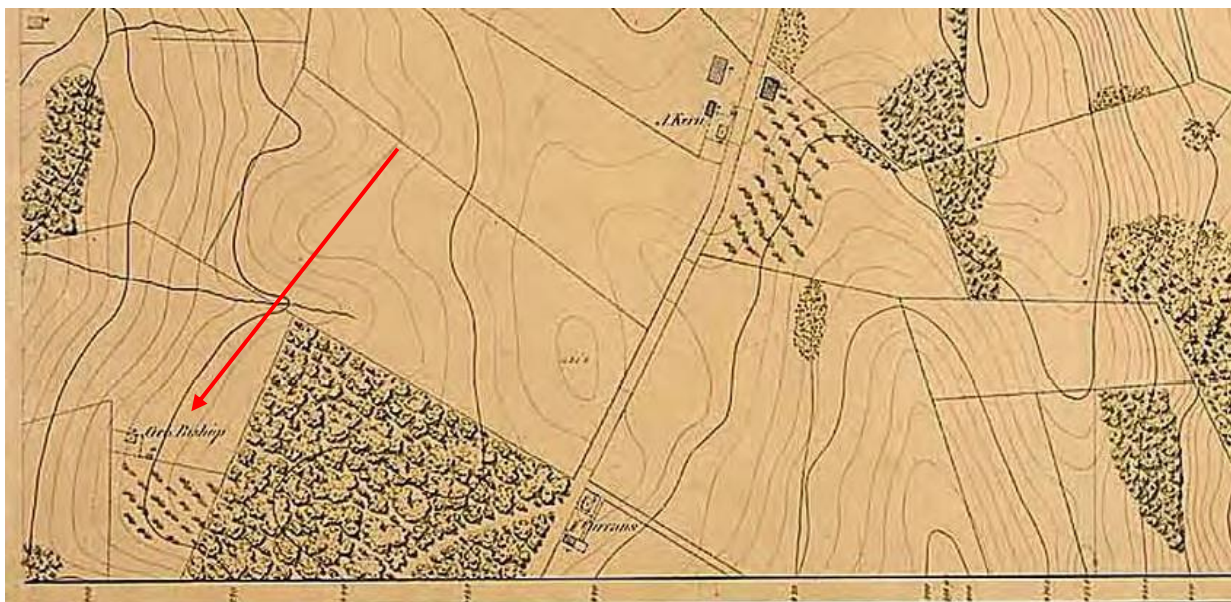
Attendance will be given and the terms made known on the day of Sale by

WILLIAM CURRENS.
June 30, 1854.—15



Gettysburg Star and Banner sale advertisement for the Currans property, July 28, 1854. Source: GWWO, "Tract 09-103."

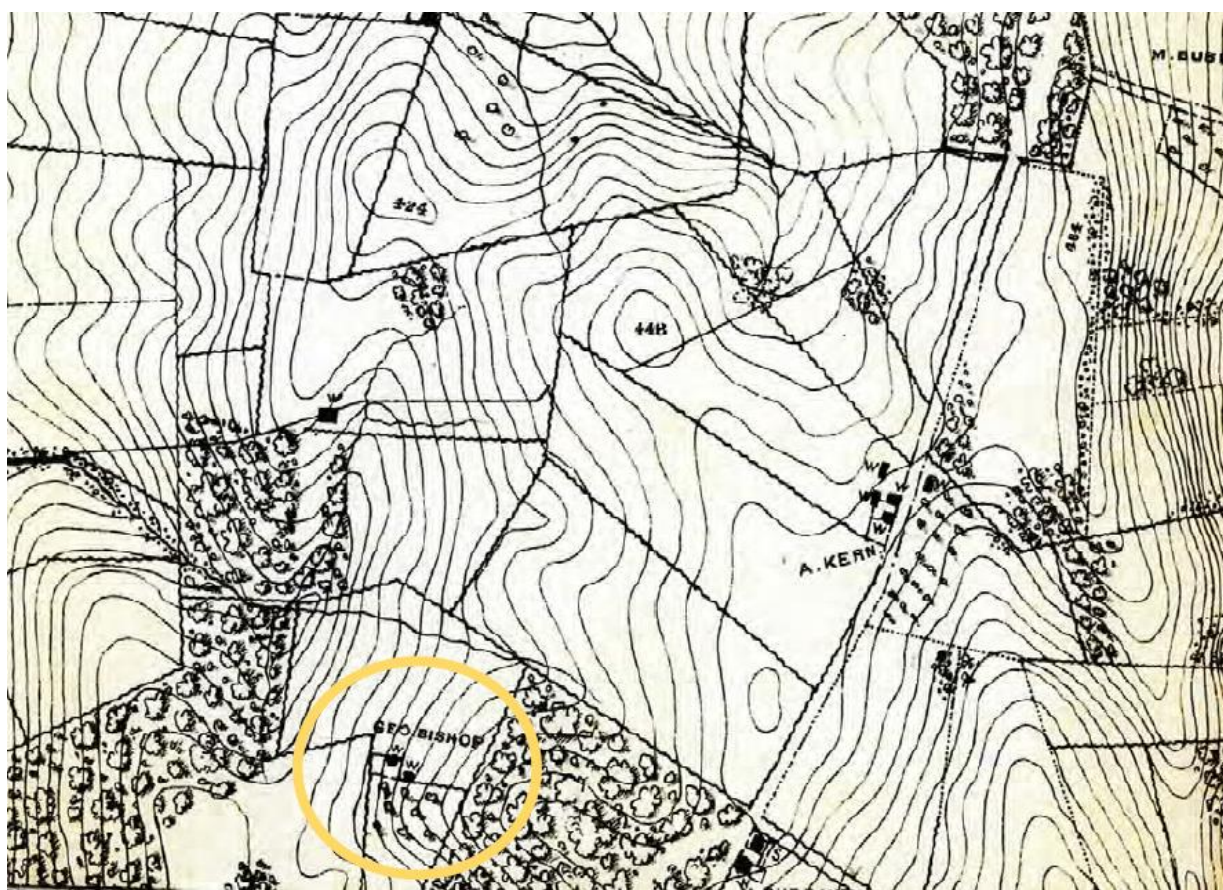
The William Currans farm site, 1858. Source: GWWO, "Tract 09-103." Original map located in the Library of Congress.



The George Bishop farm, with two buildings, in 1868/69. Source: GWWO, "Tract 09-103." Original: G.K. Warren, "Battle Field of Gettysburg." Sheet 3. 1868. Accessed at http://www.codex99.com/cartography/images/gettysburg/warren_1868_lq.jpg on June 14, 2017.

In 1868 and 1869, General G. K. Warren surveyed the Gettysburg Battlefield and produced a detailed topographic map.²³ By this time, the former Currans farm was occupied by George Bishop (William Currans purchased land in Mount Joy Township and moved there at some time during this period).²⁴ The map depicts a large wooden building on the site, likely a barn, slightly northwest of a smaller building, likely a house.

In 1876, John B. Bachelder produced another map of the battlefield based on Warren's prior survey.²⁵ This map depicts two buildings on the property of approximately equal size.



The George Bishop farm, with two buildings, in 1876. Source: GWWO, "Tract 09-103." Original: John B. Bachelder, "Battlefield of Gettysburg: First Day's Battle." U.S. Office of the Chief Engineers, U.S. Army, printed by J. Bien and L. Newman. New York. National Archives.

²³ "Battle field of Gettysburg." Library of Congress. Online catalog entry. Accessed at <https://www.loc.gov/item/99448794/> on June 14, 2017.

²⁴ "From the Files of the Star and Sentinel and the Gettysburg Times: One Hundred Years Ago." *The Gettysburg Times*. Dec. 9, 1968. p. 4. Newspapers.com.

²⁵ "Battle Field of Gettysburg." Library of Congress.

Both the 1860 and 1870 census records show a George Bishop (b. 1812), wife Maria Bishop, and multiple children living in Cumberland Township, Adams County, Pennsylvania, where the current Bishop Farm is located. George Bishop died in June 1874, proving Bachelder's 1876 map incorrect. By the 1880 census, George's wife, Maria, was living with one of her daughters, Eliza, and her husband, Christian Frey, in another township in Adams County. Details of the 1880 census do not include addresses, so it is unknown who was living at the former Bishop Farm in that year. The 1890 census was destroyed in a fire and further information for this area of the country no longer exists.

Based on dendrochronology, the extant barn's timbers were felled during the winter of 1883/1884. Therefore it is assumed that the barn was completed in 1884.²⁶

In 1900, Jacob S. Smith purchased 73 acres from Henry C. Slaybaugh containing the house site. In 1903, Smith, a farmer, purchased "all the stock, implements, goods and chattels used for farming purposes" from a farmer in Straban Township. In 1904, Smith purchased 132 acres adjacent to the 73 acres containing the home site, for \$8.50 per acre. The land was sold by Hon. Wm. McLean, trustee of Isaiah Reindollar, who had bankrupted.²⁷

In 1904, Jacob Smith was called as a witness to testify for the value of the Peach Orchard and Wible's Woods when the United States government purchased them for Gettysburg National Military Park.²⁸ In 1913, Smith was elected vice president of the newly formed Gettysburg branch of the Farmers' Society of Equity.²⁹ In addition, Smith owned at least one rental property in Gettysburg.³⁰

The 73-acre and 132-acre tracts were passed together to two of Jacob Smith's nine children, Ruth A. Smith and George M. Smith, in 1937, for \$1.³¹ In 1967, the

²⁶ Oxford Tree-Ring Laboratory. "The Tree-Ring Dating of the Bishop Barn, Gettysburg National Military Park, Pennsylvania." November 2017. See Appendix F for copy.

²⁷ "Notice." *Gettysburg Compiler*. April 1, 1903. p. 2. Newspapers.com.

"Sales of Real Estate." *Gettysburg Compiler*. January 27, 1904. p. 2. Newspapers.com.

²⁸ "Uncle Sam Takes 150 Acres to Add to the Gettysburg National Military Park: Two of Land Owners Agree on Price and Two by Condemnation Proceedings." *Gettysburg Compiler*. March 29, 1905. p. 1. Newspapers.com.

²⁹ "Farmers Meet and Organize: Form Local Branch of the Farmers' Society of Equity. Twenty Eight Members Are Enrolled. Officers Elected for the Year." *The Gettysburg Times*. February 10, 1914. Newspapers.com.

³⁰ "Public Sale of Personal Property on Saturday, January 21, 1922." *The Gettysburg Times*. Jan. 18, 1922. p. 4. Newspapers.com.

³¹ "Deed No. 3048." Adams County, PA Recorder of Deeds. Book 146, page 263. December 22, 1937. Accessed at <https://landrecordspa.adamscounty.us> on June 13, 2017.

Smiths added 5.6 acres to the property, which were later sold to the National Park Foundation in 1969 to preserve the viewshed of Eisenhower National Historic Site.³²

In 1987, Ruth and George Smith sold the 132-acre tract south of their driveway.³³ George became the sole owner of the remaining land (73-acre tract), including the farm site, when Ruth died later that year.³⁴ At George's death in 1990, the 7.-acre tract passed to Doris and Mark Smith.³⁵ It was sold to the Civil War Preservation Trust in 2013.³⁶

In 2016 the property came into the possession of the National Park Service through charitable work of Roxanne Quimby, a founder of Burt's Bees. This donation received less national attention than Quimby's concomitant gift of 85,000 acres to make the Katahdin Woods and Waters National Monument in Maine. The donations marked the National Park Service Centennial.³⁷

HPTC research has led to discussions with descendants of Jacob S. Smith. No information or family lore can be recalled on the barn.

Aerial photographs were studied to determine construction dates for the various additions extant or in ruin at the barn:

- *Outshed Granary Addition* (north elevation):
 - o Extant in 1937, 1957, and 1971 aerials.
 - o Due to its age, it is a *character-defining feature*.
 - o Currently extant; should be retained.
- *Addition of Unknown Use* (west elevation):
 - o Extant in 1937, 1957, 1971 aerials.
 - o Only concrete foundations retained on site.
 - o Due to its existence in 1937, it would be a character-defining feature, if still standing.
- *Loading Shed* (east elevation):
 - o Not extant in 1937 aerial.

³² "Deed No. 3833." Adams County, PA Recorder of Deeds. Book 280, page 934. December 29, 1969. Accessed at <https://landrecordspa.adamscounty.us> on June 14, 2017.

³³ "Deed No. 75581." Adams County, PA Recorder of Deeds. Book 461, page 120. June 29, 1987. Accessed at <https://landrecordspa.adamscounty.us> on June 14, 2017.

³⁴ "Administrator's Deed." Number 82321. Adams County, PA Recorder of Deeds. Book 480, page 223. February 16, 1988. Accessed at <https://landrecordspa.adamscounty.us> on June 14, 2017.

³⁵ "Certificate." Number 105551. Adams County, PA Recorder of Deeds. Book 548, page 680. March 9, 1990. Accessed at <https://landrecordspa.adamscounty.us> on June 14, 2017.

³⁶ "Deed." Adams County, PA Recorder of Deeds. Book 5847, page 468. June 28, 2013. Accessed at <https://landrecordspa.adamscounty.us> on June 14, 2017.

³⁷ "75 Acres Preserved at Gettysburg's George Bishop Farm." National Park Service. Accessed at <https://www.nps.gov/resources/2016.htm?id=AC85A080-1DD8-B71B-0BB5649FACFF7181> on June 12, 2017.

- Extant in 1957 and 1971 aerials.
- *Not character defining* due to construction after period of significance.
- Currently extant; should be removed.
- *Milking Parlor* (south elevation, west corner):
 - Not extant in 1937 aerial.
 - Extant in 1957 and 1971 aerials.
 - *Not character defining* due to construction after period of significance.
 - Currently extant; should be removed.
- *Garage* (south elevation, east corner):
 - Not extant in 1937 aerial.
 - Extant in 1957 and 1971 aerials.
 - *Not character defining* due to construction after period of significance.
 - Currently extant; should be removed.



A September 24, 1937 aerial of the Bishop Farm. The barn (red arrow) has several additions. The outshed granary is extant on the north elevation. An addition on the west elevation is extant (now just a foundation). An addition on the south elevation is also extant; this addition no longer exists in this form. Source: Penn Pilot: Historic Aerial Photographs of Pennsylvania. Roll ID 20, Photo #55. Produced by: USDA Agricultural Adjustment Administration Northeast Division. Accessed at <http://www.pennpilot.psu.edu/> on June 15, 2017.



An August 23, 1957 aerial view of the Bishop Farm. The barn shows numerous additions including the still-extant outshed granary (north elevation), loading shed (east elevation), garage (south elevation), and milking parlor (south elevation). An addition to the west elevation is evident in this aerial, but is no longer standing. Source: Pennsylvania Imagery Navigator. Produced by: USDA Farm Service Agency. Tile: adams_082357_ahc_1r_133. Accessed at <http://maps.psiee.psu.edu/ImageryNavigator/> on September 21, 2017.



A September 25, 1971 aerial view of the Bishop Farm. The barn appears to have the same footprint as in 1957. Source: Penn Pilot: Historic Aerial Photographs of Pennsylvania. Roll ID 4mm, Photo #175. Produced by: USDA Agricultural Stabilization and Conservation Service. Accessed at <http://www.pennpilot.psu.edu/> on June 15, 2017.

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Character-Defining Features (CDFs)

Each historic building is unique with its own identity and its own distinctive character. Character refers to all of the visual aspects and physical features that comprise the appearance of every historic building. Character-defining features (CDFs) include the overall shape of a building, its materials, craftsmanship, decorative details, interior spaces and features, as well as the various aspects of its site and environment. Identifying and preserving a building's character-defining features is essential.

Character-defining features are defined in the National Park Service *Cultural Resources Management Guidelines* (NPS-28) as follows:

A prominent or distinctive aspect, quality, or characteristic of a historic property that contributes significantly to its physical character. Structures, objects, vegetation, spatial relationships, views, furnishings, decorative details, and materials may be such features.

The first step in the process of an overall condition assessment project is to develop the list of character-defining features. In order to ascertain the important aspects of a building for future reference, an analysis of character-defining features must be recorded. These are prominent or distinctive aspects, qualities, and characteristics of a historic property that contribute significantly to its physical character as represented at the time of intervention or treatment.

The observations that follow are intended as an aid in preserving the character and other distinguishing qualities of the subject structure. It is not intended as a means of understanding the significance of the property, nor the events or people associated with the property. It is an outline of the prominent physical materials, features, and spaces important to the structure.

The process used in this assessment for determining the character-defining features was adapted from the US National Park Service *Preservation Brief No. 17 – Architectural Character: Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving Their Character*, by Lee H. Nelson. This process is in accordance with *The Secretary of the Interior's Standards for the Treatment of Historic Properties* and NPS-28 *Cultural Resources Management Guidelines*.

The process of identifying CDFs has been arranged into a three-step process:

1. Identify the Overall Visual Aspects
2. Identify the Visual Character at Close Range
3. Identify the Visual Character of Interior Spaces, Features and Finishes.

This system of steps outlines a process to fully define the distinct character of the building. This basic visual characterization provides a useful tool in analyzing the building and its features, including shape, materials, craftsmanship, decorative details, interior spaces, features, site and environment. The following report segment outlines the structure and feature characteristics.

The Secretary of the Interior's Standards for the Treatment of Historic Properties embody two important goals: **1)** the preservation of historic materials and, **2)** the preservation of a building's distinguishing character. Every old building is unique, with its own identity and its own distinctive character. **Character** refers to all those visual aspects and physical features that comprise the appearance of every historic building. Character-defining elements include the overall shape of the building, its materials, craftsmanship, decorative details, interior spaces and features, as well as the various aspects of its site and environment.

The purpose of identifying the CDFs of a building is to help the owner, architect, or manager to identify those features or elements that give the building its **visual character**. These are the items (features) that should be taken into account when the structure undergoes a "treatment" in order to preserve them to the maximum extent possible.

There are different ways of understanding old buildings. They can be seen as examples of specific building types, which are usually related to a building's function, such as schools, courthouses or churches.

There are many other facets of an historic building besides its functional type, materials, construction, or style that contribute to its historic qualities or significance. Some of these qualities are feelings conveyed by the sense of time and place in buildings associated with events or people. A complete understanding of any property may require documentary research about its style, construction, function, furnishings or contents, and to obtain knowledge about the original builder, owners, later occupants, and the evolutionary history of the building. Even though buildings may be of historic, rather than architectural significance, it is their tangible elements that embody their significance for association with specific events or persons and it is those **tangible elements** both on the exterior and interior that should be preserved.

Therefore, the approach taken in identifying character-defining features is limited **to identifying those visual and tangible aspects of the historic building**. While this may aid in the planning process for carrying out any ongoing or new use, rehabilitation or restoration of the building, this approach is not a substitute for developing an understanding about the significance of an historic building and the

district in which it is located. If the various materials, features, and spaces that give a building its visual character are not recognized and preserved, then essential aspects of its character may be damaged in the process of change.

A building's character can be irreversibly damaged or changed in many ways. Examples include: inappropriate additions or alterations, removal of a distinctive porch, replacement of the window sash, alterations to masonry openings, changes to the setting around the building, changes to the major room arrangements, replacement of original materials with synthetic materials, inappropriate repointing of the brickwork, introduction of an elevator, painting previously unpainted woodwork or masonry, etc.

1. Overall Visual Aspects

Shape and Mass

- Shape and mass of the traditional bank barn (rectangular, 2½ stories with steep, asymmetric gable roof)
- Shape and mass of the outshed granary addition (square, 2 stories, with steep shed roof)
- Modern additions (loading shed, garage, milking parlor) obscure the bank barn core and are not character defining



The shape and mass of the bank barn and outshed granary addition (left) are character-defining features. Photo: HPTC, 06/21/17.



The modern additions obscure the historic bank barn, seen here, left to right: milking parlor, garage, and loading shed. Photo: HPTC, 06/21/17.

Roof and Related Features

- Steep, asymmetric gable barn roofline is character defining.
- Painted standing-seam metal roof located on north elevation of bank barn is not original, but historic and character defining. The metal covers a portion of original wood shingles (seen from the interior of the barn).
- Painted ribbed metal roof located on south elevation of bank barn is not original, and is not historic or character defining. This covering is likely the third roof covering and probably post-dates the period of significance.
- Added snowboards on the south slope of the bank barn are also not original. No evidence of these boards can be seen on the more historic north elevation, so it is believed that the snow boards are not character defining.
- Lightning protection system at the peak of the gable roof of the barn is historic and character defining.
- Steep shed roof of the outshed granary addition is character defining.
- Painted corrugated metal roof located on outshed granary is not original, and is not historic or character defining.



The bank barn has an asymmetric gable roofline. The outshed granary has steep shed roofline. Photo: HPTC, 06/22/17.



The ribbed metal roofing of the south slope of the bank barn is not character defining, as it likely postdates the period of significance. The snow boards are not CDFs either. Photo: HPTC, 06/22/17.



The standing-seam metal roof of the north slope of the bank barn is character defining as it was likely installed during the period of significance. Note the lightning protection system at the peak of the roof, another CDF. The corrugated metal roof covering of the outshed granary is not character defining. Photo: HPTC, 06/22/17.



The underside of the standing-seam metal roof on the north slope of the bank barn retains the original wood shingles. The south slope does not; it is likely any remaining shingles were removed when the extant roof covering was installed, outside the period of significance. Photo: HPTC, 06/22/17.

Openings

- Barn stone foundation level:
 - East elevation door opening and door likely original.
 - East elevation window opening has been altered and is no longer character defining.
 - South elevation forebay wall has been completely rebuilt and is no longer character defining.
 - West elevation opening likely original, but louver no longer retained.
 - North elevation louvered opening likely original, louvers retained.
- Barn timber-frame foundation level:
 - Remnants of a pair of large swinging doors on the north elevation of the lower level integrated wagon shed have been retained. It is likely these are original components, but they have been heavily altered and are inoperable.
 - Conversely, the south side of this wagon shed would have been open (no doors), as it is currently.
 - West elevation man door and window opening likely not original as they are made of scabbed-together components.
- Barn timber-frame upper level:
 - Upper level main access door opening at top of bank is original, however the modern metal sliding door with inset man door is modern

- and not character defining. Originally this opening would have included a pair of large swinging barn doors for access onto the threshing floor.
- Original threshing doors on the south elevation of the upper level have been retained, but are altered and inoperable due to additions.
 - Multiple louvered openings in sided exterior walls: two on east elevation (partially obscured by modern addition) and five on south elevation (one completely obscured by modern addition). Opening at north elevation may have been a louver, but it has been altered and the louver is missing.
 - Tripartite louver and sash openings at peak of east and west elevations are likely original, however the louvers appear to have been altered and the windows are not original (sash reused from another location, like the adjacent house).
 - Outshed granary stone foundation level:
 - A pair of large swinging doors on the east elevation are likely original.
 - Outshed granary timber-frame upper level:
 - Two original louvered openings on east elevation are original.
 - A pair of large swinging doors on the west elevation, outletting to the top of the bank, are original.



The window opening on the east elevation of the barn stone foundation has been altered and is no longer a CDF. Photo: HPTC, 06/22/17.

Left: The door opening on the east elevation of the barn stone foundation is likely original and a CDF. Photo: HPTC, 06/22/17.



The south elevation lower floor forebay wall has been completely rebuilt with modern materials and in no way reflects what was there originally. Photo: HPTC, 06/22/17.



The window opening in the west elevation of the stone foundation is likely original, but has been covered with modern plywood. Photo: HPTC, 06/22/17.



Remnants of original swinging doors on the north elevation of the lower level wagon shed. Photo: HPTC, 06/22/17.

Left: The window opening in the north elevation of the stone foundation is original and retains its operable louver. Photo: HPTC, 06/22/17.



A non-original window and door opening on the west elevation of the lower level wagon shed. Photo: HPTC, 06/22/17.



The modern sliding door on the north elevation of the upper level of the barn is not a CDF. Photo: HPTC, 06/22/17.



Original threshing are located on the south elevation of the upper floor of the barn. They are covered and made inoperable by the roof of the garage addition. The original louvers have also been covered with roofs of additions. Photo: HPTC, 06/22/17.



The louvered openings on the upper level of the bank barn are original but obscured by the roof of the addition below. The tripartite opening at the peak is also likely original, but altered with reused window sash. Photo: HPTC, 06/22/17.

Right: The tripartite louver on the west elevation has been altered to include reused window sash. Photo: HPTC, 06/22/17.



A pair of swining doors (one missing) are located on the west elevation of the outshed granary. Photo: HPTC, 06/22/17.

Left: A pair of swinging doors are located at the foundation level of the east elevation of the outshed granary; they are obscured by vegetation. Note the original louvers in the upper floor. Photo: HPTC, 06/22/17.

Projections

- The early outshed granary addition projects from the north elevation of the barn and is considered a character-defining feature as it was constructed during the period of significance.
- The original, character-defining bank projects from the north elevation of the barn.
- The non-character-defining loading shed projects from the east elevation of the barn.
- The non-character-defining garage projects from the south elevation of the barn.
- The non-character-defining milking parlor projects from the south elevation of the barn.



The outshed granary on the north elevation is a CDF. Photo: HPTC, 06/21/17.



The bank on the north addition is a CDF. Photo: HPTC, 06/21/17.



The loading shed on the east elevation, right, and the garage on the south elevation, left, are not CDFs. Photo: HPTC, 06/22/17.



The milking parlor on the south elevation is not a CDF. Photo: HPTC, 06/22/17.

Trim and Secondary Features

- Skilled use of granite masonry in foundation walls.
- Skilled use of timber-framing fundamentals on the upper level of the barn, with felling dates of Winter 1883/1884.
- Exterior of barn covered with vertical board siding (likely original).



Part of the bank barn is supported by a stone foundation. Photo: HPTC, 06/22/17.

Right: The upper level of the barn is composed of timber-frame construction. Photo: HPTC, 06/22/17.



Setting

- Stone retaining walls on the north elevation creating a bank (area is essentially flat).
- Rural, agricultural location.



The barn retains its original setting in a rural and agricultural location. Photo: HPTC, 06/21/17.

2. Character at Close Range

Materials at Close Range

- Granite foundation walls laid in a coursed ashlar and rubble pattern, including quarry marks.
- Painted wood vertical siding barn walls (paint missing on west elevation).
- Wood louvered openings on south and east elevations.



Coursed ashlar and rubble stone foundation walls. Note the quarry marks. Photo: HPTC, 06/22/17.



The exterior siding on the barn and the louvered openings are likely original, but are partially obscured by non-CDF additions. Photo: HPTC, 06/22/17.

Craft Details

- Detailing of exterior granite masonry.
- Wood shingle roof (retained under a portion of the extant metal roof).
- Standing-seam metal roof on north elevation.

3. Interior Visual Character

Individual Spaces

- Retention of major room configurations in barn on lower and upper levels; added modern features like fences and feed troughs are not CDFs.
- Retention of north elevation outshed granary addition.

Related Spaces & Sequence of Spaces

- Use of the barn for continued agricultural use.
- Defined purpose for each space/room.

Interior Features

- Hand-hewn and circular-sawn timber frame utilizing mortises, tenons, and pegs.

Surface Materials and Finishes

- Exposed stone foundation walls.
- Exposed upper floor structural floor frame at lower level.
- Exposed roof framing at upper level.



The upper level of the barn is framed with hand-hewn *and* circular-sawn timbers. Photo: HPTC, 06/21/17.



The barn utilizes pegs at the mortise and tenon connections. This complex scarf joint is located in the roof plate and is a CDF. Photo: HPTC, 06/21/17.



Exposed roof framing as seen from the upper level of the barn. Photo: HPTC, 06/21/17.



Exposed upper level structural floor framing as seen from the lower level of the barn. Photo: HPTC, 06/21/17.

Missing Character-Defining Features (to be reconstructed in future phases of treatment)

- Wood shingle roof to match extant remaining covered shingles OR standing-seam metal roof restored to south elevation barn roof slope and outshed granary shed roof.
- Threshing doors on south elevation upper level
- Red paint on exterior siding (west elevation)
- Swinging barn doors at top of bank.

Non-Character Defining Features (to be removed in future phases of treatment)

- Non-historic additions, including loading shed (east elevation), garage (south elevation), and milking parlor (south elevation).
- Corrugated metal and other patches on historic wood siding (west elevation).
- Concrete patches on west interior elevation of basement wall.
- All temporary structural supports located at the lower level wagonshed.
- Non-historic lower level forebay wall alterations.

End of Chapter 2.

CHAPTER 3

At the time of this writing, the Bishop Barn is listed on the National Register of Historic Places. Treatment philosophies for National Register properties should be based on the most appropriate treatment standards, **Preservation** and **Rehabilitation**, as defined by *The Secretary of the Interior's Standards for the Treatment of Historic Properties*.

Following are synopsized definitions of these two standards:

Preservation is appropriate “when the property's distinctive materials, features, and spaces are essentially intact and thus convey the historic significance without extensive repair or replacement; when depiction at a particular period of time is not appropriate; and when a continuing or new use does not require additions or extensive alterations. Prior to undertaking work, a documentation plan for Preservation should be developed.”¹

Rehabilitation is appropriate “when repair and replacement of deteriorated features are necessary; when alterations or additions to the property are planned for a new or continued use; and when its depiction at a particular period of time is not appropriate. Prior to undertaking work, a documentation plan for Rehabilitation should be developed.”²

Additional language concerning these two treatments and derived from the Secretary of the Interior and the National Park Service will be found in *Appendix B, Preservation Standards and Guidelines*.

Preservation Maintenance: action to mitigate wear and deterioration of a historic property without altering its historic character by protecting its condition, repairing when its condition warrants with the least degree of intervention including limited replacement in-kind, replacing an entire feature in-kind when the level of deterioration or damage of materials precludes repair, and stabilization to protect damaged materials or features from additional damage. Types of preservation maintenance are: ³

- **Housekeeping:** the removal of undesirable deposits of soil in ways that minimize harm to the surfaces treated, repeated at short intervals so that the gentlest and least radical methods can be used.
- **Routine maintenance:** usually consists of service activities such as tightening, adjusting, oiling, pruning, etc.

¹ *The Secretary of the Interior Standards for the Treatment of Historic Properties with Standards and Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings*.

² Ibid.

³ National Park Service Office of Policy: NPS-28, Cultural Resource Management Guideline (Appendix B), available at http://www.nps.gov/history/history/online_books/nps28/28appena.htm, accessed on August 31, 2013.

- **Cyclic maintenance:** maintenance performed less frequently than annually; usually involves replacement or at least mending of material.
- **Stabilization:** action to render an unsafe, damaged, or deteriorated property stable while retaining its present form.

Condition Assessment Standard Definitions

The following standard condition assessment definitions are based on those outlined by the National Park Service (NPS). NPS uses an industry-based condition assessment tool known as the Asset Management Process which has been adopted for use by HPTC for this project.

Qualitative Condition Ratings

Good

This rating indicates that:

- Routine maintenance should be sufficient to maintain the current condition; and/or
- A cyclic maintenance or repair/rehabilitation project is not specifically required to maintain the current condition or correct deficiencies.

Fair

This rating indicates that:

- The feature generally provides an adequate level of service to operations, but
- The feature requires more than routine maintenance attention.

This rating also indicates that cyclic maintenance or repair/rehabilitation work may be required in the future.

Poor

This indicates that the feature is in need of immediate attention. This rating also indicates that:

- Routine maintenance is needed at a much higher level of effort to meet significant safety and legal requirements;
- Cyclic maintenance should be scheduled for the current year and/or
- A special repair/rehabilitation project should be requested consistent with the building owner's requirements, priorities, and long term management objectives.

Maintenance Deficiency Priority Ratings (5-Year Rating Period)

Listed as “Priority Ratings” on the *Feature Inventory Condition Assessment Tables*, these ratings are based on the condition rating of each feature and a priority rating was established. These priority ratings indicate either a critical, serious, or minor deficiency priority rating.

Critical – (Emergency/Immediate)

- This rating defines an advanced state of deterioration which has resulted in the failure of a feature or will result in the failure of a feature if not corrected within 1 year; or
- There is accelerated deterioration of adjacent or related materials or systems as a result of the feature’s deficiencies if not corrected within 1 year; or
- There is an immediate threat to the health and/or safety of the user; or
- There is a failure to meet a legislated requirement.

Serious – (Immediate/Short Term)

- This rating defines a deteriorated condition that if not corrected within 1 to 3 years will result in the failure of the feature; or
- A threat to the health and/or safety of the user may occur within 1 to 3 years if the ongoing deterioration is not corrected; or
- There is ongoing deterioration of adjacent or related materials and/or features as a result of the feature’s deficiency.

Minor – (Short Term/Long Term)

- This rating indicates standard preventative maintenance practices and preservation methods have not been followed; or
- There is reduced life expectancy of affected adjacent or related materials and/or systems within 3 to 5 years and beyond; or
- There is a condition with a long term impact within 3 to 5 years and beyond.

For the purposes of this report, these definitions were rigidly adhered to as a way to qualitatively assess the current condition of the Bishop House.

End of Chapter 3.

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CHAPTER 4

This chapter of the report describes the current condition (June 2017) of the interior and exterior architectural fabric of the Bishop Barn. It identifies maintenance deficiencies of the building's interior and exterior features as described in the building feature master list (Appendix B) and this chapter. Along with a written description of the observed conditions, a condition rating and deficiency rating are provided for each substantially separate building feature.

Site Visit

The field inspection and condition assessment were conducted at the Bishop Barn on June 20-21, 2017 by a HPTC Historical Architect and NCPE intern. The weather during the assessment was seasonal, with overcast to sunny skies and highs in the 80s. Logistical assistance was provided by GETT.

Summary of the Findings (Condition Assessment)

Overall the **Bishop Barn** (interior and exterior) achieves an Overall Quality Condition Rating of **POOR** and has an Overall Maintenance Deficiency Priority Rating categorized as **SERIOUS**.

The Overall Quality Condition Rating of POOR given to the building indicates routine maintenance is needed at a much higher level of effort to meet significant safety and legal requirements; cyclic maintenance should be scheduled for the current year; and/or a special repair/rehabilitation project should be requested consistent with park requirements, priorities, and long-term management objectives.

The Maintenance Deficiency Priority Rating of SERIOUS given to the building indicates that aspects of the building are deficient and if not corrected within one to three years will result in the failure of a building component; a threat to the health and/or safety of users if the ongoing deterioration is not corrected; and/or there is ongoing deterioration of adjacent or related materials and/or features as a result of the feature's deficiency. This will result in the continued loss or damage to character-defining features.

The following table provides an overview of the major building features categories and their associated conditions assessment rating.

SUMMARY OF CONDITION ASSESSMENT RATINGS (MAJOR HEADINGS)					
UNIFORMAT II Outline Data				Condition Assessment	
Category	Topic	Code	Subtopic	Condition Rating	Deficiency Rating
A	SUBSTRUCTURE				
A10	Foundations				
	A1010	Standard Foundations		POOR	SERIOUS
	A1030	Slab On Grade		FAIR	MINOR
A20	Basement Construction				
	A2020	Basement Walls		FAIR	MINOR
B	SHELL				
B10	Superstructure				
	B1010	Floor Construction			
		B101001	Structural Frame	POOR	SERIOUS
	B1020	Roof Construction			
		B102001	Structural Frame	FAIR	SERIOUS
B20	Exterior Enclosure				
	B2010	Exterior Walls			
		B201001	Exterior Skin	FAIR	MINOR
		B201005	Exterior Louvers & Screens	FAIR	SERIOUS
	B2020	Exterior Windows		FAIR	SERIOUS
	B2030	Exterior Doors		FAIR	SERIOUS
B30	Roofing				
	B3010	Roof Coverings			
		B301001	Roof Finishes	POOR	SERIOUS
		B301005	Gutters & Downspouts	POOR	CRITICAL
C	INTERIORS				
C10	Interior Construction				
	C1010	Partitions		FAIR	MINOR
	C1020	Interior Doors		FAIR	MINOR
C30	Interior Finishes				
	C3020	Floor Finishes			
		C302003	Wood Flooring	POOR	SERIOUS
D	SERVICES				
D20	Plumbing			Not Rated	Not Rated
D40	Fire Protection Systems			Not Rated	Not Rated
D50	Electrical			Not Rated	Not Rated
	D5090	Other Electrical Systems			
		D509004	Lightning Protection System	POOR	CRITICAL
G	BUILDING SITEWORK				
G20	Site Improvements				
	G2040	Site Development			
		G204002	Retaining Wall	POOR	SERIOUS
G90	Other Site Work				
	G9087	Overall Building Site Drainage		POOR	MINOR
End of Table.					

The most critical maintenance deficiencies as documented in the Chapter 4 condition assessment include:¹

- Barn west elevation lower level timber-frame foundation wall deterioration and complete lack of footing system.
- Barn exterior wall framing (upper level) insect and water infiltration
- Outshed granary stone foundation, sills, floor joists, rafters, exterior wall framing, and doors compromised due to water infiltration from missing roof panel sections.
- Missing gutters and downspouts on barn and outshed granary.
- Missing interior flooring sections.
- Lack of fire extinguishers, smoke detectors, and fire alarm system.
- Inoperable lightning protection system.
- Bulging bank retaining wall due to poor overall site drainage.

Building Feature Master List

The Building Feature Master List Outline (Appendix B) is the overall guide used in the condition assessment of the structure. The category, topic, code and sub-code nomenclature is derived from current industry standard condition assessment systems adopted by the NPS, which, in turn, utilize the format and structure of the *Uniformat* system used by many facility management industry leaders. HPTC has applied this system to the Bishop Barn.

Refer to Chapter 1 for a description of this methodology. The outline used for this project has been tailored to fit the building component features of the Bishop Barn.

Condition Assessment Reports

Immediately following this section are the individual building feature condition assessment reports in Chapter 4. They are organized according to the Building Feature Master List Outline as per Appendix B and not in prioritized order.

Prioritized recommended treatments that support *The Secretary of the Interior's Standards for the Treatment of Historic Properties* are found in Chapter 5.

¹ These will be presented in prioritized order in *Chapter 5: Recommended Treatments*.

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A	SUBSTRUCTURE
A10	FOUNDATIONS
A1010	Standard Foundations
A101001	Wall Foundations
A101001-1	Barn Stone Foundations
The stone wall foundations supporting the north, east, and internal west elevations of the barn are original except for a few alterations. The approximately 2'-0"-thick walls are constructed of granite and fieldstone laid in a random rubble and ashlar pattern with primarily historic lime-based mortar (some Portland cement-based mortar extant). Quarry marks can be seen on the ashlar granite. There are two openings on the east elevation; one is a window opening (modern alteration), the other is a door opening (historic). The north and west elevations each have a vent opening (historic). All exterior surfaces of the foundation walls are in fair condition; however the north end of the east elevation has extensive missing mortar and is in poor condition. The interior of the foundation walls are exposed. A portion of the west wall has been repointed with Portland cement. Most of the east wall was replaced with modern cinder blocks and bricks. A portion of the north wall has been parged with concrete. These modern systems and materials appear to be functioning well, but are unsympathetic changes. There are no signs of significant water penetration.	
 The east elevation stone foundation wall of the barn, with historic door opening. Photo: HPTC, 07/21/17.  A significant portion of the interior of the east foundation wall was repaired with incompatible and modern cinder block and brick. Photo: HPTC, 06/21/17.	



The historic random rubble and ashlar granite and fieldstone foundation walls on the north elevation are covered with modern cement parging. Photo: HPTC, 06/21/17.

Left: Quarry tool marks can be seen on some of the ashlar granite. HPTC, 06/21/17.



The interior of the west foundation wall has been repointed with Portland cement-based mortar. Photo: HPTC, 06/21/17.

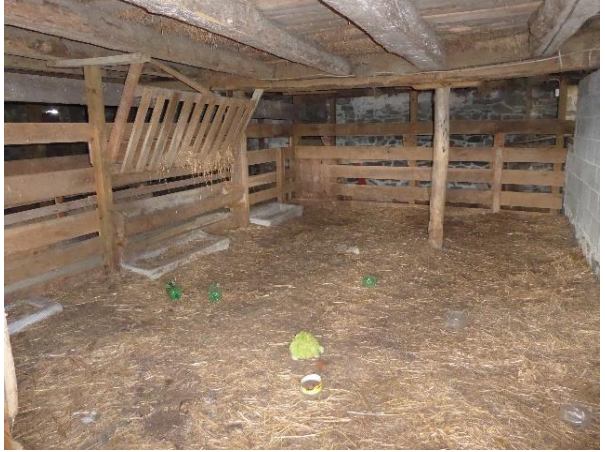
Left: The west interior stone foundation wall as seen from the wagon shed. Note the extensive missing mortar in this area. Photo: HPTC, 07/21/17.

A101001-1	Barn Stone Foundations
Qualitative Condition Rating	FAIR
Maintenance Deficiency Rating	MINOR

A101001-2 Barn Timber-Frame Foundations	
The barn foundation wall at the west elevation and western third of the north elevation are composed of timber-frame construction. Due to washout of the footings at the base of the posts, much original framing has been lost and supplemental framing has been added. Come-alongs have been added at the base of the structure to deter the wall kicking out at the base. Cribbing has been added at three locations along the west elevation to support the floor structure above.	
 Framing members on the west elevation of the wagon shed. Photo: HPTC, 06/21/17.	 The north elevation timber-frame foundation wall of the wagon shed. Photo: HPTC, 06/21/17.

A101001-2	Barn Timber-Frame Foundations
Qualitative Condition Rating	POOR
Maintenance Deficiency Rating	CRITICAL

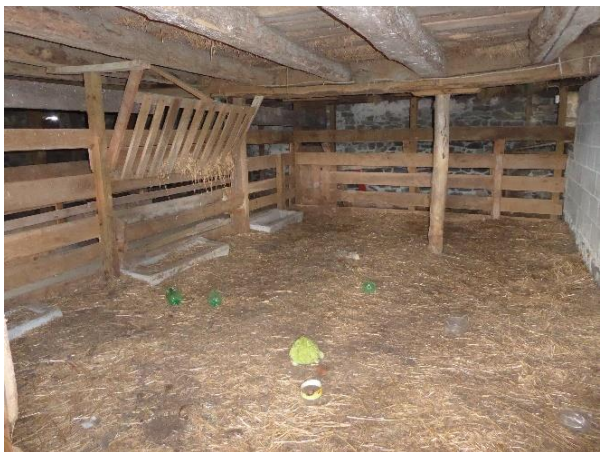
A101001-3	Outshed Granary Stone Foundations
The historic outshed granary on the north addition is supported by stone foundations walls on the north and west elevations; the entire east elevation is composed of wood doors. The fieldstone is laid in a random rubble pattern with historic lime-based mortar. The stone foundations of the historic outshed granary are in poor condition. The stones are unstable. Major issues are with the mortar: multiple locations exhibit deep voids or the absence of mortar altogether.	
 Stone foundation wall at the west elevation of the outshed granary. Photo: HPTC, 06/21/17.	 Missing mortar in the foundation walls of the outshed granary. Photo: HPTC, 06/21/17.
A101001-3	Outshed Granary Stone Foundations
Qualitative Condition Rating	POOR
Maintenance Deficiency Rating	CRITICAL

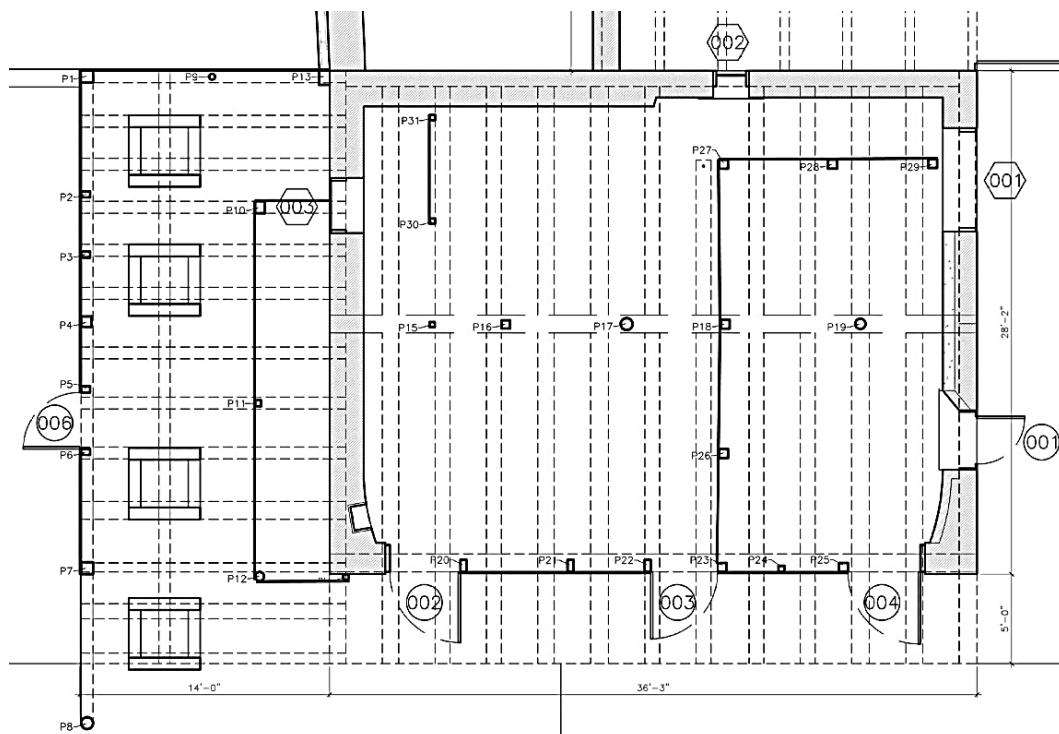
A1030 Slab On Grade	
A103001 Standard Slab On Grade	
The entire portion of the lower level enclosed by the stone foundation contains a modern poured concrete slab on grade. A significant portion is covered with straw and other debris limiting assessment by the HPTC staff. It is assumed that the slab is in fair condition with minor cracks across the surface of the floor.	 Straw covers a significant portion of the poured concrete slab on grade. Photo: HPTC, 06/21/17.
A103001	Standard Slab On Grade
Qualitative Condition Rating	FAIR
Maintenance Deficiency Rating	MINOR

A2020 Basement Walls	
A202001 Basement Wall Construction	
The lower level forebay wall is composed of modern framing materials. The posts vary in size between 2x4s and 6x6s. A majority of the exterior wall is operable via a series of doors and windows. The non-historic wall is in fair condition with minor wood-boring insect damage present.	

	
Lower level modern frame forebay wall with horizontal opening along the length. Photo: HPTC, 06/21/17.	Easternmost portion of the lower level forebay modern frame wall. Photo: HPTC, 06/21/17.
A103001	Standard Slab On Grade
Qualitative Condition Rating	FAIR
Maintenance Deficiency Rating	MINOR

End of Part A–Substructure.

B	SHELL
B10	SUPERSTRUCTURE
B1010	Floor Construction
B101001	Structural Frame
B101001-1	Barn Posts (Lower Level)
The lower-level posts supporting the upper-level structural floor frame fall into two categories: historic and modern additions. The historic wood posts include P1, P2, P4, P5, P6, P7, and P13. These are hand-hewn or log and are of varying dimension (see drawing). The modern wood posts, either supplemental or replacement, include P3, P8, P9, P10, P11, P12, P14, P15, P16, P17, P18, P19, P20, P21, P22, P23, P24, P25, P26, P27, P28, P29, P30, and P31. These posts are in fair condition, with areas of rot at their bases where they are in direct contact with the concrete slab or other masonry, and some have insect damage. Modern cribbing has been added under the wagon shed to support the floor framing above, as the posts along the west timber-frame foundation wall are severely compromised, due to a lack of proper footings.	
 Left to right: P23, P24, and P25. These members are all modern and compose part of the lower-level forebay wall. Photo: HPTC, 06/21/17.  P26, left, and P19, right, are modern, supplemental posts. Photo: HPTC, 06/21/17.	



Lower level of the barn; north is right. The posts are numbered. See Appendix A for 11x17 copies of the drawing. Drawing: HPTC, 07/11/18.



P3 is a replacement post located along the west elevation of the timber-frame foundation wall of the wagon shed. Photo: HPTC, 06/21/17.



P4 supports the rim beam at the west elevation timber-frame foundation wall of the wagon shed. It is likely historic. Photo: HPTC, 06/21/17.



P12 is modern and supplemental to support the floor framing above the wagon shed; the adjacent modern cribbing does the same. Photo: HPTC, 06/21/17.

Left: The base of P8 sits on a stone. This post is modern and serves no structural support to framing above. Photo: HPTC, 06/21/17.

B101001-1	Barn Posts (Lower Level)
Overall Condition Rating	POOR
Maintenance Deficiency Rating	CRITICAL

B101001-2	Barn Summer Beam
A summer beam is only found within the stone foundation portion of the barn. The summer beam runs east-west between the east stone foundation wall and the interior west stone foundation wall. The ends are pocketed into the stone walls. At the center, the beam has a half-lap joint which is supported by P22. Three other supplemental posts support the beam along its length. The barn summer beam is in overall fair condition. No significant deterioration could be found.	



The barn summer beam is supported on its west end by the interior stone foundation wall. Photo: HPTC, 06/21/17.



The summer beam is half lapped at the mid-point. The joint is supported by modern replacement P22. Photo: HPTC, 06/21/17.

B101001-2	Barn Summer Beam
Overall Condition Rating	FAIR
Maintenance Deficiency Rating	MINOR

B101001-3	Barn Sills
Barn sills are located along the perimeter of the stone foundation walls. The sills are likely original and generally measure 1'-0" wide x 0'-8" deep. The sill atop the western interior stone foundation wall supports the perpendicular floor joists of the structural floor frame above the enclosed lower-level wagon shed. It is exposed along its entire length on both sides. The sill atop the eastern stone foundation wall is parallel with the floor joists of the barn upper level structural floor frame. It is partially exposed on the exterior where siding is missing, at the window opening, and along its entire interior length. The sill atop the north elevation is completely inaccessible where atop the stone portion of the foundation. The sill continues out into the wagon shed (western third of the barn). Here it is supported by posts and supports the exterior timber-frame wall above. Similarly, the timber-frame foundation wall of the west elevation of the wagon shed is supported by posts and supports the exterior timber-frame wall above. As stated earlier the posts supporting this summer beam are compromised.	

The sill atop the south elevation forebay wall runs from the east stone foundation wall to the west interior stone foundation wall. It is supported by modern posts and supports the overhanging joists above.

The sills appear to be in fair condition; however a detailed assessment is needed to determine the extent of any water or insect damage to areas which are hidden.



The sill plate atop the western interior stone foundation wall (arrow) supports the perpendicular joists above the wagon shed. Photo: HPTC, 06/21/17.



The western interior foundation wall sill plate is exposed along its interior length. Photo: HPTC, 06/21/17.



The east elevation sill exposed at the window opening. Photo: HPTC, 06/21/17.



The east elevation sill exposed on the interior of the lower level. Photo: HPTC, 06/21/17.



The north elevation sill (arrow) can only be seen within the enclosed lower-level wagon shed. Photo: HPTC, 06/21/17.

Right: The west elevation sill (arrow) can only be seen within the enclosed lower-level wagon shed. Photo: HPTC, 06/21/17.



The south forebay wall sill (arrow) supports the perpendicular floor joists and runs under the west stone foundation wall sill. Photo: HPTC, 06/21/17.

B101001-3
Barn Sills

Overall Condition Rating

FAIR

Maintenance Deficiency Rating

MINOR

B101001-4 | Barn Joists

All of the joists contained within the stone foundation walls (eastern two thirds) are oriented north-south. At the north end, they are mortised into the north sill atop the north stone foundation wall. At the south end they cantilever over the framed forebay wall. At the midpoint, the joists are half lapped over the summer beam. One of the joists (J20) has been cut short of the north elevation wall and is bolted into the perpendicular floor board above (a structural concern).

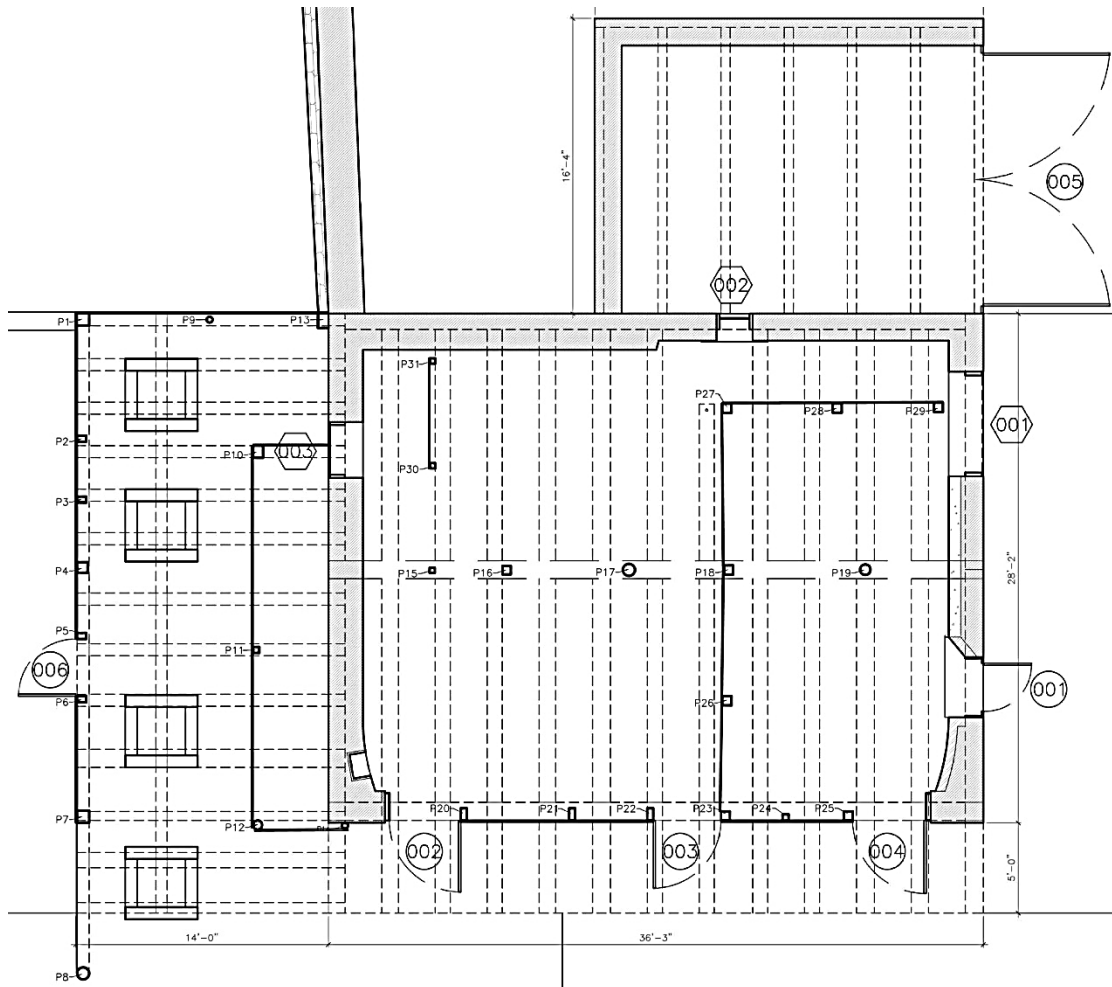
The N-S joists are considered historic and are 0'-8" deep and 0'-10" to 1'-0" in width. The joists are hand hewn on at least two sides (top and bottom). Many of the joists retain their round shape on the sides with bark extant. All of these joists appear to be in fair structural condition.

All of the joists above the enclosed wagon shed (western one third) are oriented east-west. At the east end, they are supported by sill atop the stone interior foundation wall. At the west end, they are supported by a horizontal beam at the sill in the west exterior frame wall. The joists continue the cantilever of the forebay, but are still east-west at this location.

The E-W joists are 0'-8" deep and 0'-10" to 1'-0" in width. It is likely that some of the joists have been replaced over time as they are inconsistent in species and dressing to the historic hand-hewn joists. These wagon shed joists are in poor structural condition due to compromised framing members in the west timber-frame foundation wall and a lack of footers underneath. Currently, modern cribbing fully supports the joists.

The joists were used to date the timber used within the barn, through dendrochronology. The results show the joists were felled during the winter of 1883/1884,¹ which leads the author to believe the barn was constructed during the spring of 1884.

¹ Oxford Tree-Ring Laboratory. "The Tree-Ring Dating of the Bishop Barn, Gettysburg National Military Park, Pennsylvania." November 2017.



A reflected ceiling plan of the lower level shows the array of joists. North is right. In the western third (top), the joists run E-W. In the eastern two thirds (bottom), the joists run N-S. Note also the N-S floor joists of the outshed granary addition. Drawing: HPTC, 07/11/18.



The barn joists are mortised into the north elevation wall. Photo: HPTC, 06/21/17.



The barn joists run N-S and overhang the south sill to create the forebay. The wagon shed joists run E-W. Photo: HPTC, 06/21/17.



The N-S joists are half lapped over the summer beam at the midpoint. Photo: HPTC, 06/21/17.



J20 has been cut and bolted to the floor board above. Photo: HPTC, 06/21/17.



The east ends of the joists above the wagon shed are supported by the sill atop the west interior stone foundation wall. Photo: HPTC, 06/21/17.



The west ends of the joists above the wagon shed are supported by the horizontal beam in the west frame exterior wall. Photo: HPTC, 06/21/17.



The joists above the wagon shed do not match suggesting they have been replaced over time. Photo: HPTC, 06/21/17.



Modern cribbing and supplemental framing support the joists in the wagon shed due to deteriorated foundations. Photo: HPTC, 06/21/17.

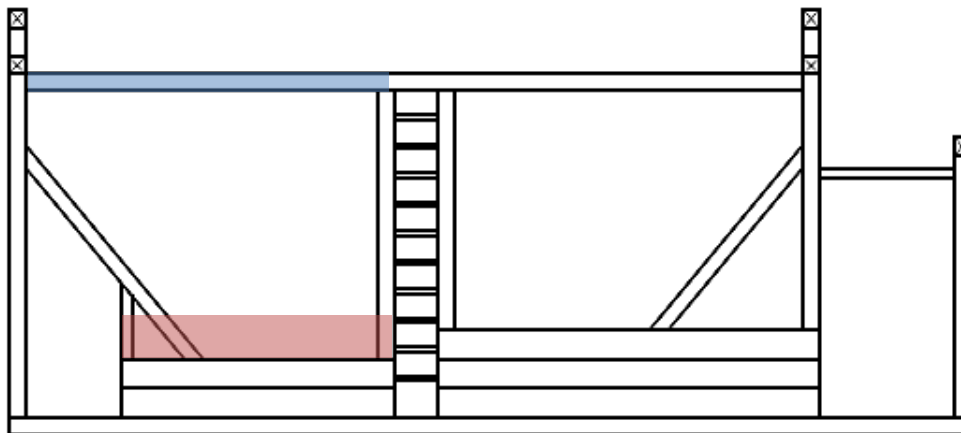
B101001-4	Barn Joists
Overall Condition Rating	FAIR
Maintenance Deficiency Rating	MINOR

B101001-5 Outshed Granary Sills	
The outshed granary (north elevation) has a single sill plate located along the length of its north elevation. The sill has kicked out off of the foundation wall below and does not appear to be structurally supported in any way at this time. <i>Right: The sill (arrow) is no longer supported by the north stone foundation wall. Photo: HPTC, 06/21/17.</i>	
B101001-5	Outshed Granary Sills
Overall Condition Rating	POOR
Maintenance Deficiency Rating	CRITICAL

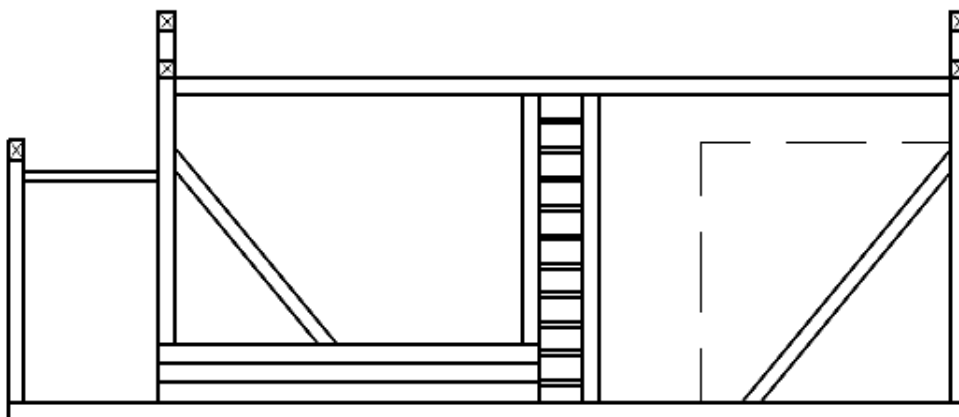
B101001-6 Outshed Granary Joists	
The outshed granary joists run north-south. On the north end, they are supported by the perpendicular north sill and toe-nailed together (see picture above). On the south end, they are likely toe-nailed into the north sill of the barn, however this area is inaccessible due to condition of floor system and straw obscuring the floor. Because the north elevation sill has kicked out off of the foundation wall below, the joists are no longer supported at the north end.	 The N-S joists are no longer supported at the north elevation of the outshed granary. Photo: HPTC, 06/21/17.

B101001-6	Outshed Granary Joists
Overall Condition Rating	POOR
Maintenance Deficiency Rating	CRITICAL

B1020	Roof Construction
B102001	Structural Roof Frame
B102001-1	Barn Interior Bents
The upper level of the barn is divided into three bays by two north-south bents. The east bent is comprised of two corner posts (7x7) which support a perpendicular tie beam. Two central, intermediate posts (7x7) form the sides of a ladder and also support the tie beam. The rungs of the ladder are 2" wide. A tertiary post is located adjacent the north corner post. Diagonal knee braces (7x6) tie the south corner post and the tertiary post to the sill below. A flailing wall is located between the tertiary post-north ladder post and the south corner post-south ladder post. A shorter, lower girt (4x4) connects the south corner post to the overhanging south elevation forebay wall. Minor issues with the east bent include a missing board on the north section of the flailing wall and a sistered member to the tie beam to repair it. The west bent is similar to the east bent. It is comprised of two corner posts (7x7) which support a perpendicular tie beam. Two central, intermediate posts (7x7) form the sides of a ladder and also support the tie beam. The rungs of the ladder are 2" wide. Diagonal knee braces (7x6) tie the corner posts to the sill below. A flailing wall is located between the south corner post-south ladder post. A shorter, lower first (4x4) connects the south corner post to the overhanging south elevation forebay wall. There are no visible issues with the west bent. The two bents and the east and west elevation timber-frame walls are tied together by a roof plate. The continuous roof plate is located above the tie beams. Different pieces of the roof plate are tied together through via a pegged, halved bridled scarf joint.	



Minor issues identified at the east bent (as seen from the center threshing bay). Red marks the location of a missing board on the flailing wall; blue marks the location of a poorly sistered beam. Drawing: HPTC, 07/11/18.



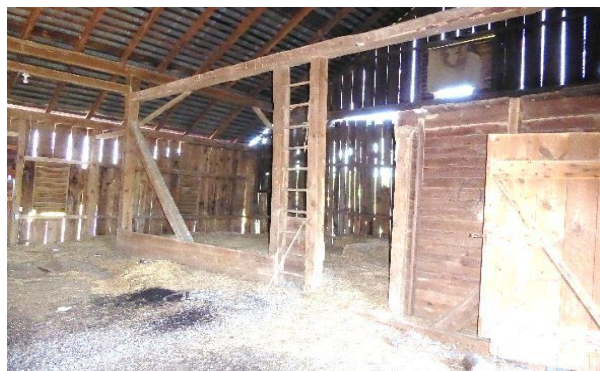
The west bent (as seen from the center threshing bay). No significant issues were noted on this structural system. Drawing: HPTC, 07/11/18.



The east bent from the threshing bay. Photo: HPTC, 06/21/17.



The east bent tie beam has been partially replaced and a tertiary post added, seen here from the east grain mow. Photo: HPTC, 06/21/17.



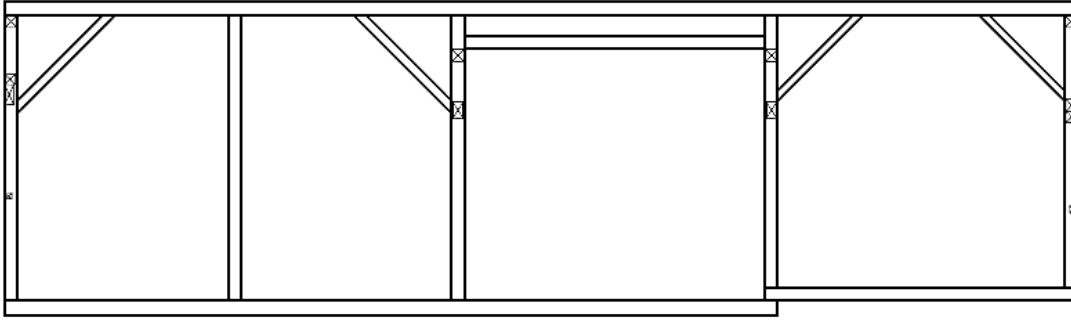
The west bent from the threshing bay. Photo: HPTC, 06/21/17.



Long pieces of the roof plate are pegged together using a halved bridled scarf joint to run the entire length of the barn from the west exterior wall to the east exterior wall over the two bents. Photo: HPTC, 06/21/17.

B102001-1	Barn Interior Bents
Overall Condition Rating	FAIR
Maintenance Deficiency Rating	MINOR

B102001-2 Barn Interior Forebay Wall
An upper-level interior wall corresponds with the location of the lower-level recessed forebay wall. The upper-level wall is divided into three bays, anchored by two 7x7 corner posts and two 7x7 intermediate posts (referred to the south corner posts for the internal bents above). A 6x6 tertiary post is also located in the center of the east bay (mow) because this bay is wider than the other two. All five posts support the perpendicular roof plate. Diagonal braces (two at 2x4 and two at 5x5) join the corner and intermediate posts to the roof plate above. In the center threshing bay, a 6x7 girt spans the bay between the intermediate posts below, but parallel to the roof plate above. All joinery is achieved through pegged mortise and tenon joints. No issues were visible at the interior forebay wall.



The three-bay interior forebay wall as seen from the north. Drawing: HPTC, 07/11/18.

B102001-2	Barn Interior Forebay Wall
Overall Condition Rating	FAIR
Maintenance Deficiency Rating	MINOR

B102001-3	Barn Rafters
The gable roof of the barn is composed of original 3x6 rafters at 30" on center. At the peak the rafters are joined together with a ridge beam; it is unknown how this joint is fastened, but it is likely done through spikes. An overhead hay track is located below the ridge beam. It is unknown when this was installed or if it is operational. At the lower ends (north and south) the rafters rest on their respective continuous roof plates with a spiked step lap. At the south slope, in order to create the asymmetrical gable over the overhanging forebay, rafter tails, or sprockets, were added to the end of each main rafter. These sprockets are attached to the main rafters through small spikes. The rafters are not held together at their midspan by a purlin, which is typical with a trussed barn. Instead, it is believed that the 1x3 wood skip sheathing (at 6½" on center laid perpendicular to the rafters) keeps the rafters in place without racking. The sheathing also would have accepted the original wood shingles, many of which are seen on the underside of the metal roof coverings. The roof rafters are in fair condition, with no major issues detected.	



The rafters meet at the continuous ridge plate. A hay track is hung from this plate. Photo: HPTC, 06/21/17.



The housed birdsmouth rafter tail on the south slope at the roof plate. This connection is also spiked. Photo: HPTC, 06/21/17.



A sprocket added to the end of a rafter on the south slope. Note the spike holding the two together. Photo: HPTC, 06/20/17.



The retained original skip sheathing provides stabilization from racking. Wood shingles wood have also been attached to the sheathing originally. Photo: HPTC, 06/21/17.

B102001-3

Overall Condition Rating

Maintenance Deficiency Rating

Barn Rafters

FAIR

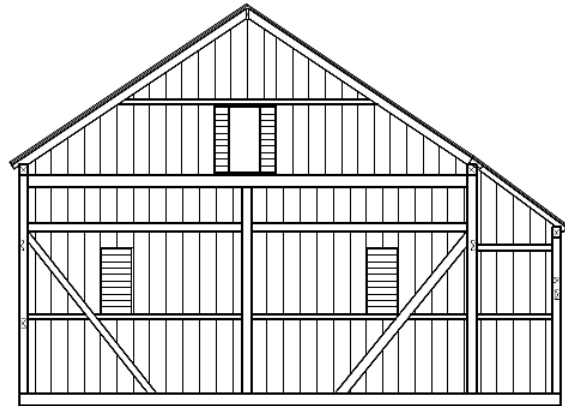
MINOR

B102001-4 Outshed Granary Rafters	
The steep shed roof of the outshed granary is composed of historic 2x6 rafters at 21" on center. At the peak, the rafters are supported by a beam rudimentarily attached to the framing members of the barn's north elevation wall. At the lower end, the rafters are supported by a roof plate on of the north elevation wall of the granary. It is assumed that each end of the rafter is nailed into the support member. The upper support beam is in good condition. The lower end of several rafters are compromised (rot) due to missing roof coverings. The lower roof plate is also compromised because of missing roof coverings and is visibly sagging in the center due to a lack of structural support in the wall framing and foundation wall below.	
 Missing roof coverings is causing deterioration of the rafters. Photo: HPTC, 06/21/17.	 The lower roof plate supporting the lower end of the rafters is compromised for several reasons. Photo: HPTC, 06/21/17.
B102001-3 Outshed Granary Rafters	
Overall Condition Rating	POOR
Maintenance Deficiency Rating	CRITICAL

B20	EXTERIOR ENCLOSURE
B2010	Exterior Walls
B2010-1	Barn Exterior Walls
The barn east exterior wall frame consists of two 7x7 end posts which support a 7x7 horizontal tie beam. A 7x7 center post supports the tie beam at the center. A pair of 6x6 girts are located between the end posts and center post. Diagonal knee braces (south: 6x7, north: 5x5) stabilize the end posts to the sill. A pair of girts connect the south end post to the shorter end post of the south elevation wall. Another girt is located above the tie beam at the approximate midpoint of the rafters. All connections are made through mortise-and-tenon joinery.	

The exterior is clad with painted vertical siding, which is believed to be original (due to only one set of nail holes). The siding has been painted during the last ten years and is in good condition.

Extensive water and insect damage can be seen at the upper portion of the north end post.



East wall interior elevation. Drawing: HPTC, 07/11/18.



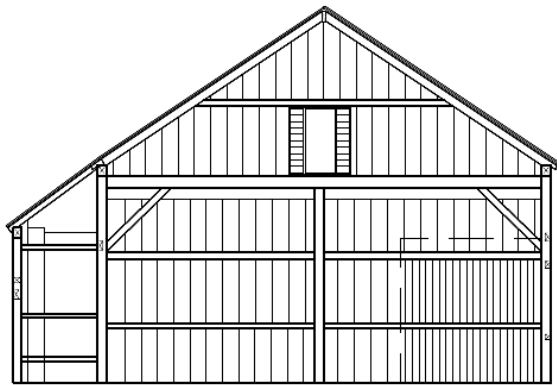
The east elevation is clad with painted vertical siding boards. Photo: HPTC, 06/21/17.



Significant rot and insect damage on the northeast end post. Photo: HPTC, 06/21/17.

The barn west exterior wall frame is very similar to that of the east. It consists of two 7x7 end posts which support a 7x7 horizontal tie beam. A 7x7 center post supports the tie beam at the center. A pair of 6x6 girts are located between the end posts and center post. Diagonal braces (6x6) stabilize the end posts to the tie beam. Another girt is located above the tie beam at the approximate midpoint of the rafters. Three additional girts connect the south end post to the shorter end post of the south elevation wall. The exterior is clad with a mix of sidings and found objects (corrugated metal, metal sign, round table top, wooden fence pickets, etc.). It is thought that when the addition to the west elevation was removed, much of the siding on this elevation was patched with whatever was on hand. Furthermore much of the "siding" is extremely weathered, suggesting this elevation has not been painted for a long time.

Structurally the west wall is in poor condition, particularly because of the compromised foundation and framing on the lower level. The wall framing is noticeably falling, so much that the tenon on the top of the center post is dislocated from its mortise. Modern cribbing at the lower level is keeping the barn somewhat structurally safe at this time.



West wall interior elevation. Drawing: HPTC, 07/11/18.



The exterior of the west wall. The siding is not historic and was likely cobbled together when the addition was removed. Photo: HPTC, 06/21/17.



Tenon of the center west wall post is removed from its mortise as the wall is pulled down by failing foundations and framing below. Photo: HPTC, 06/21/17.

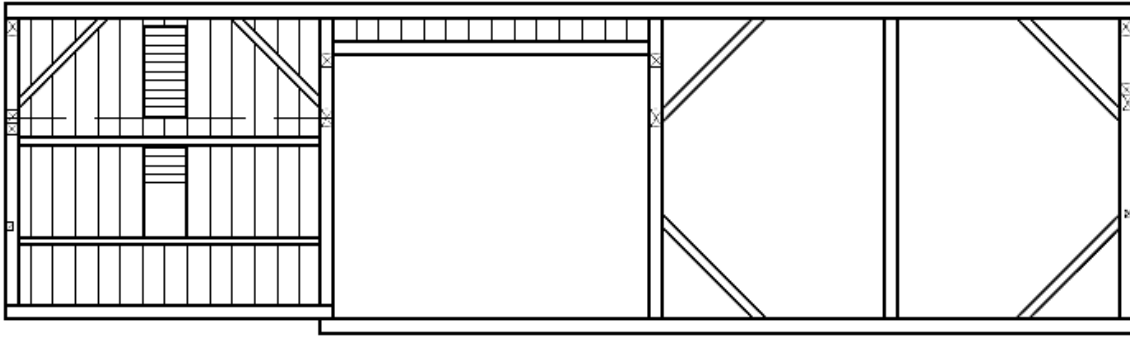
Right: Structurally instability along the west exterior wall is causing the forebay cantilever to fall. Photo: HPTC, 06/21/17.



The north wall frame is divided into three bays. Two 7x7 corner posts support the perpendicular roof plate. Two 7x7 intermediate posts separate the threshing floor from the side grain mows and also support the roof plate. A 7x7 tie beam is located between the two intermediate posts, below the roof plate. A tertiary post is located in the east grain mow, because this mow is wider than the others. A pair of 7x6 knee braces ties the outer posts of the east mow to the sill below; this condition is likely at the west mow as well, however the lower portion of this wall is covered with the enclosed interior granary. A pair of 7x6 diagonal braces is located in the each of the west and east mows, which connect the outer posts to the roof plate.

The western third of the north wall is clad with unpainted vertical board siding. It could be original. Portions have been covered with a rolled-roofing material. Vines are also climbing this portion of the elevation. The center third of the north wall is composed of the large, modern metal sliding barn door. The track extends on the western third of the wall. The western third of the north wall is no longer clad with siding. It is assumed this was removed when the outshed granary addition was constructed (date unknown).

Besides the northeast corner post already mentioned above, and area of insect damage can be seen on the top roof plate of the eastern third of the wall.



North wall interior elevation. Drawing: HPTC, 07/11/18.



The north elevation of the barn. The sliding barn door is in the center. The outshed granary covers the eastern portion. Siding and vines cover the western portion. Photo: HPTC, 06/21/17.

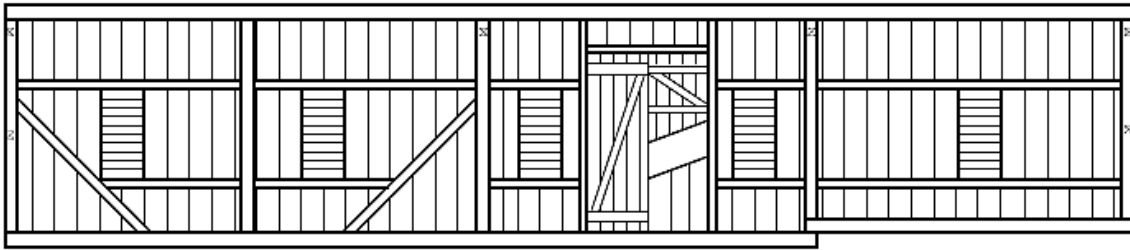


The roof plate of the north elevation has insect damage at its eastern end. Photo: HPTC, 06/21/17.

The south wall frame is also divided into three bays. Two 7x7 corner posts support the support the perpendicular roof plate. Two 7x7 intermediate posts separate the threshing floor from the side grain mows and also support the roof plate. In the center bay, two tertiary posts support the sides of the center threshing door. Knee braces (7x6) are only located at the east mow and tie the posts to the sill below.

The exterior of the south elevation is clad with painted vertical siding, which is believed to be original (due to only one set of nail holes). The siding visible above the roofs of the south additions appears to have been painted during the last ten years; the siding below these roofs has not been painted in many years. Regardless the siding is in good condition.

Insect damage can be seen on several of the posts and the east end of the roof plate.



South wall interior elevation. Drawing: HPTC, 07/11/18.



A missing piece of siding on the south elevation, under the later garage addition. Photo: HPTC, 06/21/17.

Right: Insect damage on the southeast corner and roof plate of the south elevation. Photo: HPTC, 06/21/17.



B2010-1	Barn Exterior Walls
Overall Condition Rating	POOR
Maintenance Deficiency Rating	SERIOUS

B2010-2 Outshed Granary Exterior Walls

The timber frame system of the outshed granary exterior walls is relatively simple compared to the barn. Dimensions of the granary structural members are unknown due to the unsafe nature of the floor structure.

The east wall utilizing the northeast corner post of the barn and a shorter corner post at the northeast corner of the granary. Two horizontal girts occupy this wall at the third points. The west wall is nearly identical, but only utilizes a single girt which doubles as a header above the large paired door opening.

The north wall has two short corner posts which supports the roof plate. Diagonal braces stabilize the corner posts to the roof plate.

The exterior of the outshed granary is clad with vertical board siding. The east elevation has been painted within the last ten years; the north and west elevations have remnants of paint, but have not been painted in many years. Circular saw marks can be seen on the interior side of the siding where it has never been painted. It is likely this siding is original to the addition.

Water and ultraviolet (sun) damage is noticeable on framing members that are exposed to the elements, where roof coverings are missing (east and west elevations). Structural damage is noticeable on the north elevation due to complications with the stone foundation in this area.



The interior elevation of the outshed granary's east wall. Damage has occurred to the structural members due to the missing roof covering. Photo: HTPC, 06/21/17.



The interior elevation of the outshed granary's north wall. Damage has occurred to the structural members due to damage to the foundation wall below. Photo: HTPC, 06/21/17.



The interior elevation of the outshed granary's west wall. Damage has occurred to the structural members due to the missing roof covering and doors. Photo: HPTC, 06/21/17.



The siding on the north elevation of the outshed granary has not been painted in a long time. Photo: HPTC, 06/21/17.

B2010-2	Outshed Granary Exterior Walls
Overall Condition Rating	POOR
Maintenance Deficiency Rating	CRITICAL

B201005	Exterior Louvers (Barn & Granary)
The north elevation of the stone foundation wall retains an original louvered opening with its operating mechanism. It is likely that a similar operable louver was once located in the opening on the west elevation of the stone foundation wall. This openings is currently enclosed with plywood. An additional opening is located on the lower level, in the east elevation stone foundation wall. It has been altered to include a concrete sill. It is unknown what the opening originally looked like, but it is likely it was a louvered opening. Several additional louvered openings are retained on the upper level of the barn and outshed granary. Five are located on the south elevation of the barn and two are located on the east elevation of the barn. These louvers are partially or fully obscured by modern additions on these elevations. Another louvered opening is located on the north elevation of the barn. It is currently obscured by a piece of rolled roofing. The opening has been enlarged at the bottom, likely to accommodate an apparatus from the interior granary. Two identical louvered openings are located in the east elevation of the outshed granary.	

Tripartite louvered openings are located under each gable end of the barn. As they exist now, the center louver has been replaced with window sash taken from another building (likely the adjacent house when its windows were modernized). It is believed that these were originally louvers.

Some louvers are missing trim components and the paint varies in condition.



The interior of the original louvered opening in the barn's north elevation stone foundation wall. Note the mechanism which moved all the slats at the same time. Photo: HTPC, 06/21/17.



The opening in the west elevation stone foundation wall likely matched that seen in the north elevation originally. Photo: HTPC, 06/21/17.



One of the louvered openings on the barn's south elevation is completely covered by an addition. Its paint is fading and it is missing a piece of trim. Photo: HTPC, 06/21/17.

Left: A modified opening in the east elevation stone foundation wall was likely originally a louvered opening. Photo: HTPC, 06/21/17.



A louvered opening is hidden behind the black roofing material on the north elevation of the barn. The opening has been altered for access into the interior granary. Photo: HPTC, 06/21/17.



Extant louvers in the east elevation of the outshed granary. Photo: HPTC, 06/21/17.



The tripartite louvered opening under the east gable end. The sash in the center are not original. Photo: HPTC, 06/21/17.

B201005

Overall Condition Rating

Maintenance Deficiency Rating

Exterior Louvers (Barn & Granary)

FAIR

MINOR

B2030	Exterior Doors (Barn & Granary)
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There are several different types of doors at the barn and outshed granary.

D001 is located on the east elevation of the barn lower level. It measures 3'-4" wide x 5'-8" tall and is comprised of 0'-7"-wide vertical boards with 2x4 horizontal battens on the interior. An opening has been cut in the door (likely not original). Historic strap hinges have been retained on this historic door. Paint is fresh.

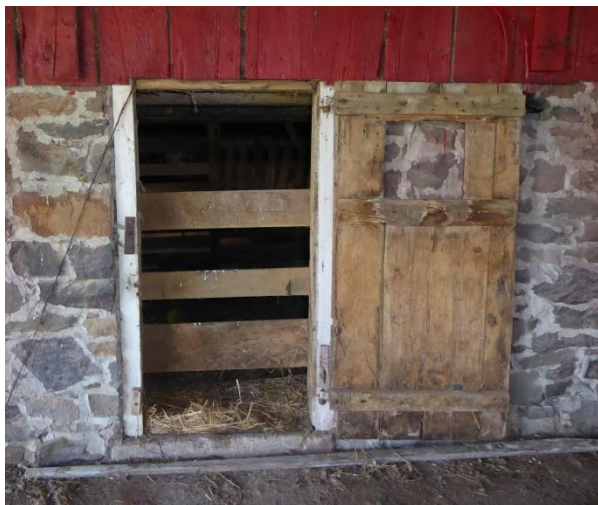
On the south elevation of the barn lower level, there are several operable doors in the forebay wall, from left (west) to right (east): D002 (4'-1" wide x 4'-2" tall), D003 (3'-9" wide x 4'-1" tall), and D004 (4'-3" wide x 4'-0" tall) are all swinging wood doors comprised of 0'-6"-wide vertical boards and battens on the interior. Historic strap hinges have been reused for the modern doors. Paint is deteriorated. Above these man doors are long doors which swing up on modern hinges. These are modern and are not painted.

D005 is located on the east elevation of the outshed granary lower level. This opening is composed of a pair of swinging doors which take up the entire width of this elevation. The doors are composed of vertical boards with battens on the interior side. They are hung with historic strap hinges. The doors have been recently painted. The doors were not accessible to HPTC because of overgrown vegetation so it is unknown if they are operable.

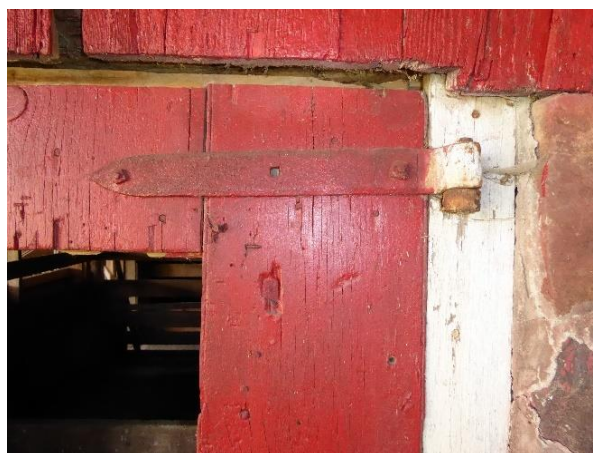
D101 is located on the north elevation of the barn upper level, at the top of the bank. This modern door (approximately 14'-0" wide x 12'-0" tall) is composed of a wood frame and is covered with corrugated metal. It hangs on a galvanized track and is held closed with several interior hooks. Within this large door is a swinging man door (3'-3" wide x 5'-5" tall) hung on modern hinges.

D102 is located on the south elevation of the barn upper level. It is historic and would have been used to move threshed grain from the threshing floor above to the barnyard below. The double swinging doors (5'-5" wide x 9'-4" tall) are composed of 0'-6"-wide boards with horizontal battens on the interior. The doors were made inoperable by the addition roof; however the lower portion of the west door has been cut and rehung opposite to be used. The portions of the doors above the roof have been painted recently; the portions under the roof have not.

D103 is located on the west elevation of the outshed granary upper level. This opening is composed of a pair of swinging doors which take up most of the entire width of this elevation and outlet onto the bank. The south door is missing which allows water to enter the building and is compromising the structure. The north door is composed of vertical boards with battens on the interior side. It is hung with historic strap hinges. The door has not been recently painted and is likely not operable.



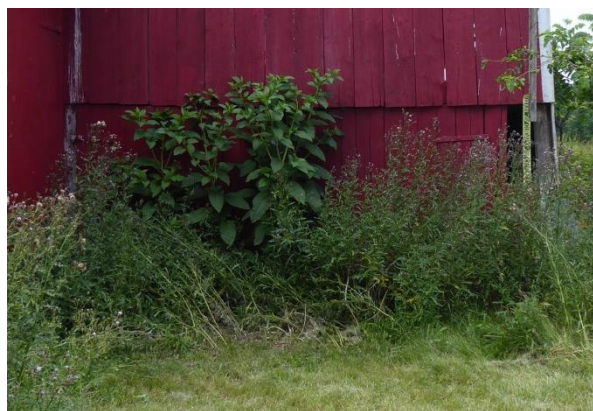
D001 is historic, seen here in its open position. Photo: HPTC, 06/21/17.



One of the historic hinges on D001. Photo: HPTC, 06/21/2017



The doors located in the lower level forebay are nearly identical with long doors above. D004 is seen here. Photo: HPTC, 6/21/17.



A pair of doors (D005) is located in the east elevation of the outshed granary's lower level. Photo: HPTC, 06/21/17.



D101 is a large sliding modern barn door with inset man door. Photo: HPTC, 06/21/17.



The interior of D101 with wood framework supported the metal cladding. Photo: HPTC, 06/21/17.



D002 has been altered so that it could be somewhat usable despite the addition roof. Photo: HPTC, 06/21/17.

Right: The interior of D002 shows the lower portion of the west door has been altered to accommodate the roofline. Photo: HPTC, 06/21/17.





One of the paired doors remains at D003.
Photo: HPTC, 06/20/17.

B2030	Exterior Doors (Barn & Granary)
Overall Condition Rating	FAIR
Maintenance Deficiency Rating	SERIOUS

B30	ROOFING
B3010	Roof Coverings
B301001	Roof Finishes
B301001-1	Barn Roof Finishes
The gable roof of the barn was originally clad with wood shingles. These can be partially seen on the underside of the north slope. It is believed that these shingles were the original roof covering and once they reached the end of their service life (approximately twenty years); they were simply covered over with what is seen on the north slope. The north slope is covered with a historic standing-seam metal roof. The south slope has been replaced an additional time. Both the original shingles and the historic standing-seam metal have been removed and replaced with modern corrugated metal panels. A continuous line of snowboards runs the length of the south slope of the roof. Two small areas are missing. It is assumed this feature is not historic, much like the roof covering on which it sits. Deteriorated silver paint can be seen on both slopes, with rusting metal showing. Despite this, no holes in the roof coverings could be detected.	



Original wood shingles can be seen on the underside of the north slope of the barn gable roof. Photo: HPTC, 06/20/17.



The north slope of the barn gable roof is covered with historic standing-seam metal. Note the deteriorated paint. Photo: HPTC, 06/20/17.



The south slope of the barn gable roof is covered with modern corrugated metal panel. Note the deteriorated paint. Photo: HPTC, 06/21/17.

B301001-1	Barn Roof Finishes
Overall Condition Rating	FAIR
Maintenance Deficiency Rating	MINOR

B301001-2 Outshed Granary Roof Finishes	
The shed roof of the outshed granary is covered with corrugated metal panels. The red paint has deteriorated slightly. Panels are missing from the east and west edges of the roof. This allows water to enter the interior of the addition and has already caused deterioration to the interior floor, structural systems, and north foundation wall.	
 The corrugated metal roof covering of the outshed granary is missing portions on the east and west sides. Photo: HPTC, 06/21/17. <i>Right:</i> Deteriorated interior conditions inside the outshed granary due to missing roof coverings. Photo: HPTC, 06/21/17.	
B301001-2	Outshed Granary Roof Finishes
Overall Condition Rating	POOR
Maintenance Deficiency Rating	CRITICAL

B301005 Gutters & Downspouts	
B301005-1 Barn Gutters & Downspouts	
Remnants of galvanized metal 0'-6"-wide half-round gutters are located at the eave line of the south slope of the barn's gable roof. No downspouts are extant. No roof drainage system components are located on the north slope of the barn's gable roof.	 Failed south elevation gutters. Photo: HPTC, 06/21/17.
B301005-1	Barn Gutters & Downspouts
Overall Condition Rating	POOR
Maintenance Deficiency Rating	CRITICAL

B301005-2 Outshed Granary Gutters & Downspouts	
No roof drainage system components are located on outshed granary shed roof.	
B301005-2	Outshed Granary Gutters & Downspouts
Overall Condition Rating	POOR
Maintenance Deficiency Rating	CRITICAL

End of Part B – Shell.

C	INTERIORS
C10	INTERIOR CONSTRUCTION
C1010	Partitions
Partition walls in the lower level are modern and are composed of 1x8s 10'-0" in length. On the upper level of the barn, low flailing walls separate the grain mows from the threshing floor. Circular-sawn 1x12s 12'-0" in length are nailed to the threshing-floor side of the posts. Also on the upper level, the interior granary located at the northwest corner of the barn, includes framed walls. The east wall of the granary incorporates framing members from the west bent, as well as supplementary framing members. The west wall of the granary is incorporated into the west exterior wall of the barn. The south wall of the granary is framed of salvaged material of inconsistent size, suggesting the granary is not an original component of the barn. Inside the granary, two partition walls separate the room into three smaller spaces. The walls are composed of horizontal wood boards. The boards are joined to 4x8 posts. Note: No partition walls are located within the north elevation outshed granary.	
 Modern partition wall located on the lower level. Photo: HPTC, 06/21/17.	 A wood flailing wall separates the grain mow from the threshing floor. Photo: HPTC, 06/21/17.



The walls which enclose the interior granary are composed of salvaged material. Photo: HPTC, 06/21/17.

Right: The interior granary is separated into smaller areas by partition walls. Photo: HPTC, 06/21/17.



C1010	Partitions
Overall Condition Rating	FAIR
Maintenance Deficiency Rating	MINOR

C1020 Interior Doors	
The only interior door is located at the interior granary. The 3'-1" x 6'-3" door is composed of 0'-8"-wide wood boards with battens on the interior (Z pattern). The door is made operable by historic strap hinges on the exterior. The door is operable, but is large for the opening which causes it to stick to the jamb. <i>Right: The interior granary door. Photo: HPTC, 06/20/17.</i>	
C1020	Interior Doors
Overall Condition Rating	FAIR
Maintenance Deficiency Rating	MINOR

C30 INTERIOR FINISHES	
C3020 Floor Finishes	
C302003 Wood Flooring	
The west and east grain mows and threshing floor of the upper level include a single layer of 1'-0"-wide x 0-2"-thick, tongue-and-groove wood flooring. The flooring is attached to the joists below via wrought spikes. The east and west grain mows are covered in a thick layer of straw; therefore assessment of the wood flooring is difficult. At least one small area of flooring in the east mow is compromised. There is a significant amount of bat guano and owl excrement on the floor boards. Presently, this does not affect their structural integrity. Several of the boards have broken at post P17 and have been patched. The floor boards within the interior granary are also compromised with some visible holes and missing attachments to the joists below.	

Note: Lower-floor floor finishes include the concrete slab-on-grade. Refer to *A1030 Slab On Grade* for more information.



The wood flooring of the threshing floor is original. Photo: HPTC, 06/21/17.



Threshing floor wood flooring is held down with face-nailed spikes. Photo: HPTC, 06/21/17.



Broken and patched floor in the threshing bay. Photo: HPTC, 06/21/17.



The flooring in the interior granary is deteriorated. Photo: HPTC, 06/21/17.

C302003	Wood Flooring
Condition Assessment Rating	POOR
Maintenance Deficiency Rating	SERIOUS

End of Part C–Interiors.

D	SERVICES
D20	PLUMBING
There is no active plumbing system located in the barn.	
D20	Plumbing
Overall Condition Rating	Not Rated
Maintenance Deficiency Rating	Not Rated

D40	FIRE PROTECTION SYSTEMS
There are no fire extinguishers, smoke detectors, sprinkler systems, or fire detection systems located in the barn.	
D40	Fire Protection Systems
Overall Condition Rating	Not Rated
Maintenance Deficiency Rating	Not Rated

D50	ELECTRICAL
There is no active electrical system located in the barn. Remnants of a previous system are located throughout the barn (conduit, lighting fixtures, etc.) which is outdated and likely beyond feasible repair. There is no hardwired fire alarm system, security system, emergency lighting and power system located at the barn.	
D50	Electrical
Overall Condition Rating	Not Rated
Maintenance Deficiency Rating	Not Rated

D5090 Other Electrical Systems	
D509004 Lightning Protection System	
A lightning protection system located at the barn. Four historic terminals are located at the peak of the gable roof. The download cables have been severed and are not grounded, rendering the system useless.	
	
Severed download cable of the lightning protection terminal on barn roof. Photo: HPTC, 06/21/17.	
D509004	Lightning Protection System
Overall Condition Rating	POOR
Maintenance Deficiency Rating	CRITICAL

End of Part D – Services.

G	BUILDING SITEWORK	
G20	SITE IMPROVEMENTS	
	G2040	Site Development
	G204002	Retaining Wall
A stone retaining wall, tapering from grade to approximately 7'-10"-high at the north foundation wall, retains the fill of the bank. Built of large stone rubble, the retaining wall is bulging, likely due to excessive water in this area from no roof drainage system on the barn roof.		 The bank wall is bulging. Photo: HPTC, 06/21/17.
G201002	Retaining Wall	
Overall Condition Rating		POOR
Maintenance Deficiency Rating		SERIOUS

G90	OTHER SITE WORK	
	G9087	Overall Building Site Drainage
On the west elevation, there is neutral drainage along the foundation which allows water to pond in an old foundation. On the south elevation, the accretion of many additions allows water to disperse from the historic core. However, drainage remains neutral on the south elevation. On the east elevation, the addition allows water to drain away from the historic core. However, the presence of trees on this elevation retains water on the east elevation. With the absence of a roof drainage system (gutters and downspouts), when the non-historic additions are removed from the south and east elevations, neutral drainage on the west, south, and east elevations could retain water at the base of the barn.		

On the north elevation, there is overall positive drainage, due to the bank. Again, with the lack of the roof drainage system, excess water is causing damage to the bank wall.



West elevation neutral drainage. Photo: HPTC, 06/21/17.



North elevation positive drainage. Photo: HPTC, 06/21/17.

G9087	Overall Building Site Drainage
Overall Condition Rating	POOR
Maintenance Deficiency Rating	MINOR

End of Part G–Building Sitework.

SUMMARY OF CONDITION ASSESSMENT RATINGS					
UNIFORMAT II Outline Data				Condition Assessment	
Category	Topic	Code	Subtopic	Condition Rating	Deficiency Rating
A	SUBSTRUCTURE				
A10	FOUNDATIONS				
	A1010	Standard Foundations			
		A101001	Wall Foundations		
		-1	Barn Stone Foundations	FAIR	MINOR
		-2	Barn Timber-Frame Foundations	POOR	CRITICAL
		-3	Outshed Granary Stone Foundations	POOR	CRITICAL
	A1030	Slab on Grade			
		A103001	Standard Slab on Grade	FAIR	MINOR
A20	BASEMENT CONSTRUCTION				
	A2020	Basement Walls			
		A202001	Basement Wall Construction	FAIR	MINOR
B	SHELL				
B10	SUPERSTRUCTURE				
	B1010	Floor Construction			
		B101001	Structural Frame		
		-1	Barn Posts (Lower Level)	POOR	CRITICAL
		-2	Barn Summer Beams	FAIR	MINOR
		-3	Barn Sills	FAIR	MINOR
		-4	Barn Joists	FAIR	MINOR
		-5	Outshed Granary Sills	POOR	CRITICAL
		-6	Outshed Granary Joists	POOR	CRITICAL
	B1020	Roof Construction			
		B102001	Structural Frame		
		-1	Barn Interior Bents	FAIR	MINOR
		-2	Barn Interior Forebay Wall	FAIR	MINOR
		-3	Barn Rafters	FAIR	MINOR
		-4	Outshed Granary Rafters	POOR	CRITICAL
B20	EXTERIOR ENCLOSURE				
	B2010	Exterior Walls			
		-1	Barn Exterior Walls	POOR	SERIOUS
		-2	Outshed Granary Exterior Walls	POOR	CRITICAL
		B201005	Exterior Louvers (Barn & Granary)	FAIR	MINOR
	B2030	Exterior Doors (Barn & Granary)			
				FAIR	SERIOUS
B30	ROOFING				
	B3010	Roof Coverings			
		B301001	Roof Finishes		
		-1	Barn Roof Finishes	FAIR	MINOR
		-2	Outshed Granary Roof Finishes	POOR	CRITICAL
		B301005	Gutters & Downspouts		
		-1	Barn Gutters & Downspouts	POOR	CRITICAL
		-2	Outshed Granary Gutters & Downspouts	POOR	CRITICAL

C	INTERIORS				
C10	INTERIOR CONSTRUCTION				
	C1010	Partitions		FAIR	MINOR
	C1020	Interior Doors		FAIR	MINOR
C30	INTERIOR FINISHES				
	C3020	Floor Finishes			
		C302003	Wood Flooring	POOR	SERIOUS
D	SERVICES				
D20	PLUMBING			Not Rated	Not Rated
D40	FIRE PROTECTION SYSTEMS			Not Rated	Not Rated
D50	ELECTRICAL			Not Rated	Not Rated
	D5090	Other Electrical Systems			
		D509004	Lightning Protection System	POOR	CRITICAL
G	BUILDING SITEWORK				
G20	Site Improvements				
	G2040	Site Development			
		G204002	Retaining Wall	POOR	SERIOUS
G90	Other Site Work				
	G9087	Overall Building Site Drainage		POOR	MINOR
END OF TABLE.					

Note: For NPS Standards, Guidelines and Definitions, see Chapter 3.

CHAPTER 5

The following recommended treatments are intended to repair, maintain, preserve, and/or restore the character-defining features of the Bishop Barn with the least degree of intervention while elevating the Facility Condition Index ratings to “good.” These treatments include limited replacement in-kind as defined by *The Secretary of the Interior’s Standards for the Treatment of Historic Properties*. Appendix A of this report contains definitions of various preservation treatments.

The Bishop Barn is currently unoccupied. Until a rehabilitation plan is developed and implemented, a preservation approach should be taken.

Recommended Treatments for Stabilization/Mothballing (Preservation)

Preservation is defined as the act or process of applying measures necessary to sustain the existing form, integrity, and materials of an historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction. New exterior additions are not within the scope of this treatment; however, the limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate with a preservation project.

General Building Security

Although not addressed specifically as part of the assessment, general building security is an important point to consider in the mothballing or long-term care of structures. Ensuring security is more significant at building sites that are vacant and not staffed. The following preliminary recommendations are offered:

- To give the building a more lived-in look, attention should be paid to the appearance of the interior window treatments from the exterior. All interior window treatments should be in working order and kept in position that allows light into the building, but discourages unwarranted entry; or, uncover first-floor windows, install ventilation louvers, etc.
- Where electricity is available, several interior lights should be placed on seven-day timers to alternate the interior lighting pattern after dark. This is especially true in winter when days are shorter and a dark building suggests an unoccupied building.
- Exterior motion-sensitive security lighting set on a daylight-sensing device will also assist in the deterrence of vandalism and breaking-and-entering attempts. Such devices should not be mounted directly to the building but

placed on free-standing light poles or in nearby trees. All wiring should be protected and tamper resistant.

Hazardous Materials & Historic Buildings

A hazardous material survey and analysis by an environmental engineer or consultant is a good way to identify potential material hazards and plan for their mitigation. This also provides a safe and clean environment for those entering the building during the preservation phase. Refer to NPS Preservation Brief No. 31: "Mothballing Historic Buildings" for more information.

In a historic building, asbestos-containing materials (ACMs) and lead-based paint (LBP) are the two most common hazardous materials:

- *ACM possibilities*: pipe insulation, loose fill insulation, furnace wrap or plaster, wall and ceiling plaster, floor tiles and sheet goods, adhesives and mastics, etc.
- *LBP possibilities*: all interior architectural trim, especially windows and doors, exterior painted woodwork, especially architectural trim, etc. Refer to NPS Preservation Brief No. 37: "Appropriate Methods for Reducing Lead-Paint Hazards in Historic Housing" for more information.

Demolition of Non-Historic Additions

Bishop Barn features three non-historic additions including a loading shed (east elevation), a garage (south elevation), and a milking parlor (south elevation). These additions obscure the historic barn core and must to be removed in order to restore the historic fabric and appearance of the barn and its associated historic outshed granary (north elevation).

Recommended Treatments for Rehabilitation

When a tenant and ultimate use is selected by GETT staff, rehabilitation will occur. The Bishop Barn retains a high level of historic integrity and rehabilitation (with the preservation of character-defining features and preservation maintenance) of the interior and exterior for a compatible reuse is the recommended ultimate treatment and use for the building.

The rehabilitation of the interior and the exterior must conform to the guidance and mandates put forth by the National Historic Preservation Act (Section 106, Section 110, and ACHP), Executive Order No. 13006, *The Secretary of the Interior's Standards for Historic Preservation Projects*, NPS-28 Cultural Resource Management

Guideline, the International Building Code, and the Architectural Barrier Act Accessibility Standards.

Of the four recognized NPS treatment standards, only **Rehabilitation** includes an opportunity to make possible an efficient contemporary use through alterations and additions and allows for the adaptive reuse of the space.¹

This standard includes the in-kind replacement of selected missing character-defining features, or, if they have been detached and retained, the reinstallation of the historic materials. It encourages preservation maintenance of extant character-defining features and allows for the removal, or future reversal, of non-sympathetic treatments, materials and finishes.

Similar to the rehabilitation of the exterior, rehabilitation of the interior allows for the removal, or future reversal, of non-sympathetic treatments, materials, and finishes. Retention and preservation maintenance of remaining historic character-defining features and materials is encouraged. Where materials have been removed, the NPS *Guidelines for Rehabilitating Historic Buildings* calls for the replacement feature to be compatible with the remaining character-defining features of the historic building and the introduction of “compatible substitute materials.”² Re-erection or re-installation of salvaged components is also encouraged within this treatment.

Prioritized Maintenance Deficiency Summary

The following tables place in priority order those building features with the highest level of maintenance deficiency. Starting with the rating of Poor/Critical and following through to Good/Minor in reverse order the list presents a path to good condition and lessening of the maintenance burden. It is followed by the Recommended Treatments section.

This hierarchical list divides the recommended treatments into three basic groupings based on the overall condition ratings of Good, Fair, and Poor, the NPS definitions of which are found in Chapter 3. The maintenance deficiency rating is based on the existing condition of the feature and its predicted remaining service life based on rates of deterioration.

¹ The Secretary of the Interior’s Standards for the Treatments of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings, 63.

² Standards & Guidelines, 63.

PRIORITIZED MAINTENANCE DEFICIENCY SUMMARY						
UNIFORMAT II Outline Data						
Major Group Element	Group Element	Individual Element	Specific Element	Sub-Element	Condition Rating	Deficiency Rating
POOR						
D SERVICES	D50 Electrical	D5090 Other Electrical Systems	D509004 Lightning Protection System		POOR	CRITICAL
B SHELL	B30 Roofing	B3010 Roof Coverings	B301001 Roof Finishes	B301001-2 Outshed Granary Roof Finishes	POOR	CRITICAL
B SHELL	B30 Roofing	B3010 Roof Coverings	B301005 Gutters & Downspouts	B301005-1 Barn Gutters & Downspouts	POOR	CRITICAL
B SHELL	B30 Roofing	B3010 Roof Coverings	B301005 Gutters & Downspouts	B301005-2 Outshed Granary Gutters & Downspouts	POOR	CRITICAL
B SHELL	B20 Exterior Enclosure	B2010 Exterior Walls	B2010-2 Outshed Granary Exterior Walls		POOR	CRITICAL
B SHELL	B10 Superstructure	B1020 Roof Construction	B102001 Structural Frame	B102001-4 Outshed Granary Rafters	POOR	CRITICAL
A SUBSTRUCTURE	A10 Foundations	A1010 Standard Foundations	A101001 Wall Foundations	A101001-2 Barn Timber-Frame Foundations	POOR	CRITICAL
B SHELL	B10 Superstructure	B1010 Floor Construction	B101001 Structural Frame	B101001-1 Barn Posts (Lower Level)	POOR	CRITICAL
A SUBSTRUCTURE	A10 Foundations	A1010 Standard Foundations	A101001 Wall Foundations	A101001-3 Outshed Granary Stone Foundations	POOR	CRITICAL
B SHELL	B10 Superstructure	B1010 Floor Construction	B101001 Structural Frame	B101001-5 Outshed Granary Sills	POOR	CRITICAL
B SHELL	B10 Superstructure	B1010 Floor Construction	B101001 Structural Frame	B101001-6 Outshed Granary Joists	POOR	CRITICAL
G BUILDING SITEWORK	G20 Site Improvements	G2040 Site Development	G204002 Retaining Wall		POOR	SERIOUS

B SHELL	B20 Exterior Enclosure	B2010 Exterior Walls	B2010-1 Barn Exterior Walls	POOR	SERIOUS
C INTERIORS	C30 Interior Finishes	C3020 Floor Finishes	C302003 Wood Flooring	POOR	SERIOUS
G BUILDING SITEWORK	G90 Other Site Work	G9087 Overall Building Site Drainage		POOR	MINOR
FAIR					
B SHELL	B20 Exterior Enclosure	B2030 Exterior Doors (Barn & Granary)		FAIR	SERIOUS
A SUBSTRUCTURE	A10 Foundations	A1010 Standard Foundations	A101001 Wall Foundations	FAIR	MINOR
A SUBSTRUCTURE	A10 Foundations	A1030 Slab on Grade	A103001 Standard Slab on Grade	FAIR	MINOR
A SUBSTRUCTURE	A20 Basement Construction	A2020 Basement Walls	A202001 Basement Wall Construction	FAIR	MINOR
B SHELL	B10 Superstructure	B1010 Floor Construction	B101001 Structural Frame	FAIR	MINOR
B SHELL	B10 Superstructure	B1010 Floor Construction	B101001 Structural Frame	FAIR	MINOR
B SHELL	B10 Superstructure	B1010 Floor Construction	B101001 Structural Frame	FAIR	MINOR
B SHELL	B10 Superstructure	B1020 Roof Construction	B102001 Structural Frame	FAIR	MINOR
B SHELL	B10 Superstructure	B1020 Roof Construction	B102001 Structural Frame	FAIR	MINOR
B SHELL	B10 Superstructure	B1020 Roof Construction	B102001 Structural Frame	FAIR	MINOR
B SHELL	B20 Exterior Enclosure	B2010 Exterior Walls	B201005 Exterior Louvers (Barn & Granary)	FAIR	MINOR
B SHELL	B30 Roofing	B3010 Roof Coverings	B301001 Roof Finishes	FAIR	MINOR
C INTERIORS	C10 Interior Construction	C1010 Partitions		FAIR	MINOR

C INTERIORS	C10 Interior Constructions	C1020 Interior Doors	FAIR	MINOR
NOT RATED				
D SERVICES	D20 Plumbing		Not Rated	Not Rated
D SERVICES	D40 Fire Protection Systems		Not Rated	Not Rated
D SERVICES	D50 Electrical		Not Rated	Not Rated
END OF TABLE.				

Recommended Treatments Summary³

The condition assessment of the Bishop Barn determined that certain features were found to be in a state of advanced to moderate deterioration or were non-functional (**poor**). This rating indicates these features will need to be repaired or replaced which is recognized within the definition of preservation maintenance. Other features were noted with moderate to low levels of deterioration (**fair** or **good**) and should be repaired using traditional preservation techniques rather than replaced. Other features were found to be in good condition (**good**) and should continue to be maintained, repaired, and cleaned as necessary.

Utility systems (building services) vary from being unused, “turned off,” requiring periodic servicing, or needing system inspections to ensure proper working conditions. Building systems are observed as part of the assessment walkthrough, but are not assessed for code compliance and were not included as part of the scope of work for the building investigation and assessment project.

The following recommended treatments contribute to the overall rehabilitation of the Bishop Barn and represent the type of repair that will slow or reverse the rate of deterioration for the assigned feature. The outcome of these tasks is protection of the feature, repair of the feature, or replacement of the feature in an effort to return the feature, and the structure, to good condition.

Treatment Timeframes

As part of the planning process required by NPS-28, the recommended treatments for each feature have been divided into the following timeframes.

- *Immediate*: Features which must be repaired or replaced within the next *one year* and are often the items which are in the worst condition (poor and critical). Alterations to these features are required for preservation and proper mothballing/stabilization.
- *Short-Term*: Features which should be addressed in the next *one to three years* and are likely the items which are in moderate condition. These repairs are not required for proper mothballing/stabilization, but will be required for rehabilitation.
- *Long-Term*: Features found to be in good condition with a maintenance deficiency of minor. Typically these features currently require routine maintenance to maintain their current condition employing preventative maintenance methodologies or may require attention within the next *three to five years* or beyond. The repairs are not required for proper mothballing/stabilization, but will be required for rehabilitation.

³ See Chapter 3: Standards, Guidelines, and Definitions for description of terminology based on the NPS Asset Management Process (AMP) Facility Management Program (FMP) protocol nomenclature.

RECOMMENDED TREATMENTS SUMMARY		
POOR		
D509004 Lightning Protection System	POOR	CRITICAL
<u>Timeframe:</u> <i>Immediate (Within 1 year)</i> The permanent UL-rated lightning protection system should be restored. Downlead cables should be repaired or replaced. Historic terminals with “ribbed grape glass balls” should be supplemental to new aerial terminals and system. Attention should be paid to the selection of fasteners for the downlead cables into exterior walls. Penetrations through the roof should not be allowed. Require submittals from installers including layout of installation. A lightning risk assessment is part of the project evaluation checklist found in the Denver Service Center’s Fire Protection Standards for properties undergoing rehabilitation work. Installing lightning protection is consistent with Director’s Order #58: “Structural Fire Management,” requiring NPS construction to have safeguards assuring life safety design and minimizing the chances of catastrophic loss of property.		

B301001-2 Outshed Granary Roof Finishes	POOR	CRITICAL
<u>Timeframe:</u> <i>Immediate (Within 1 year)</i> Missing corrugated metal panels of the outshed granary roof should be replaced in kind to deter any additional water from penetrating the interior of the granary. The corrugated metal roof is not a character-defining feature, but repair of this feature will deter any additional damage to the framing and structural systems until a more permanent and sympathetic roof covering can be installed. <u>Timeframe:</u> <i>Long-Term (3-5 years)</i> For park planning, the roof coverings should ultimately be replaced with a traditional standing-seam metal roof.		

B301005-1 Barn Gutters & Downspouts	POOR	CRITICAL
B301005-2 Outshed Granary Gutters & Downspouts		

Timeframe: *Immediate (Within 1 year)*

A roof drainage system, consisting of properly sized gutters and downspouts, must be installed on the barn and outshed granary roofs. Roof drainage calculations determined the following recommendations⁴:

- Barn, south slope: 8-inch, ½-round gutter along length of fascia, with a 6-inch round gutter at each end.
- Barn, north slope: 8-inch, ½-round gutter along length of fascia, with a 6-inch round gutter at each end.
- Outshed granary: 6-inch, ½-round gutter along length of fascia, with a 4-inch round gutter at each end.

The gutters and downspouts should be composed of galvanized or other non-corrosive metal. The downspouts may drain at grade, but should drain at least 10'-0" from the foundation through the use of flexible plastic piping staked into place.

Gutters and downspouts require quarterly maintenance, including the cleaning of gutters and the flushing of downspouts.

B2010-2 Outshed Granary Exterior Walls	POOR	CRITICAL
<u>Timeframe:</u> <i>Immediate (Within 1 year)</i> The timber-frame members of the exterior walls should be repaired. This could include Dutchman repairs, sistering of posts and girts, the addition of supplemental framing, or some complete replacement. Exterior siding should be repainted to match a historic red barn color. This work should be done simultaneously with repairs to the outshed granary roof coverings, roof framing, floor framing, and foundation walls, as a holistic project.		

⁴ Roof drainage calculations take into consideration the individual roof areas, roof pitches, and the area's average rainfall intensity (6.8 inches/hour). For more information refer to: <https://www.thisoldhouse.com/ideas/how-to-size-gutters-and-downspouts>.

B102001-4 Outshed Granary Rafters	POOR	CRITICAL
<u>Timeframe:</u> <i>Immediate (Within 1 year)</i> The wood rafters of the shed roof should be repaired. This could include sistering of rafters, the addition of supplemental framing, or some complete replacement. This work should be done simultaneously with repairs to the outshed granary roof coverings, exterior wall framing and siding, floor framing, and foundation walls, as a holistic project.		

A101001-2 Barn Timber-Frame Foundations	POOR	CRITICAL
B101001-1 Barn Posts (Lower Level)		
<u>Timeframe:</u> <i>Immediate (Within 1 year)</i> A structural engineer should be hired to design new concrete footers for the barn timber-frame foundations on the west elevation. Upon establishment of a new footing system, the timber-frame wall should be reconstructed using timbers which are similar in size and finishing as those throughout the rest of the barn (the current components have been salvaged from other buildings). Upon reconstruction of the wall, the modern cribbing and come-alongs can be removed.		

A101001-3 Outshed Granary Stone Foundations	POOR	CRITICAL
<u>Timeframe:</u> <i>Immediate (Within 1 year)</i> The stone foundation of the north elevation of the outshed granary should be completely disassembled and reconstructed, using salvaged stone and sympathetic lime-based mortar. In the east and west elevations, the foundations should be repointed with lime-based mortar to correct any loose stones.		

B101001-5 Outshed Granary Sills	POOR	CRITICAL
B101001-6 Outshed Granary Joists		
<u>Timeframe:</u> <i>Immediate (Within 1 year)</i> The wood sills and joists of the floor frame of the outshed granary should be repaired. This could include Dutchman repairs to sills, sistering of joists, the addition of supplemental framing, or some complete replacement. This work should be done simultaneously with repairs to the outshed granary roof coverings, exterior wall framing and siding, roof framing, and foundation walls, as a holistic project.		

G204002 Retaining Wall	POOR	SERIOUS
<u>Timeframe:</u> <i>Immediate (Within 1 year)</i> The stone retaining wall of the bank should be completely disassembled and reconstructed, using salvaged stone and sympathetic lime-based mortar, to match the historic dimensions (length, width, height) and look.		

B2010-1 Barn Exterior Walls	POOR	SERIOUS
<u>Timeframe:</u> <i>Immediate (Within 1 year)</i> The timber-frame members of the exterior walls should be repaired, particularly at the west wall and northeast corner. This could include Dutchman repairs, sistering of posts and girts, the addition of supplemental framing, or some complete replacement. Exterior siding should be repainted to match a historic red barn color.		

C302003 Wood Flooring	POOR	SERIOUS
<u>Timeframe:</u> <i>Immediate (Within 1 year)</i> All straw covering the tongue-and-groove wood flooring should be removed in order to assess the floor boards below. In the interim, limited access should be allowed to the east and west grain mows. In the future, every effort should be made to retain as much historic material as possible.		

G9087 Overall Building Site Drainage	POOR	MINOR
<u>Timeframe:</u> <i>Immediate (Within 1 year)</i> Upon removal of the additions on the east and south elevation, any resulting negative drainage toward the building and neutral drainage should be corrected immediately. Minor re-grading of soil to create positive surface drainage near (within 12'-0") of the barn should be completed on all elevations. Every effort should be made to ensure water is running away from the building.		

FAIR		
B2030 Exterior Doors (Barn & Granary)	FAIR	SERIOUS
<u>Timeframe:</u> <i>Immediate (Within 1 Years)</i> D001, D002, D003, and D004 are in good condition and only require repainting using a historic barn color. D101 is also in good condition; however it is a modern, unsympathetic addition to the barn. Consideration should be given to replacing this door with a pair of large, swinging barn doors typical of a barn of this age. Vegetation should be removed from in front of D005. The opening should then be assessed. It is assumed that some repairs will be needed to the doors in order to make them operable. Upon removal of the south elevation additions, D102 should be restored to its original appearance and function, as paired swinging threshing doors. Repaint. The damaged/missing pair of doors on the west elevation of the outshed granary (D103) should be completely rebuilt using modern materials. The extant door should be used as a pattern when building the new doors.		

A101001-1 Barn Stone Foundations	FAIR	MINOR
<u>Timeframe:</u> Long Term (5-10 Years) The stone foundation walls of the barn are in stable condition. If feasible, remove Portland cement-based mortar that was used as a replacement for historic lime-based mortar and remove non-historic cinder blocks and bricks from east wall and replace with in-kind stone.		

A103001 Standard Slab On Grade	FAIR	MINOR
<u>Timeframe:</u> Immediate (Within 1 Year) All debris accumulated atop the lower level slab should be removed in order to assess the system.		

A202001 Basement Wall Construction	FAIR	MINOR
<u>Timeframe:</u> Long Term (5-10 Years) The lower level forebay wall is in good condition. Consideration should be given to remove the modern wall and reconstruct as it would have looked historically, using area barns as precedents.		

B101001-2 Barn Summer Beam	FAIR	MINOR
B101001-3 Barn Sills		
B101001-4 Barn Joists		
<u>Timeframe:</u> Ongoing The summer beam, sills, and joists are in stable condition. Continuous monitoring should occur to ensure the stability and condition of the structural floor system.		

B102001-1 Barn Interior Bents	FAIR	MINOR
B102001-2 Barn Interior Forebay Wall		
B102001-3 Barn Rafters		
<i><u>Timeframe:</u> Ongoing</i> The two interior bents, forebay wall, and rafters of the barn are in stable condition. Continuous monitoring should occur to ensure the stability and condition of the roof structural framing members.		

B201005 Exterior Louvers (Barn & Granary)	FAIR	MINOR
<i>Timeframe: Short-Term (1-3 years)</i> The north elevation, lower level louver should be retained as it is likely historic. A matching louver should be restored to the lower level, west elevation opening. Consideration should be given to restoring the lower level, east elevation opening to match the dimensions of the other two and restore a louver in the rebuilt opening. Louvers should be restored to the each of the center openings of the tripartite louvers. These should match the surrounding louvers in construction and sizing. All of the extant upper level louvers should be repainted.		

B301001-1 Barn Roof Finishes	FAIR	SERIOUS
<i>Timeframe: Long-Term (3-5 years)</i> The historic north slope standing-seam metal roof should be retained. This roof should be repainted to extend its lifespan for another twenty years or more. The modern south slope metal roof panels (and snowboards) should be removed and replaced with a more-sympathetic standing-seam painted metal roof which matches the north slope historic roof in spacing and appearance. Traditional details should be employed.		

C1010 Partitions	FAIR	MINOR
<u>Timeframe:</u> <i>Ongoing</i> The interior lower level and granary partitions are in stable condition. Continuous monitoring should occur to ensure the stability and condition of the partitions.		

C1020 Interior Doors	FAIR	MINOR
<u>Timeframe:</u> <i>Ongoing</i> The interior doors are in stable condition. Continuous monitoring should occur to ensure the stability and condition of the doors.		

D20 Plumbing	Not Rated	Not Rated
<u>Timeframe:</u> <i>Ongoing</i> The current recommended use does not require an active plumbing system at the barn. If the use changes, a plumbing system may be warranted.		

D40 Fire Protection Systems	Not Rated	Not Rated
<u>Timeframe:</u> <i>Immediate (Within 1 Year)</i> The local fire marshal, representative from the fire department, fire protection engineer, or technical representative of the authority having jurisdiction for the Northeast Region should be consulted for recommendations on number, size, type, and placement of fire extinguishers, battery-operated smoke detectors and heat detectors. This system should meet building codes and emergency training should be provided to the NPS site staff. In addition, a smoke detector which communicates with the wireless security and fire alarm system should be installed. Tattletale Portable Alarm Systems makes an integrated smoke detector which communicates with the base alarm system.		

D50 Electrical	Not Rated	Not Rated
<u>Timeframe:</u> <i>Short Term (1-3 Years)</i> During rehabilitation work, a permanent fire detection and security alarm system should be hardwired to a new, permanent electrical service, installed with an automated call-out feature connected to a local emergency response agency and/or park dispatch, meet building codes, and have an integrated battery-backup system. Consultation with fire protection professionals is required.		

End of Recommended Treatments.

HPTC Programming Estimate for Bishop Barn

Scope of Work

The scope of work for this programming estimate is based on *Bishop Farm-Bishop Barn Historic Structure Assessment Report Final Draft, October 2017*. Individual tasks were selected from the assessment summary ratings that have serious or critical deficiency ratings pertaining to the shell of the barn. These tasks prioritize the immediate need to stabilize the barn and preserve the historic integrity.

Task#1: Mobilization/Demobilization

HPTC will mobilize to assemble and transport all necessary tools, equipment and materials from Frederick, MD to a designated staging area for park assistance with hauling to site adjacent to the cabin. The barn will be used as a field office and to store materials, tools, and equipment.

This task will involve documentation of work as it progresses. Existing conditions, ongoing work, and completed preservation work will be documented through a combination of digital color photography, field sketches, and written narratives to include the timely submittal of Weekly Reports. Existing conditions will be documented prior to, and during any dismantling. During project execution, representative samples of historic materials will be salvaged, inventoried, and tagged.

A safety/hazard analysis will be conducted as part of this task and will be supported with the preparation of a *Safety Plan* for all onsite activities. Upon arrival on site, access, and egress areas will be established, work areas will be cordoned off from public access using temporary fencing or barricades, and appropriate signage will be installed as required.

At the completion of the project all work areas will be restored to an acceptable and presentable condition comparable to the pre-project condition.

Tasks #2-8: Perform Preservation Stabilization Repairs

HPTC shall perform the preservation tasks necessary to repair the structural integrity and stabilize the barn in order to bring the structure up to an acceptable level of maintenance. All salvageable fabric will be stabilized and reused whenever possible, with existing condition, initial design, and long-term maintenance in mind. All materials are included in cost estimate.

Repairs shall include (but not be limited to) the following tasks:

1. Mobilization/Demobilization, Documentation, Project Planning
2. Stabilize Wagon Shed
 - Timber repair
 - Wall, post & joist repair
 - Metal roof repair
3. Stabilize Granary out-shed
 - Timber repairs
 - Wall & rafter repair
 - Metal roof repair
4. Repair Upper Level Timber Frame
 - Sill, post, girts, tie beams, plates, purlins etc. White oak #1
5. Upper level Floor Repairs & Replacement
 - Mow & Threshing floors with profile matching lumber
6. Siding Repairs
 - Re-attach loose siding
 - Replace missing siding
 - Replace deteriorated siding
7. Install Gutter & Downspouts
 - Galvanized 6" and 8" gutters and 5" and 6" downspouts
 - New hardware-hooks, shanks, plates, straps
 - Replace snow boards south elevation
8. Contract & Contract Administration
 - Paint barn roof
 - Demo-garage, milk parlor, loading shed

Note: Work under this agreement will not be performed on any windows or doors unless required as a result of adjacent timber work.

Park is responsible for:

- Compliance
- All archaeological monitoring and clearance

Programming Estimate (margin: -10% to +25%)

Task 1: Project Planning Mobilization, De-mobilization & Project Site Staging					
	Labor	Unit Cost	Quantity	Unit	Total
1	Exhibit Specialist	\$ 70	80	hours	\$ 5,600
3	Maintenance Mechanic	\$ 50	40	hours	\$ 6,000
Task 1 Subtotal					\$ 11,600
Task 2: Stabilize Wagon Shed					
1	Exhibit Specialist	\$ 70	100	hours	\$ 7,000
3	Maintenance Mechanic	\$ 50	100	hours	\$ 15,000
Task 2 Subtotal					\$ 22,000
Task 3: Stabilize Granary Out-shed					
1	Exhibit Specialist	\$ 70	120	hours	\$ 8,400
3	Maintenance Mechanic	\$ 50	120	hours	\$ 18,000
Task 3 Subtotal					\$ 26,400
Task 4: Stabilize/Repair Upper Level Timberframe					
1	Exhibit Specialist	\$ 70	160	hours	\$ 11,200
3	Maintenance Mechanic	\$ 50	160	hours	\$ 24,000
Task 4 Subtotal					\$ 35,200
Task 5: Stabilize & Repair Upper Level Floor					
1	Exhibit Specialist	\$ 70	40	hours	\$ 2,800
3	Maintenance Mechanic	\$ 50	40	hours	\$ 6,000
Task 5 Subtotal					\$ 8,800
Task 6: Repair/Replace Siding					
1	Exhibit Specialist	\$ 70	90	hours	\$ 6,300
3	Maintenance Mechanic	\$ 50	90	hours	\$ 13,500
Task 6 Subtotal					\$ 19,800
Task 7: Install Galv. Gutter & Downspout & Snowboards					
1	Exhibit Specialist	\$ 70	60	hours	\$ 4,200
3	Maintenance Mechanic	\$ 50	60	hours	\$ 9,000
Task 7 Subtotal					\$ 13,200
Task 8: Contract Admin. Demo & Paint Roof					
1	Exhibit Specialist	\$ 70	160	hours	\$ 11,200
1	Maintenance Mechanic	\$ 50	20	hours	\$ 1,000
Task 8 Subtotal					\$ 12,200

Item #1: Project Materials & Related Costs					
	Unit Cost	Quantity	Units	Total Cost	
White Oak Rough Sawn Timbers	\$ 8,896	1	lump	\$ 8,896	
Yellow Pine Flooring	\$ 3,904	1	lump	\$ 3,904	
Yellow Pine Barn Siding	\$ 5,250	1	lump	\$ 5,250	
Custom Galvanized Steel Gutter System	\$ 8,250	1	lump	\$ 8,250	
Sheet metals, soldering	\$ 1,860	1	lump	\$ 1,860	
Exterior Paint/Stain	\$ 625	1	lump	\$ 625	
Misc. supplies, fasteners, hardware	\$ 2,775	1	lump	\$ 2,775	
Site Security/Fencing/Visitor Safety	\$ 450	1	lump	\$ 450	
Construction waste removal and landfill fees	\$ 900	1	each	\$ 900	
Electric generators, lighting, sanitation	\$ 1,200	1	each	\$ 1,200	
Employee PPE and Medical Monitoring	\$ 600	1	lump	\$ 600	
HPTC Tool Replacement & Repairs	\$ 750	1	lump	\$ 750	
Equipment Rental/Fuel	\$ 3,400	1	lump	\$ 3,400	
Demo & Roof Painting Contract	\$ 500	1	lump	\$ 500	
Treatment Report/Safety Plan	\$ 1,500	1	lump	\$ 1,500	
Project Supervision	\$ 9,820	1	lump	\$ 9,820	
Item #1: Subtotal					\$ 50,680
CARPENTRY SUBTOTAL					\$ 199,880
HPTC Overhead					\$ 66,627
Demo & Roof Painting Contract					\$ 30,000
TOTAL:					\$ 296,575

Note: HPTC salaries are calculated on a pay period basis. The number of pay periods is based upon an estimate of the total amount of hours required for each team member to complete the required project tasks. The hourly rate for each occupation is determined by combining the direct hourly rate plus benefits with a prorated amount for the indirect costs of annual and sick leave, holidays, and training time.

End of Chapter 5.