



J. E. STEWART ENGINEERING, Inc.

October 8, 2024

525 Lauren St
Historical Report on Stable Complex
Aiken, SC

This structural report is modified to NPS Historic Structures Report standards per NPS Brief 43

Description of Original Structure

Original structure ca 1900 comprised two shingle sheathed barns here referred to as North and South barns with approach from East at 525 Laurens St SW and backing onto Hitchcock Wood to the West. Photo documentation (Historic Aiken) also reveals a field stone half wall (now gone) at the front of the North Barn in conjunction with the intact field stone retaining wall running along the Northeast side (front) of North Barn which is presumably also part of the original ca. 1900 construction.

The structural design of the two original barns (North and South) is not that of a conventional pole barn in that there is a central free standing stall block that supports the surrounding portico. The stall block is also distinguished by the curvature of the perimeter walls [perhaps to echo the ambulatory nature of the surrounding covered portico as well as a stylistic trait of so called Shingle Style design of the late 19th century (Scully, Shingle Style, Yale: 1955). The load bearing walls of the stall block are resting on soil by way of a hand made mortared leveling course of three bricks many of which have deteriorated. The internal wood floor joists of the stalls rest directly on (or now) in the earth.

The secondary shed roof of the surrounding portico is supported on one side by the load bearing stall block walls and on the other by the surrounding posts creating a covered ambulatory around the stalls presumably for walking horses under cover. The posts are roughly laid out on the same grid as the stalls and vary in dimension with a number of replacement posts in modern dimension and on modern post bases as opposed to the true dimension of the surviving original posts (many of which have been repaired/spliced).

Later repairs and rebuilding

The two original barns were linked by connecting porticoes at East and West (or front and back) presumably to completely enclose the courtyard at a later date. The modern dimension of the lumber on these additions indicates a mid 20th Century date along with modern shingles at the roof of the rehabilitated complex inconsistent with the original Diamond pattern roofing of the original barns (anecdotal evidence from the Bostwick family). This is probably around the same time as extensive stabilization and repair of the original barn structure indicated by modifications to deteriorated posts, replacement of posts with modern dimension posts, and resetting of posts on concrete post footers particularly in the back halves of the two barns facing West/Hitchcock Wood. It would appear that subsidence of the soil was already taking place at that time (see Hass and Hilderbrand 2024).

In addition to the barns' additions and repairs, the so-called Bunk House to the north of the North Barn, as well as the two so called Carriage Houses to the east of the South Barn are built in modern dimension lumber, on modern concrete block which matches the concrete block of the Bostwick Residence which was built in the 1950s. Anecdotal evidence from the Bostwick family suggests that the "Carriage House(s)" were rebuilt in what Mrs. Bostwick intended as the spirit of

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the original barns (with the western "Carriage House" construction on-going in the 1970s with the "Polynesian style" roof popular at the time). Similarly the "Bunk House" rebuilding was associated with its repurpose as a modern code compliant apartment which is now codified as the "single family residence" associated with the site.

Repair and rebuilding on site persists through today ranging from the ongoing repairs and replacement of the stall block area in particular, to the planting of the courtyard trees several years ago (Lowes purchase receipts). A base drawing of plans and sections to scale was set up as a diagram of the original barns and associated structures based on Historic Structures Report standards and differentiation of later rebuilding and or stylistically incompatible rebuilding or landscape along with indication of original relationship between the historic structure and Hitchcock Wood which the Bostwick family substantially contributed to the land formation thereof in association with direct access from the original two barns (see sheet 1).

Condition and Structural Integrity of Barns

After setting up the grid system and structural diagrams of the two barns, the barns were systematically examined and documented in the field post by post, and bearing wall founding throughout. A coding system of condition was set up for founding stability of posts, bearing walls and roof structure per Historic Structures Report standards. (Sheets 2 and 3)

The back halves of the barns facing West towards Hitchcock Wood, as well as the two connecting porticoes are all in various stages of active collapse. This is despite what appear to be repair, replacement and stabilization which continues to today. The front half of the South Barn has subsided into the soil and is now below grade to a significant extent up to 8" below grade at the East end. Roofing analysis indicates various levels of decay to the decking at the back half of the South Barn, complete decay and or collapse at the back half of the North Barn and total loss at all perimeter eaves. Separation of the perimeter portico structure from the supporting stall wall was noted in several stalls with internal leakage and decay of the stall roofing (see specific concern below) but a more thorough examination of said conditions was not done at this time due to the extent of obvious damage in other aspects of the structural system. In general, the front half of

the North Barn appears to be in the best state of repair perhaps associated with its distance from the erosion at the Hitchcock Wood side of the complex as well as what was protection from drainage and subsidence by the now removed fieldstone retaining wall noted in period photographs (Historic Aiken).

Specific areas of concern (see color coding in sheets 2-3)

Both barns are compromised by their original construction which neglected adequate foundations that at the core of the structure (stall block) is virtually impossible to rectify in situ. The perimeter posts as well as the bearing walls of the stall blocks were built with no foundation except the two to three course brick leveling course which is in various stages of deterioration. While the perimeter posts can and have been restabilized in the past, the inadequate foundations of the load bearing walls of the internal stall block of each barn could realistically only be given proper foundation by demolition and rebuilding from the ground up.

The accumulative erosion/instability of the sandy/expanding clay mix of soils on which the barns sit, as well as more recent City excavations at the West side of the complex facing Hitchcock Wood have exacerbated the movement of the unfounded structure over time (see Hass and Hilderbrand 2024). Even the mid 20th century evidence of repair/stabilization of perimeter posts are now themselves in the process of shifting off the modern footings and are dangerously

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compromised and itemized in Sheet 2.

Selective excavation of the leveling course under the stall block walls not only reveals the deterioration of both bricks and mortar leveling courses, but also that the stall block walls particularly on the back halves are shifting off and separating from the leveling course and actively failing (see color coding of stall block wall founding stalls 8 - 14 of both South and North barns Sheet 2).

Both barns have subsided into the soil at the front (or Eastern) halves with the damage most pronounced on the South Barn where the structure is now sitting up to 8" into grade. Most of the flooring structure is now below grade and in decay particularly in stalls 3, 4 and 5.

Multiple perimeter posts have been replaced and repaired with again the most pronounced damage and instability on the back (or Western) halves of the barns. Currently posts at grid A numbers 8-10 are totally compromised and in collapse much like the structure of the later intermediate portico additions.

As for the roofing of the two barns, a close examination of the separate stall block roofing structure was not performed out of safety concerns on the back halves of the South Barn but appear salvageable in situ on the front halves. All roofing decking on the back halves has deteriorated beyond salvage and in many cases daylight is visible. The

back halves of both barn porticoes are in various stages of deterioration with the back half of the North Barn completely rotted along with all eaves of the surrounding porticos of both barns in their entirety. (see Sheet 3).

Conclusions

Complete stabilization and or rehabilitation of the barns in situ is not feasible because of structural instability and deterioration particularly in the back (West) two halves. The back halves of each barn are in danger of imminent collapse or in collapse. Bluntly put it is surprising those portions of the barns, particularly the back (West) South Barn, the later portico on the back (West) side, etc., are still standing. The inherent instability associated with the lack of adequate foundations has been exacerbated by the erosion of the hillside facing Hitchcock Wood which has only accelerated with the City drainage excavations. While it is difficult to pinpoint the timing of the collapse of the hillside itself, the collapse of the back portions of the barns is ongoing and dangerous particularly in the areas of the surrounding portico and access should be restricted prior to demolition.

The damage to these portions of the barns is extensive and systemic and is most likely traced to the lack of adequate foundations in the original construction of the barns.

These portions are unsalvageable in situ and should be demolished. Any salvage/ relocation of the component parts in these two back halves of the barns is essentially limited to the fittings, windows, doors, loft ladders, etc., while the inherent structural elements are largely compromised beyond relocation and reuse.

While the Kisners are interested in trying to save as much of the two barns as possible, I have grave concerns about such an agenda for the remaining portions of the barns namely the front (East) halves due to lack of adequate foundations. Apart from the associated cost, at best these portions may be able to be stabilized in situ but will never be truly "stable" without adequate foundations which at the core stable block is impossible to rectify in situ. Thus these remaining portions will never meet code, and will require extensive replacement and or sistering of roof structure, repair/replacement of roof decking as well as caution and release by the Building

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Department in this attempt at stabilization and thereafter. Occupiable reuse or code compliance will not be feasible in situ.

Furthermore the already substantial subsidence of the front portions of the barns must be alleviated by some form of protective retaining wall surround at the East front preferably associated with redirection and regrading in the front approach (East) to redirect drainage away from the stabilized structure to maximize the remaining life span of these portions of the barns should the Kisners attempt stabilize these portions. Per Secretary of Interior Standards a limited portion of the front halves of the original barns are potentially preservable in situ without reuse, with restricted access, and with inherent risk and expense. Stabilization of these portions should be attempted with caution.

(Description of original structures and diagrams in consult with Dr. Jeffrey Burden)