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January 24, 2024

Project Owners/Project Location:
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70 Griswold Avenue
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RE: Cursory Structural Assessment as related to Proposed Improvements

JOB No. 2024-600-053

To: Bristol, Rhode Island Historic District Commission (The Commission)

70 Griswold Avenue, Bristol, RI (The Property) is an historic home widely known as “The Farm”. It was originally constructed in 1798 for “Farmer John” DeWolf and through the years was handed down through the family to the children of the famed ship builder, Nathanael Greene Herreshoff. The newest owners (and now only the 4th owners) of “The Farm” are Michael & Constance LaFlamme and have wholeheartedly accepted the responsibility of being the next stewards of this historic property for many years to come.

While a complete overview of the proposed improvements is beyond the scope of this Letter Report, in general, the new owners wish to replace any structural framing that is insufficient either due to deterioration or inadequate design. Roofing surfaces are also to be improved as is siding, trim, and the interior space. Additional doors and windows will be added as will a covered porch on the side (called the front) and the rear of the house.

Design Plans are available and can be reviewed for a complete and comprehensive outline of the proposed improvements. DaneCorp Consulting Group, LLC performed a cursory structural assessment (herein summarized) on December 5, 2023 in an effort to provide The Commission with an understanding of the structural deficiencies observed and repairs and/or improvements that are required to be addressed prior to the home being occupied. This Letter Report is not intended to provide a comprehensive structural repair plan or scope, and additional structural improvements may be required as the project progresses.

Our cursory structural inspection revealed the following deficiencies:

1. **Main Dwelling (Front of House):** Existing roof framing is comprised of rough-hewn timbers of varying size roughly averaging 5"x5" placed at non-standard spacing approximately 3 ft. on center. Stair access to the attic space enclosed by this roof framing is difficult with the top stair tread corresponding to the sill location essentially 'eliminating' the top step and requiring atypical body adjustments to access the space.

In addition, there is decay at numerous locations resulting from both insect damage and/or moisture (i.e. rotting).

It is the opinion of this office that the most prudent approach to addressing these deficiencies would be to remove the existing framing in order to re-frame with standard 2x roof construction which would also facilitate installation of current insulation requirements. This replacement of the roof framing would also allow the option to raise the level of the roof framing an estimated 24" to allow for reconstruction of the stair access eliminating the access difficulties associated with the current stair layout.

The elevations corresponding to this portion of the home are annotated on Design Plan Sheets A-2.0 and A-2.1.

2. **Center Section of Dwelling (facing Griswold Avenue):** The existing framing within this portion of the house is annotated on Sheet A-1.0 of the Design Plans. The current and proposed use for this area corresponds to a kitchen on the first floor level with bedrooms above.

The second floor bedrooms are supported by original, un-engineered timbers. Wide sawn floor planking on the second floor is supported by varying sized timber "joists" which are undersized and spaced variably at an average spacing of approximately 26 inches.

These "joists" are supported near the center of the kitchen area by an undersized timber (approximately 5 inches square) which carries a tributary width of near 11 feet and spans over 14 feet.

For comparison, a preliminary computation indicates that even a triple (3-ply) 2x12 SPF beam would be inadequate for the design loads and a double (2-ply) 11-7/8" deep LVL would likely need to be specified.

The inadequacy of this framing is visually evident with the framing sagging noticeably, the recent (temporary) installation of 2 supplemental supporting "screw

jack” supports, and noticeable floor deformation underfoot when accessing the bedroom areas above.

As such, it is recommended that new floor framing be installed such as TJI floor joists to meet minimum occupancy load requirements.

In addition to the structural inadequacy of the floor framing in this area, the existing headspace is below the current standards of 90 inches (minimum) for the kitchen area and 84 inches (minimum) for the bedrooms.

Preliminary analyses referenced above imply that structural members at least 12 inches deep will be required to address this insufficiency which will result in even more loss of headroom.

It is our recommendation that coincident with the replacement of the existing floor framing with a properly engineered structural support system, the roof elevation be simultaneously raised in order to accommodate the correct framing as well as provide the Building Code Minimum headspace clearances.

3. **Existing Garage Door (Main House):** The garage door opening is approximately 16 feet wide and accommodates a single garage door. This door opening is framed with a header of unknown width (estimated at 2 inches) and a depth of 7 inches.

The header supports the wall framing above which supports the floor framing of the occupancy space above the garage (See Design Plan Sheets A-1.0/A-1.1) as well as the roof load above (See Design Plan Sheet Elevation on A-2.1).

The garage door header is notably deflected vertically and this deflection is also paralleled in the occupancy space above by means of sagging in the floor system where it is supported by the garage door header.

Preliminary calculations indicate that for the existing opening supporting roof and floor dead loads, occupancy loads above the garage space, and roof snow loads, a double (2-ply) LVL with a depth of 14 inches would be required. This significant increase in depth would impact the vertical clearance of the garage door opening and serve to restrictively limit the use of the garage space itself.

In an effort to allay this concern, the Design Plans propose the replacement of the single width opening with two, smaller width doors (double doors) more than halving the design span of the headers allowing for adequate vertical clearance while simultaneously matching the garage door design of the adjacent detached double door garage.

4. **Exterior Wall at Existing Study (Main House):** A portion of the exterior wall (approximately 16 feet in overall length) that corresponds to the existing study (Annotated on Design Plans Sheet A-1.0) is deflected outwards. This wall also corresponds to the proposed family room which is shown on Design Plan Sheet A1.3.

As this report is based on only a cursory inspection, exterior or interior finishes were not removed for further examination. However, it is clear that a lateral deformation has occurred, and portions of the sill appear to have become dislodged from the supporting foundation. It is not clear whether the sill became dislodged as a result of the deformation, or if the deformation is a result of the displacement of the sill. In either case, this portion of the wall will require further structural evaluation and will need substantial repairs and/or replacement.

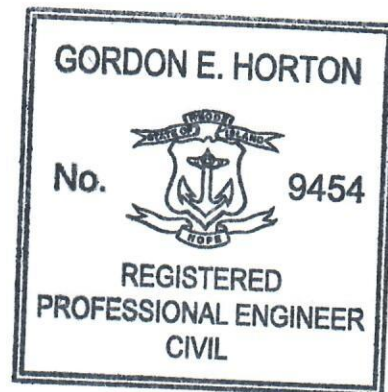
This report has been developed in an effort to provide an overview of the known necessary structural repairs for the proposed improvements for 70 Griswold Avenue, Bristol, RI.

Given the cursory nature of this report and the inspection it is based on, it is prudent to anticipate that additional structural deficiencies may be identified in the future as work progresses and more structural elements are uncovered.

Should you have any questions or require additional information, please do not hesitate to contact this office.

Sincerely,


Gordon E. Horton, P.E.
DaneCorp Consulting Group, LLC



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