WSSCWATER
DELIVERING THE ESSENTIAL

Avenel Community Meeting

David McDonough, Deputy General Manager

June 25, 2024

Agenda

- Introduction & Opening Remarks
- Gannett-Fleming Presentation of Condition Assessment Findings
- WSSC Water Briefing
- Questions & Answers

Gannett-Fleming
Condition Assessment Findings

GANNETT FLEMING

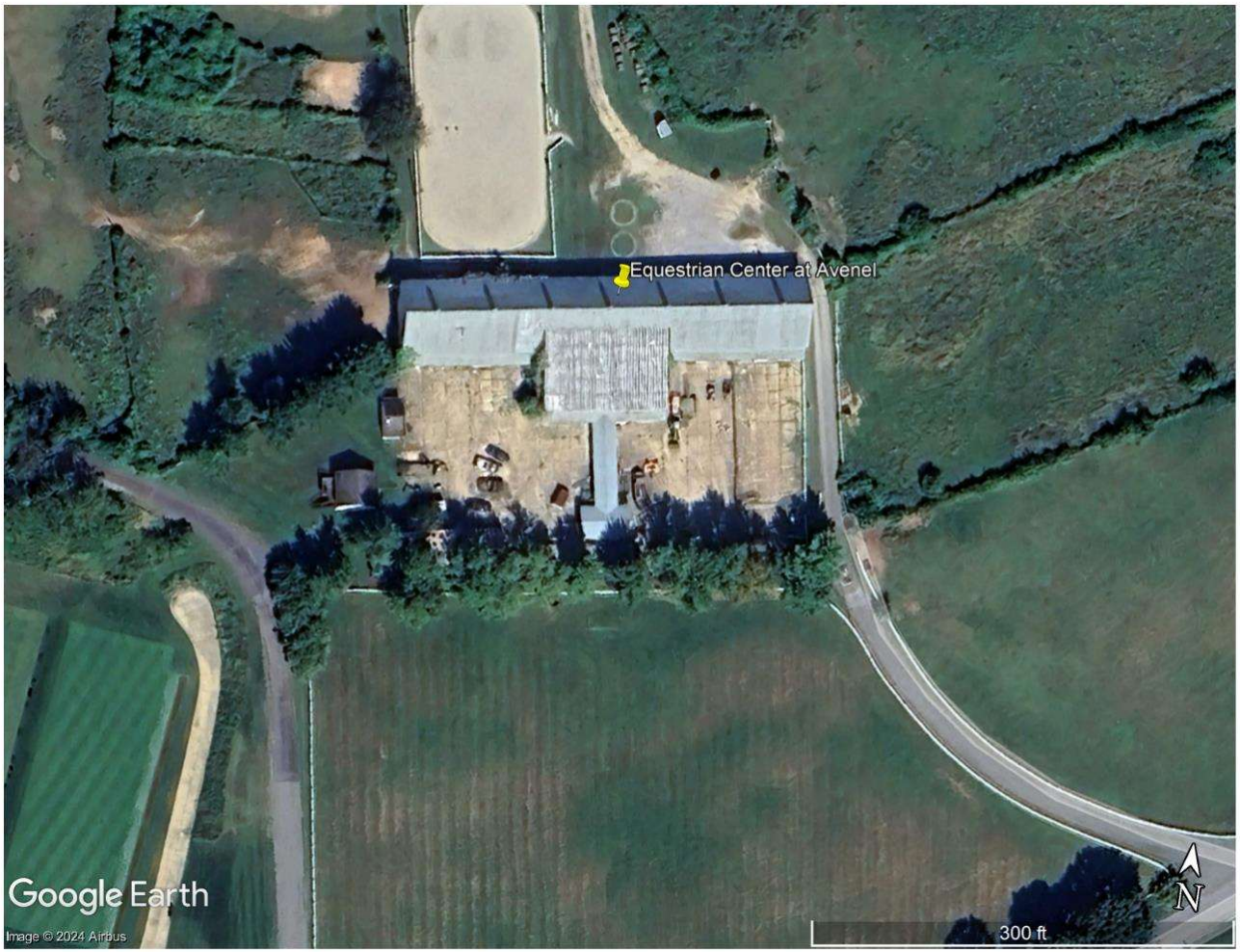
EQUESTRIAN CENTER AT AVENEL
BARN CONDITION ASSESSMENT PRESENTATION

June 25, 2024

Condition Assessment

- GF team members
  - Architectural
  - Structural
  - Electrical
  - Geotechnical
  - Hazardous Materials
  - Cost Estimating
  - Construction Management – Lidar Scan
- Inspection performed January/February 2024
- WSSC Water – Drone photos

Barn at Avenel



Equestrian Center at Avenel – Google Earth Image

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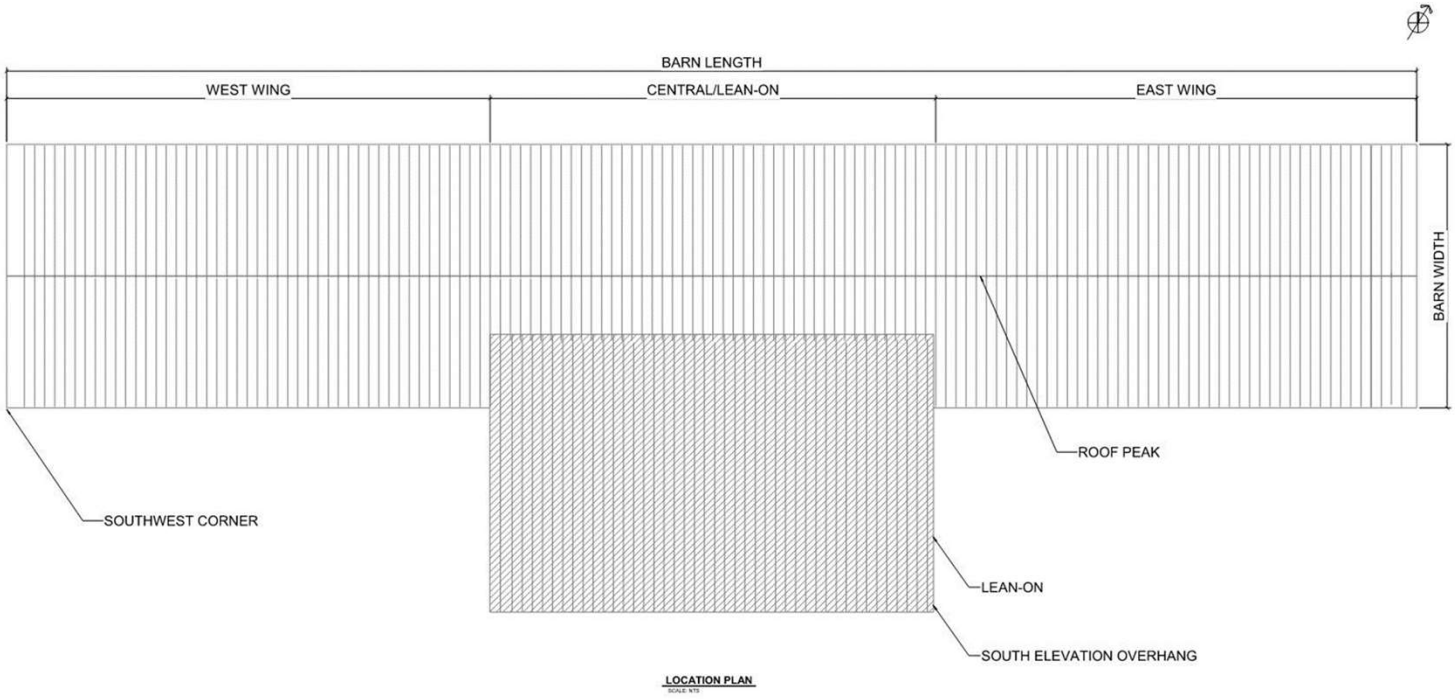
Condition Assessment

- Use LiDAR Scan to develop drawings
- Perform full review of existing barn
- Use visual and non-destructive techniques
- Barn superstructure and safety issues reviewed



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Overall Barn Condition

- Constructed in 1940s (exact time of construction not known)
- Purchased by WSSC Water in 1988
- Barn has undergone normal wear from use as cattle barn/Equestrian Center
- Modifications have been made to the barn
  - Mostly not documented
  - WSSC Water revision to NW corner

General view of Barn (looking northeast); west wing and lean-on structure are visible

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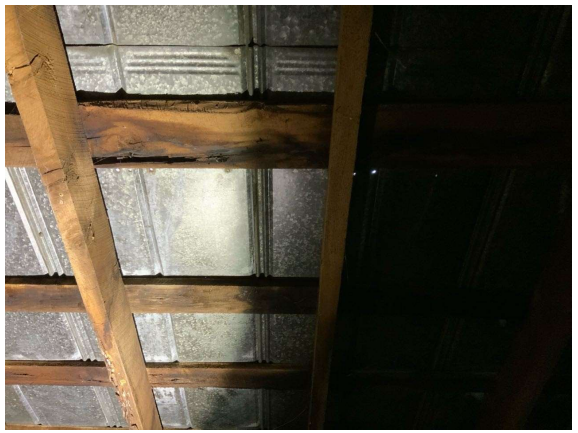
Roof and Supporting Structure

- Pin holes in metal roof
- Roof damage
- Vegetation

Rotting rafters (REF Photo S10)



Typical pinhole leak in roof metal deck (REF Photo S1)

Heavy vegetation pushing up roof deck along southwest corner (REF Photo S113)

Typical area of rusted roof deck and failing patch (REF Photo S2)

Tarps with standing water on hayloft flooring underneath lean-on region of structure. Floor shown looking northwest along gridline 6. (REF Photo S2

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Roof and Supporting Structure

- Perimeter beams in roof are rotted
- Roof beams and rafters are compromised
- Numerous ineffective bracings
- Roof beams are failing and rotting
- Larger damage areas in lean-on structure
- Lean-on structure is in worse condition
  - Roof leaks allowing water ponding in hayloft area
- Roof rafters are in poor condition
  - Some have been repaired with repairs deteriorating
  - Some existing beams exhibit excessive rot, water damage with significant damage to south wall

Perimeter roof rot (REF Photo S21)

Previously sistered roof rafter along Gridline 7 between Gridlines I and J. Note the bolts are only through the rotted portion of the rafter. (REF Photo S12)

GANNETT FLEMING

Roof and Supporting Structure

Perimeter roof beam twisting on split column at hayloft Level Near D/1. l
REF Photo S15

Column S/4 at hayloft level has 3" gap at bearing between beam and column with minimal to no bearing remaining. The column is rotted and dropping out of mortise slot in roof beam.
REF Photo S19

Perimeter roof beam between Column C/4 and D/4 is twisting 9 degrees south at east bearing and has minimal to no bearing remaining.
REF Photo S16

Beam between Column M/6 and N/6 exhibits rot with full pick penetration at east bearing. A 5.25" x 5.25" post has been added to west side of column to help support beam.
REF Photo S30

GANNETT FLEMING

Roof and Supporting Structure

New column and posts supporting wind girt and roof beam at Column H/4 in hayloft (looking southwest). Note the south brace is connected with ineffective strap to new column.
REF Photo S40

Severe rot at top of original Column H/7 in hayloft (looking southwest). A new post has been installed to the east of the existing column. The north brace and wind girt are not connected to the new post and east brace is missing. The floorboards adjacent to column are rotting.
REF Photo S42

Disconnected and twisted east brace at Column M/3 in hayloft (looking west)
REF Photo S47

The east brace at Column B/4 in hayloft appears to be missing based on similar geometry in other portions of the building (looking south).
REF Photo S51

Roof and Supporting Structure

- Load transfer spreader structures were installed (three locations existing columns removed)

General view of the load spreader beam structures in hayloft (REF Photo G10

Hayloft

- Hayloft floor is in poor condition
  - Especially at the lean-on area
- Floor is uneven
- Holes in floor planks
- Consistent rot noted

Hayloft from below – typical rotting/broken/missing floorboards – Lean-on structure (REF Photo S68)

Typical rotting/broken/missing floorboards. Lean-on portion of structure near Gridline 7 shown looking west. (REF Photo S67)

Typical rotting floorboards. East wing near Gridline 4 shown looking south (REF Photo S66).

Rotting floor stringer bearing on floor beam spanning between Column R/4 and S/4 (looking west) (REF Photo S69)

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Hayloft

- Critical Finding Hayloft

  Beam

  - 90% section loss
  - Southwest corner of building

Severe rot at floor beam – west end has significant section loss (REF Photo S82)

Critical finding at floor beam between Columns B/4 and C/4. West end of beam has approximately 90% section loss (REF Photo S80)

Critical finding at hayloft floor beam – west end of beam has approximately 90% section loss (REF Photo S81)

Columns/Braces

- Main floor columns
  - Lean south
  - Bearing loss at base
  - Some column caps are significantly deteriorated.
- Columns were removed on north wall
  - For door openings
  - Structural door jambs were installed to supplement removed columns
- Bracing between ground floor and hayloft
  - Some locations are partially engaged

Bearing loss at Column M/2.5 at grade level (looking northwest) (REF Photo S107)

Column E/2 at grade level is leaning up to 6 degrees toward the south (REF Photo S101)

South face of the at-grade column cap at Column K/7 is exposed to exterior and has soft rot (REF Photo S97)

Columns

- One column in the Southwest corner could not be investigated due to unsafe conditions.
  - The column is at the area of the critical finding.
  - Loss of this column could result in collapse of a portion of the structure.

– Siding at southwest corner has holes – column appears to be rotting throughout its height – heavy vegetation (REF S114)

South Elevation Overhang

- Missing and damaged wood framing
- Roof is leaning downward

Overhead support diagonal is disconnected at the base and overhang is leaning (REF Photo S140)

Detail photo of connection separation (REF Photo S141)

Southeast view of South Elevation overhang deterioration (REF Photo A6)

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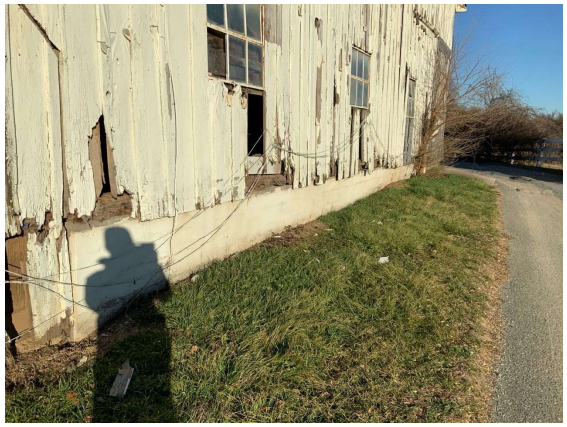
Barn Facade and Slab

- Barn Slab is cracked and failing
- Façade is failing
  - Water damage
  - Silos in the north face of structure removed and façade not repaired
  - Vegetation is contributing to damage
  - Vegetation is lifting metal roof panels
- Gutter system not working
- Windows and doors failing
- Doors have decay from water damage

Sections of lifted metal roof panels and missing facia boards (REF Photo A3)



Siding along east elevation is broken or missing exposing the sill plate along Gridline T to the external environment. The sill plate is rotting. (REF Photo S150)

Gutter clogged with vegetation, deteriorated boards and discontinuous rain leader (REF Photo A14)

Rot and deterioration and over-growth at grade (REF Photo A16)

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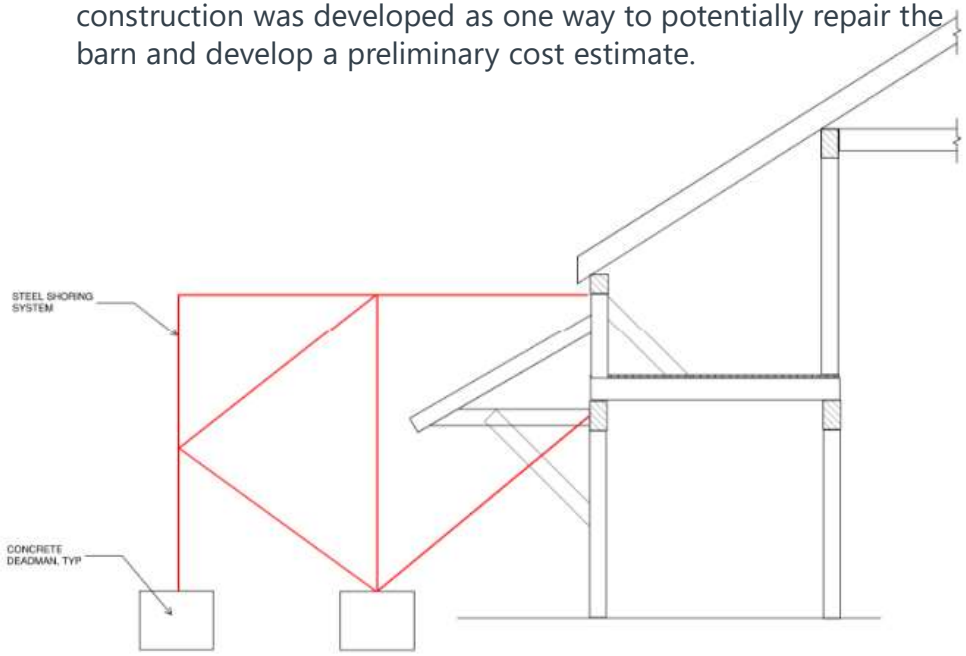
Repairs

- Three levels of repair priority were developed
  - Repairs necessary for occupancy
  - Intermediate
  - Aesthetic
- Levels are used to show severity of the conditions

Repairs Necessary for Occupancy – Structural Stabilization

- Barn must be stabilized as the first step
  - To prevent further movement of the barn
  - Exterior bracing required at each column on exterior
  - Steel frames would remain permanent part of the barn
  - Would have visual impact to the barn
- A global temporary shoring system supporting roof and hayloft would need to be implemented to retrofit the barn
  - Throughout the barn
  - Additional shoring would be required at repair locations

Note: Repairs and repair concepts shown in this presentation are conceptual in nature and have not been designed or analyzed by an engineer for construction. The noted conceptual order of construction was developed as one way to potentially repair the barn and develop a preliminary cost estimate.



Conceptual Exterior Building Bracing Scheme (cross section)
(REF Appendix E Conceptual Details)

Repairs Necessary for Occupancy

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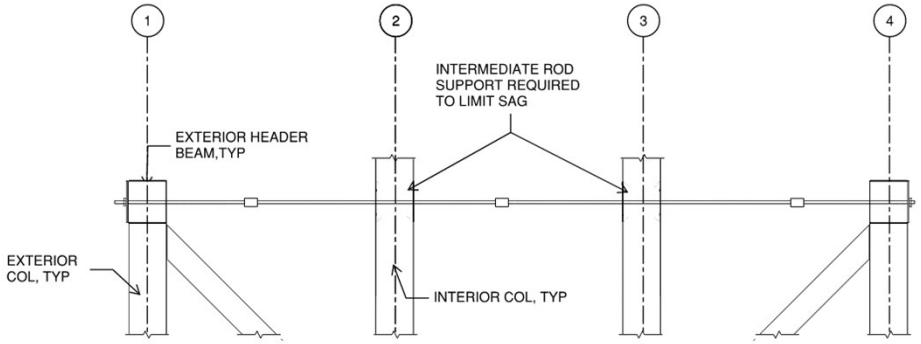
- Steel cable system would be used to support the building laterally
  - Each column line
  - Due to missing and deteriorated roof braces.
  - Cable will remain in the hayloft
- Barn cannot be brought back to plumb.
- Bracing, shoring and cable system would need to be installed before the repair work could begin.
  - Hayloft cleared of hay and other debris
  - Temporary working surface installed
  - Vegetation removal
- If additional deterioration is discovered additional repairs would be required.



Roof/Hayloft Tension Ties (REF Detail 2 – Appendix E)

Repairs Necessary for Occupancy

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- Horse stalls should not be removed until after repairs are completed
- Hayloft floor beam and column in southwest corner need to be replaced
- Damaged roof rafters, beams, purlins should be repaired or replaced if severely damaged
- Damaged hayloft floor beams, girders and floor planking should be repaired or replaced as noted
- Lateral bracing members and connectors in the roof, hayloft and ground floor that have become disconnected, disengaged or are missing should be repaired or replaced
- Hayloft spread beam structures should be removed and replaced with columns as originally constructed
- Disconnected and deteriorated wind girts should be repaired or replaced
- Existing columns should be repaired or replaced to provide full bearing as originally constructed

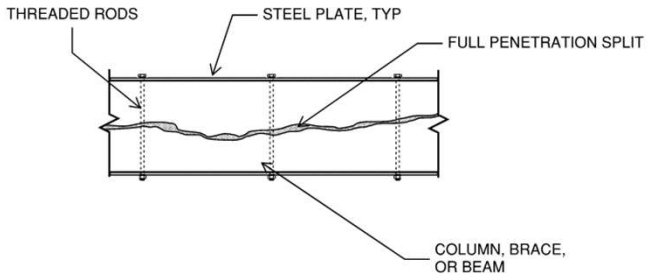
Intermediate Repairs

- Column-to-column connections not imminently failing
- Wall-to-curb connections not affecting the lateral stability
- Uneven floor beam to column cap connections
- Windows and doors of the barn
- Window and door flashing (above the window and door to prevent future water intrusion at window or door)
- Hayloft lighting repaired with guards

Repairs Necessary for Occupancy

Note: Repairs and repair concepts shown in this presentation are conceptual in nature and have not been designed or analyzed by an engineer and are not for construction. The noted conceptual order of construction was developed as one way to potentially repair the barn and to develop a preliminary cost estimate.

- Wood splits, checks and other damage should be repaired to the beams, columns and other wood elements to prevent further deterioration
- Columns bases and sill plates should be repaired and shimmed to provide full column bearing on foundation system
- Roof and façade should be replaced
- Roof purlin system should be repaired as needed
- Wall girt system supporting the façade should be replaced
- Gutters and downspouts should be replaced
- Drainage should be directed away from the building
- Electric panelboards should be brought to safe conditions



Proposed Split member repair detail.
(REF Detail 3 – Appendix E)

Aesthetic Repairs

- Repair of concrete spalls on concrete pedestals
- Masonry repair on exterior masonry

Post Construction Repairs

- Periodic structural inspection of the repairs
- Barn will continue to deteriorate even after repairs noted
- Floor slab would need to be repaired
- Future deferred maintenance could include floor with traction for the horses
- Repair of concrete spalls on concrete pedestals
- Masonry repair on exterior masonry

Engineers Opinion of Probable Cost – Urgency Summary by Area

Repair Urgency	Cost
Repairs Necessary for Occupancy – Stabilization/Shoring/Vegetation Removal	$2.78M
Repairs Necessary for Occupancy – Critical Finding Hayloft Floor Beam	$20K
Repairs Necessary for Occupancy – Roof and Roof Structure	$1.08M
Repairs Necessary for Occupancy – Hayloft	$119K
Repairs Necessary for Occupancy – Grade Level	$436K
Repairs Necessary for Occupancy – Wall Assembly, Gutter, Downspouts	$293K
Repairs Necessary for Occupancy – Electrical	1.5K
Repairs Necessary for Occupancy - TOTAL	$4.7M
Intermediate	$510K
Aesthetic	$30K
TOTAL Construction Cost (based on OPC)	**$5.3M**
Engineering/Architectural Fee (high level, estimate based on noted repairs)	$300K
Estimated Yearly Engineering Review Cost (after construction is complete)	$10K (1)
TOTAL Project Cost	**$5.6M**

(1) Total project does not include yearly engineering review costs, any new repairs or replacements or ongoing maintenance costs
(2) The Opinion of Probable Cost does NOT include interior repairs to the stalls, interior cabinets, or floor; upgrades; or repair/modification of barn appurtenances
(3) ES Figure 3 is a summary of the Opinion of Probable Cost shown in Appendix C
(4) OPC developed based on April 2024 Cost Data. No inflation factors for future work are included

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Final Notes

- The Condition Assessment was performed in January/February 2024
  - It is a snapshot in time
  - The barn continues to deteriorate
  - Additional damage continues to occur to the barn
- The order of construction activities should be carefully planned
- The Condition Assessment does not address
  - Stalls and storage lockers inside the barn
  - Site or grading issues
  - Ancillary structures on the south side of the barn lean-on structure

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WSSC Water Overview

Transparency

- The full 263-page Condition Assessment and the Executive Synopsis are available for download at www.wsscwater.com/Avenel
- The Agreement for Sale and Master Agreement, as well as this and previous community meeting presentations are also available.
- Additional documents and links will be made available there moving forward

What Do You Need to Know?

- No decisions related to barn or property have been made
- No current plans for a wastewater facility on the property and no funding in our 6-year Capital Improvement Plan for such a facility
- No current plans to take additional actions on barn except continuing to limit access to protect the public

Maintaining Safety & an Equine Presence at Avenel

- At Gannett Fleming's recommendation, access to the barn has been restricted and we have placed fencing around its perimeter to ensure public safety
- Installed four-stall barn and hay storage container on site to accommodate Ms. Evans' horses
- Extended License Agreement with Ms. Evans through December 1, 2024, free-of-charge

What happens next?

Internal WSSC Water review of Gannett Fleming Condition Assessment

Comprehensive facilities' planning for long-term strategies to address current and future public health and regulatory needs

Facilitating the Avenel Community Association visual analysis of the barn

Releasing Requests for Information (RFIs) to gather information on best practices, methods and considerations for the property

Community Collaboration

The community will be kept informed on future actions at the barn and the property

Continuing community engagement – Capital Improvement Plans Meetings, existing open and inclusive decision-making processes

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Questions?


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