West Coast Forensics
Engineering & Design

Date:	January 26, 2023	**Client:**	Century 21 Northstar
Project:	JAH200 Bridgeview Condominiums Stair Assessment	**Location:**	6700-6748 N Richmond Ave Portland, OR 97203
Document:	Exterior Stair Assessment Report	**Contact:**	Crystal Drake hoa.northstar@century21.com

FIELD REPORT

PROJECT BACKGROUND INFORMATION

Bridgeview Condominiums is a residential complex of 18 units within 2 separate 3-story structures in Portland, Oregon. Each structure consists of three (3) sections of three (3) stacked living units. Review of permit records indicated that the buildings were completed in 1995.

The property management for the Bridgeview Homeowner's Association (HOA), Century21 Northstar, has requested a visual inspection of the exterior elevated wood stair structures that provide access between the parking area and the living units. The purpose of the visual inspections is to assess the condition of the stair structures and provide recommendations for their maintenance, repair, and/or replacement.

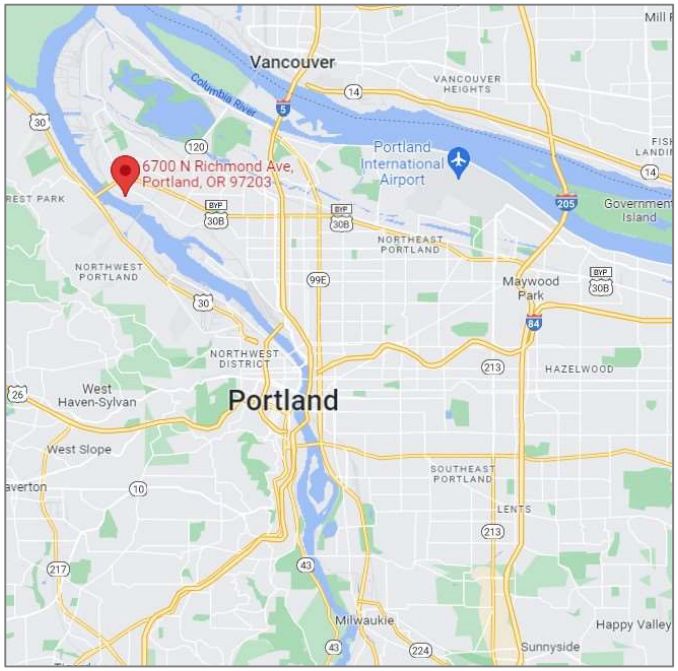

Figure 1: Bridgeview Condominiums - Vicinity Map

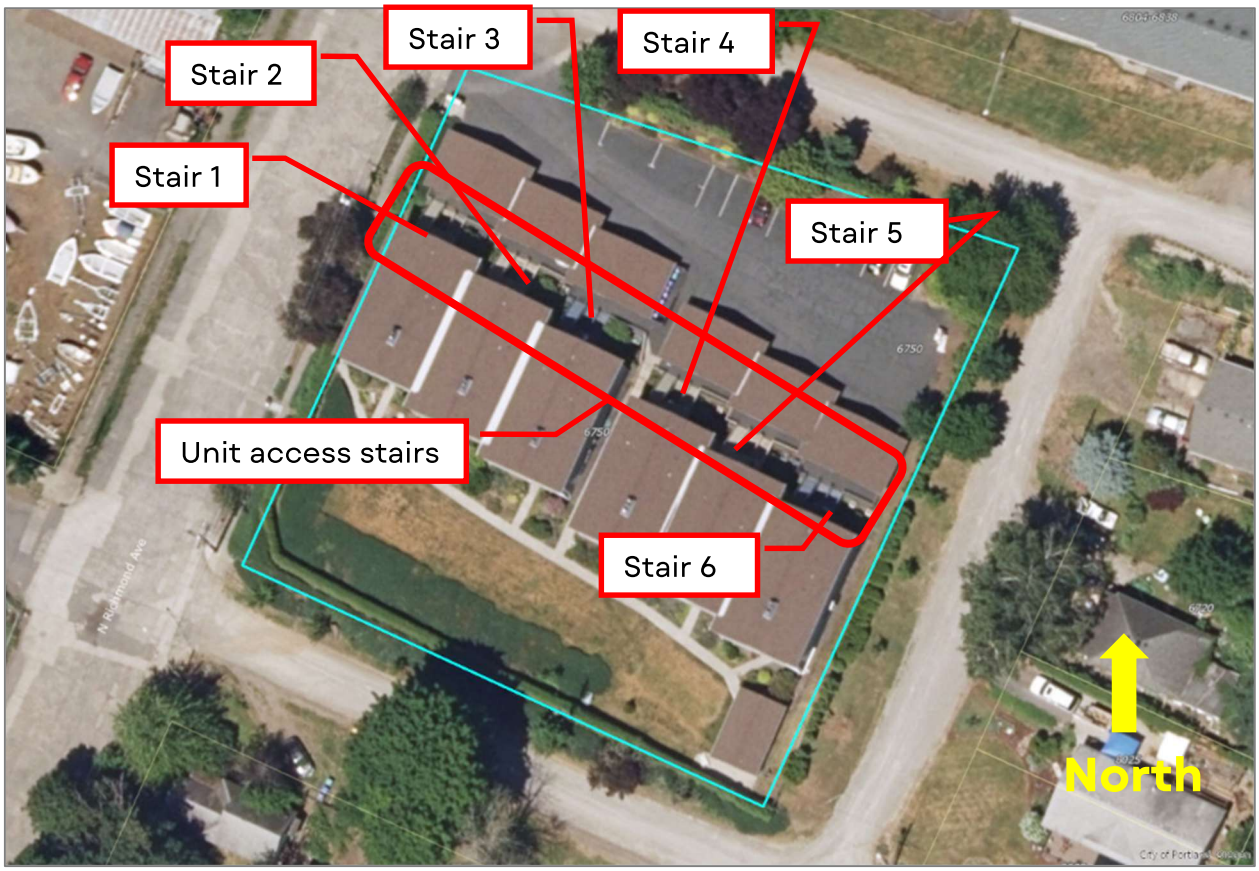

Figure 2: Bridgeview Condominiums - Aerial View

SCOPE OF TARGETED VISUAL INSPECTION

The on-site visual inspection was conducted on December 8, 2022 by Jeffrey Hopp, PE of West Coast Forensics Engineering and Design, LLC (WC4).

The scope of the inspection was a visual review of all six (6) sets of elevated wood unit access stairs within the complex. For the purposes of this report, the stairs have been numbered from northwest to southeast as indicated in Figure 2 above.

BACKGROUND DOCUMENTS

Prior to conducting the field work, WC4 was provided photographic documentation by Charter Construction from their dry rot inspection of the exterior elevated stairs from July 2022.

These photos showed widespread rot, splitting, and deterioration of the wood framing components, rusting and failure of hardware and fasteners, and prior (deficient) repair attempts to structural components.

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SUMMARY OF FINDINGS

The exterior access stairs throughout the complex stairs display varying degrees of advanced deterioration and/or failure.

Based on the background document review and on the observations from this visual inspection, it is our professional opinion that the entire exterior access stairs/walkways/landing structures require comprehensive replacement with materials appropriate for the conditions and a design that meets all current applicable codes and industry standards.

Without replacement, the existing conditions will continue to deteriorate and constitute an increasing risk to life safety.

OBSERVATIONS

Observations of systemic conditions include the following:

- Advanced deterioration of the stair stringers was noted throughout the stairs, most commonly within the stair stringers leading to the lower-level units but also within stair stringers leading to the upper units.
- Advanced deterioration of the railing spindles is a common condition throughout the complex.
- Advanced deterioration of the treads and decking is a common condition throughout the complex.
- Multiple instances of improper structural repair attempts were observed at the joist/beams of the level walkways.
- Differential settlement was noted in the concrete retaining wall supporting the walkway at Stair 6.
- Fasteners were missing or incorrectly placed for tread support angles throughout the complex.

While on site conducting the visual review, we were also approached by multiple residents with reports of specific failures to treads, stringers, and railing components. Some of these failures appear in the photographs provided by Charter Construction and are consistent with the observed conditions.

The following section includes a sampling of annotated photographs from each bank of stairs, showing some of the more acute conditions throughout the complex.

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VISUAL INSPECTION : PHOTOS AND COMMENTARY

Photo 1 	**Overall View – Stair Bank #2** View of typical entry stair, railing, walkway, and landing configuration
Photo 2 	**Overall View – Stair Bank #3** View of typical entry stair, railing, walkway, and landing configuration Stairs are not level.

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Photo 3 	**Stair Bank 1** View of deteriorated railing spindle, fully separated from stair stringer. This is an unsafe condition.
Photo 4 	**Stair Bank 1** View of deteriorated stair stringer. This is a common condition.

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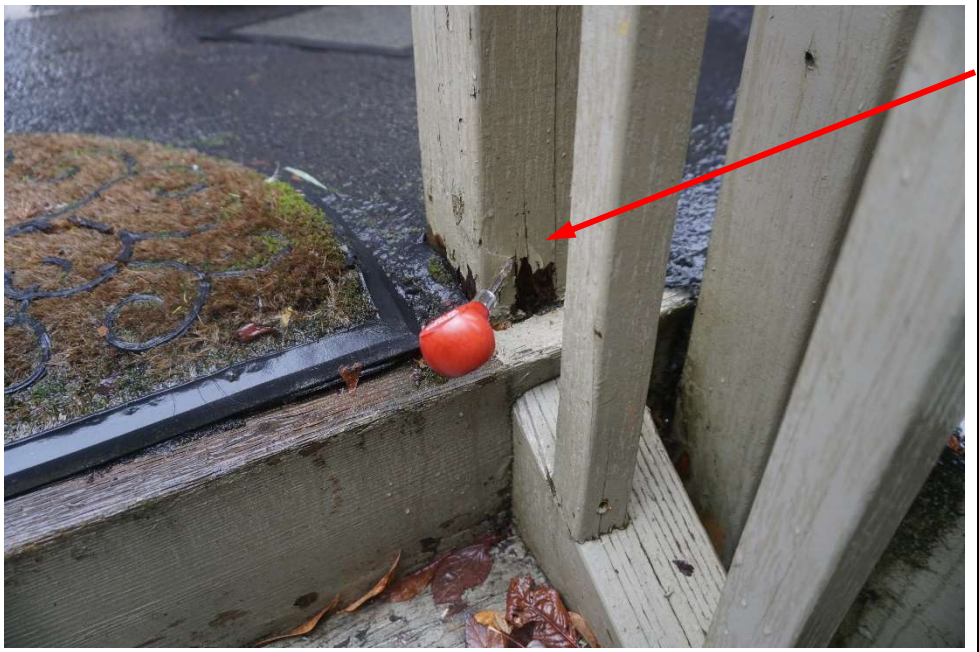
Photo 5 	**Stair Bank 1** View of deteriorated railing structural post due to being fully embedded in pavement.
Photo 6 	**Stair Bank 1** Close-up view of previous photo, showing deterioration of railing structural post.

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Photo 7 	**Stair Bank 1** View of fractured wood stair stringer.
Photo 8 	**Stair Bank 2** View of deteriorated railing spindle. This is a common and unsafe condition.

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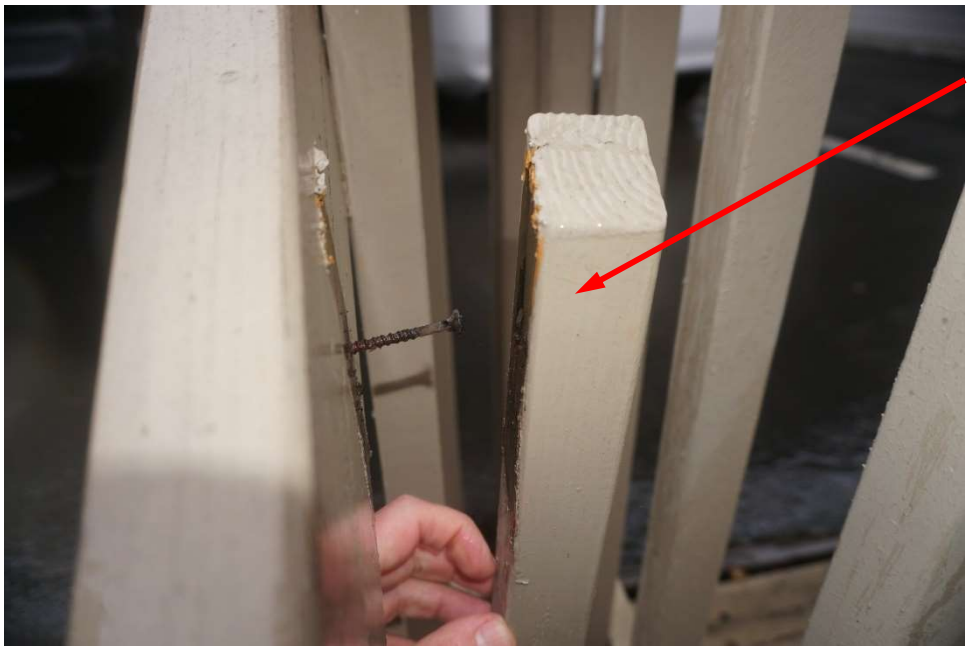
Photo 9 	**Stair Bank 2** View of stair stringer at upper landing, which has been improperly notched and installed in an under-sized hanger.
Photo 10 	**Stair Bank 2** View of deteriorated railing spindle, fully separated from railing top chord. This is a common and unsafe condition.

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Photo 11 	**Stair Bank 2** View of severely deteriorated walkway framing member, showing organic growth along its entire length due to prolonged exposure to water.
Photo 12 	**Stair Bank 2** View of improper structural repair to deteriorated stair stringer.

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Photo 13 	**Stair Bank 2** View of handrail separation from structural post.
Photo 14 	**Stair Bank 3** View of deteriorated stair stringer with improper structural repair/ strengthening. This is a common condition.

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Photo 15 	**Stair Bank 3** View of deteriorated stair tread. This is a common and unsafe condition.
Photo 16 	**Stair Bank 3** View of deteriorated handrail This is a common and unsafe condition.

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Photo 17 	**Stair Bank 3** View of improper structural repairs to deteriorated elevated walkway framing.
Photo 18 	**Stair Bank 3** View of fractured elevated walkway structural member.

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Photo 19 	**Stair Bank 4** View of stair handrail post with no fasteners. This is an unsafe condition.
Photo 20 	**Stair Bank 4** View of landing handrail post with missing fastener.

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Photo 21 	**Stair Bank 4** View of deteriorated elevated walkway tread. This is a common and unsafe condition.
Photo 22 	**Stair Bank 4** View of deteriorated railing spindle. This is a common and unsafe condition.

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Photo 23 	**Stair Bank 4** View of deteriorated railing post, showing previous attempts at maintenance with an unknown putty filler.
Photo 24 	**Stair Bank 4** View of improper structural repairs to deteriorated elevated walkway framing.

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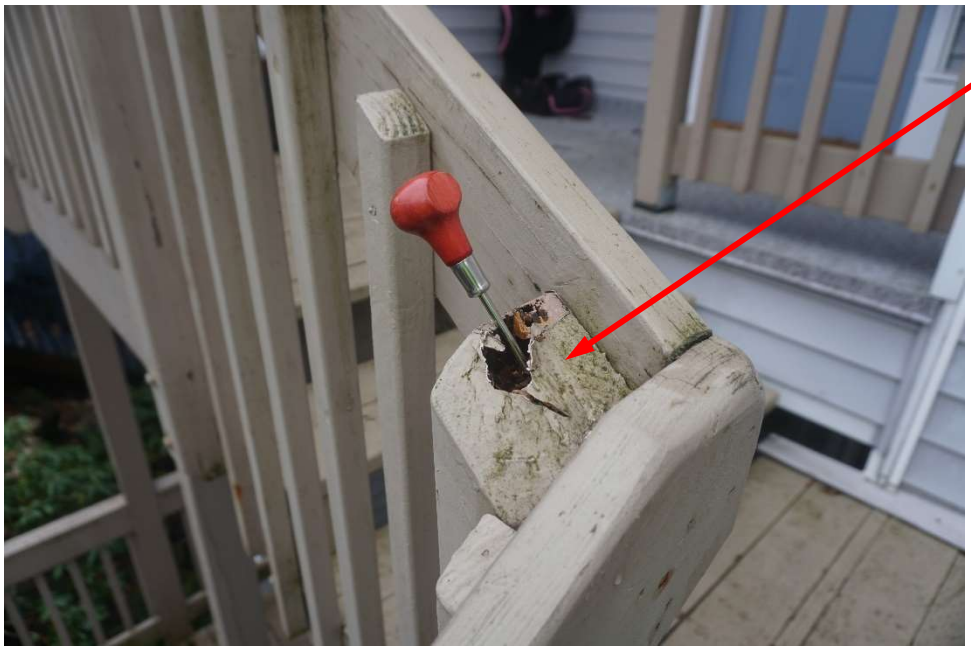
Photo 25 	**Stair Bank 4** View of deteriorated structural post resting on a concrete footing. Note also that the post is offset from the center of the footing. This is a common condition.
Photo 26 	**Stair Bank 5** View of deteriorated railing post, showing previous attempts at maintenance with an unknown putty.

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Photo 27 	**Stair Bank 5** View of deteriorated stair tread. This is a common and unsafe condition.
Photo 28 	**Stair Bank 5** View of deteriorated stair stringer. This is a common condition.

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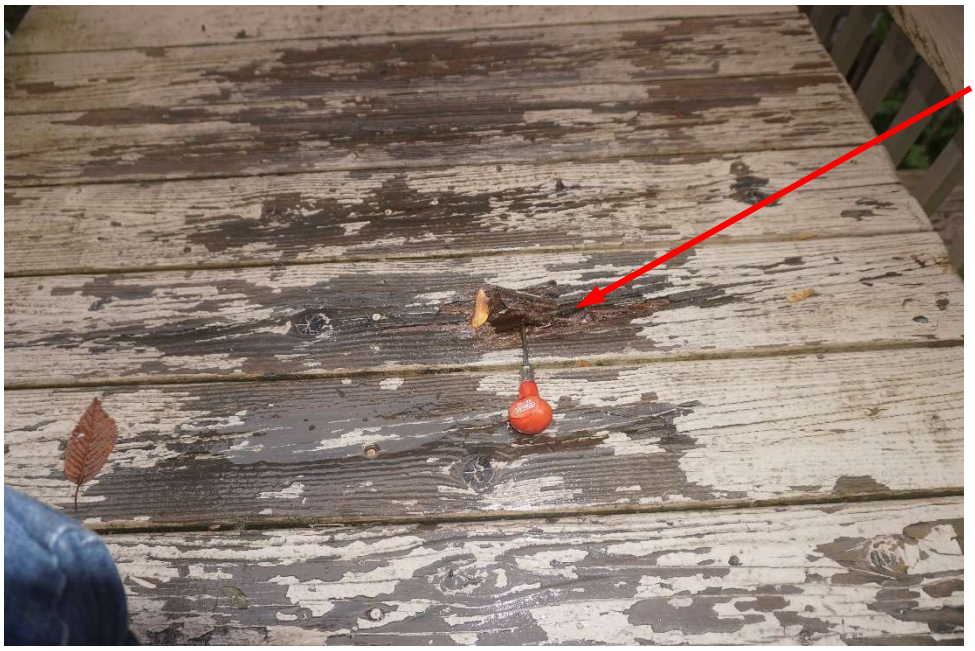
Photo 29 	**Stair Bank 5** View of improper structural repairs to deteriorated elevated walkway framing.
Photo 30 	**Stair Bank 5** View of deteriorated elevated walkway tread. This is a common and unsafe condition.

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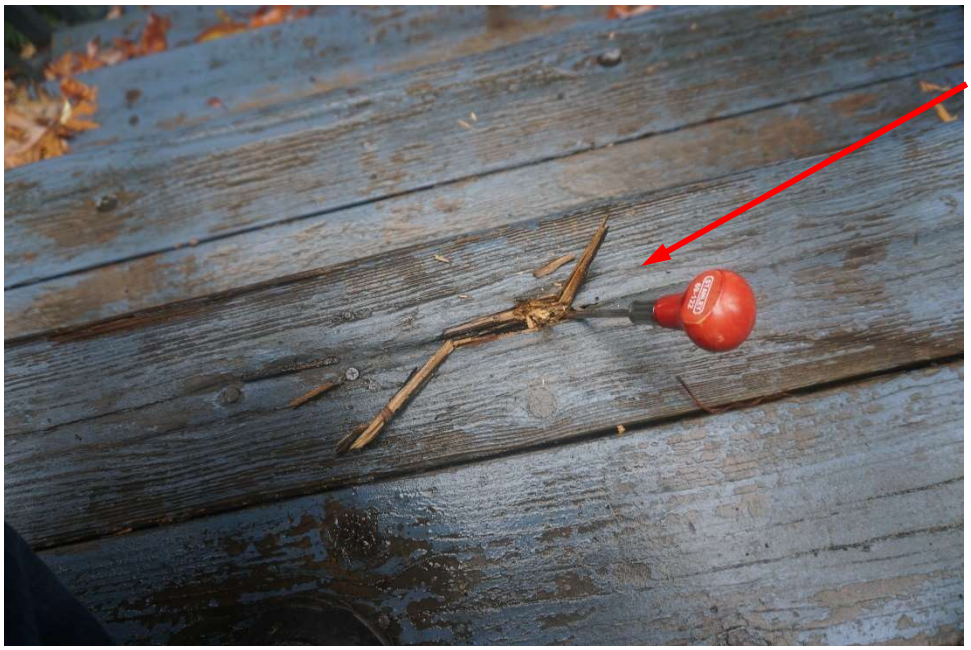
Photo 31 	**Stair Bank 6** View of deteriorated handrail post, beveled from previous rot removal, showing separation from handrail top chords.
Photo 32 	**Stair Bank 6** View of deteriorated elevated walkway tread. This is a common and unsafe condition.

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Photo 33 	**Stair Bank 6** View of deteriorated railing spindle, fully separated from stair stringer. This is an unsafe condition.
Photo 34 	**Stair Bank 6** View of rusted, single fastener connecting elevated walkway framing to post. This is an improper structural connection. This is a common condition.

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Photo 35 	**Stair Bank 6** View of deteriorating stair treads, fasteners, and hardware from below, showing multiple missing fasteners. This is a common condition.
Photo 36 	**Stair Bank 6** View of deteriorating hardware from below, showing multiple missing fasteners. This tread is completely disconnected. Missing fasteners at the hardware is a common condition.

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Stair Bank 6

View showing a differential settlement fracture within the supporting concrete retaining wall.

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CONCLUSIONS AND RECOMMENDATIONS

Based upon the conditions observed on site, it is our professional recommendation that the entirety of each exterior access stairs/walkways/landing structure be comprehensively removed and replaced with materials appropriate for the conditions and a design that meets all current applicable codes and industry standards.

It is our recommendation that the scope of the stair replacement also include evaluation of the concrete and wood retaining structures for their ability to support the replacement stairs, and that these elements be modified, repaired, or replaced as required.

Without stair and walkway replacement, the existing conditions will continue to deteriorate and constitute an increasing risk to life safety.

Due to the as-built structures' systemic and widespread deterioration, targeted repairs to the individual components is neither feasible nor recommended and would not be cost-effective for long-term performance, maintenance, or safety.

Each building will require a separate set of structural plans for permitting and construction purposes. Should the Association wish to proceed with repair planning, the first step would be to generate a set of scale drawings of the existing buildings and the surrounding grade. We can then conduct structural calculations to determine what options may exist for the new framing, stairs, handrail, and decking systems.

Once the plans are completed, WC4 can provide them to the Association's preferred contractor for pricing or issue them to a group of qualified contractors for competitive bidding. WC4 is also available to assist with project facilitation, contract negotiation, permitting, and contract administration during construction.

Please review this report in its entirety and reply with any questions, comments, or concerns.

Sincerely,

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LIMITATIONS AND DISCLAIMERS

This report and its components are limited to the areas observed during this specific investigation. Concealed conditions not revealed during investigation, and areas other than those of the documented conditions are not part of the scope of this report, and thus no statements are being made as to their current performance.

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