Fort Lauderdale Police Headquarters Project Update

June 3, 2025

CITY OF FORT LAUDERDALE

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Office of the City Manager
City of Fort Lauderdale

Brent Chancellor
Associate Principal
Wiss, Janney, Elstner Associates, Inc.

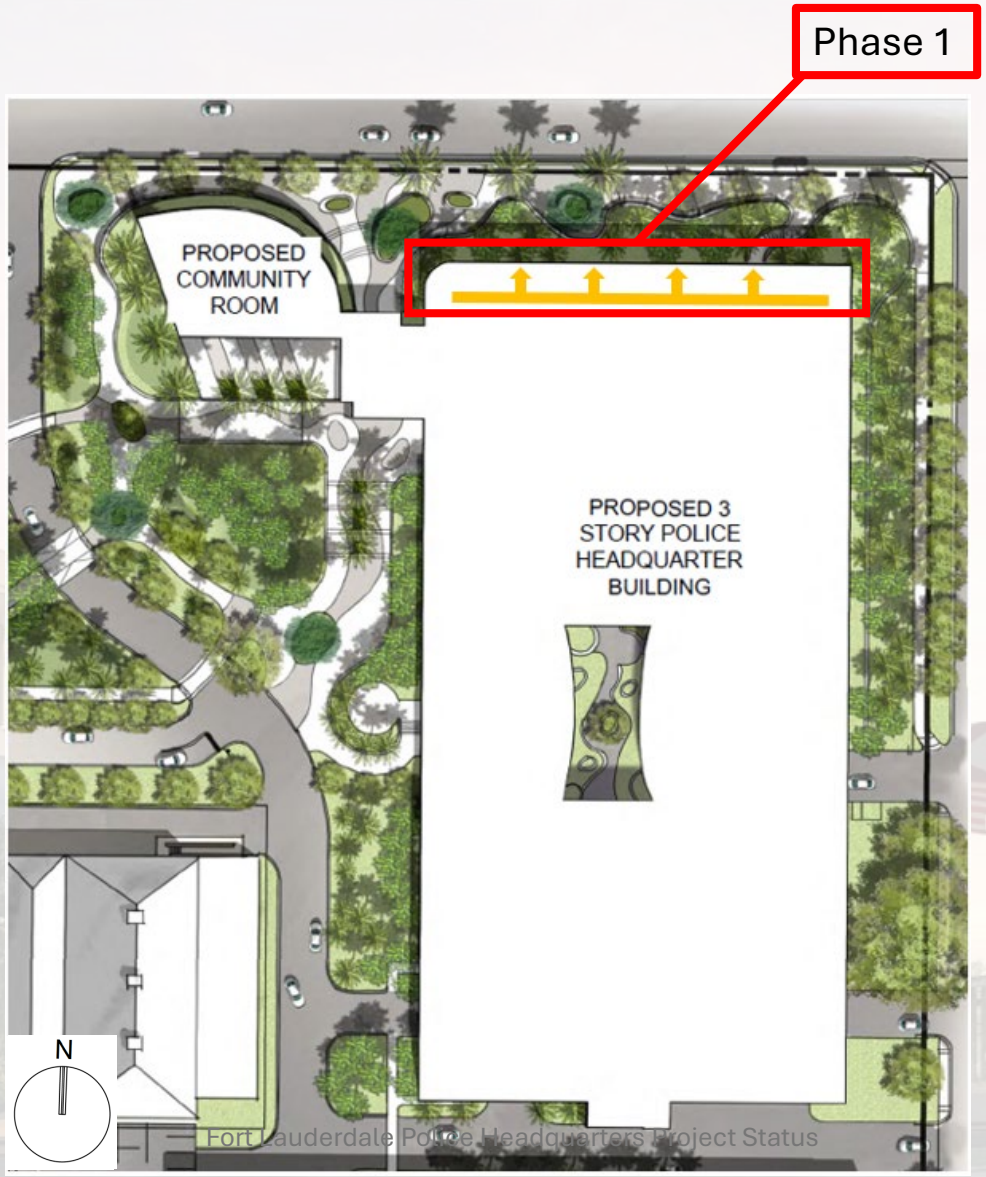
Agenda

- Phase 1 Update & Construction Status
  - City – Anthony Fajardo
- Phase 2 Peer Review
  - WJE – Brent Chancellor, PhD, PE
- Phase 2 Next Steps
  - City – Anthony Fajardo
- Questions

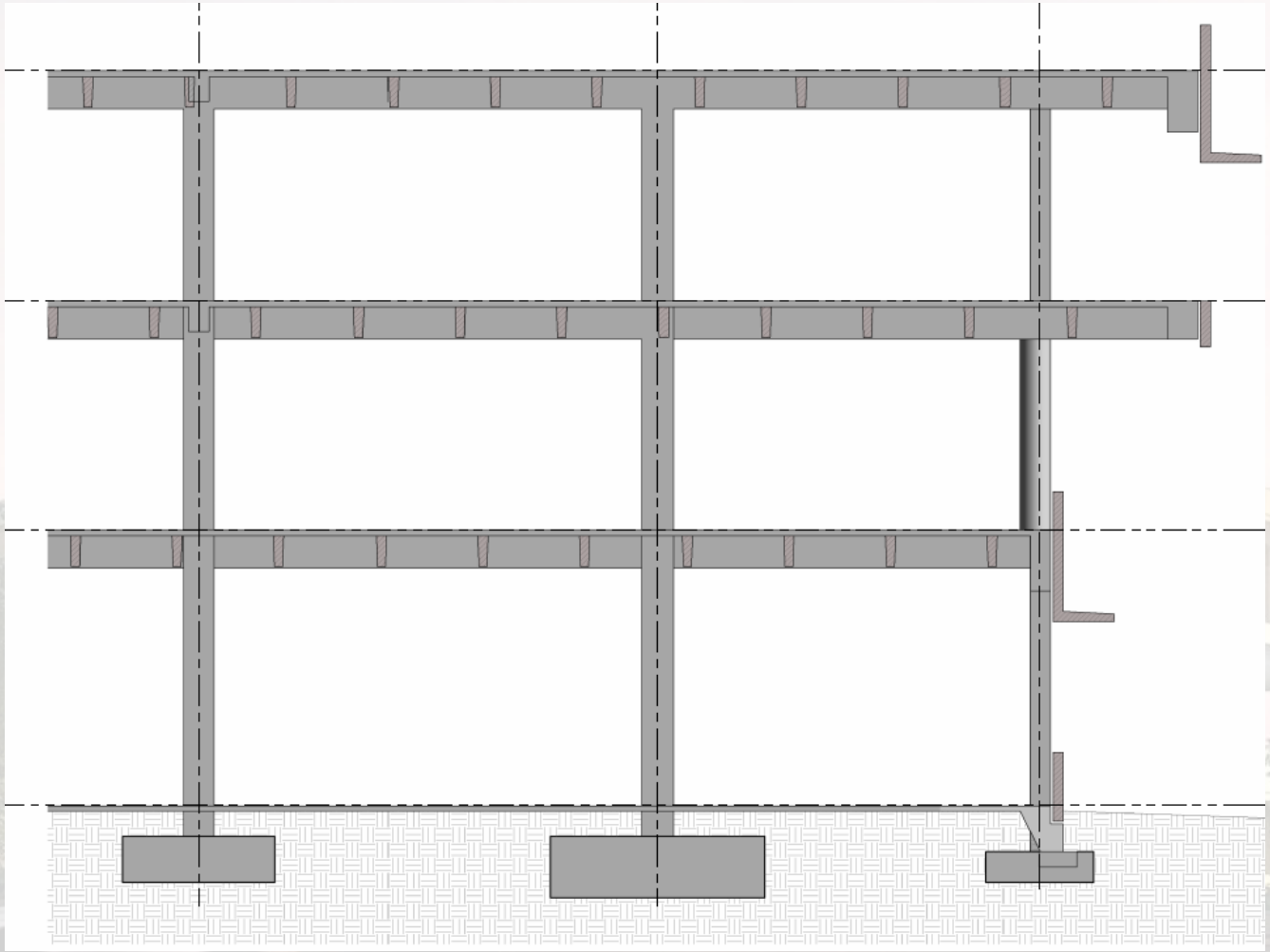
Phase 1 Update (Deflection)

Remediation Work:

- 1st Story Foundation
  - Micropile Installation & Caps (Complete)
  - Epoxy Injection (6/2)
  - Interior Slab Restoration (6/6)
- 1st Story Columns
  - Column Jackets (5/29-5/30)
- 3rd Story Columns/Cantilever Beams
  - Column Enhancement (Complete)
  - Fiber-Reinforced Polymer
    - Proposal Expected 5/30
    - 2-Weeks for Installation
- Roof
  - Up-Turn Cantilever Beams (Complete)
- Draft 1st Amendment AECOM Agreement
  - Draft Sent to AECOM on May 6, 2025



North Elevation Structural Rectifications



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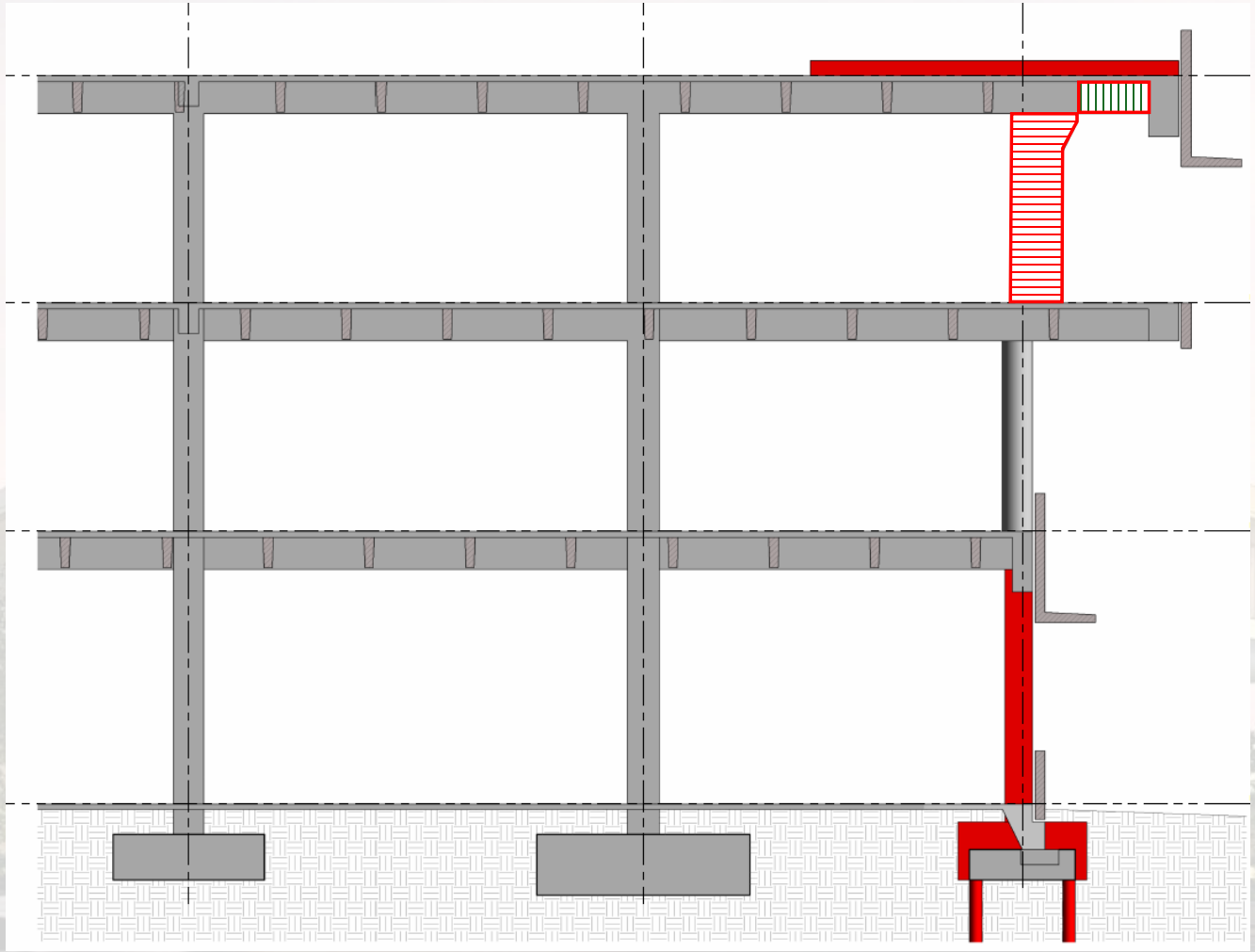

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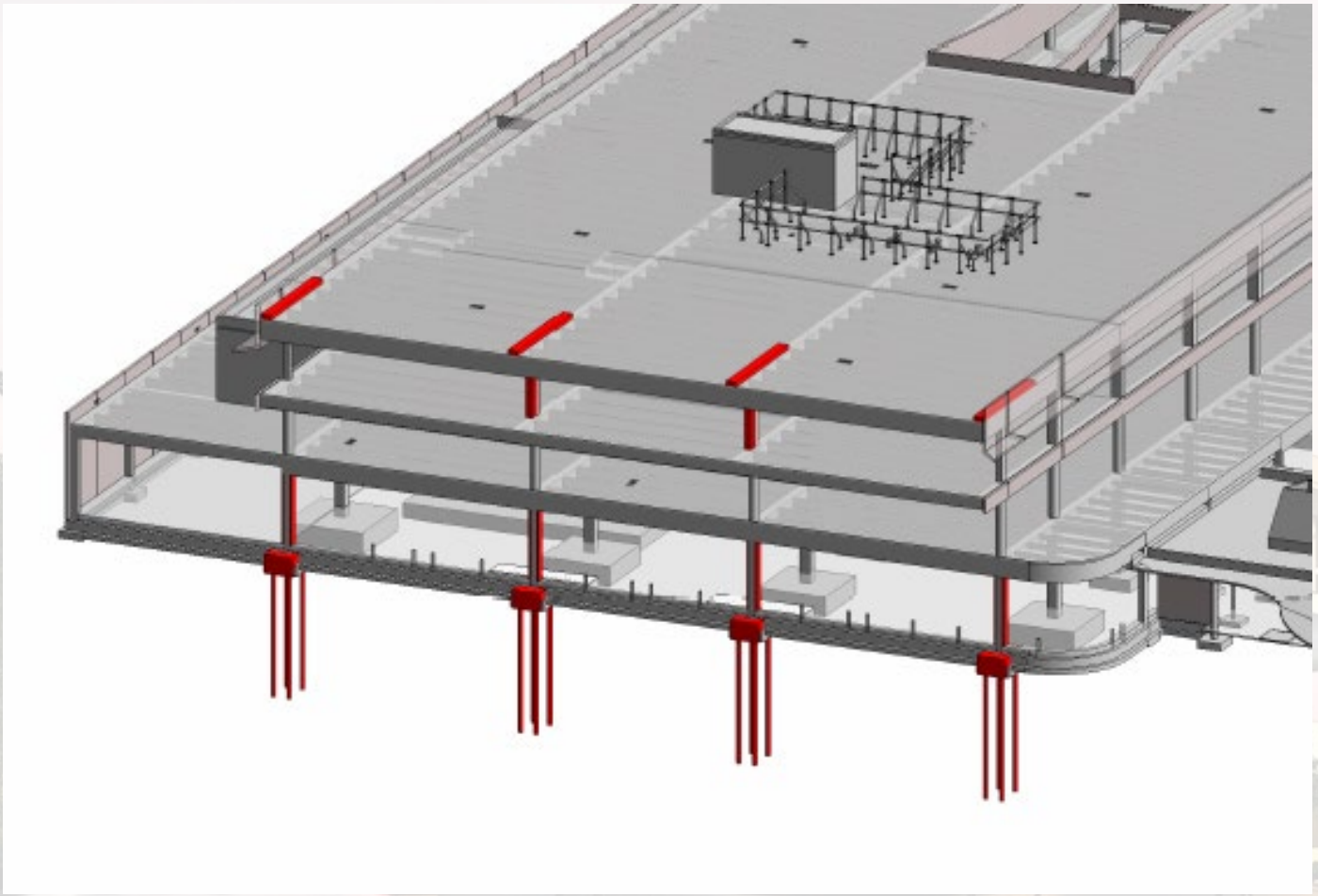


Construction Status

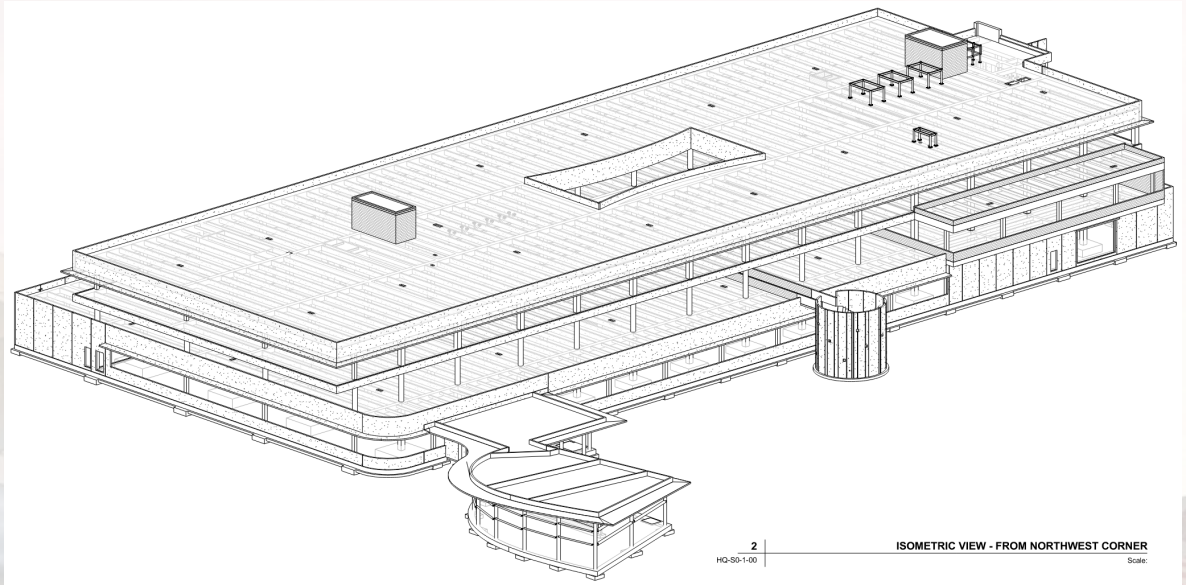
Percentage Complete – 90%

Items Pending:

- Interior Finishes
- Level 2 Pavers
- Skylight
- Retaining Walls
- Landscaping
- Fire Alarm Testing

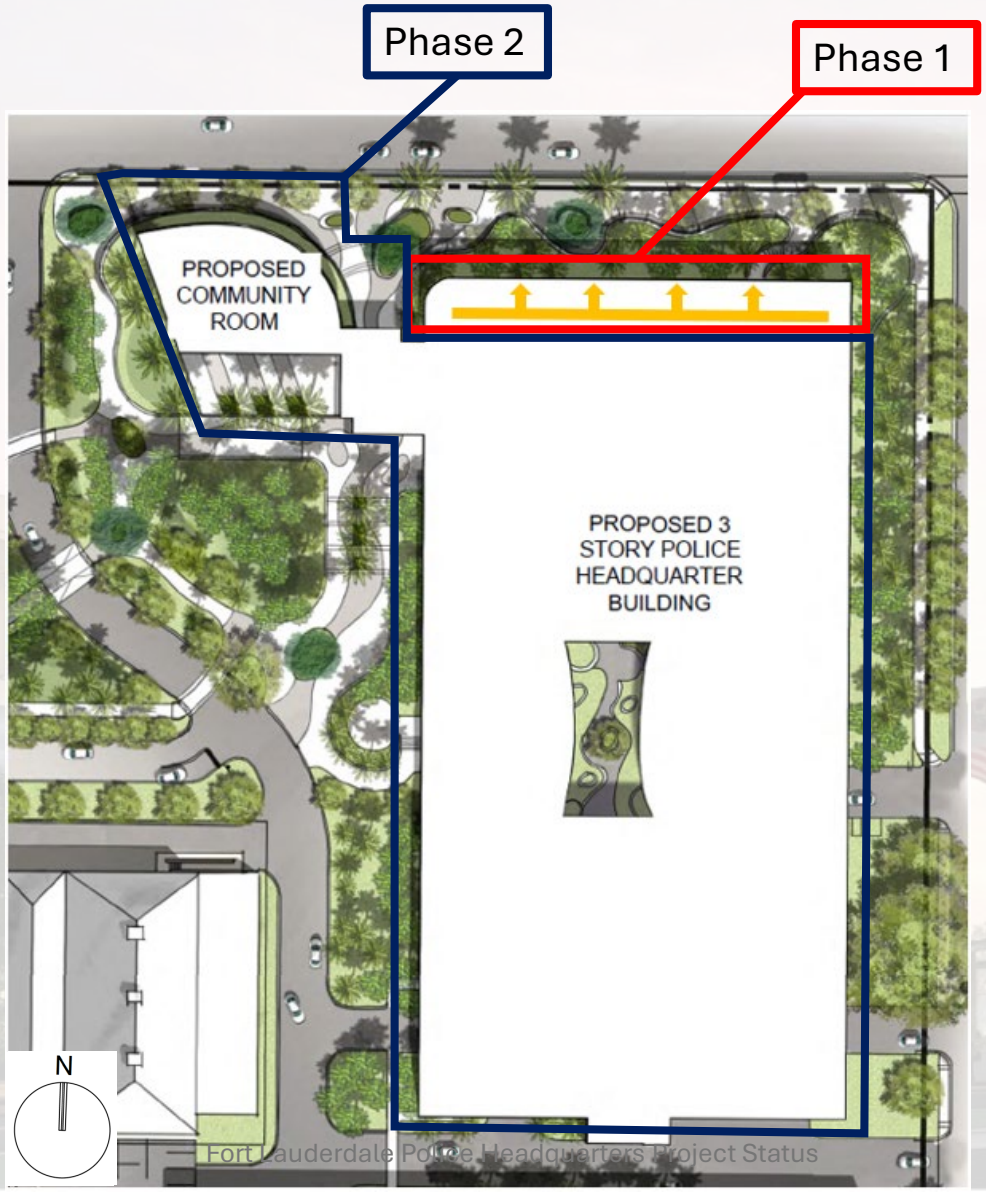
Items Completed by Percentage :

- Site Work – 80%
- Landscape – 35%
- Drywall/Ceilings – 99%
- Flooring – 75%
- Paint – 60%



Phase 2 Peer Review

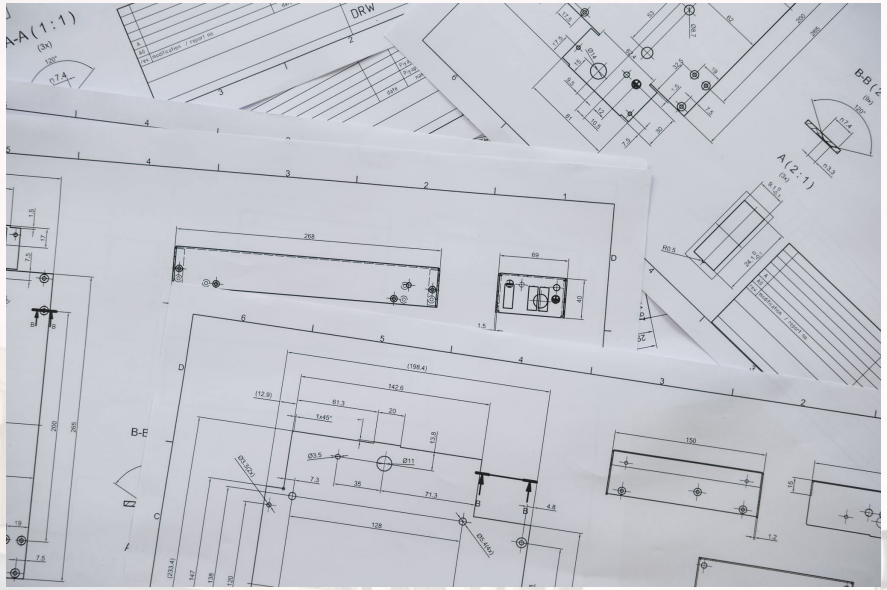
- Remaining Portion of the Structure
  - Review of Design Basis
    - Design Loads and Codes
    - Design Criteria
    - Drawings
    - Applicable Reports (e.g., geotechnical)
  - Review of Structural Design
    - Gravity and Lateral-Load Paths
    - Perform Calculations (representative fractions)
      - Systems, Members, and Details (check adequacy to resist code required design demands)
    - Confirm Structural Integrity Provisions of Applicable Codes are Being Followed



Phase 2 Peer Review

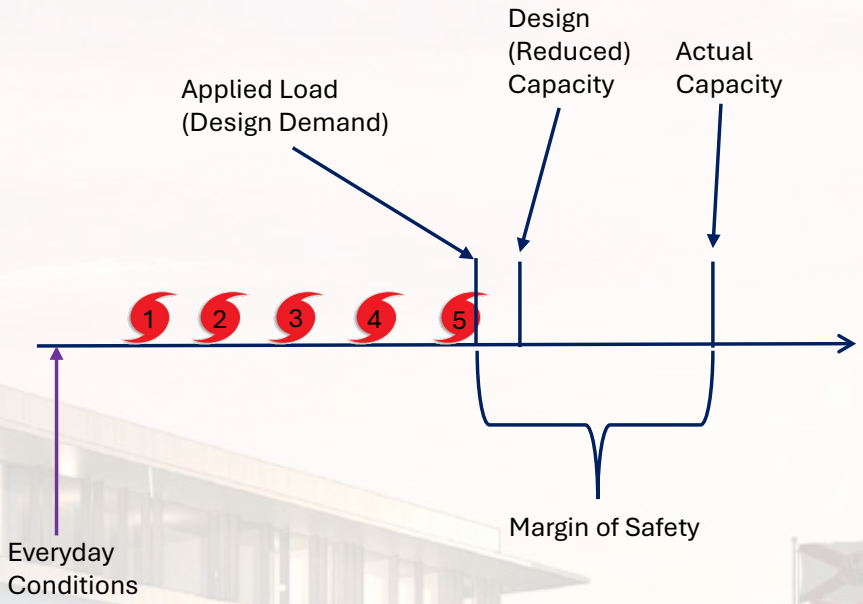
- Findings Grouped into 3 Categories
  - Life Safety (Category 5 Hurricane)
  - Serviceability
  - Documentation

- Resolution Requires Responses from Design Team (AECOM/TT)
  - Resolution Includes:
    - Building rectifications
    - Satisfactory Supplemental Information, Data, or Tests
    - Updating Building Documentation (e.g., design drawings)



Phase 2 Peer Review

- Life Safety
  - Pertains to the Completed Building's Required Structural Performance Under the Full Design Load Conditions.
    - The Completed Building is Required to resist a Category 5 hurricane (full design load) while maintaining code required margin of safety. The WJE evaluation Found the Completed Building Does Not have Sufficient Strength to Maintain the Code Required Margin of Safety, therefore this Issue is Placed in the Life Safety Category.
    - However, the Building Does Not See this Load on a Daily Basis. Being Placed into this Category Does Not Mean that the Building is "Unsafe" Under Normal Loading Conditions.



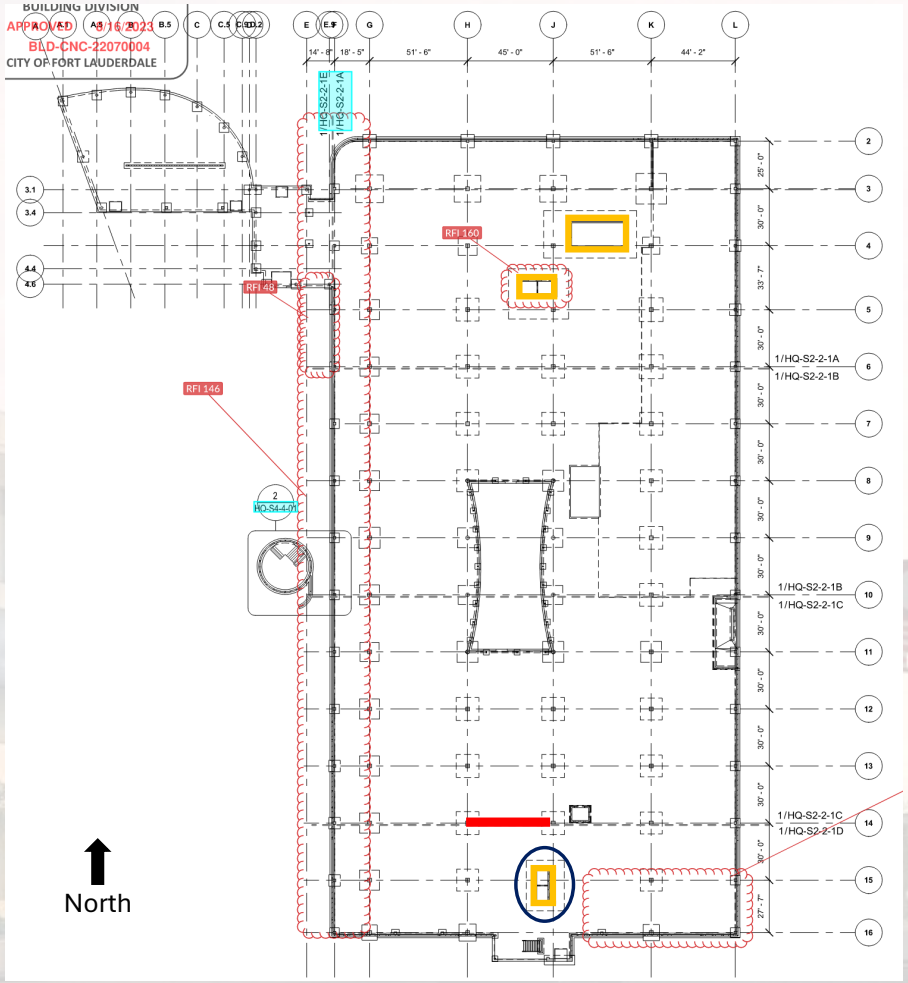
Phase 2 Peer Review

- Serviceability
  - Pertains to the Completed Building's Ability to Perform Satisfactorily without Excessive Deflections, Rotations, Vibration, or Deterioration.
    - Checked Under "Service Loads" (i.e., not the full design loads)

- Documentation
  - Expected to be in Service for More than 50 years, it is Important to have Appropriately Complete Documentation of the Design Preserved so that Future Design Teams can Understand Both the Basis of Design and How the Building was Constructed.

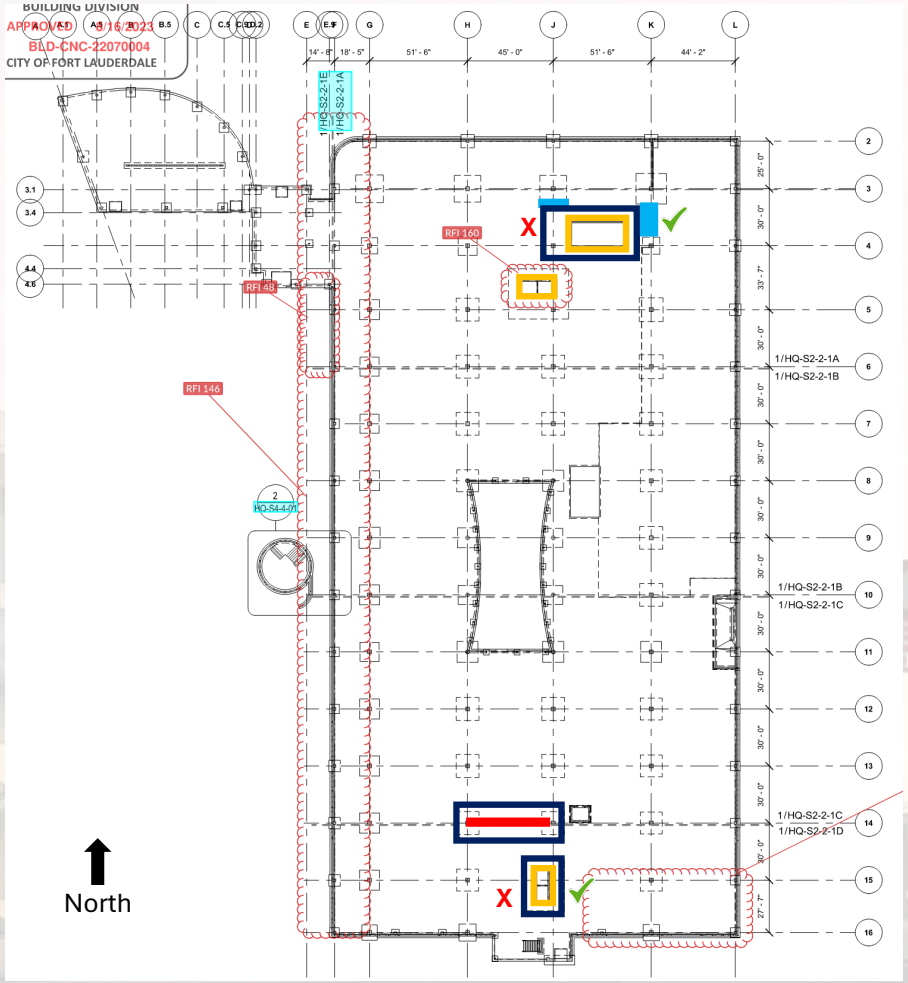
Phase 2 – Life Safety Findings

1. Shear Wall Capacities
   - Finding
     - The Southern-most Reinforced Concrete Core Wall is Not Code-compliant for Strength Between Levels 1 and 2
   - Possible rectification
     - Adding a Properly Designed Full-height Shear Wall (i.e., from foundation to roof) with an Accompanying Foundation on Gridline 14 Between Gridlines H and J
   - Timeframe for Rectification
     - As Soon as Possible (0 to 2 months)
       - Timeframe Set Due to Hurricane Season
     - Should be Completed Before the Building is Occupied (i.e., after construction)



Phase 2 – Life Safety Findings

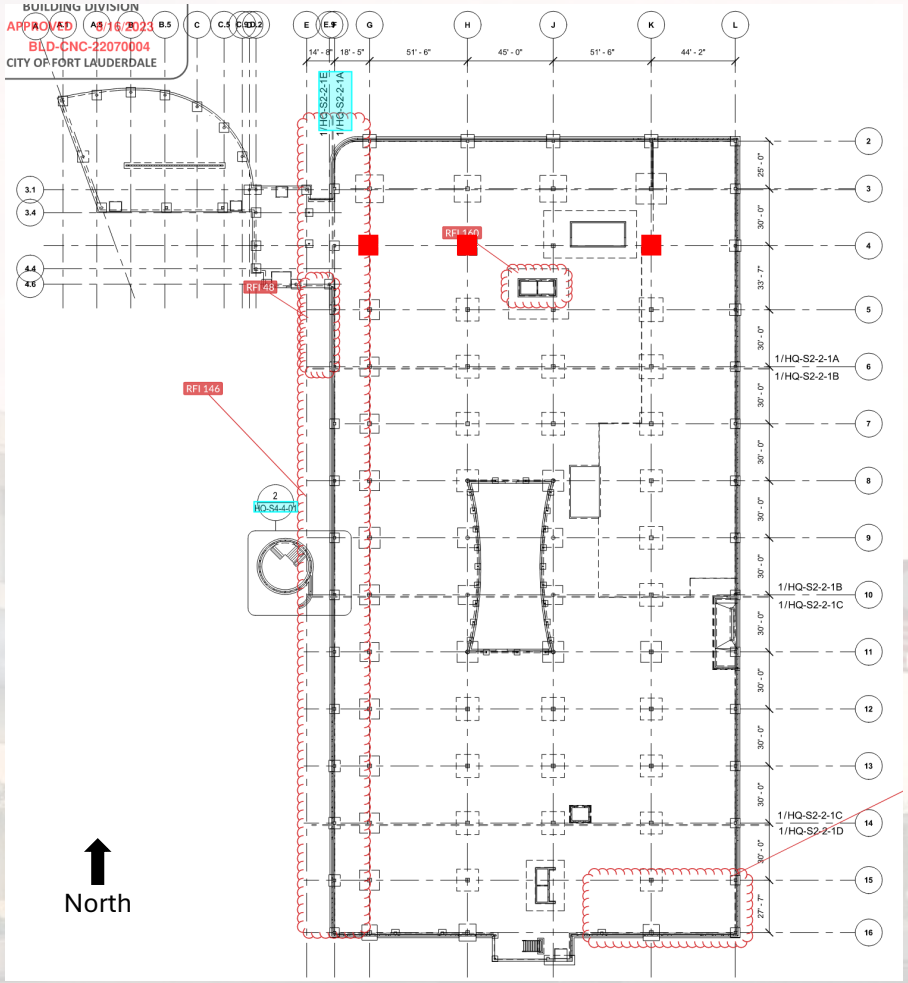
2. Shear Wall Foundations
   - Finding
     - The Design Capacity of the Mat Foundations for the Concrete Shear Walls Around the North Stair Shaft and the South Elevator Shaft is Exceeded Under Full Design Wind Loads and are therefore Not Code-compliant.
   - Possible rectification
     - Adding the Shear Wall in Item 1 to the Building can Rectify Conditions Related to the South Elevator Shaft.
     - Attaching the Mat Footing for the North Stair Shaft to its Surrounding Isolated Spread Footings can Rectify the Sliding Capacity Condition.
   - Timeframe for Rectification
     - Same as for Shear Walls



Phase 2 – Life Safety Findings

3. Column Foundations
   - Finding
     - Bearing Stress Under the Three Isolated Footings on Gridline 4 Exceeds the Allowable Soil Design Bearing Capacity and are Not Code-compliant.
   - Possible Rectification
     - Enlarge the Footings
   - Timeframe for Rectification
     - Before Building Occupation

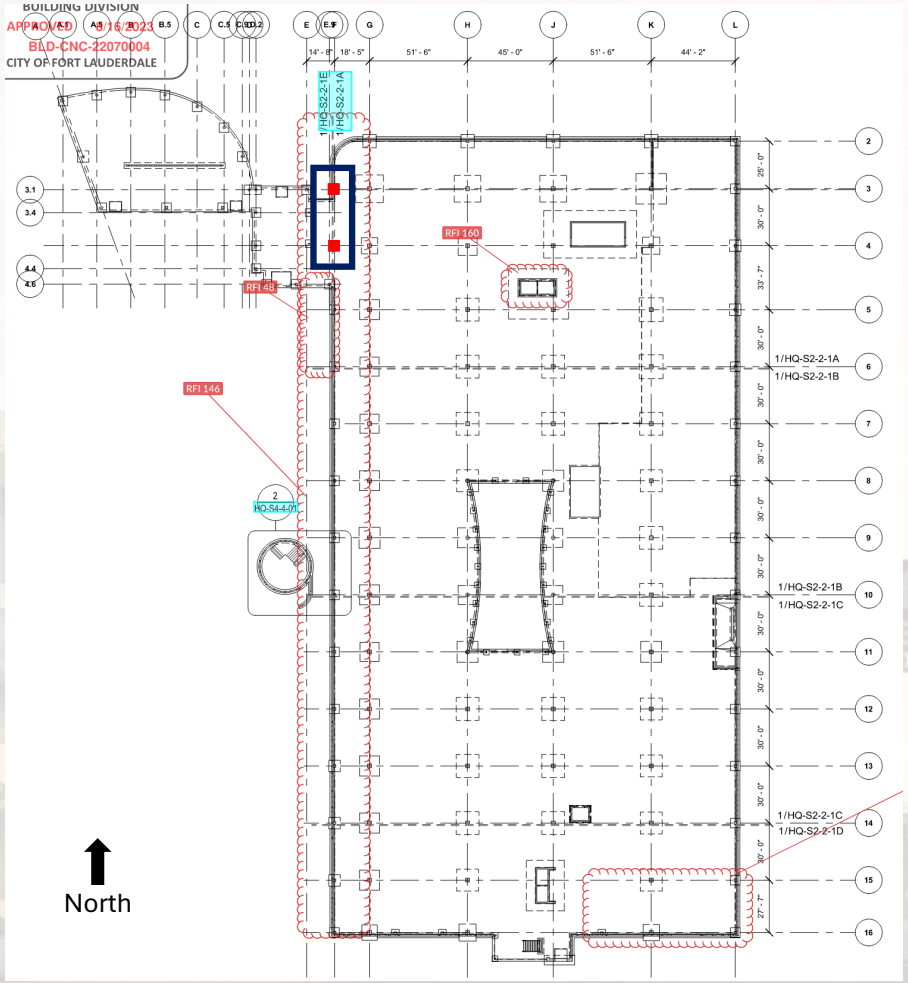
AECOM/TT has informed WJE that the roof live load currently shown on the drawings (30 psf) is higher than the minimum required by code (20 psf) and will update the drawings for the lower live load. WJE can re-check the foundations with the reduced loads.



Phase 2 – Life Safety Findings

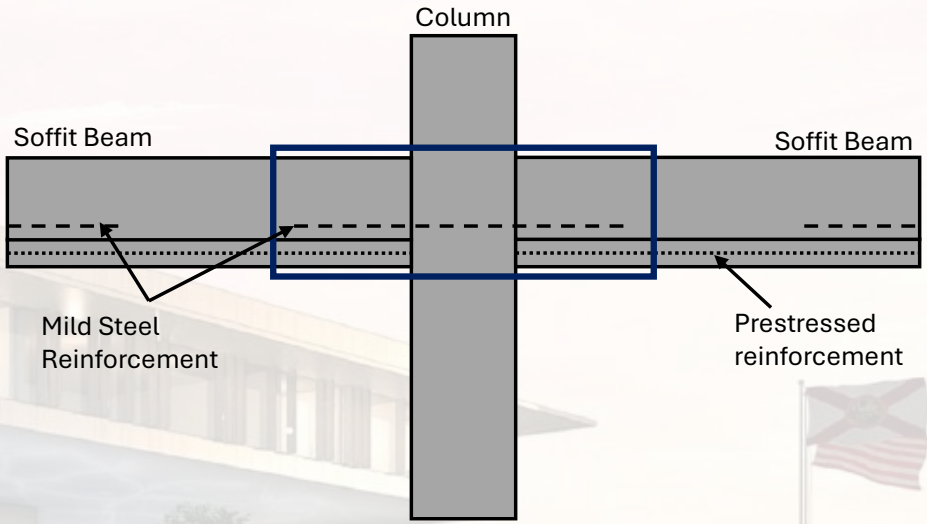
4. Side Bearing Capacities
   - Finding
     - Bearing Stress in the Slide Bearings on Gridline F Exceeds the Manufacturer's Published Allowable Capacity Under Full Design Loads.
   - Possible rectification
     - Replace Bearings with Higher Capacity Bearings.
   - Timeframe for Rectification
     - Before Building Occupation

AECOM/TT has acknowledged issue with slide bearings and has indicated that these bearings will be replaced with higher capacity bearings.



Phase 2 – Life Safety Findings

5. Structural Integrity Code Provisions
    - Finding
        - Detail Used to Provide Continuity of Bottom Reinforcement is Not Addressed in Appliable Building Code.
            - Note: This Building System is Widely Used within the South Florida Market.
    - Possible Rectification
        - Structural Engineer of Record to Provide Calculations, Results of Load Tests, or Other Valid Engineering Documentation which Demonstrate that this Type of Connection is Adequate to Develop Continuity of Bottom Reinforcement
    - Timeframe for Rectification
        - Before Building Occupation

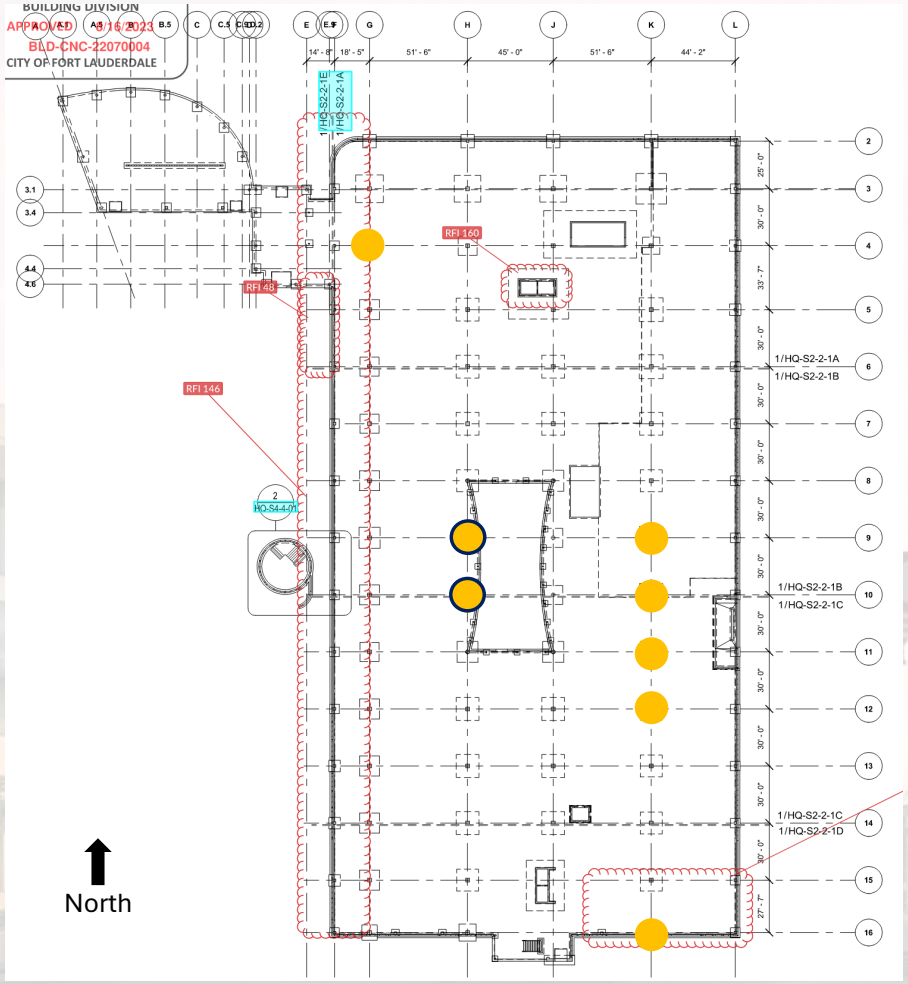


Resolution of this issue is ongoing. A meeting with the Building Division of DSD, AECOM/TT, and WJE is being coordinated to discuss and resolve this issue.

Phase 2 – Life Safety Findings

6. Column Axial-Flexural Capacities
   - Finding
     - Based on WJE Analysis, 24 Columns were Overstressed (under full design load) for Combined Axial and Flexural Loading and thus are Not Strictly Code-compliant. Only 8 of Those Columns were Overstressed by More Than 10%.
   - Possible Rectification
     - Strengthen the Columns that are Overstressed More Than 10%
   - Timeframe for Rectification
     - Before Building Occupation

AECOM/TT agrees with WJE that strengthening of the 16 columns overstressed less than 10% is not necessary. AECOM/TT and WJE will work towards a resolution on the other 8 columns.

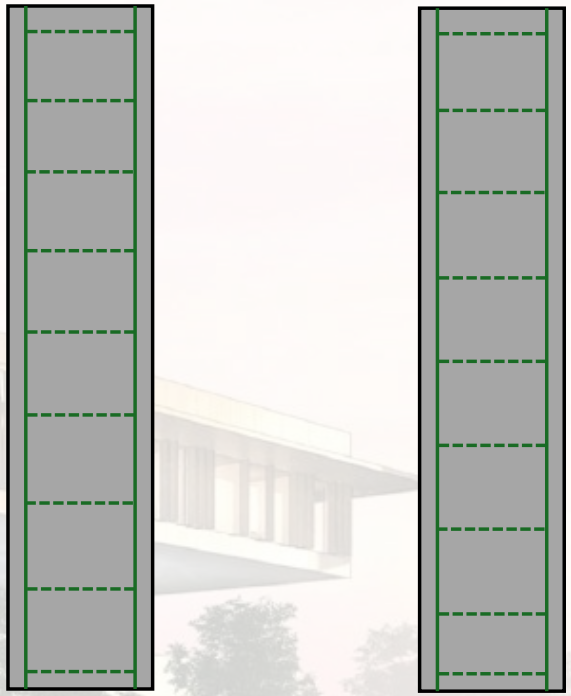


Phase 2 – Life Safety Findings

7. Column Shear Capacities
   - Finding
     - Up to 50 Columns were Found Not to be Strictly Code-compliant for Shear Due to Ties Spaced more Widely than d/2.
   - Possible Rectification
     - We do *Not* Believe Strengthening of these Columns is Necessary (See Graphic).
   - Timeframe for Rectification
     - Before Building Occupation

AECOM/TT agrees with WJE that strengthening of these columns is not necessary.

ACI 318-14 requires tie spacing less than “d/2” to include strength of ties in the capacity.



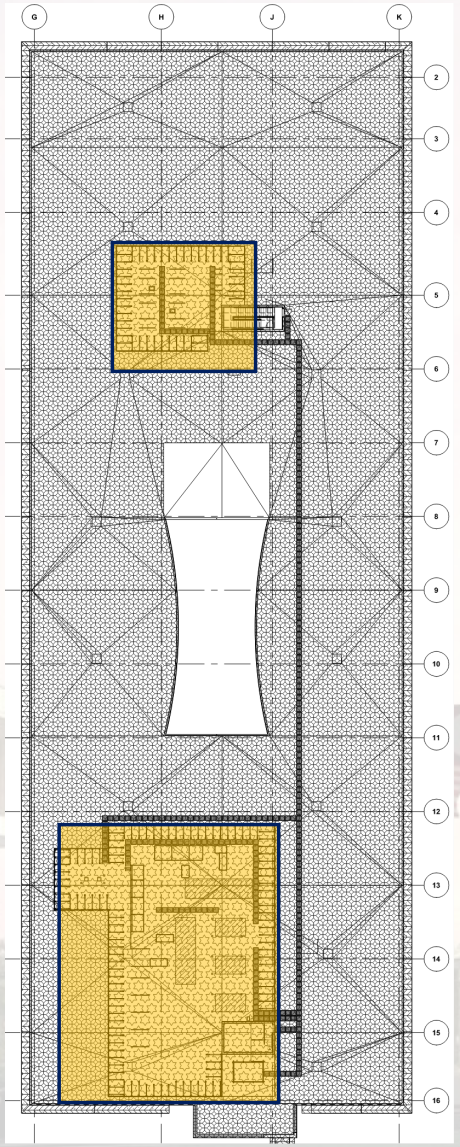
d/2 ~ 10 ¾” for most 24” square columns

EOR specified tie spacing of 12” maximum

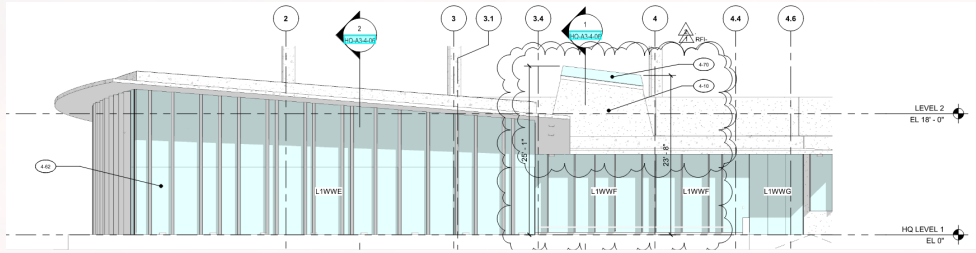
Phase 2 – Life Safety Findings

8. Roof Beam Capacities
   - Finding
     - There is a Discrepancy on the Drawings Regarding which Mechanical Loads Should be Used at the Roof. If One Set of Loads that is Called Out are Used, Some of the Roof Beams May Not have Sufficient Strength, if the Other Load Set is Used, it is Possible that the Beams would have Minimum Required Strength.
   - Possible rectification
     - Clarify Intended Loading on Drawings. If Necessary, After Clarifying Loading, Strengthen the Beams.
   - Timeframe for Rectification
     - Before the Building is Fully Loaded

Current live load on drawings is 150 psf. AECOM/TT has informed WJE that this load is outdated and will be reduced to 75 psf and the drawings updated. WJE can re-check the finding for these reduced loads.



Phase 2 – Serviceability Findings

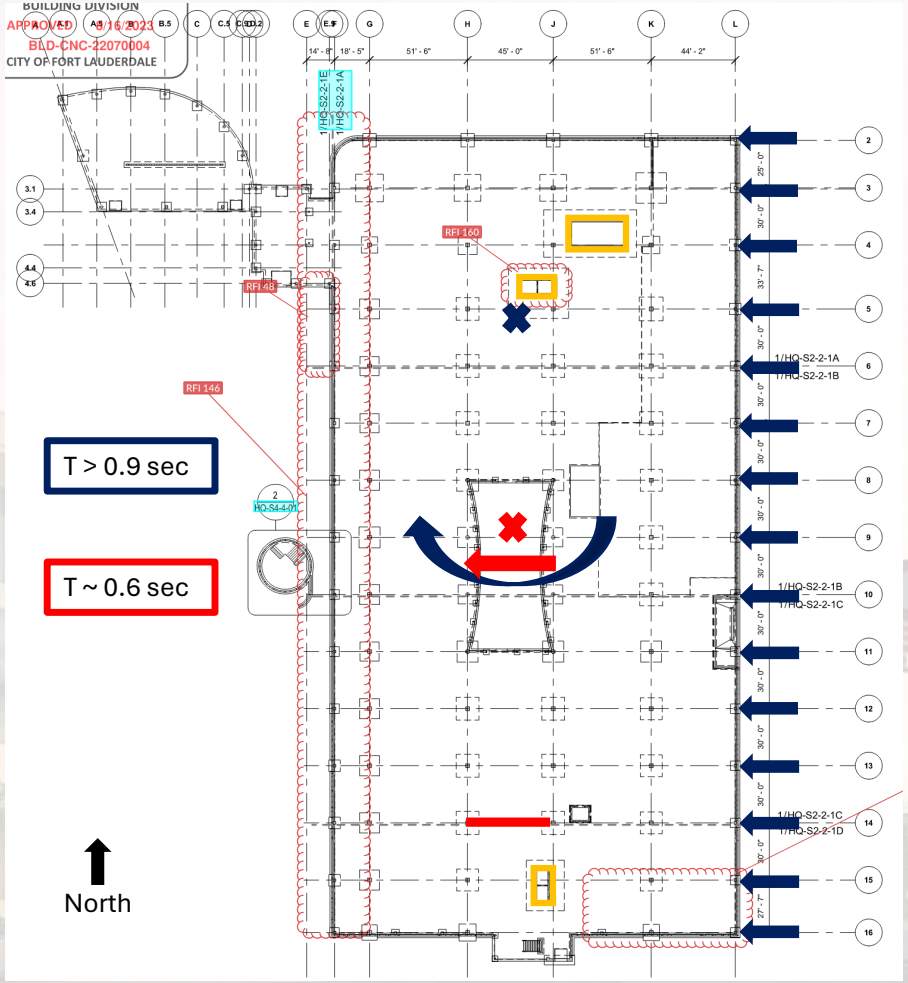


9. Community Room and Lobby Area
   - Finding
     - Roof Drift (lateral deflection under wind load) of the Community Room and Lobby Area are Highly Sensitive to Certain Design Assumptions Related to the Foundations.
     - Depending on the Assumptions, the Drifts May or May Not Satisfy the Recommended Drift Limits in the Applicable Code
   - Required Response
     - Structural Engineer of Record Should Clarify Design Assumptions and Update Documentation.
     - For Systems that are Impacted by Building Drift (e.g., window wall and finishes), the Architect or the Design Professional in Charge of the System Should Review the Design to Confirm the System is Compatible with the Estimated Building Drifts.

AECOM/TT are coordinating and gathering documentation to show that the building roof drift under service level wind loads are compatible with building enclosure and finishes.

Phase 2 – Serviceability Findings

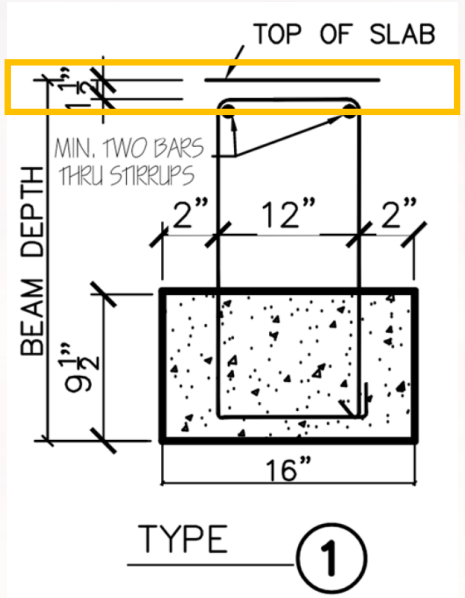
10. Building Period
    - Finding
        - Fundamental Period of Vibration (twisting mode) of the Building is Greater than 0.9 Seconds
            - Significantly Larger than Typical Concrete Shear Wall Buildings having No More than Three Stories.
            - While this Condition Does Not Violate any Code-prescribed Performance Limitations, it is Not Standard Practice to Design Structures to Perform this Way.
    - Possible Rectification
        - Adding an Appropriately Designed Full-height Shear Wall to the Structure (as previously described in Item 1) Will Rectify this Condition.

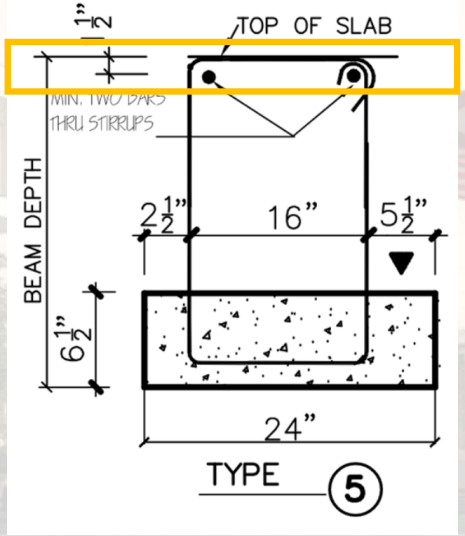


Phase 2 – Serviceability Findings

11. Concrete Cover Depth
    - Finding
        - The Precast Concrete Shop Drawings Inconsistently Indicate the Amount of Cover Depth Provided in the Soffit Beams. In Some Cases, the Cover Depth is Indicated to Satisfy Minimum Code Cover Requirements, and in Others it Does Not.
    - Required Response
        - The Structural Engineer of Record Should Confirm and Document which Cover Depth was Used in the Design of the Soffit Beams.
        - If Cover Depth is Not Sufficient, Rectifications May be Required.

AECOM/TT is working on gathering documentation to show that the appropriate cover depth was maintained during construction.



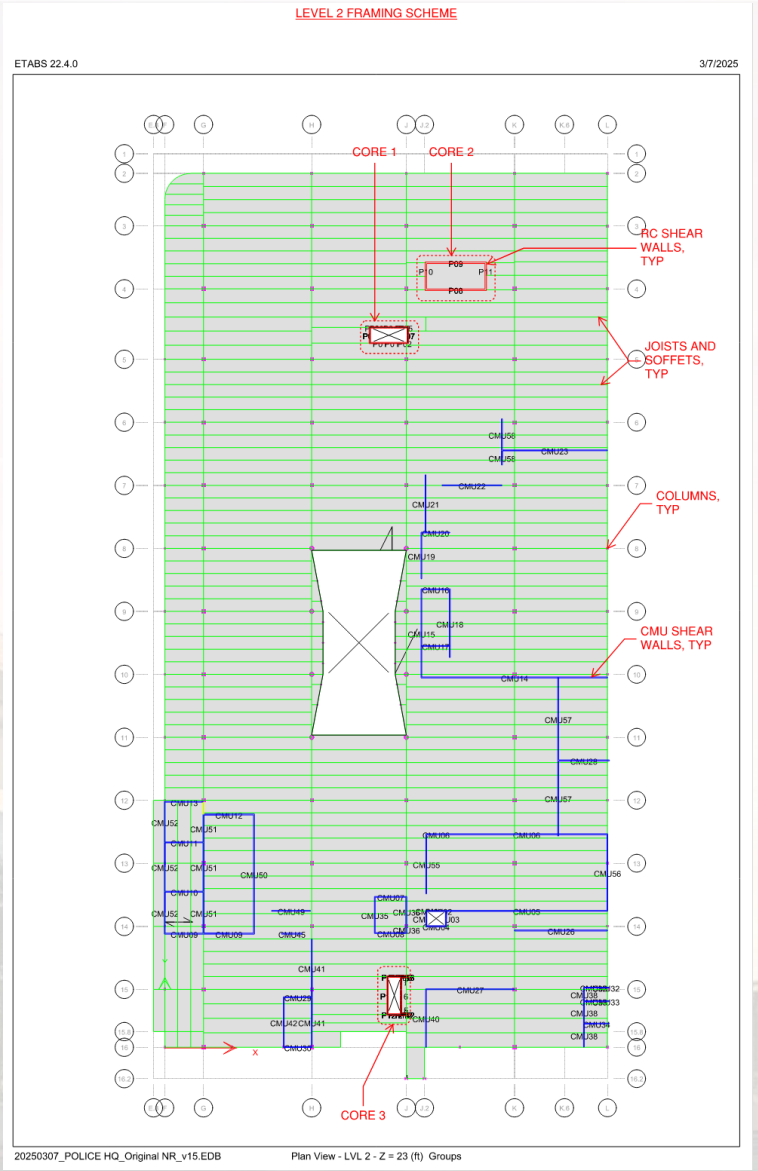


Phase 2 – Documentation Findings

12. Column Schedule
    - Update Drawings
13. Loads Indicated for Design Criteria
    - Update Drawings
14. Mechanical Equipment Loads
    - Update Drawings
15. Masonry Walls (CMU Partitions)
    - Recommended Concrete Shear Wall and Foundation Rectifications (items 1 and 2) will Address This Item.
16. Column Flexural Stiffness Modifiers
    - It is Not Necessary for the Structural Engineer of Record to Respond *if* Recommendations made by WJE in Items 1 – 7 are Accepted

AECOM/TT is planning to update drawings, as necessary, to address Items 12-14.

The current information WJE has suggests that the CMU partition walls will not provide a reliable (calculable) load path.



Phase 2 - Summary / Item Status

Life Safety

- Shear Wall – Ongoing Discussions Between AECOM/TT and WJE (Resolution Pending)
- Column Foundations – AECOM/TT Revising Live Load Calculations (WJE to Confirm Calculations)
- Slide Bearing – AECOM/TT Acknowledged Issue and Agree with WJE on Resolution (Resolution Confirmed)
- Structural Integrity Code Provisions – Ongoing Discussions Between AECOM/TT and WJE (Resolution Pending)
- Colum Axial-Flexural Capacities – AECOM/TT and WJE Agree the 8 Columns Should be Addressed (Resolution Pending)
- Column Shear Capacities – AECOM/TT and WJE Agree Addressing These Columns is Not Needed (Resolution Confirmed Pending Confirmation by City of Fort Lauderdale)
- Roof Beam Capacities – AECOM/TT Informed WJE the Live Loads will be Corrected. WJE to Verify Once Updated Data is Provided. (Resolution Pending)

Phase 2 – Summary / Item Status

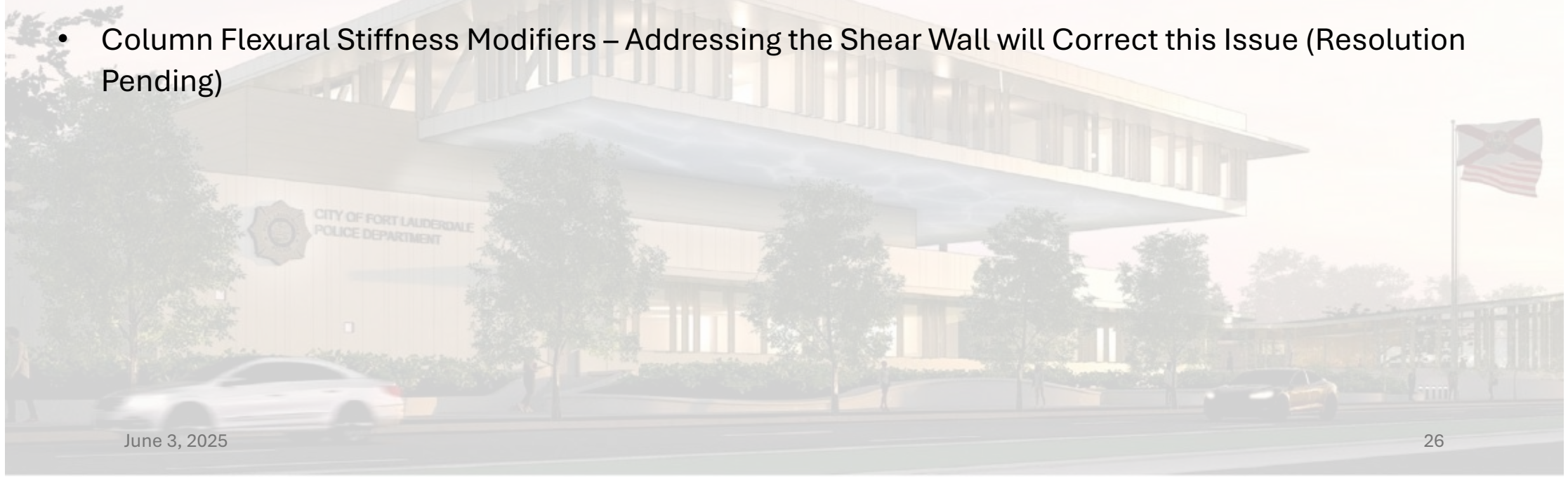
Serviceability

- Community Room and Lobby Area – AECOM/TT are Developing Additional Data to Provide to WJE. (Resolution Pending)
- Building Period – Addressing the Shear Wall will Correct this Issue (Resolution Pending)
- Concrete Cover Depth – AECOM/TT Gathering Documentation for WJE to Review (Resolution Pending)

Phase 2 - Summary / Item Status

Documentation

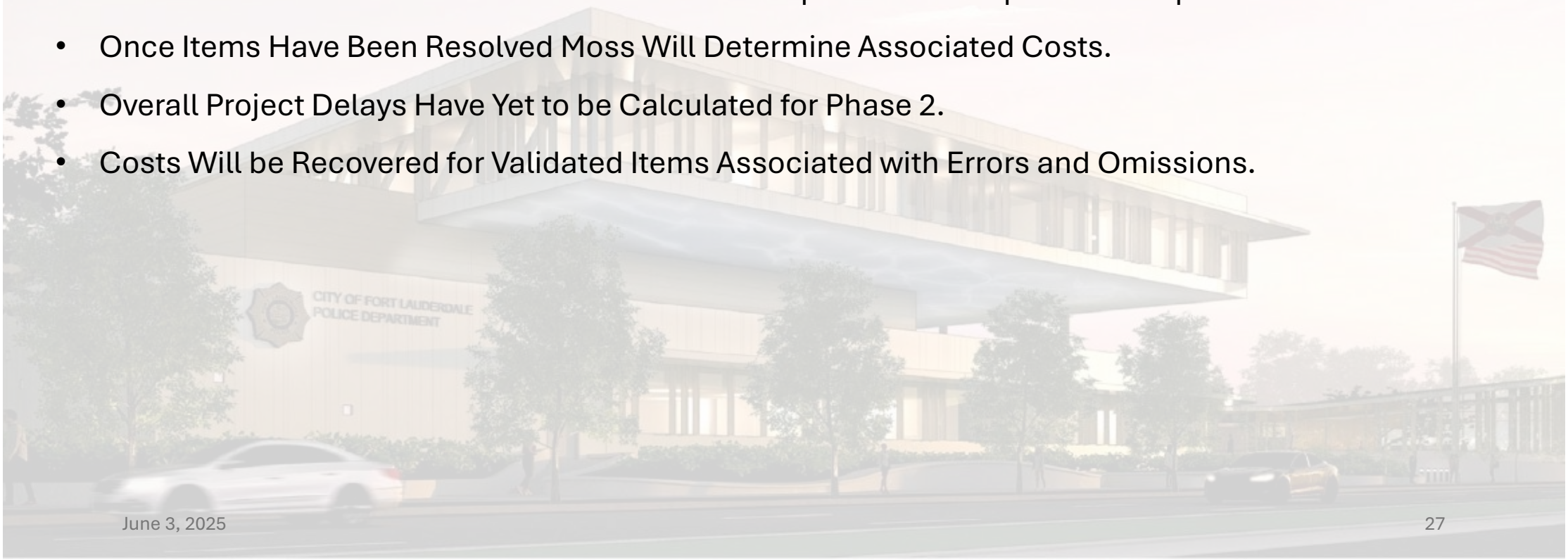
- Column Schedule – AECOM/TT Updating Drawings (Resolution Pending)
- Loads Indicated for Design Criteria – AECOM/TT Updating Drawings (Resolution Pending)
- Mechanical Equipment Loads – AECOM/TT Updating Drawings (Resolution Pending)
- Masonry Walls – Addressing the Shear Wall will Correct this Issue (Resolution Pending)
- Column Flexural Stiffness Modifiers – Addressing the Shear Wall will Correct this Issue (Resolution Pending)



Phase 2 - Summary

Next Steps

- Pending Items Will Need to be Resolved Through Additional Discussions Between AECOM/TT and WJE.
- Once Items Have Been Resolved Moss Will Develop Finalized Proposals to Implement.
- Once Items Have Been Resolved Moss Will Determine Associated Costs.
- Overall Project Delays Have Yet to be Calculated for Phase 2.
- Costs Will be Recovered for Validated Items Associated with Errors and Omissions.



Questions?