shaping the built environment

100 GLASS STREET, DALLAS, TEXAS 75207
214 752.9098 PHONE
JQENG.COM

07.19.23

Judge Dan Hicks
County Judge
Scurry County
1806 25th Street
Snyder, TX 79549

Re: Scurry County Courthouse - Structural Assessment
Snyder, Texas
JQ Project No. 3230107

Dear Judge Hicks:

JQ Engineering (JQ) performed a limited, structural review of Scurry County Courthouse, 1806 25th Street, Snyder, Texas on June 16, 2023. The purpose of the review was to assess the structural condition of the building façade and accessible structural framing for the purpose of providing recommendations for repair if warranted.

The following documents were available for review and use:

- Granite façade shop drawings prepared by Texas Granite Corporation dated June 28, 1971.

Our findings are as follows:

Building Description

The historic four-story courthouse was completed in approximately 1911. The construction of the building consists of a reinforced concrete frame with brick masonry and stone facade. A roof top dome was removed during a previous renovation. The footprint of the building was expanded during a 1972 renovation which also constructed the current granite façade. Construction of the expanded footprint consists of steel framing with metal decking to create storage areas around the building perimeter. Refer photograph 1. The granite façade is supported on precast concrete beams spanning between cast-in-place concrete columns. Refer photograph 2.

Observations

The following conditions were observed:

- The steel framing in the expanded floors is in good condition with no observed signs of distress or deterioration. Refer photograph 1.

- The precast concrete beams and cast-in-place concrete columns supporting the granite façade are in good condition with no observed signs of distress or deterioration. Refer photograph 2.
- The observed supports for the granite façade are in general conformance with the support configurations detailed in the original installation drawings. Some surface corrosion is present, but no significant material loss has occurred. Refer photographs 2, 3 and 4.
- No spalls or cracking was observed on the interior or exterior faces of the granite panels.
- Granite panels have shifted outward at three locations at the bottom of the exterior walls. Refer to attached building elevations for locations.
    - One (1) panel on the south elevation has shifted outward approximately 1 inch at the top of the panel and 1 1/4 inch at the bottom of the panel. At this location, the lateral ties for the panel appear to have detached from the supporting precast concrete beam. Refer photographs 5 and 6.
    - One (1) panel on the south elevation has shifted outward approximately 1/4 inch. Refer photograph 7.
    - One (1) panel on the north elevation has shifted outward approximately 1/8 inch. Refer photograph 8.
- Joint sealants between the granite panels are nearing the end of the expected service life as evidenced by cracking and crazing on the exposed surface of the sealants. Tearing within the width of the sealant and/or debonding of the sealant from the granite were not observed except at the location of the three (3) displaced granite panels discussed above.
- Spalling of the underside of the concrete slab at the west building entry has occurred due to corrosion of the embedded reinforcing steel caused by long term exposure to moisture. Refer photograph 9.

Discussion

Per the original granite installation drawings, the base of the granite panels at the bottom of the exterior walls are laterally restrained by a vertical steel dowel drilled and set into the concrete foundation and projecting upward into a drilled hole in the base of the stone. At elevated joints, the top of the granite panels are laterally restrained by a bent steel tie which is drilled and set into the supporting precast concrete beams and the bottom of the panels are vertically and laterally supported by a steel angle set into a kerf cut into the base of the stone and welded to embedded steel plates in the supporting precast concrete beams. These types of connections were typically used at the time of granite panel installation. The connections are depicted in the attached original typical connect details drawing.

Based on observations at the three (3) granite panels which have experienced lateral displacements and absent cracking or spalling of the stone, the pins at the base of the displaced panels appear to be missing and the lateral restraint at the top of the panels appear to have become dislodged from the supporting precast concrete beams. Absent installation of new lateral restraints, the displacement of these panels may continue to increase. Therefore, supplemental lateral connections should be installed at these locations.

Recommendations SPECIFICATIONS AND SCOPE OF WORK - OMITTING LAST BULLET POINT

We recommend the following:

- The one (1) granite panel on the south building elevation which has laterally displaced over 1 inch should be reset into proper alignment with the adjacent panels. The top and bottom of this panel should then be reattached to the supporting structure with steel angles attached with anchors drilled and set with epoxy into the back of the panels and into the supporting structure to provide lateral restraint. Damaged joint sealants around the perimeter of the panel should be replaced.
- The two (2) granite panels which have laterally displaced 1/4 inch or less do not require relocation. However, the top and bottom of each panel should be reattached to the supporting structure with steel angles attached with anchors drilled and set with epoxy into the back of the panels and into the supporting structure to provide lateral restraint. Damaged joint sealants around the perimeter of the panel should be replaced.
- The damaged and delaminated concrete at the underside of the west entry slab should be removed until sound concrete is exposed. After removal of all corrosion from the exposed reinforcing steel, the concrete should be patched with a non-sag cementitious repair mortar such as SikaTop 123 Plus or equal installed in accordance with manufacturer's recommendations.
- ~~Replacement of the joint sealants between the granite panels should be planned within the next 2-5 years~~.

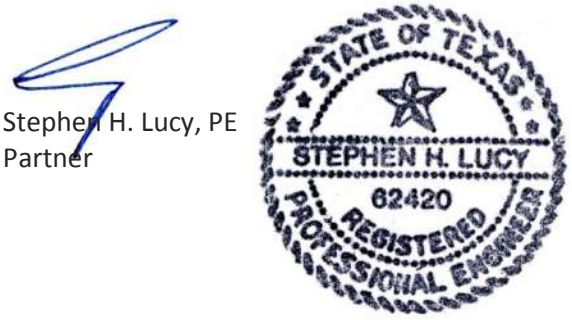
Disclaimer

The opinions and comments provided in this report are based upon field observations as part of our scope of services. JQ has used reasonable professional efforts to determine the visually apparent defects in the building façade and structure. However, as field observations were conducted on a structure in which the majority of the structural elements are concealed, JQ cannot be responsible for failing to ascertain deficiencies which were not visible due to the existing conditions in the building. No warranty expressed or implied, regarding the condition of the building structure is intended. In addition, no representation as to the expected useful life of the building structure or other components identified in this report is made.

If you have any questions, or if we can be of further assistance, please contact us.

Sincerely yours,

JQ Engineering, LLP
Texas Registered Engineering Firm: 1294



Stephen H. Lucy, PE 7/19/23
Partner

Photograph 1 – Typical construction within storage areas within expanded floors.

Photograph 2 – Typical gravity connection at precast concrete beam and cast-in-place concrete column supporting granite façade.

Photograph 3 – Typical support angle at horizonal joints in granite panels.

Photograph 4 – Typical lateral restraint anchor at horizontal joints in granite panels.

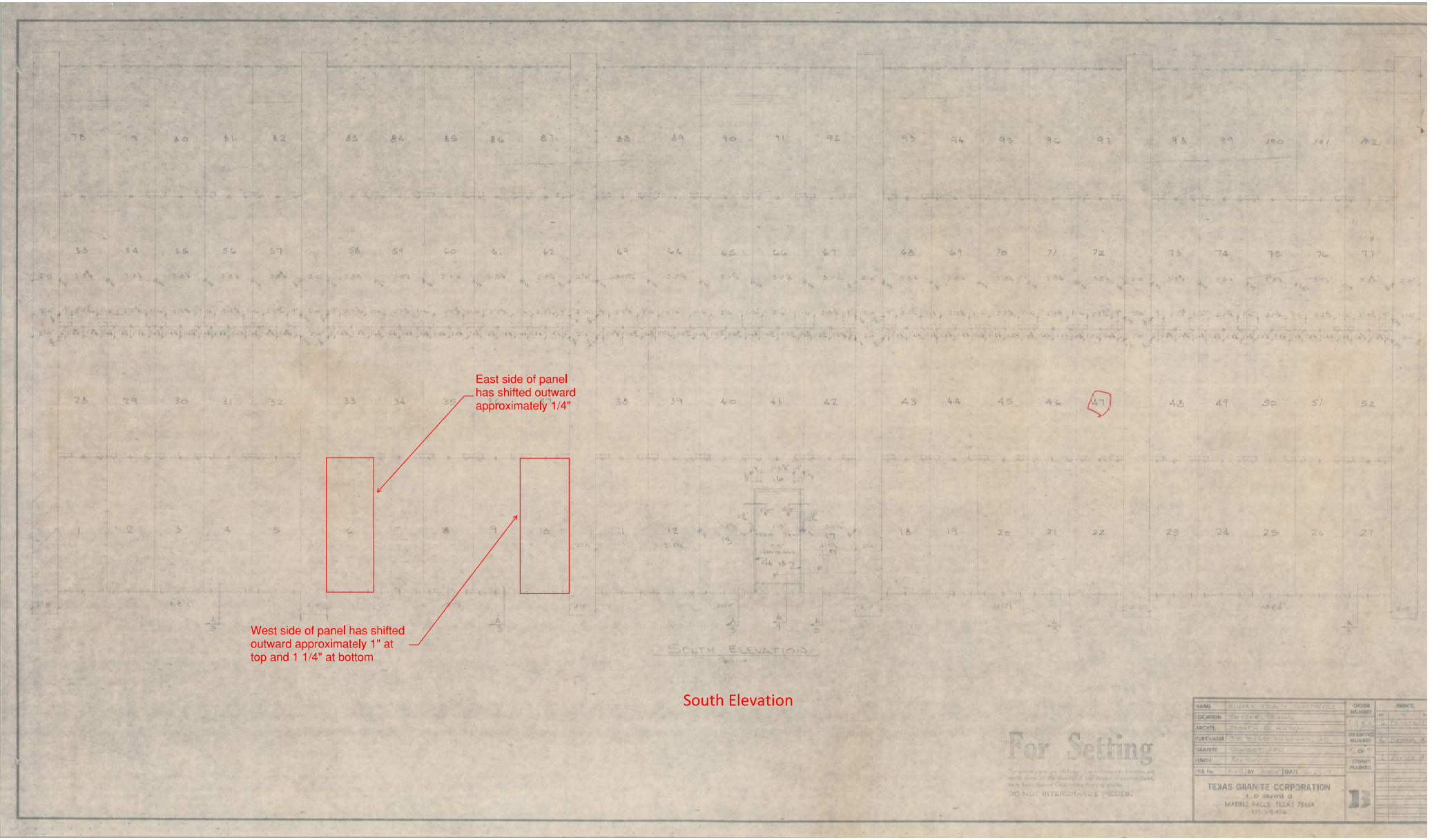
Photograph 5 – Approximate 1 1/4 inch lateral displacement at granite panel on south elevation.

Photograph 6 – Connection at top of displaced granite panel on south elevation with offset in stone.

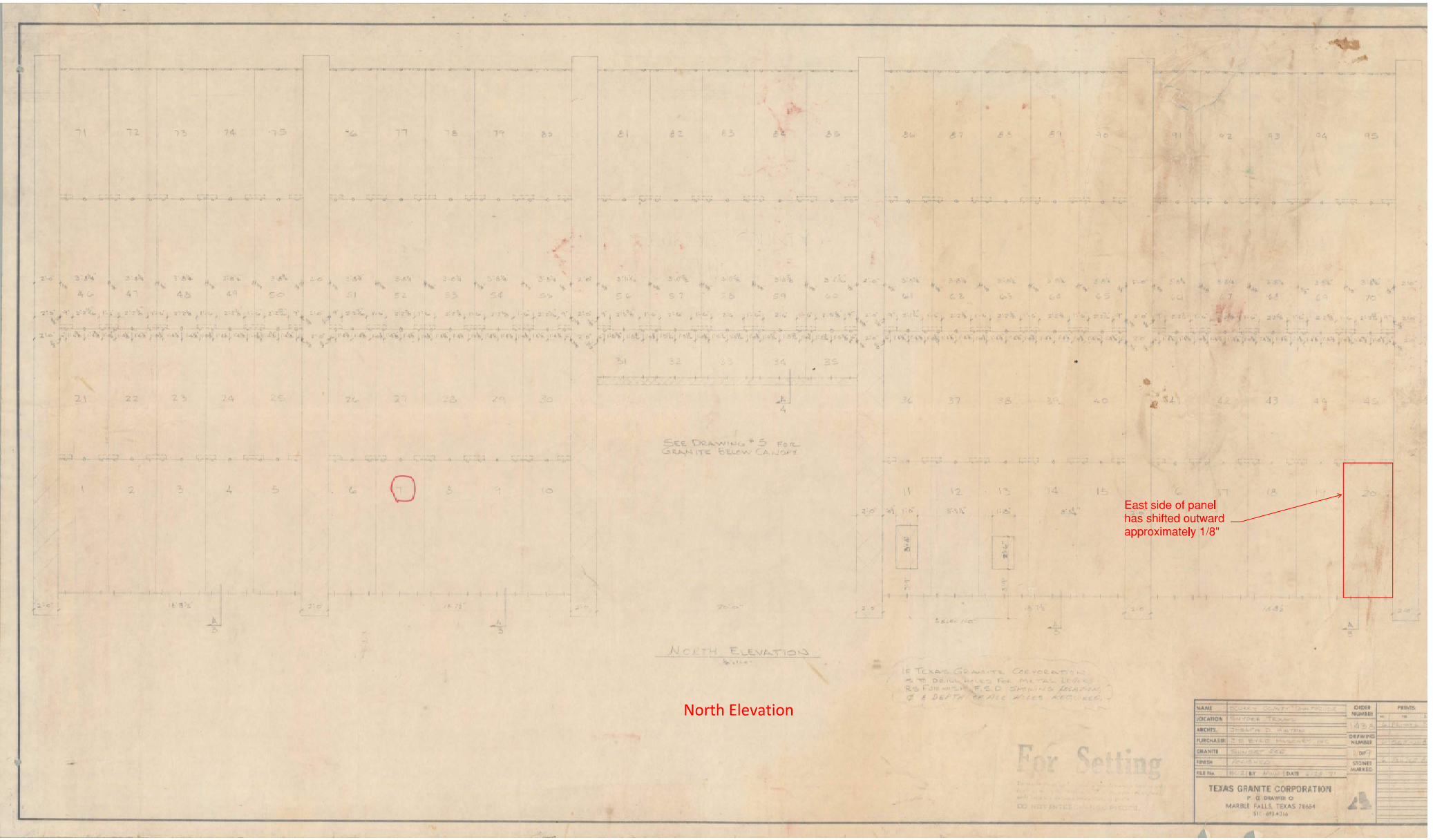
Photograph 7 – Approximate 1/4 inch lateral displacement at granite panel on south elevation.

Photograph 8 - Approximate 1/8 inch lateral displacement at granite panel on south elevation.

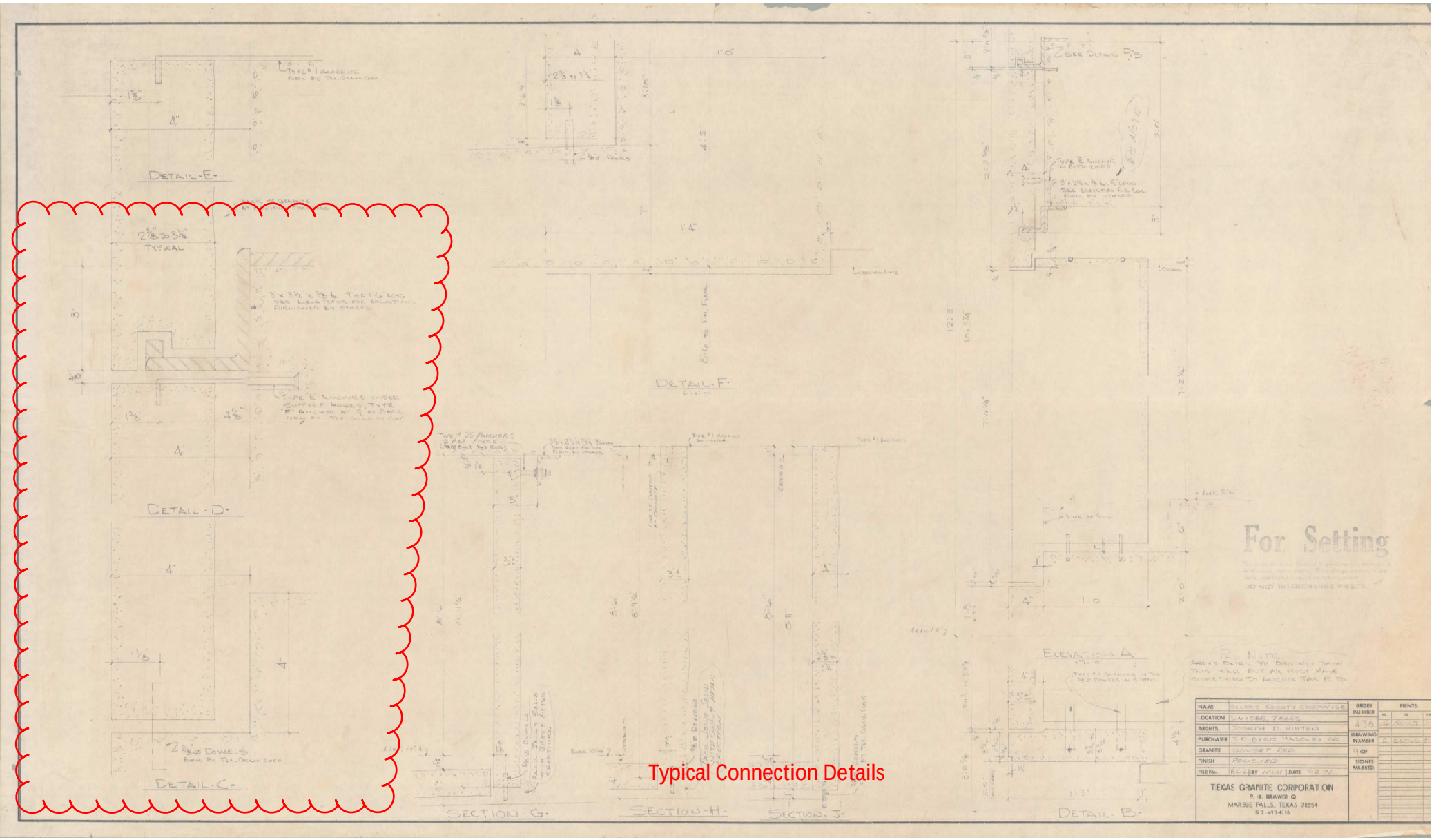
Photograph 9 – Damaged and delaminated concrete on underside of slab at west entry.



South Elevation



North Elevation



Typical Connection Details