



Board of Education Meeting: 05/06/25

Action
Information
Discussion

Discussion

Report on the findings for the structural assessment of Sams Memorial Stadium.

Approved for Submission to Board of Education:

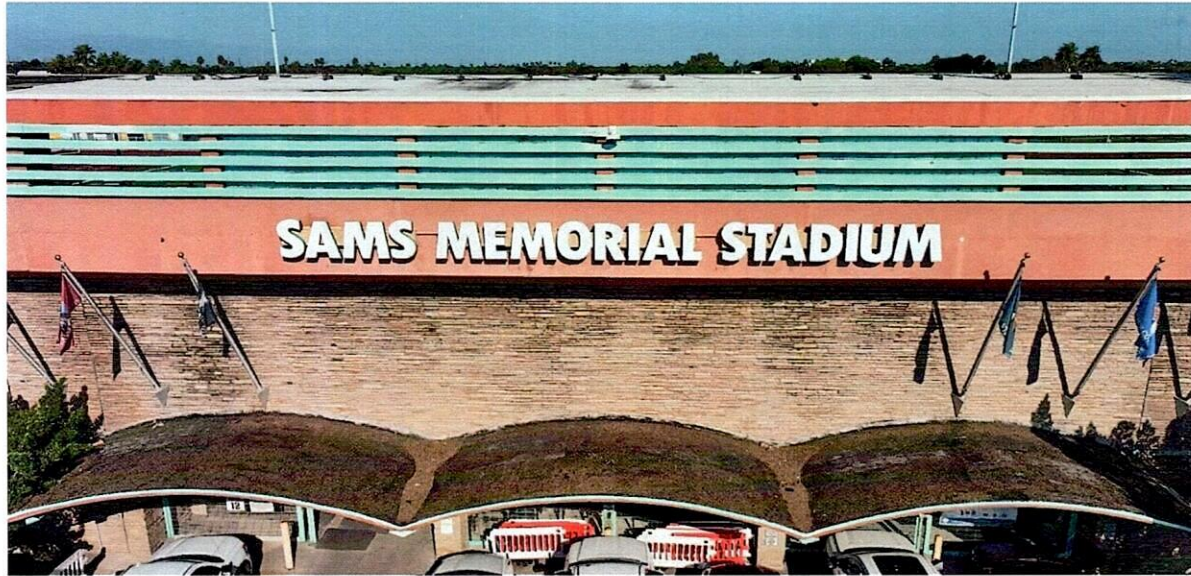

Dr. Jesus H. Chavez, Superintendent

Alejandro Cespedes
Approved by: Chief Officer

When Necessary, Additional Background May Follow This.

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Structural Engineers
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Sams Memorial Stadium
1 Boulevard of Champions
Brownsville, TX 78520

Visual Concrete Structure Evaluation of Sams Memorial Stadium

Prepared for:
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Sams Memorial Stadium

Visual Concrete Structure Evaluation of Sams Memorial Stadium

Background and Scope

At the request of the Brownsville Independent School District, Green, Rubiano and Associates (GRA) was asked to conduct a structural assessment of the reinforced concrete structure of the Sams Memorial Stadium at 1 Boulevard of Champions in Brownsville, Tx. The purpose of the structural assessment was to identify the current condition of the structure. GRA conducted a site visit to visually observe the current condition of the concrete structure and perform a review of the findings.

The Sams Memorial Stadium was constructed circa the early 1950's and features two sets of bleachers: the home side (East) and the visitors side (West). Beneath the home side bleachers, there are multiple storage rooms, concession stands, offices, and restrooms. Above the home side bleachers, seating sections A through I are found, with a press box concrete structure between seating sections D and F, as well as a concrete roof slab between seating sections B and F above the press box. Alternatively, beneath the visitors' side bleachers, there are restrooms and multiple storage rooms, and above are seating sections J through Q. Based on record drawings provided by BISD, the structural framing consists of stem walls, one-way slabs, girders, and columns. The one-way slabs appear to have a 4" thickness. The sizes of the columns range from 14" x 14" to 30" x 30". The dimensions of the east stands are approximately 69 feet wide by 340 feet long. The dimensions of the west stands are approximately 53 feet wide by 338 feet long.

This report provides a summary of the findings regarding the current condition of the concrete structure at Sams Memorial Stadium and guard railing along the perimeter of the bleachers as well as the railing around the handicap designated areas.

Record Drawing Review

The following documents were reviewed by GRA in preparation of the assessment and this report:

Drawings

- Phelps & Dewees & Simmons, conformed set of drawings dated May 25, 1953.

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Field Observations

GRA visited Sams Memorial Stadium on September 27, 2024 for the purpose of an initial site visit and meet with the Sams Stadium staff. Additionally, GRA staff visited Sams Memorial Stadium on October 15-16, 2024, to perform visual observations and field measurements of any damage to the concrete structure. Finally, GRA visited the site two more times on October 25, 2024 & October 29, 2024, for a continued visual observation of certain elements. The site observation and field measurements were limited to walking the top and bottom of the bleachers on East and West stands, visual observations of the one-way slabs, bleacher beams, girders, columns, guardrails, louvers and press box roof underside and top side. However, certain areas within the stadium were not accessible, which limited GRA's ability to perform observations in those locations.

GRA was able to observe the top section of the bleacher stands from seating sections A through Q. These areas included walkway slabs, steps, bleacher beams, stem walls and guard rails along the perimeter, press box slab, press box roof underside and topside.

On the home side (East), half of the bleachers' undersides were exposed and could be observed by GRA. Several bleachers on the underside of the lowest section of the bleachers had limited access due to storage units. The highest section of the bleachers' underside was observed via a roof access point above the locker rooms and offices located underneath the stands.

On the visitors' side (West), the majority of the elements located on the underside of the stands were exposed, with the exception of several underside walkway slabs enclosed by CMU walls within the storage rooms. Additionally, several bleacher beam undersides located inside the restrooms were not visible.

Field Findings

Field observations revealed the presence of cracks throughout various elements of the concrete structure, but these cracks were minimal in nature, due to the natural process of concrete shrinkage. In-between seating sections along the step line, shallow depth cracks were found with no visible sign of rebar exposure. Shallow depth cracks were found spanning parallel to the bleacher beams with no visible sign of exposed rebar.

At multiple locations on both the topside and underside of the bleacher beams, exposed rebar and instances of spalling could be seen. Exposed rebar was present in several locations with moderate corrosion due to weather exposure. Efflorescence was present on several bleacher beams underside at the West stands. In one location within section Q, two bleacher beams appear to have significant spalling and exposed rebar with extensive corrosion. These bleacher beams are supported by a CMU wall located beneath them.

The stem walls along the perimeter appeared to be in good condition throughout the home and visitors' bleachers. At multiple locations, base plates of the guard rails above perimeter stem walls appeared to have severe oxidation at both the home and visitors' bleacher sides. At the

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visitors' bleacher side, along seating sections J through N, several base plates and railing tubes appeared to be completely corroded and had no stem wall-to-guard rail connection.

The majority of the girders seem to be in good condition, with the exception of a few cases where exposed rebar with minor corrosion and shallow depth cracking was present.

Multiple columns appeared to have spalling and exposed rebar. In some instances, the exposed rebar showed signs of moderate corrosion.

The majority of the press box slab and walls appeared to be in good condition with minor cracks. In two locations of the press box roof slab, about 30 square feet of patching seemed to be present. Based on the record drawings it appears that these repairs were caused by the removal of two light poles. Several louver concrete beams have spalling and exposed rebar with moderate corrosion. Multiple concrete columns supporting the press box roof slab appeared to have minor spalling, and steel pipe columns supporting the press box roof slab appeared to be in good condition.

Findings Documentation

GRA's findings are documented on GRA's drawings dated 04-04-2025. These set of drawings include sheets:

- S-001 – Cover Page
- S-002 – Key Plan for East Stands
- S-003 – Key Plan for West Stands
- S-101 – East Stands Upper Plan - Unit A
- S-102 – East Stands Upper Plan - Unit B
- S-103 – East Stands Upper Plan - Unit C
- S-111 – East Stands Underside Plan -Unit A
- S-112 – East Stands Underside Plan - Unit B
- S-113 – East Stands Underside Plan - Unit C
- S-121 – East Stands Column and Girder Plan - Unit A
- S-122 – East Stands Column and Girder Plan - Unit B
- S-123 – East Stands Column and Girder Plan - Unit C
- S-131 – Press Box Roof Slab Upper and Underside Plan
- S-141 – West Stands Upper Plan - Unit A
- S-142 – West Stands Upper Plan - Unit B
- S-143 – West Stands Upper Plan - Unit C
- S-151 – West Stands Underside Plan -Unit A
- S-152 – West Stands Underside Plan - Unit B
- S-153 – West Stands Underside Plan - Unit C
- S-161 – West Stands Column and Girder Plan - Unit A
- S-162 – West Stands Column and Girder Plan - Unit B
- S-163 – West Stands Column and Girder Plan - Unit C
- S-201 – East Stands Distress Quantities
- S-202 – West Stands Distress Quantities

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Analysis

Following the observation and considering the location, extensiveness, and severity of the affected elements, no condition appears to present a structural stability concern or limitation to the original load carrying capacity of the bleacher structures. The field findings do indicate the need for extensive concrete element repairs to manage and maintain serviceability of the structure and to control overhead falling debris risks from spalled concrete sections located under the bleachers and in the press box. The existing conditions do not impose any safety risks to the continued use of the facility and the overall integrity of the structure seems to be in good condition. The distress conditions identified on the noted drawings should be addressed promptly to continue the service life of Sams Memorial Stadium.

Closing Summary

The opinions presented in this report are based on GRA's comprehensive evaluation of the concrete structure. This structural assessment consisted of a visual examination of the structure's elements to identify any visible signs of deterioration or damage, including cracks, spalling, exposed rebar, and other potential distresses posing an impact to the structural integrity of the structure. However, it is important to note that there may be conditions that were not detected by GRA due to the limited access in certain areas of the structure.

Based on the visual observations of the exposed elements and the results of our finding, the building appears to be structurally stable and in good serviceability standing. No major issues were identified that would pose a structural concern for the overall stability of the structure. However, it is recommended that periodic observations be conducted to monitor the condition of the facility over time.

Recommendations

Although the facility does not currently present any immediate structural concern, it is strongly recommended that the repairs of the affected areas be addressed without delay to reduce the damage found in the affected elements. This will aid in preventing any further deterioration of damage from worsening over the years. Furthermore, a monitoring program for the structure is recommended to confirm the deterioration progress of the element is reduced and create a preventive plan to address potential future concerns. Following these steps will not only protect the overall integrity of the structure but also contribute to its long-term stability.

Assessment Limitations

GRA's observations, findings and opinions are limited to a review of available construction documents and limited visual observations of the existing site and facility conditions. GRA

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reserves the right to modify the findings within this report should additional information be provided in consideration of this matter.

We appreciate the opportunity to be of service to BISD. Should you have any questions concerning the observations or findings included in this report please do not hesitate to contact us.

Respectfully,



Rolando R. Rubiano, P.E.
Senior Partner

Attachments

Photographs 1 through 12

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Photo #1: Column is Experiencing Spalled Concrete and Exposed Rebar.



Photo #2: Column is Experiencing Spalled Concrete.

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Photo 3: West Stands Bleacher Beam Underside Showing Exposed Rebar with Extensive Corrosion.



Photo 4: East Stands Bleacher Beam Underside Showing Delamination and Spall with Moderate Corrosion.

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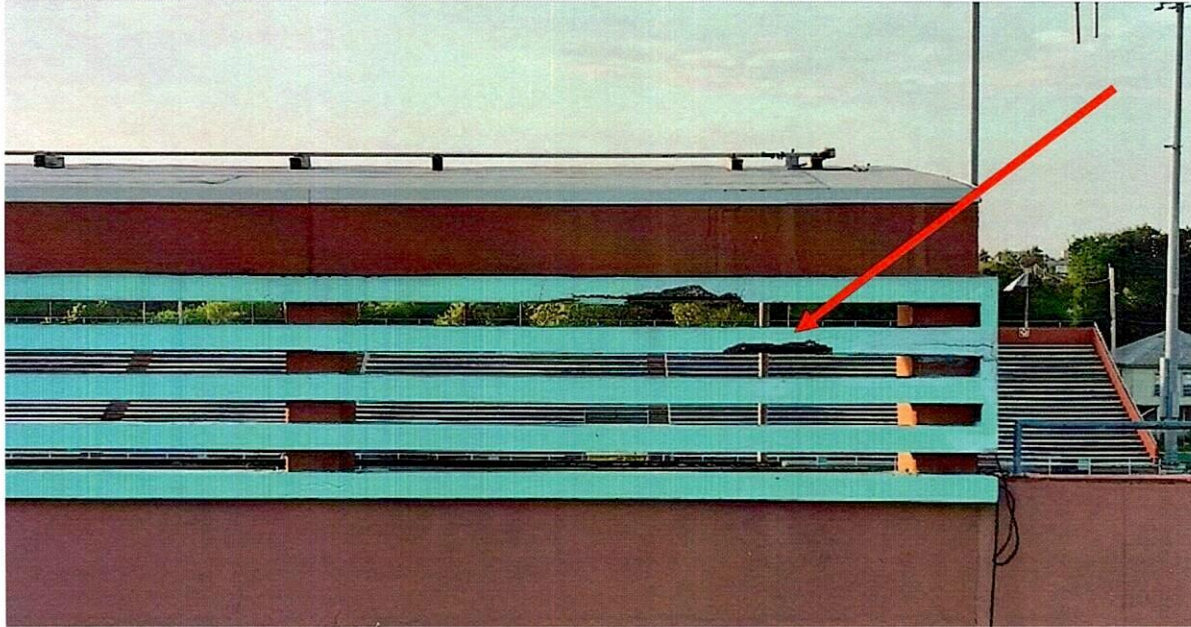


Photo 5: Louver on Press box Showing Exposed Rebar with Minor Oxidation.

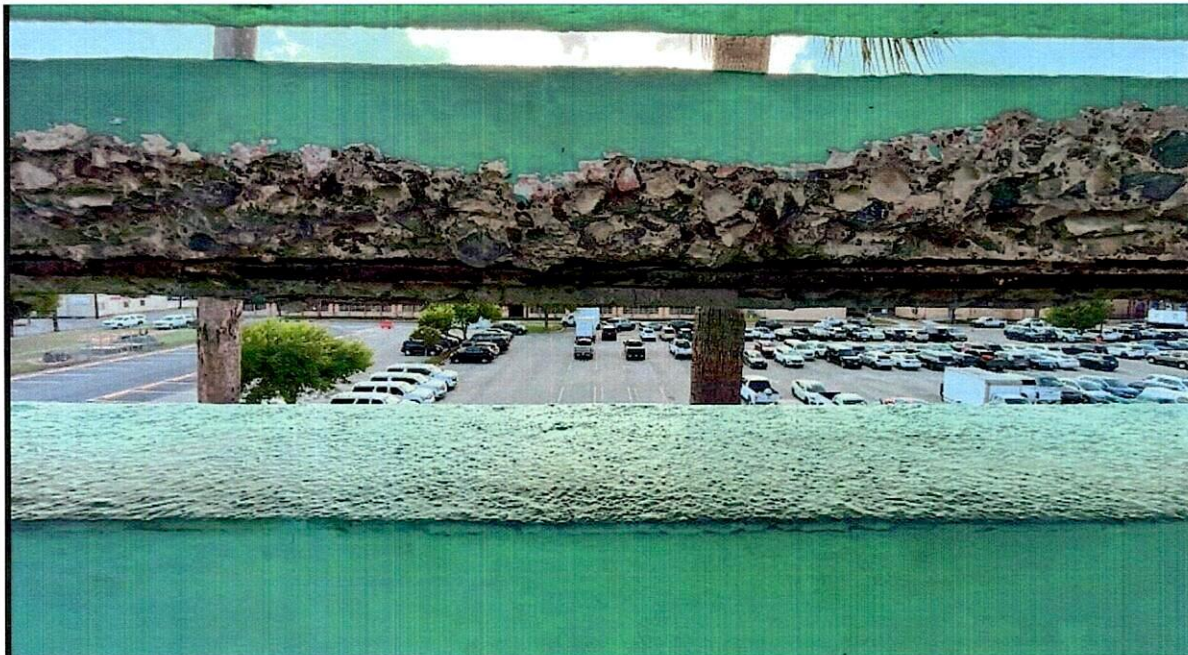


Photo 6: Zoomed In Photo of Louver on Press box Showing Exposed Rebar with Minor Oxidation.

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Photo 7: Patch of Roof Slab Underside due to Removal of Light Pole. Patch is Suspect to poor Adhesion and Posing a Potential Hazard of Becoming Falling Debris.



Photo 8: Guard Rail Base Plate showing Severe Corrosion.

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Photo 9: Guard Rail Base Plate Showing Severe Corrosion.

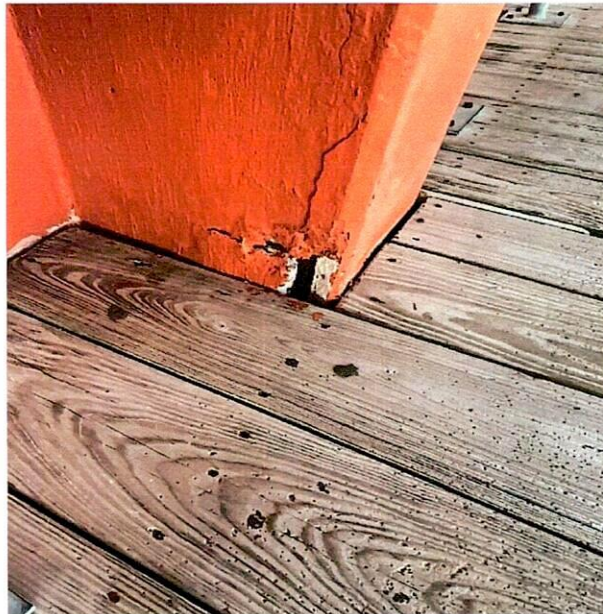


Photo 10: Pressbox Column Showing Spalling.

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Photo 11: Bleacher Beam Topside Showing Exposed Rebar.



Photo 12: Shrinkage Cracking on Slabs.