

## **MAIN STRUCTURAL SUPPORTS**

### **I. GENERAL**

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

The divisions of Main Structural Supports are as follows:

- II. Main Structural Frames
- III. Concrete Support Beams
- IV. One-Way Concrete Joist Deck
- V. Steel Joists, Beams and Decking
- VI. Estimates
- VII. Photographs

### **II. MAIN STRUCTURAL FRAMES**

[REDACTED]

In 2012, CTLPC was again engaged by DiDonato Associates as a follow-up to their previous investigation. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

The frames are currently inspected on an annual basis prior to the start of the football season to monitor the rate of deterioration, determine the need for repairs and to remove any damaged or loose concrete that appears to pose a threat to fall before the next repair cycle.

[REDACTED]

Subsequent to the 2016 condition inspection of the main frames, additional testing was recommended by DiDonato Associates and approved by Erie County. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

### III. CONCRETE SUPPORT BEAMS

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

### IV. CONCRETE JOIST SYSTEM



[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

## V. STEEL JOISTS, BEAMS AND DECKING

[REDACTED]

[REDACTED]

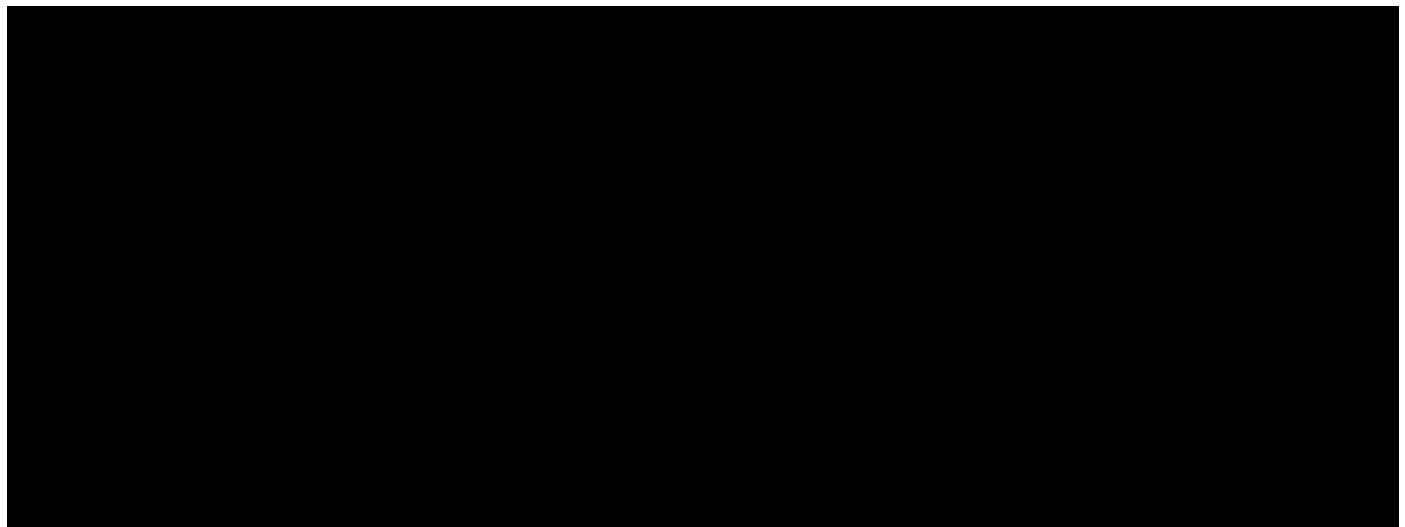
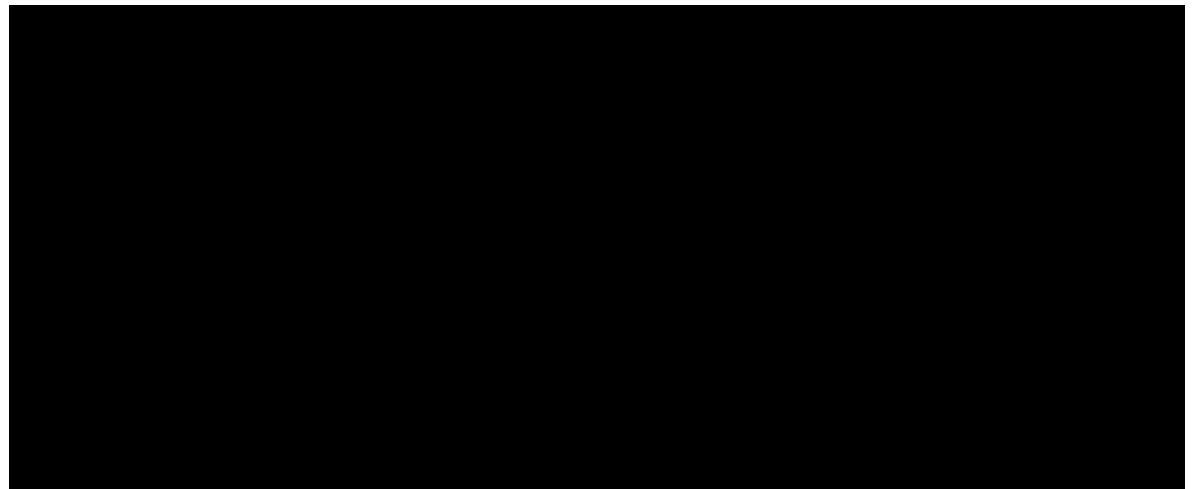
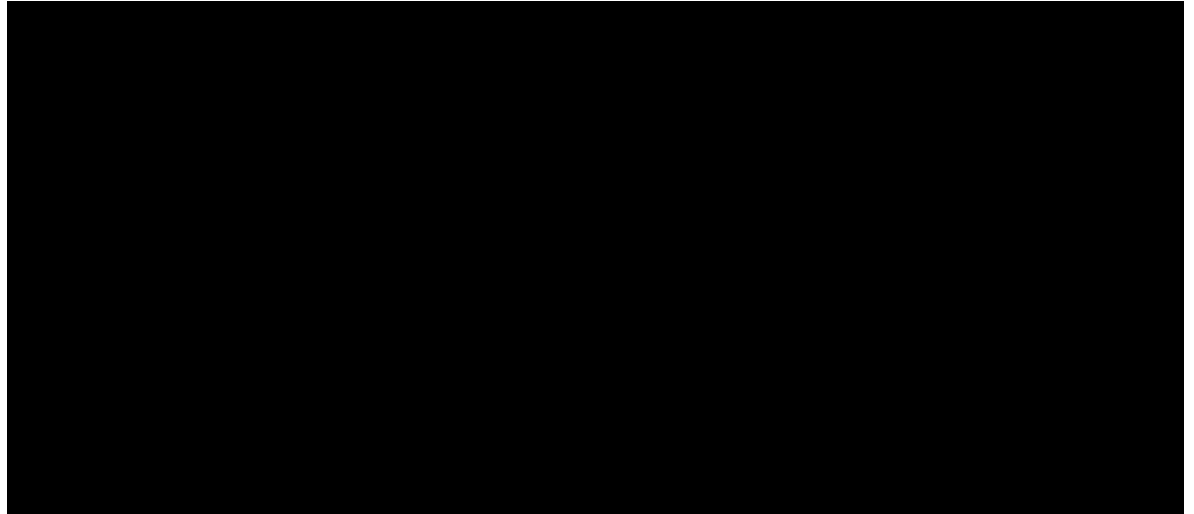
## VI. MAIN STRUCTURAL SUPPORTS ESTIMATE

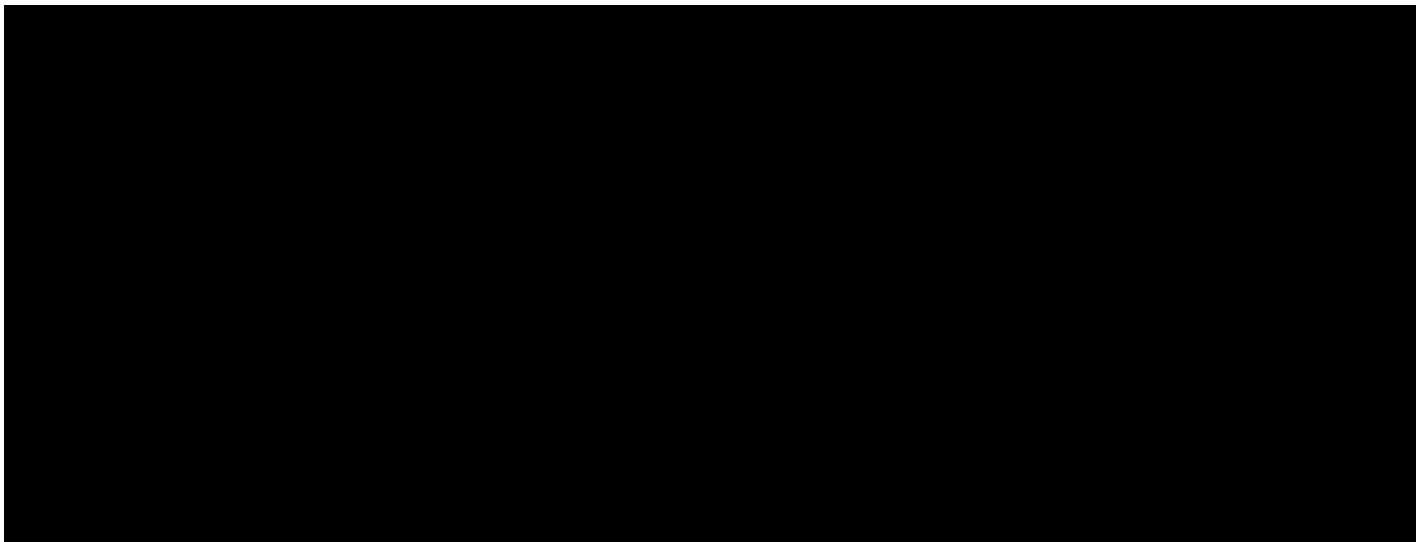
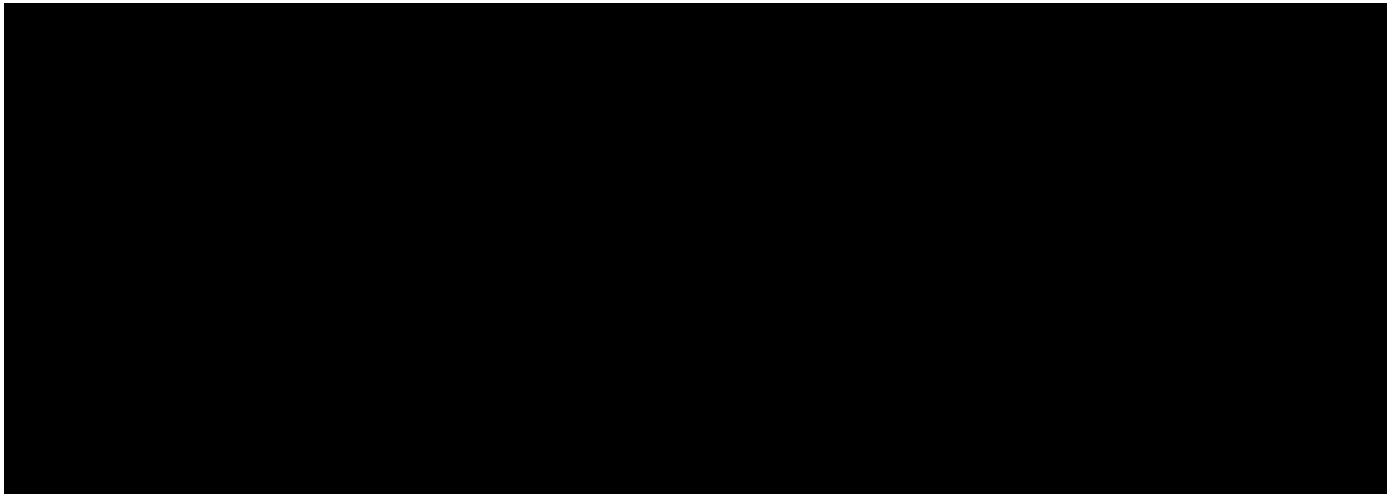
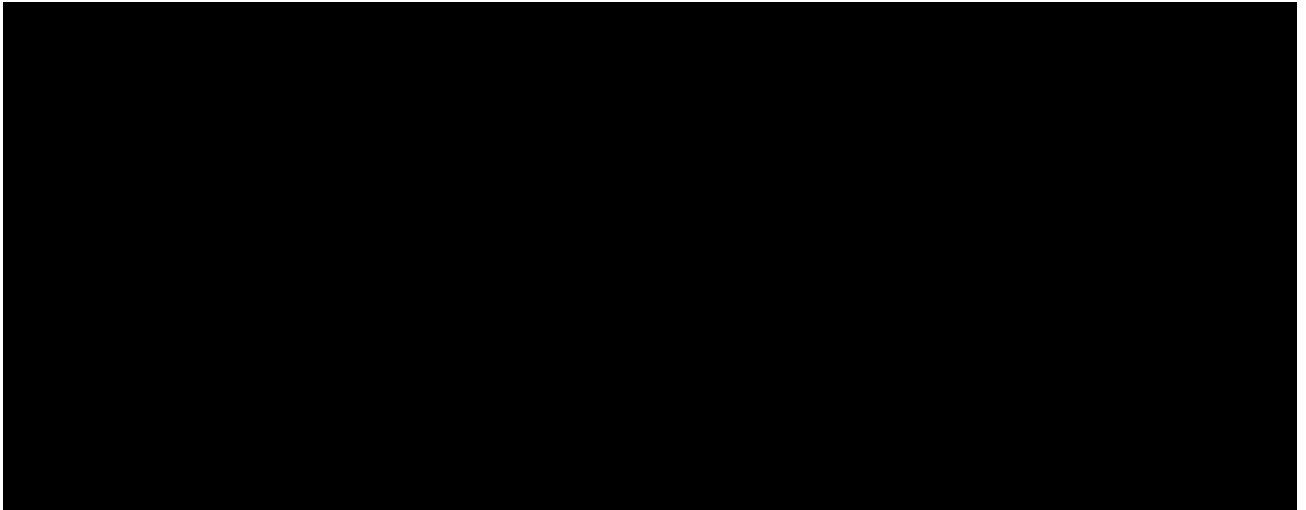
Highmark Stadium Condition Report 2020/2021				
Main Structural Supports				
Annual Repairs				
Description	Quantity	Unit	Unit Cost	Total
[REDACTED]				
[REDACTED]	1	sq ft	\$120,000.00	\$ 120,000.00
[REDACTED]	1	sq ft	\$12,000.00	\$ 12,000.00
[REDACTED]				
[REDACTED]	1	sq ft	\$12,000.00	\$ 12,000.00
[REDACTED]	1	sq ft	\$7,500.00	\$ 7,500.00
Annual Subtotal:				\$ 151,500.00
Single Occurrence Repairs				
Description	Quantity	Unit	Unit Cost	Total
[REDACTED]				
[REDACTED]	1	sq ft	\$7,500.00	\$ 7,500.00
[REDACTED]	1	sq ft	\$4,200.00	\$ 4,200.00
[REDACTED]				
[REDACTED]	1	sq ft	\$3,700.00	\$ 3,700.00
Single Occurrence Subtotal:				\$ 15,400.00

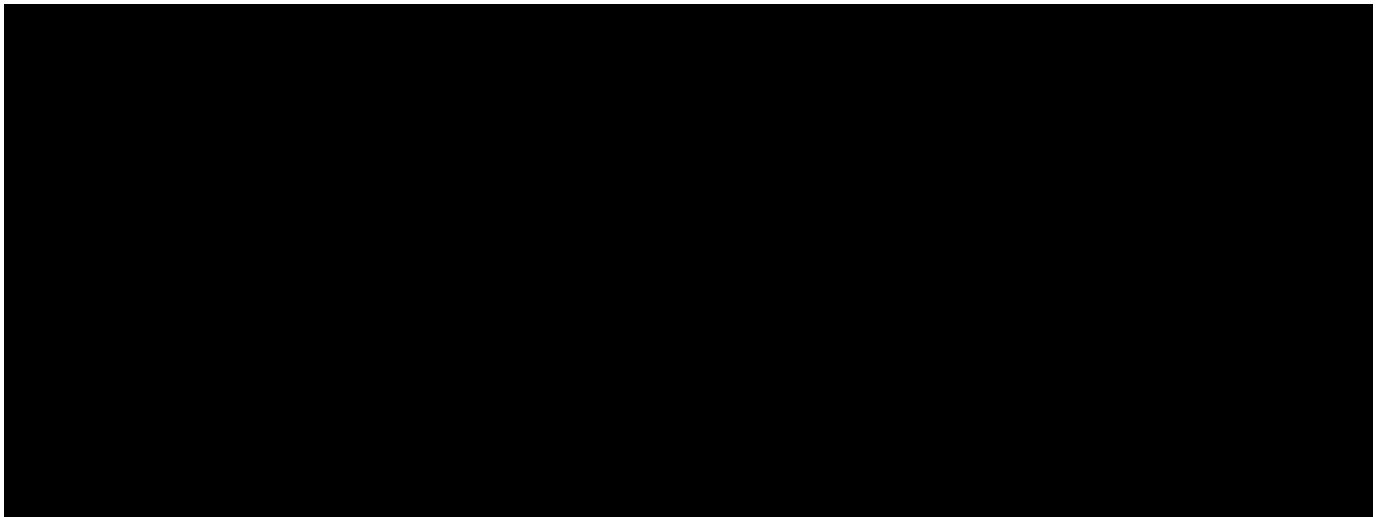
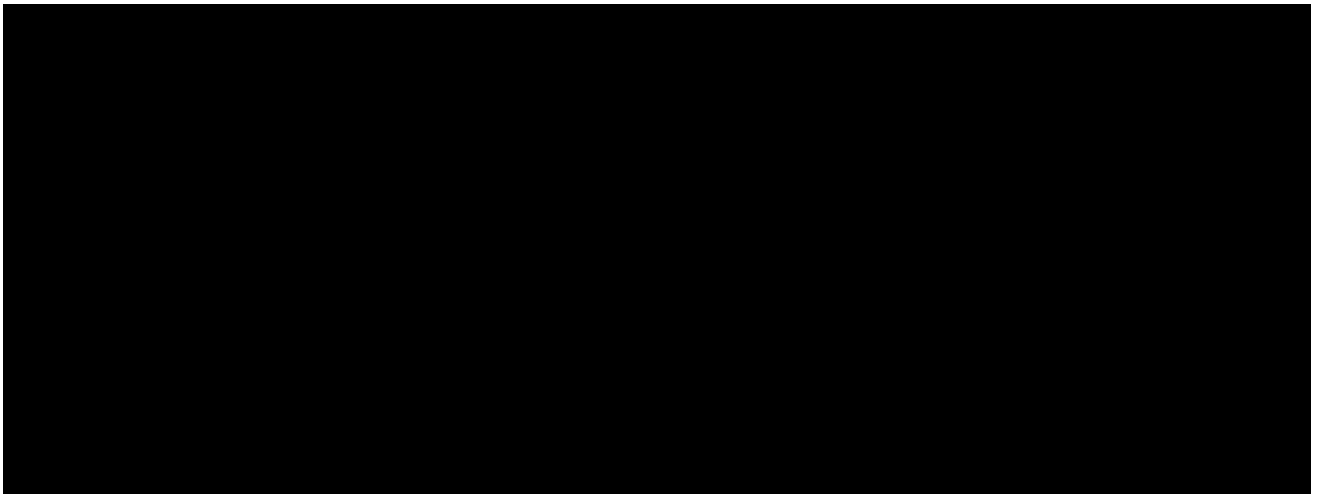
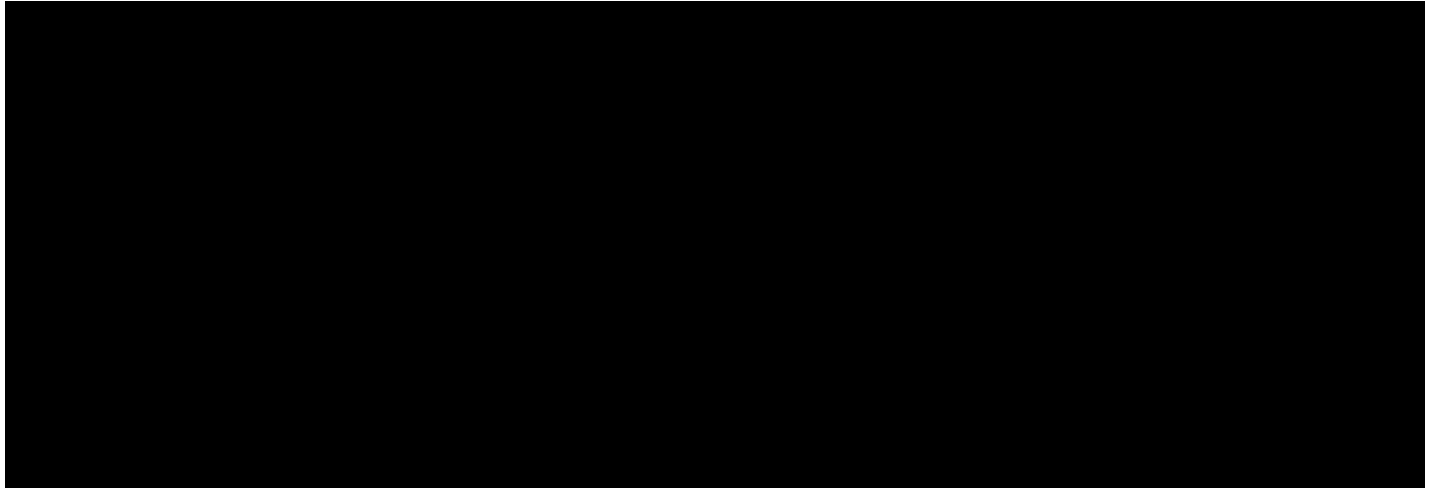
Note:

[REDACTED]

## VII. PHOTOGRAPHS










## **300 LEVEL SEATING AREAS**

### **I. GENERAL**

The 300 Level consists of 2 large seating areas; one along each sideline (Photo 4-01 and Drawing SK.4.1 - SK4.4). Each seating area has an approximate surface area of 64,180 ft<sup>2</sup> and consists of prestressed concrete seating panels supported by the Stadium's main cast-in-place concrete frames. There are 13 seating panels per section that make up the 40 rows of seating. The seating panels have a vertical rise of 1'-3 ¾", a horizontal run of 2'-6", and span approximately 25 feet; typically supporting three rows of seating.



Eleven vomitories provide access from the concourse to the seating areas on each side of the stadium (Photo 4-07).



The divisions of Upper Deck Seating Areas are as follows:

- II. Precast Seating Panels
- III. Vomitories
- IV. Railings & Fascia Panels
- V. Cast-in-place Concrete Stair Treads
- VI. Cast-in-place Concrete Landing Platforms
- VII. Camera/Coaches Building
- VIII. Estimates
- IX. Photographs

## II. PRECAST SEATING PANELS

In recent years, multiple projects have been undertaken to restore and maintain the 300 level seating panels. [REDACTED]

As part of their 2012 investigation, DiDonato Associates also engaged CTL Engineers & Construction Technology Consultants, P.C. (CTLPC) to review the condition of the precast seating panels. [REDACTED]



[REDACTED]

[REDACTED]

### Recommendations:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

### III. VOMITORIES

There are a total of 22 vomitories that provide access to the 300 Level seating areas. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

#### IV. RAILINGS & FASCIA PANELS

The front and side fascia/railings panels have been repaired as part of earlier projects. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

## V. CONCRETE STAIR TREADS

On each side of the stadium, there are eleven aisles located between the 300 Level seating sections to access the rows of seating. Cast-in-place concrete steps were installed as part of the original construction to split the height difference between the treads of the precast concrete seating panels and create a more easily traversable rise. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

## VI. CAST-IN-PLACE CONCRETE LANDING PLATFORMS

[REDACTED]

[REDACTED]

## VII. CAMERA/COACHES BUILDING

Located in the south side upper deck seating area along the top walkway is a small camera/coaches building (Photo 4-12). [REDACTED]

[REDACTED]

[REDACTED]

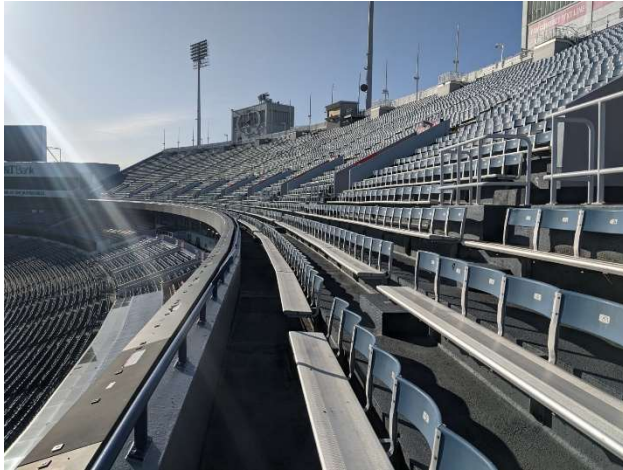


**VIII. 300 LEVEL SEATING AREA ESTIMATE**

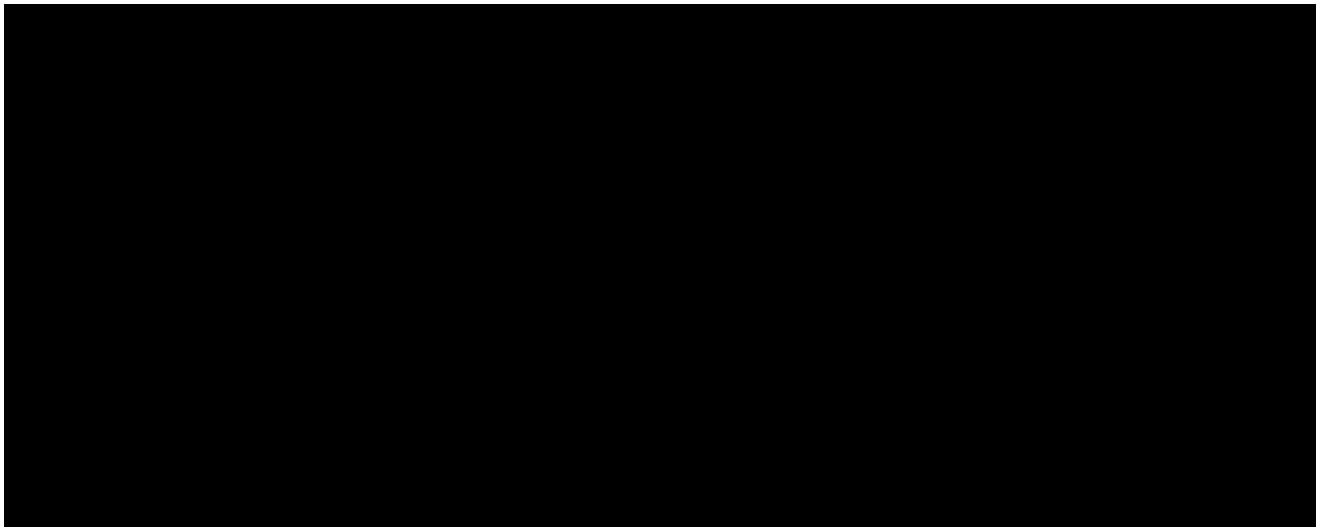
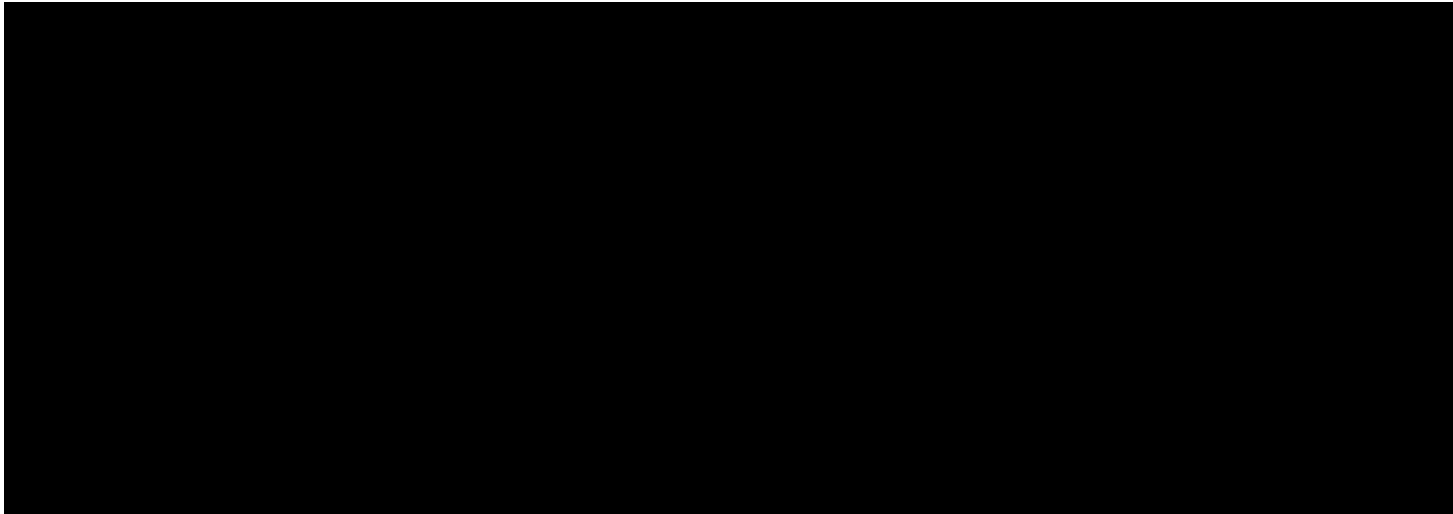
Highmark Stadium Condition Report 2020/2021				
300 Level Seating Area				
Annual Repairs				
Description	Quantity	Unit	Unit Cost	Total
[REDACTED]				
[REDACTED]				
[REDACTED]				\$ 56,000.00
[REDACTED]				\$ 25,000.00
[REDACTED]				\$ 15,000.00
[REDACTED]				\$ 13,500.00
[REDACTED]				
[REDACTED]				
[REDACTED]				\$ 8,000.00
[REDACTED]				\$ 12,500.00
[REDACTED]				
[REDACTED]				
[REDACTED]				\$ 10,000.00
[REDACTED]				
Annual Subtotal:				\$ 140,000.00
Single Occurrence Repairs				
Description	Quantity	Unit	Unit Cost	Total
[REDACTED]				
[REDACTED]				\$ 10,000.00
[REDACTED]				\$ 25,000.00
[REDACTED]				\$ 8,000.00
[REDACTED]				\$ 48,000.00
[REDACTED]				
Single Occurrence Subtotal:				\$ 91,000.00

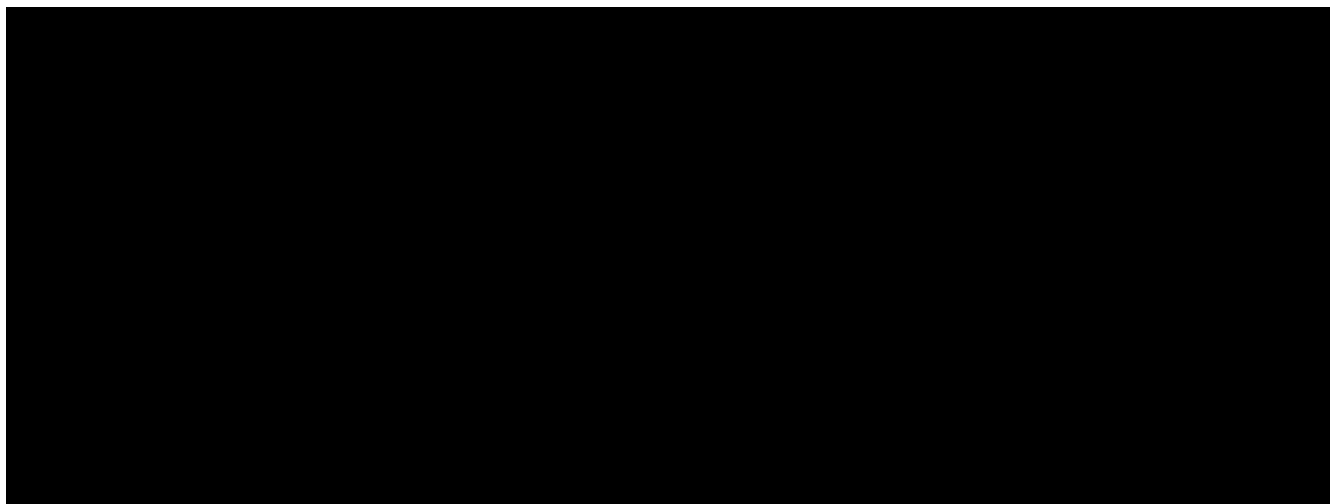
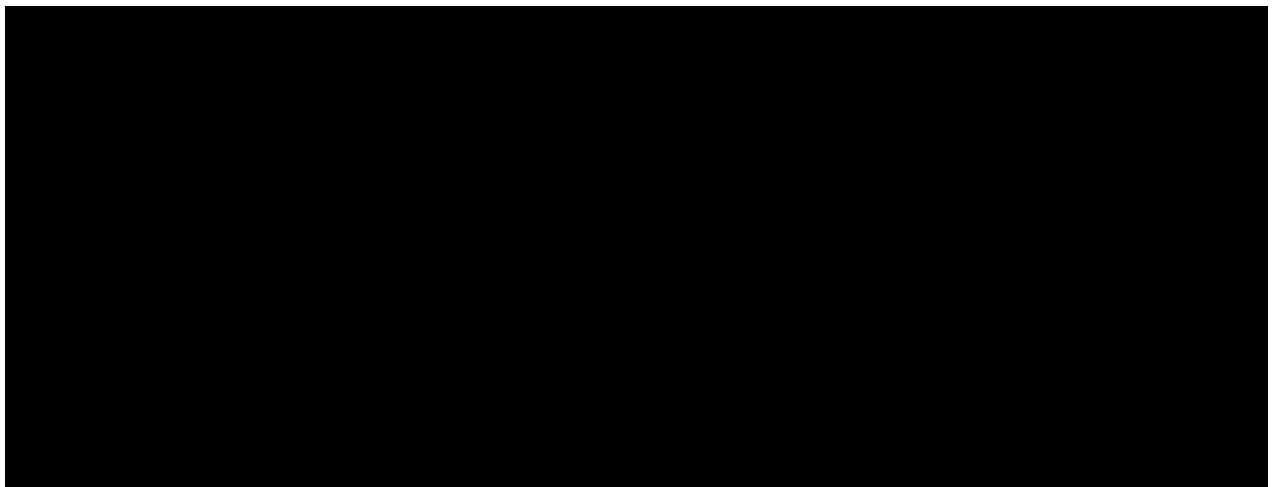
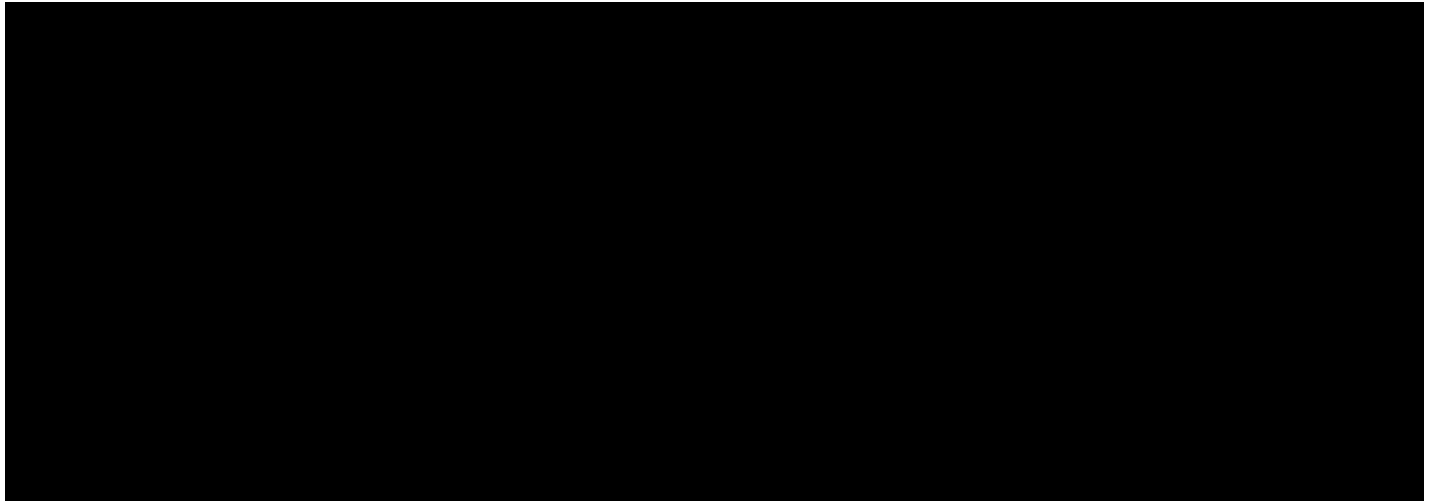
[REDACTED]

## IX. PHOTOGRAPHS



**Photo 4-01**  
General Photo of Upper Deck Seating Areas.







**Photo 4-07**  
General Photo of Vomitory Construction.

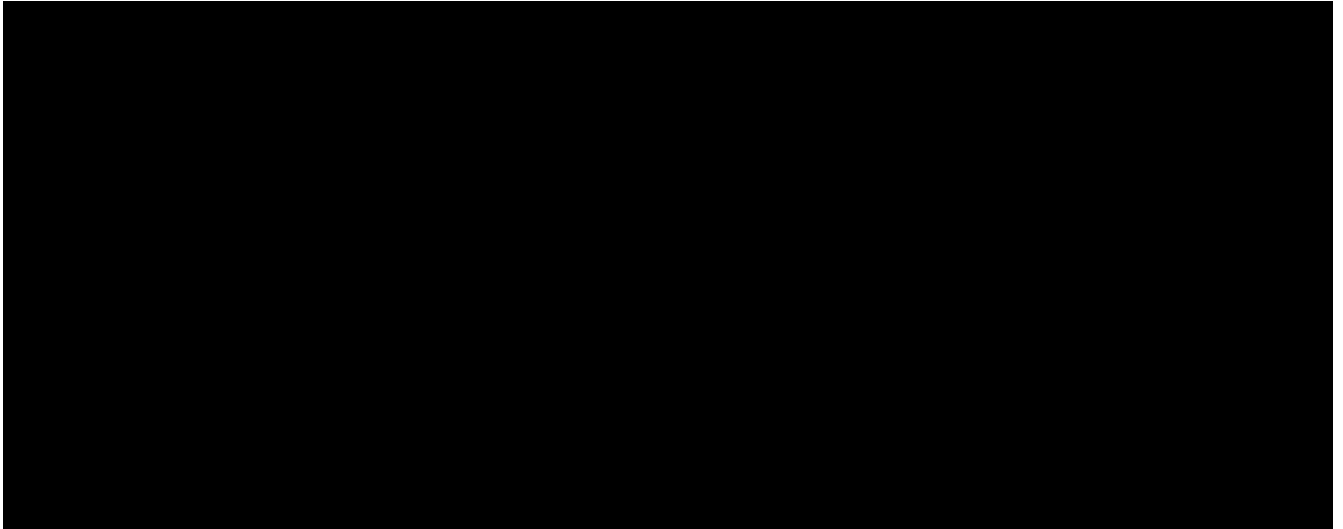


**Photo 4-08**  
Typical Condition of Field Side Concrete Railing throughout 300 Level.

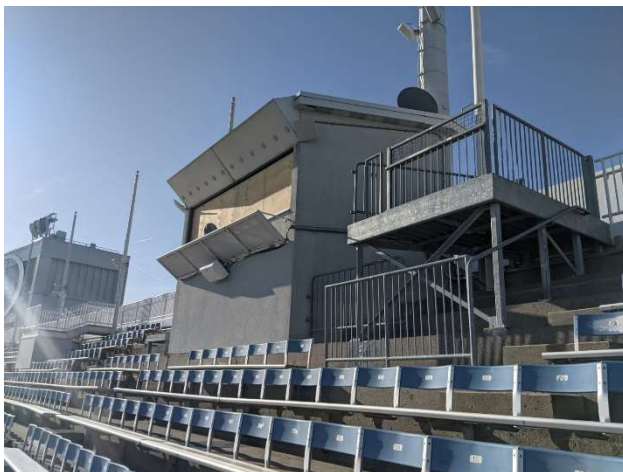


**Photo 4-09**  
Typical Condition of Field Side Concrete Railing throughout 300 Level.





**Photo 4-11**  
General Photo of Cast-In-Place Landing  
Platforms.



**Photo 4-12**  
General Photo of Camera/Coaches Building.

## **300 LEVEL CONCOURSE**

### **I. GENERAL**

The 300 Level concourses are located on the north and south sides of the stadium and can be accessed from the club level by either stair towers at each end or pedestrian ramps which wrap around the restroom towers (Drawing SK.5).

[REDACTED]

[REDACTED]

The areas of study are as follows:

- II. Concourse Floors
- III. Masonry Construction
- IV. Concrete Fascia Panels
- V. Estimates
- VI. Photographs

### **II. CONCOURSE FLOORS**

With a total area of approximately 79,000 SF, the 300 Level concourse floors are comprised of three distinct areas; ramps, promenades and the interior concourse areas.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

### III. MASONRY CONSTRUCTION

There are numerous masonry walls throughout the upper concourse areas. [REDACTED]

[REDACTED]

### IV. PERIMETER FASCIA PANELS

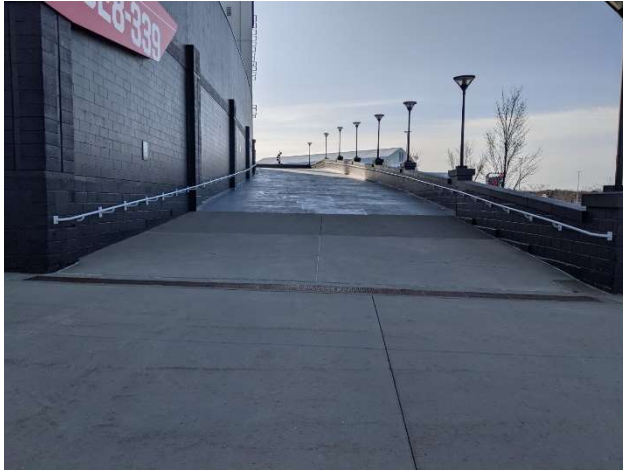
[REDACTED]



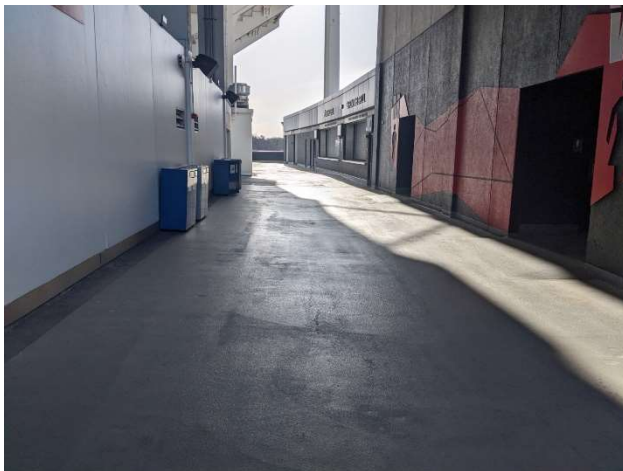
**V. 300 LEVEL CONCOURSE ESTIMATE**

Highmark Stadium Condition Report 2020/2021				
300 Level Concourse				
Single Occurrence Repairs				
Description	Quantity	Unit	Unit Cost	Total
				\$ 640,000.00
				\$ 50,000.00
				\$ 18,000.00
Single Occurrence Subtotal:				\$ 708,000.00

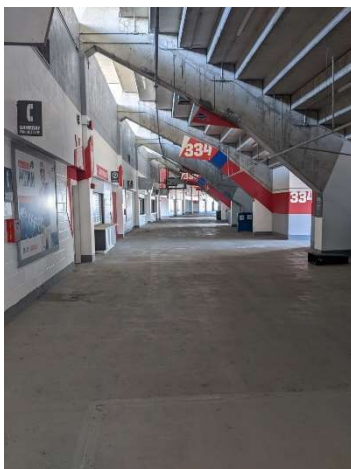
## VI. PHOTOGRAPHS



**Photo 5-01**  
General Photo of Ramp to 300 Level.



**Photo 5-02**  
General Photo of 300 Level Promenade.



**Photo 5-03**  
General Photo of Interior 300 Level  
Concourse.



**Photo 5-04**

General photo of Expansion Joint within Interior Concourse.



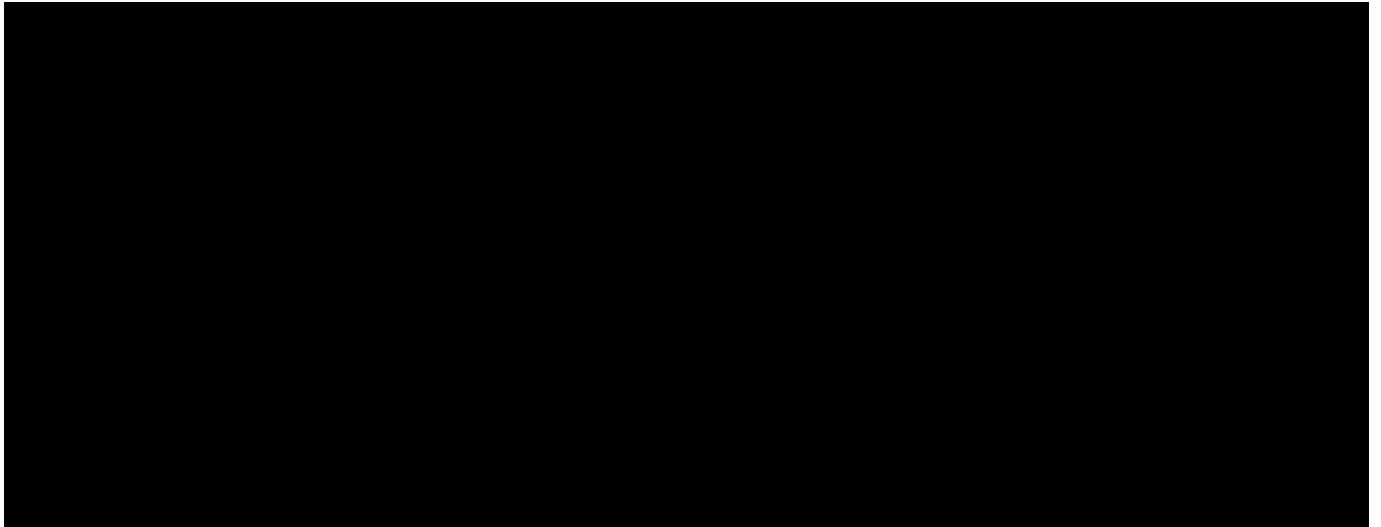
**Photo 5-05**

General photo of Masonry Construction along Field Side of Concourse.



**Photo 5-06**

General Photo of Masonry Construction along Exterior Side of Concourse.





## **200 LEVEL SEATING AREAS**

### **I. GENERAL**

The 200 level seating area is comprised of 5 separate seating areas totaling approximately 68,800 square feet; the West Endzone, East Endzone, Pepsi East & West Clubs, Toyota Club and Dunn Tire Club.



The divisions of Club Level and Upper Endzone Seating Areas are as follows:

- II. Precast Seating Panels
- III. Railings & Fascia Panels
- IV. Cast-in-place Concrete Steps
- V. Precast Camera Deck
- VI. Estimates
- VII. Photographs

### **II. PRECAST SEATING PANELS**

In 2013, an extensive rehabilitation of the top side of 200 level seating panels was performed.





[REDACTED]

[REDACTED]

#### IV. CAST-IN-PLACE CONCRETE STAIR TREADS

There are 44 aisles located in the 200 Level that provide access to the seating areas. [REDACTED]

[REDACTED]

[REDACTED]

#### V. PRECAST CAMERA DECK

A camera deck extends across the south side of the club level on the field side of the Broadcast Booth and Super Suites (Photo 6-08). [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

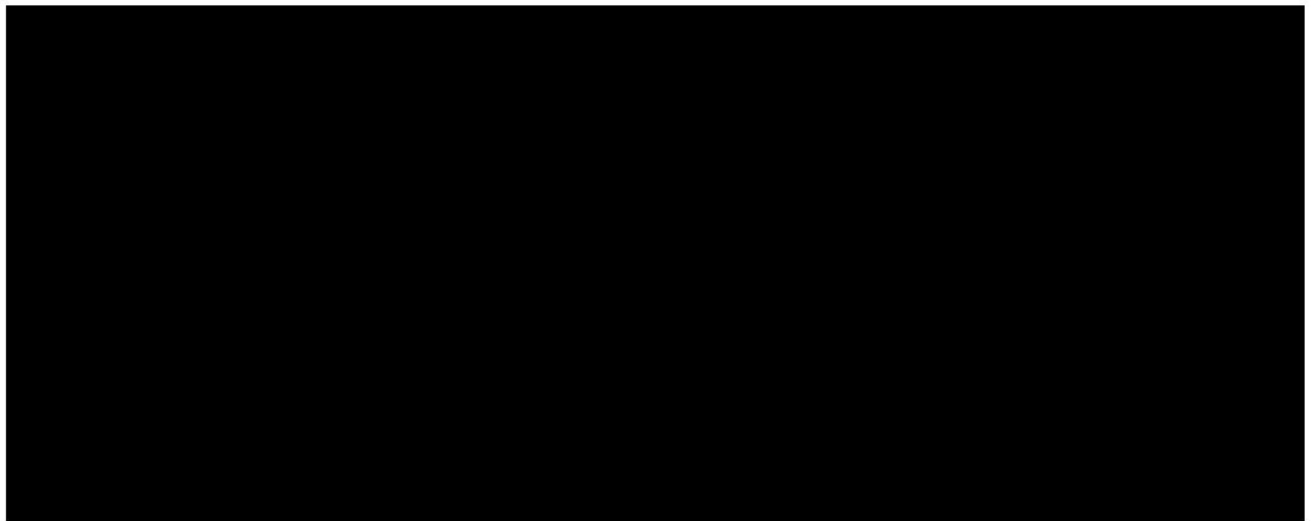
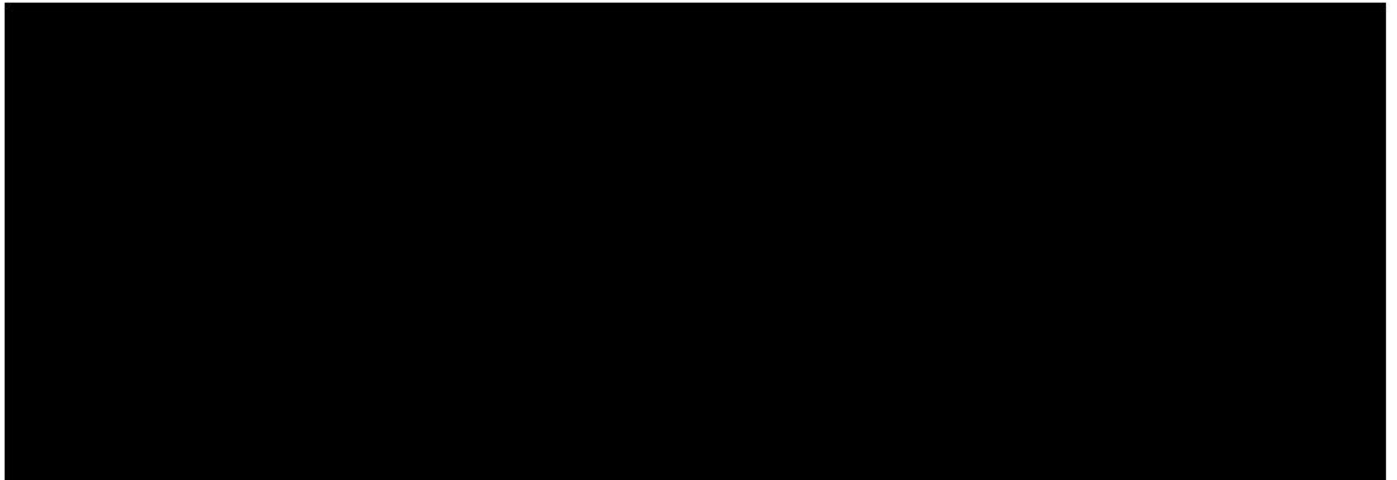
## VI. 200 LEVEL SEATING AREAS ESTIMATE

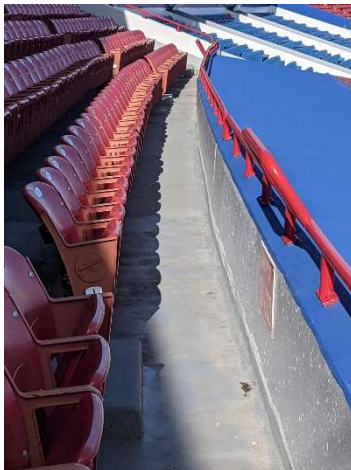
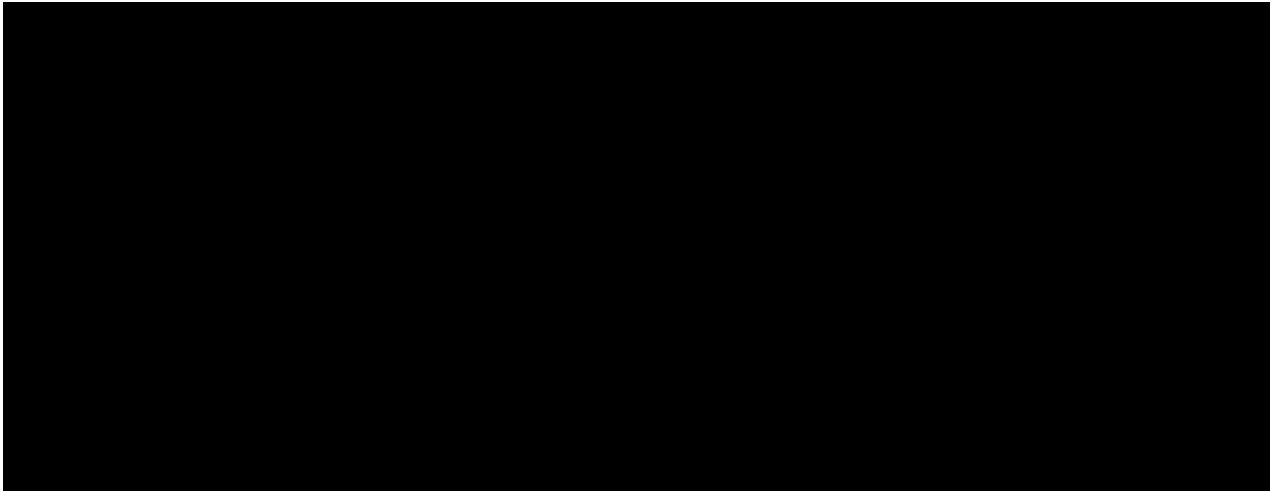
Highmark Stadium Condition Report 2020/2021				
200 Level Seating Area				
Annual Repairs				
Description	Quantity	Unit	Unit Cost	Total
[REDACTED]				
[REDACTED]				
[REDACTED]				\$ 2,000.00
[REDACTED]				\$ 3,000.00
[REDACTED]				\$ 2,500.00
[REDACTED]				
[REDACTED]				\$ 2,400.00
[REDACTED]				\$ 15,000.00
[REDACTED]				\$ 4,000.00
[REDACTED]				\$ 1,250.00
				\$ 2,000.00
Annual Subtotal:				\$ 32,150.00

## VII. PHOTOGRAPHS

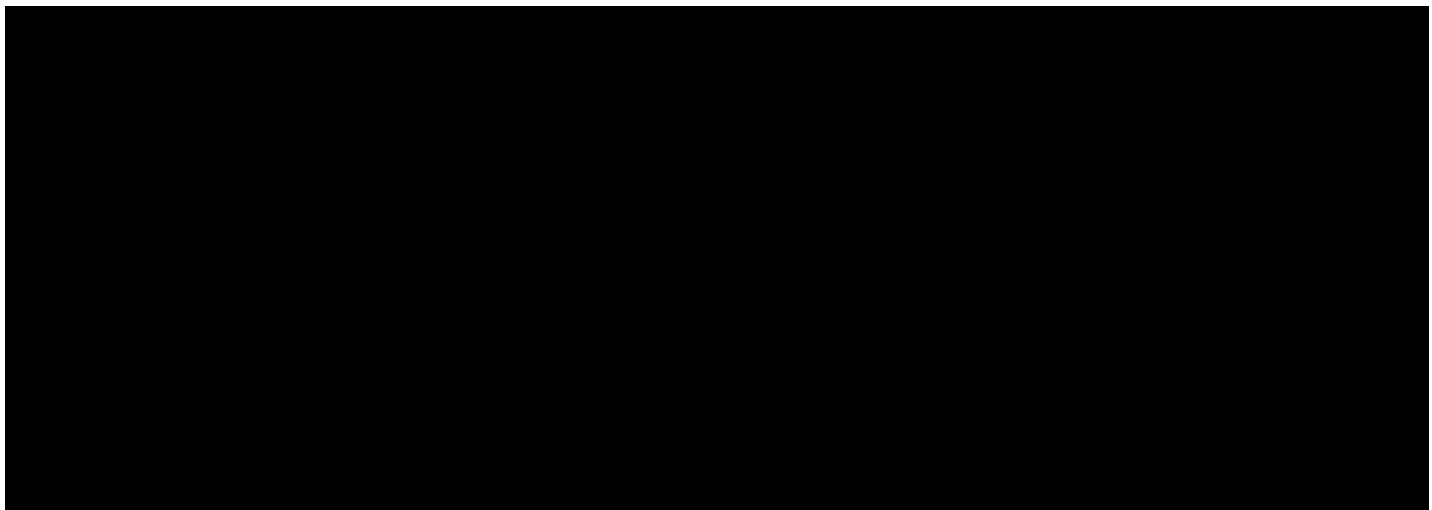


**Photo 6-01**  
General Photo of 200 Sideline Club Seating Area.





**Photo 6-05**  
Row 1 Reprofiled for Drainage; New Traffic  
Coating.





**Photo 6-07**  
Cast-in-Place Stair with Spalling and  
Efflorescence.



**Photo 6-08**  
General Photo of Precast Camera Deck.



[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

### III. CONCRETE FASCIA/RAILINGS

At each of the Stadium's four corners are concrete fascia panels with metal railings that span along the pedestrian walkways adjacent to the End Stair Towers (Photo 7-03). These panels serve as railings protecting against falls to 100 Level concourse located below.

[REDACTED]

[REDACTED]

#### IV. RAMPS TO WEST END SUITES

Two structural ramps provide access to doorways located near the middle of the West End Suites; beneath the main scoreboard (Photo 7-04). [REDACTED]

[REDACTED]

Two accessible switch back ramps are located at the north and south ends of the west end suites (Photo 7-06). [REDACTED]

[REDACTED]

[REDACTED]

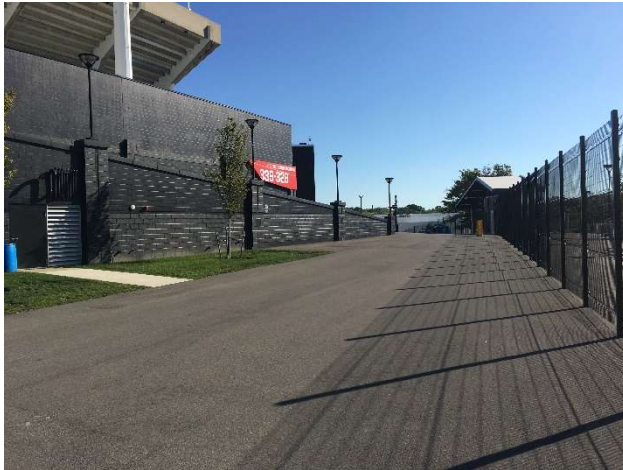
[REDACTED]

[REDACTED]

**V. 200 LEVEL CONCOURSE ESTIMATE**

Highmark Stadium Condition Report 2020/2021				
200 Level Concourse				
Single Occurrence Repairs				
Description	Quantity	Unit	Unit Cost	Total
[REDACTED]				
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	\$ 274,500.00
[REDACTED]				
[REDACTED]				
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	\$ 1,200.00
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	\$ 5,000.00
[REDACTED]				
Single Occurrence Subtotal:				\$ 280,700.00

## VI. PHOTOGRAPHS



**Photo 7-01**

General Condition of Asphalt Pavement throughout the 200 Level Concourse.



**Photo 7-02**

Asphalt Concourse Pavement at East End of the Stadium; between Old Administration Building and Security Fence.



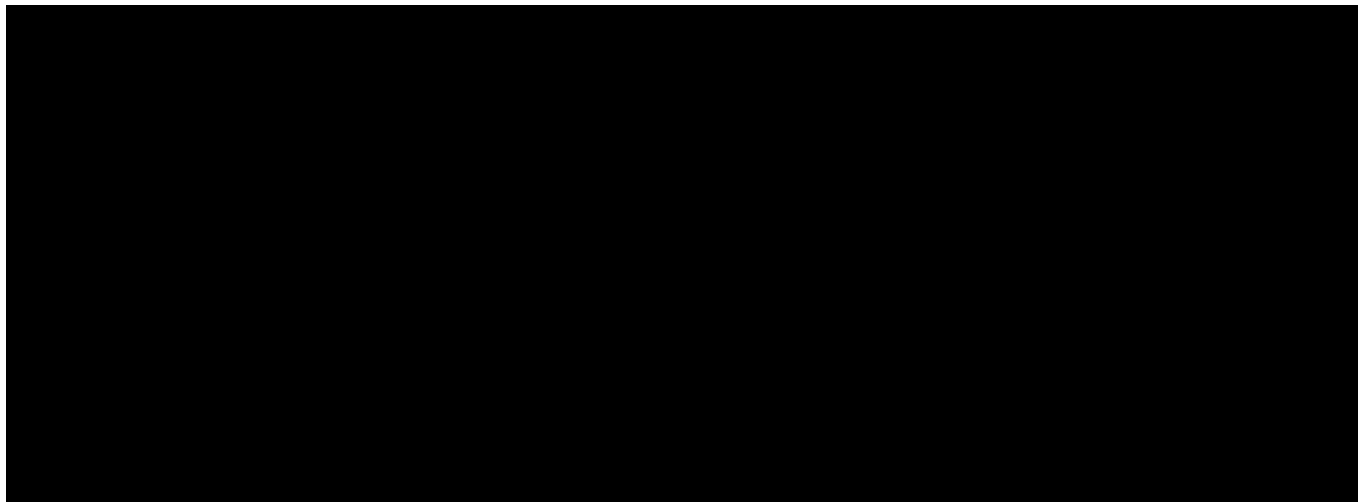
**Photo 7-03**

General Photo of Concrete Fascia with Metal Railing.



**Photo 7-04**

General Photo of ramps to West End Suites



**Photo 7-06**

General Photo of Switch Back Ramps to  
West End Suites.

## **100 LEVEL SEATING AREAS**

### **I. GENERAL**

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

The divisions of 100 Level Seating Areas are as follows:

- II. On-Grade Seating Slabs
- III. Vomitories
- IV. Dugout Suites
- V. Lower Ring Wall
- VI. Tunnel Entrance Retaining Walls
- VII. Estimate
- VIII. Photographs

## II. ON-GRADE SEATING SLABS

[REDACTED]

[REDACTED]

## III. VOMITORIES

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

#### IV. DUGOUT SUITES

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

#### V. LOWER RING WALL

[REDACTED]

[REDACTED]

[REDACTED]

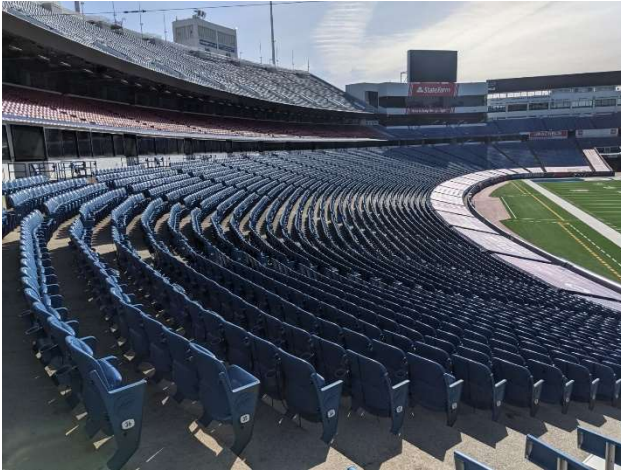


## VI. TUNNEL ENTRANCE RETAINING WALLS



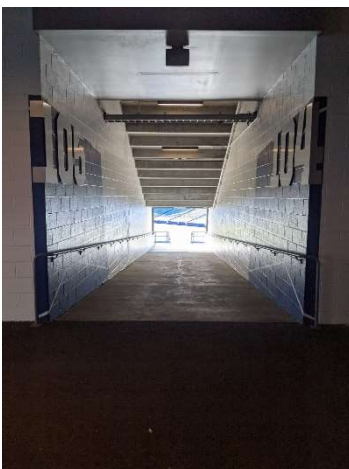
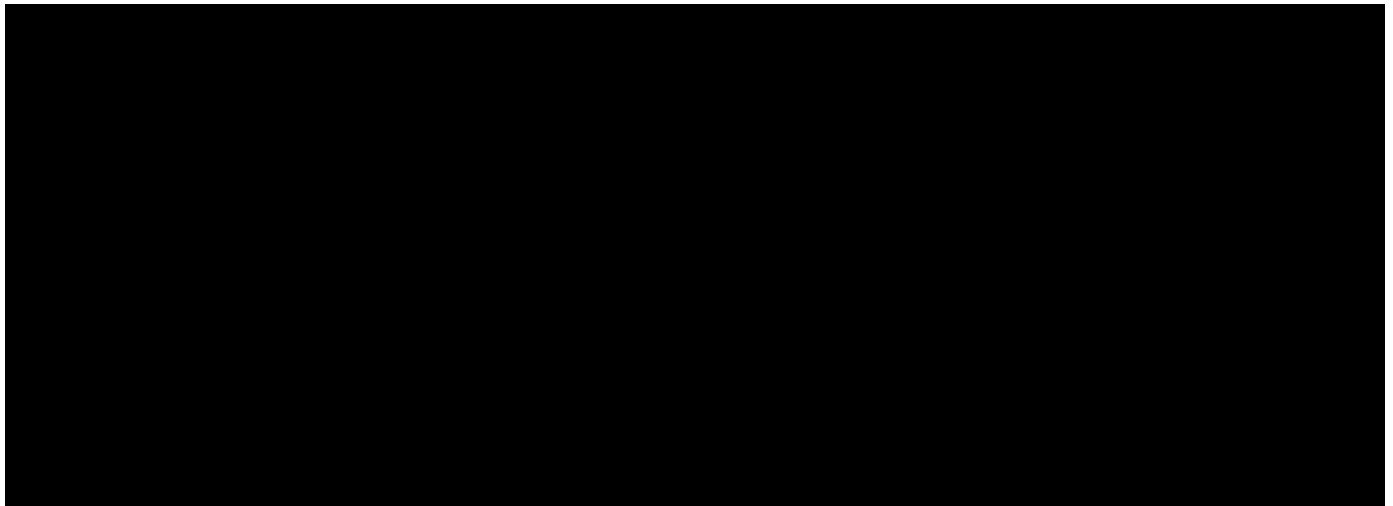
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## VIII. PHOTOGRAPHS



**Photo 8-01**

General Photo of Lower Bowl Seating Areas.



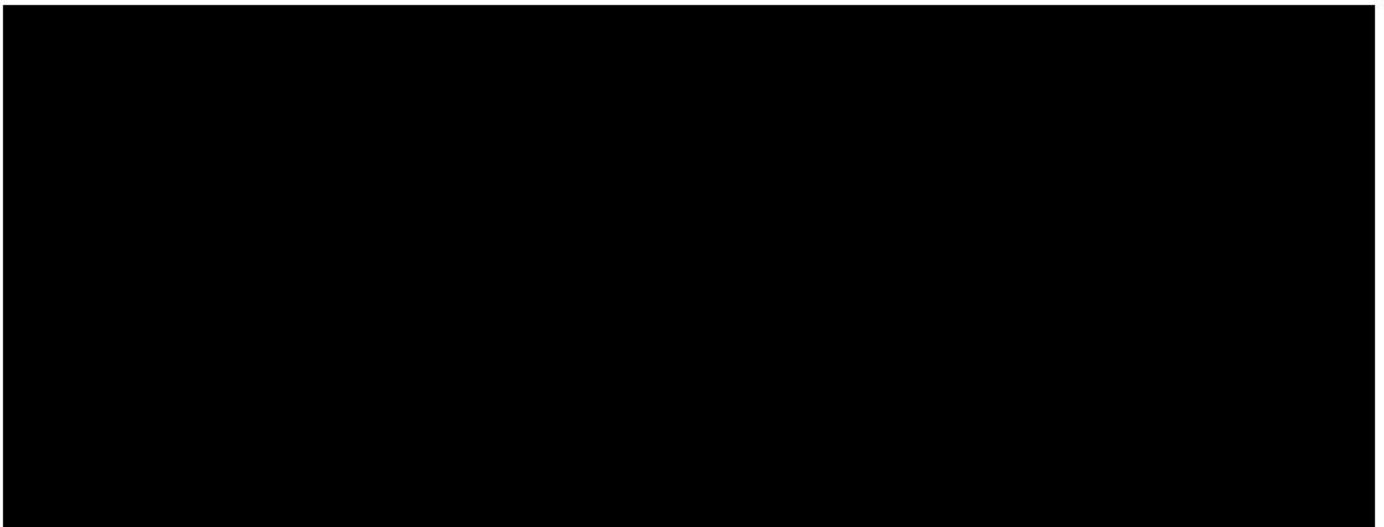
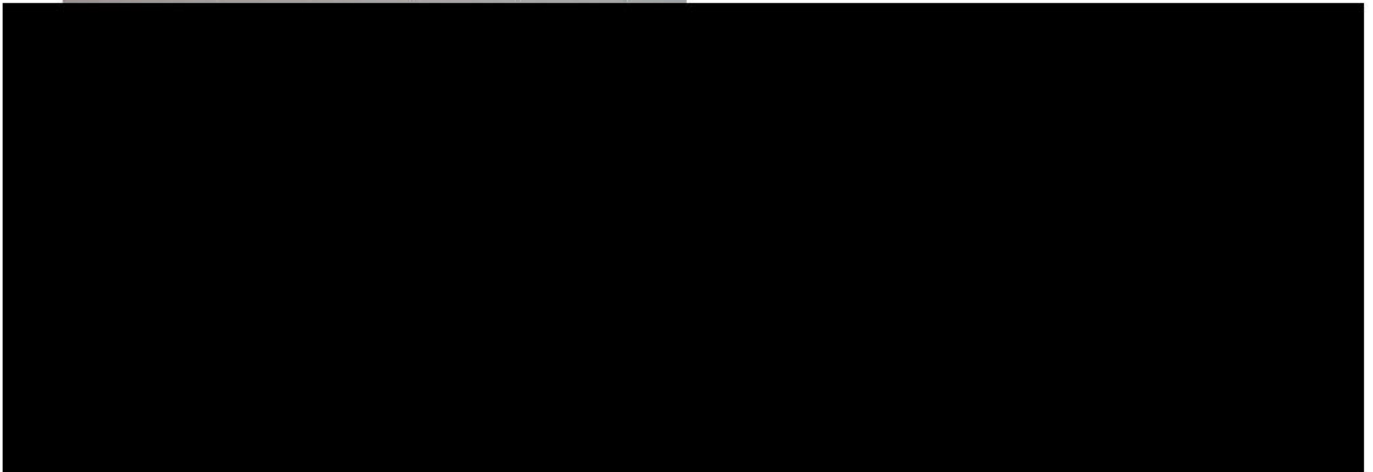
**Photo 8-03**

General Photo of 100 Level Vomitory.



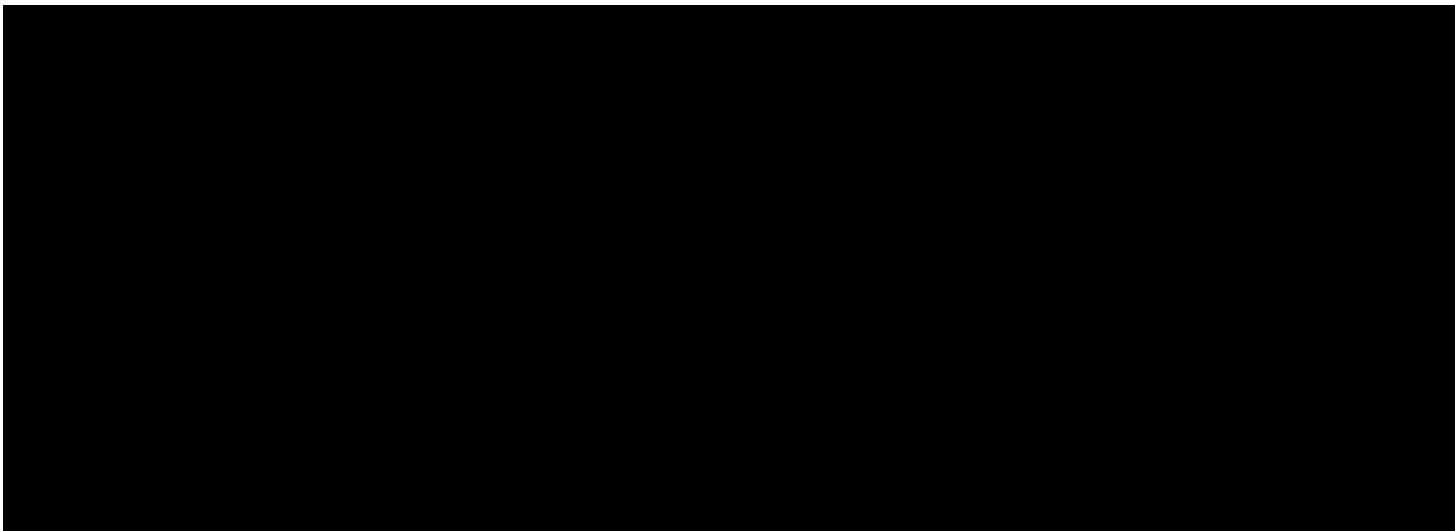
**Photo 8-04**

General Photo of Vomitory with Access to  
200 Level Seating.

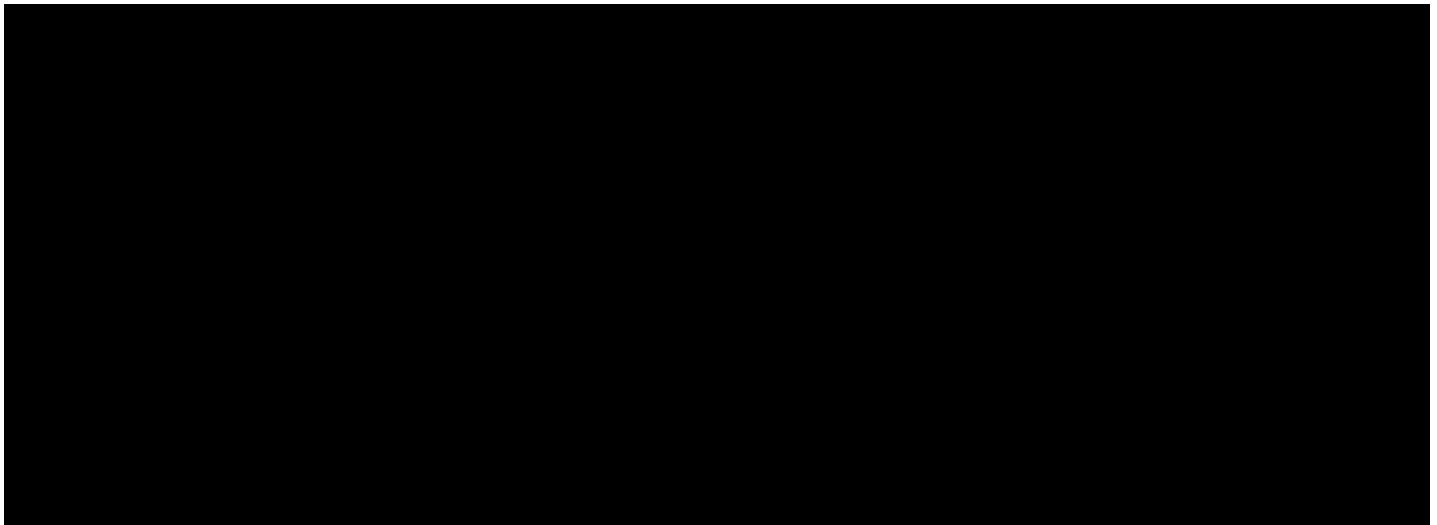




**Photo 8-07**  
Gate Providing Access to Playing Field from  
100 Level Seating Area.



**Photo 8-09**  
General Photo of Tunnel Entrance Retaining  
Walls.



## **100 LEVEL CONCOURSE**

### **I. GENERAL**

The lower concourse extends around the entire stadium at the top of the lower bowl and provides access to the lower seating areas by means of vomitories (Drawing SK.10). The concourse is typically covered with the exception of the east end in front of the Old Administration Building. [REDACTED]

[REDACTED]

The areas of study are as follows:

- II. Concourse Floors
- III. Masonry Construction
- IV. Precast Concrete Block Ceiling Planks
- V. Estimates
- VI. Photographs

### **II. CONCOURSE FLOORS**

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

### III. MASONRY CONSTRUCTION

[REDACTED]

[REDACTED]

### IV. PRECAST CONCRETE BLOCK CEILING PLANKS

[REDACTED]



[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

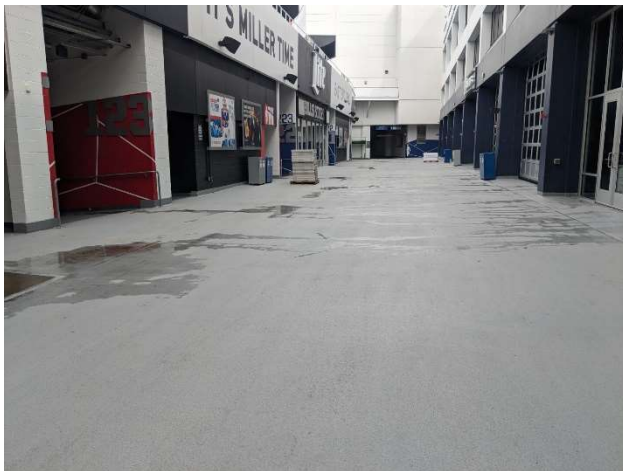


## VI. PHOTOGRAPHS



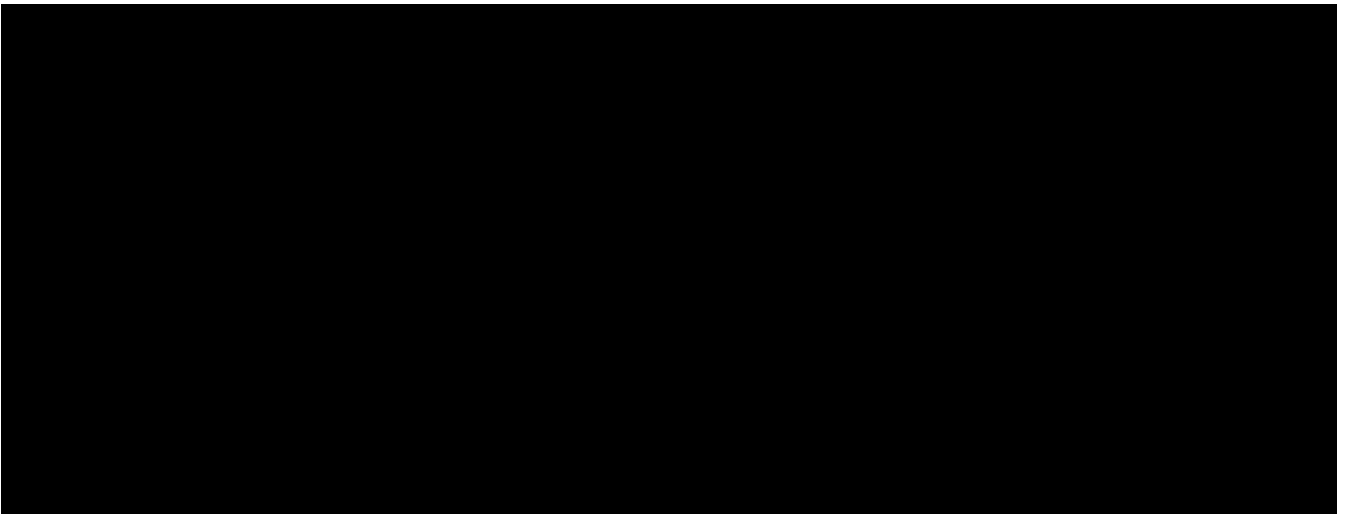
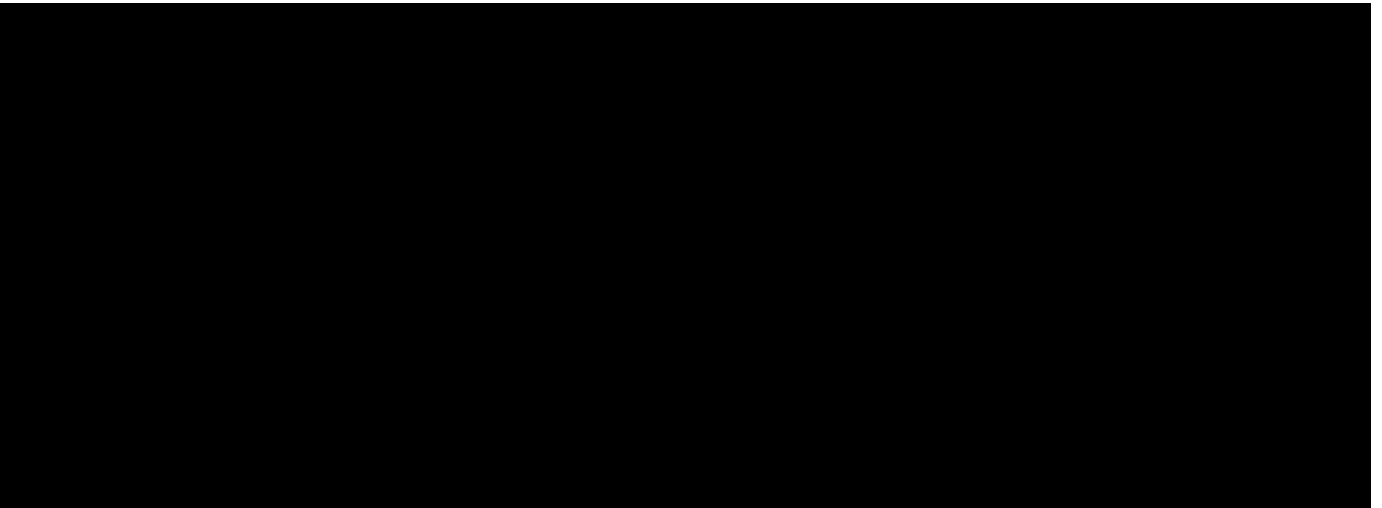
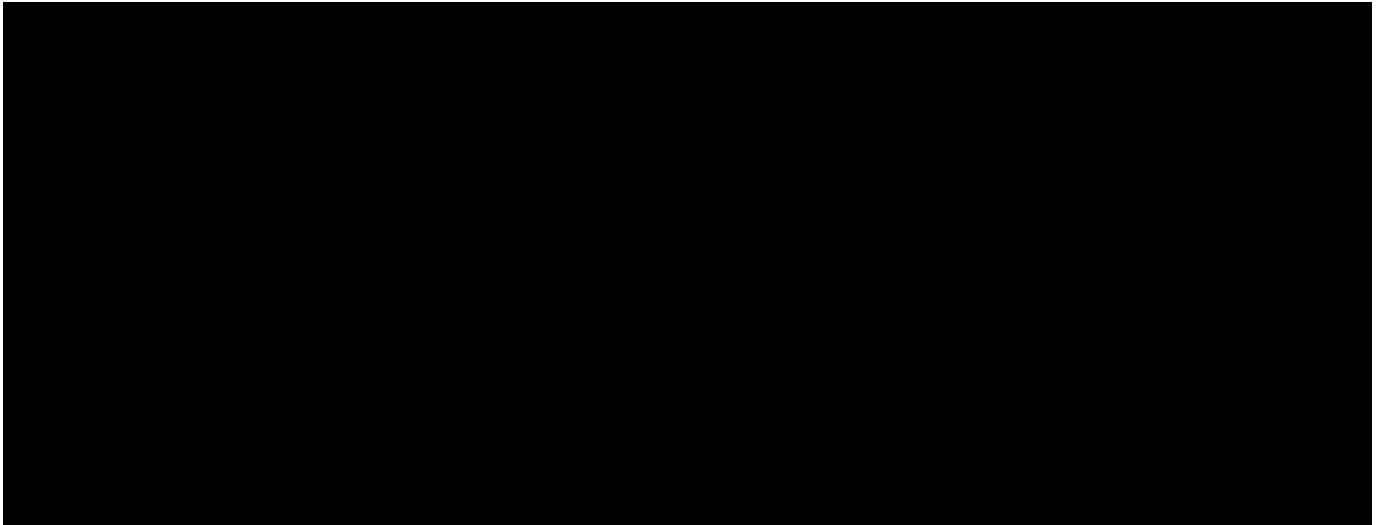
**Photo 9-01**

General Photo of Concrete Slab-On-Grade in 100 Level Concourse, Typical Cracks in Slab



**Photo 9-02**

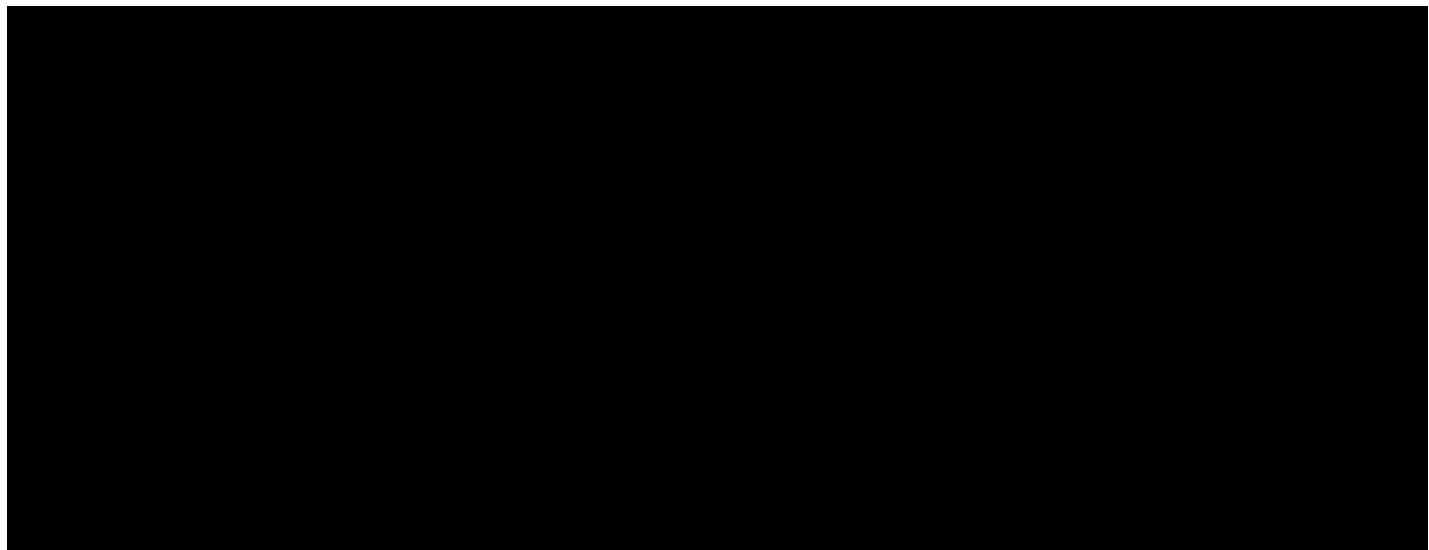
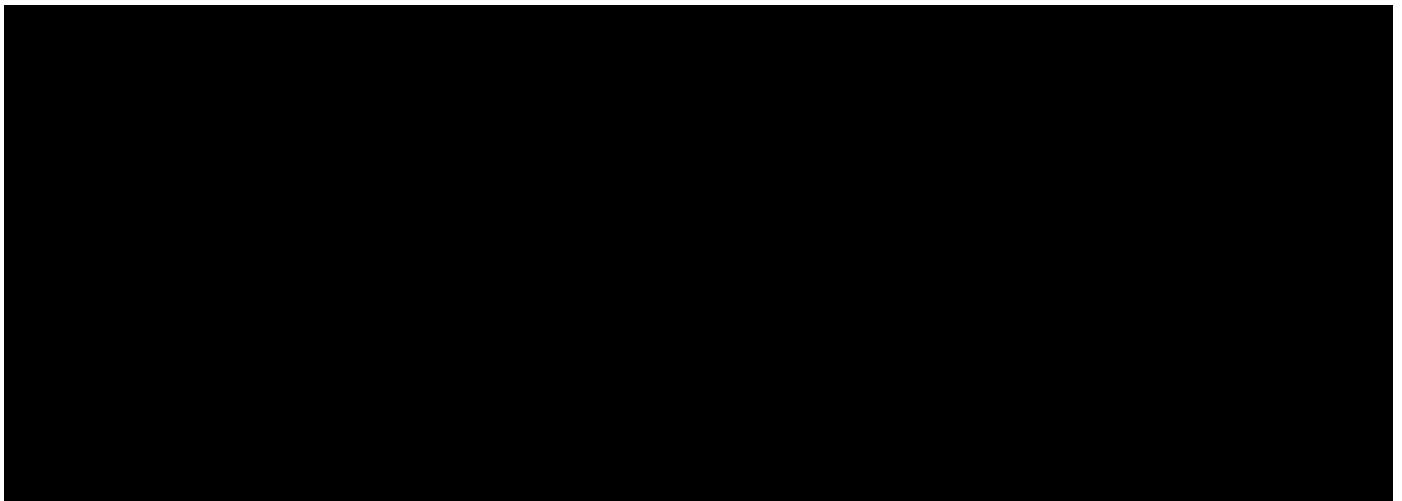
General Photo of Structural Slab and Traffic Coating in East End of Stadium.





**Photo 9-07**

Various Improvements and Utilities  
Obstructing Inspection of Concrete Ceiling  
Plank.



## **MISCELLANEOUS STADIUM ELEMENTS**

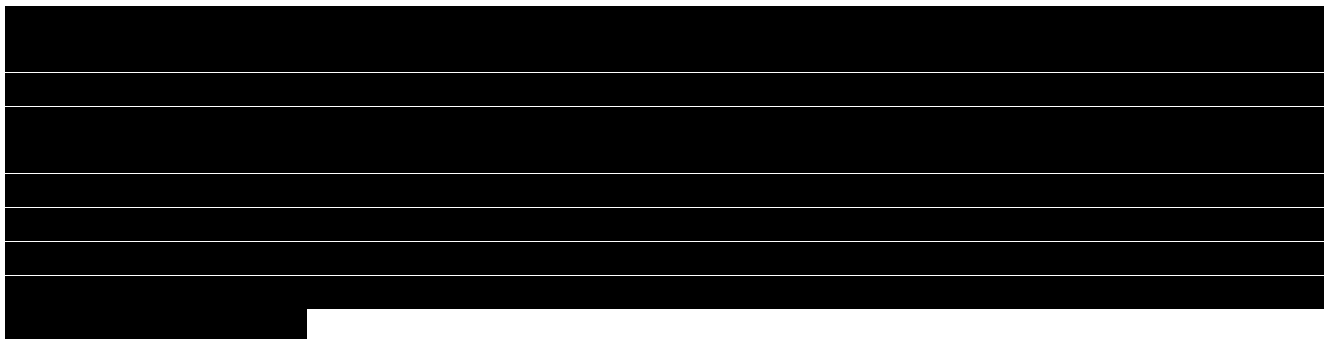
### **I. GENERAL**

The stadium complex is a large structure with numerous architectural and structural items located within the complex. With such a large structure, there are many items not addressed under the main sections. This section is dedicated to those miscellaneous areas not covered in the previous sections.

The divisions of Miscellaneous Stadium Elements are as follows:

- II. End Stair Towers & Misc. Stairwells
- III. Gate Canopies
- IV. Field Tunnel Exterior Retaining Walls & Floor Slab
- V. Main Scoreboard
- VI. Trivision & East End Video Displays
- VII. Ribbon Boards
- VIII. Gate Video Screens
- IX. Camera/Gameday Booths
- X. Stadium Field Lighting Pole Bases and Fluid Viscus Dampeners
- XI. Field Goal Net Cable & Connections
- XII. Stadium Field Drainage
- XIII. Estimate
- XIV. Photographs

### **II. END STAIR TOWERS & MISCELLANEOUS STAIRWELLS**



[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

### III. GATE CANOPIES

[REDACTED]

[REDACTED]

[REDACTED]

### IV. FIELD TUNNEL EXTERIOR RETAINING WALLS & FLOOR SLAB

[REDACTED]

[REDACTED]

## V. MAIN SCOREBOARD

The original scoreboard structure is over 42 years old. This structure has been modified and expanded three times. The first modification in 1994 was the installation of the Sony Jumbotron Videoboard. It measured 31.5 feet by 41.5 feet and at the time was one of the largest in the United States. Adjacent to the JumboTron were six Daktronics Scoreboards. Then in 2007 modifications were made to accommodate the new high definition diamond vision provided by Mitsubishi. After these modifications, the scoreboard was approximately 33.5 feet by 82.5 feet and provides a high definition picture for instant replays and live action. Lastly, the scoreboard length was almost doubled in 2014. In its current configuration the scoreboard now measures approximately 33.6 feet by 163.78 feet (Photo 10-07).

[REDACTED]

[REDACTED]

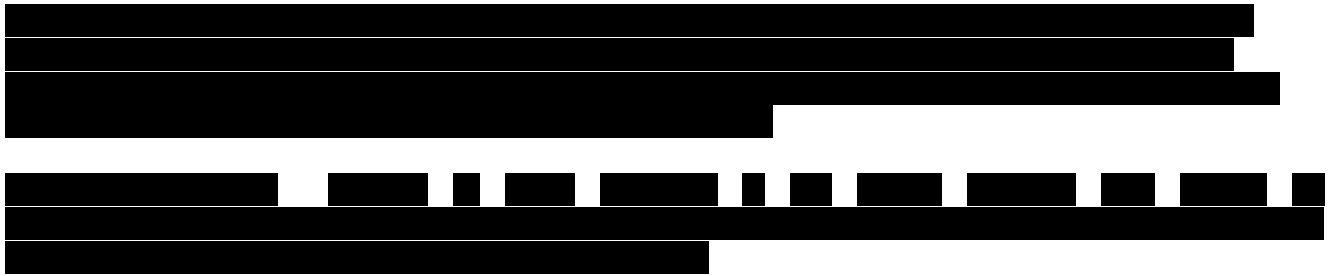
[REDACTED]

## VI. TRIVISION & EAST END VIDEO DISPLAYS

The Trivision sign, was originally constructed in 2000, on the roof of the Old Administration Building is supported by a braced structural steel frame, which is anchored to the existing columns of the building. [REDACTED]

[REDACTED]





## VII. RIBBON BOARDS

New ribbon boards were installed in 2012 and line the upper deck fascia railing panels. These boards provide a 4.1' x 509.0' video display along each of the front (field side) 300 Level concrete railings for advertisement and informational purposes during events. In 2018, these boards were replaced with newer higher resolution boards and are in like-new condition. [REDACTED]



## VIII. GATE VIDEO SCREENS

There are 6 Gate Signs with video screens on both faces, adjacent to Gate Canopies 2 through 7. The screens are used to display information, advertisements, and videos during events on game days. The screens also display video 24 hours a day, seven days a week. The video screen modules are beyond their expected lifespan. The screens on the west of Gate 3, north of Gate 4, and north of Gate 5 exhibit minor deterioration with isolated failed pixels. Screens on the west of Gate 2, south of Gate 4, south of Gate 5 west of Gate 6 and west of Gate 7 all exhibit moderate deterioration with sporadic failed pixels and discolored display (Photo 10-16). The east screen of Gate 6 has a failed line of approximately 24 pixels in the center of the screen. The west screen of Gate 6 has a failed module in the bottom right of the screen (Photo 10-17).

**Recommendations:** The video screens are beyond their expected lifespan and should be considered to be replaced due to the level of deterioration and the extensive use of the screens.

## IX. CAMERA & GAMEDAY BOOTHS

There are 8 camera/gameday booths located throughout the stadium. These booths are utilized during games for television coverage, NFL officials and team operations. Three of the booths are located in the eastern end of the stadium on top of the Old Administration Building and are accessed by a stairwell inside the Old Administration Building. These booths are primarily used by the Buffalo Bills and visiting teams for gameday operations. [REDACTED]

[REDACTED]

## **X. STADIUM FIELD LIGHTING POLE BASES AND FLUID VISCOUS DAMPENERS**

In 1993, two fluid viscous dampeners were installed on each of the six stadium lighting high mast poles to reduce/eliminate the fatigue on their respective base plate anchor bolts caused by wind loads and extend the longevity of the light poles (Photo 10-14). No inspection or maintenance has been performed on the dampeners since the time of their original installation. In the spring of 2016, DiDonato Associates contracted Taylor Devices to review and assess the existing condition of the twelve viscous dampeners.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

## **XI. FIELD GOAL NET CABLE AND CONNECTIONS**

In the east and west ends of the stadium are nets that are used during field goal attempts to stop the ball from entering the seating area. This netting is supported by cables that span in each respective endzone. The cables are anchored with clevis connections to steel brackets mounted on the ends of the main frames with post-tensioned rods connections. These connection brackets were installed in 2018 prior to the beginning of preseason.

The steel brackets are covered by drip pans and were not visible at the time of the inspection. Both cables, turnbuckles, and hardware were found to exhibited surface corrosion; no fraying wires were observed (Photo 10-11).

**Recommendations:** No recommendations at this time.

## **XII. STADIUM FIELD DRAINAGE**

During the fall of 2016, Kandey Company Inc. performed a video inspection of the drainage pipes installed along the perimeter of the Stadium's playing field. [REDACTED]

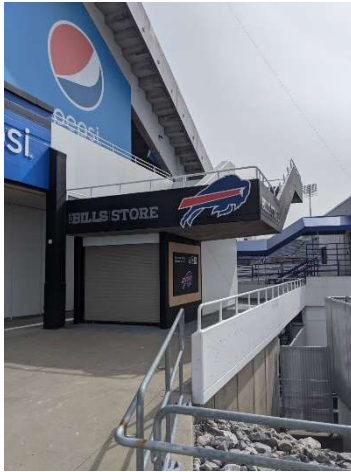
[REDACTED]

[REDACTED]

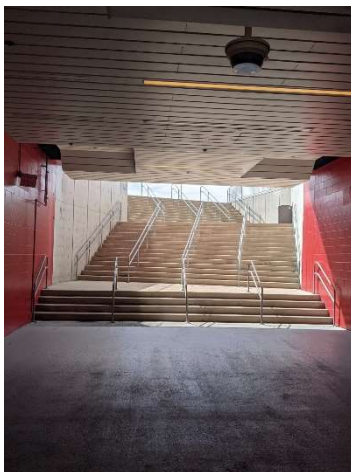
### XIII. MISCELLANEOUS STADIUM ELEMENTS ESTIMATE

Highmark Stadium Condition Report 2020/2021				
Miscellaneous Stadium Elements				
Single Occurrence Repairs				
Description	Quantity	Unit	Unit Cost	Total
[REDACTED]				
[REDACTED]	1	EA	\$ 7,000.00	\$ 7,000.00
[REDACTED]				
[REDACTED]	1	EA	\$ 1,600.00	\$ 1,600.00
[REDACTED]				
[REDACTED]	1	EA	\$ 32,000.00	\$ 32,000.00
[REDACTED]	1	EA	\$ 10,000.00	\$ 10,000.00
[REDACTED]				
[REDACTED]	1	EA	\$ 500.00	\$ 500.00
<u>Gate Video Screens</u>				
Replace Video Screens	12	EA	\$ 100,000.00	\$ 1,200,000.00
[REDACTED]				
[REDACTED]	1	EA	\$ 450,000.00	\$ 450,000.00
[REDACTED]				
[REDACTED]	1	EA	\$ 6,000.00	\$ 6,000.00
Single Occurrence Subtotal:				\$ 1,707,100.00

### XIV. PHOTOGRAPHS



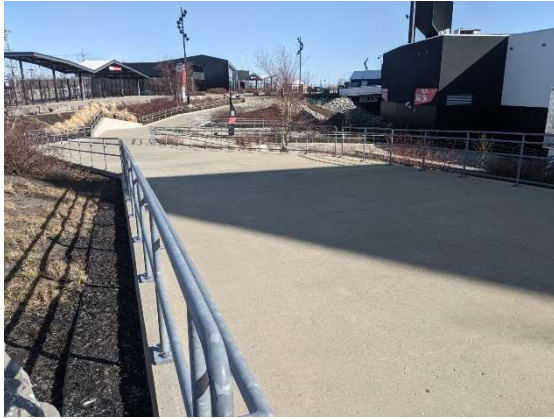
**Photo 10-01**  
General Photo of End Stair Tower.



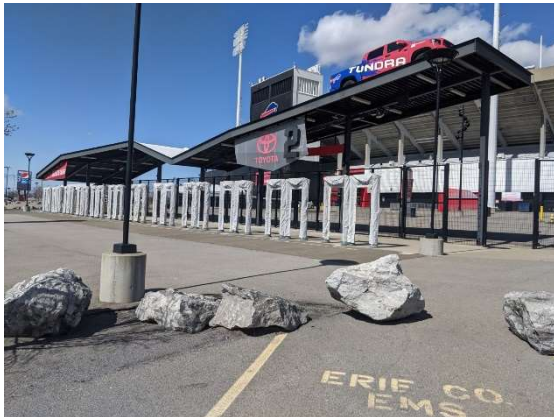
**Photo 10-02**  
General Photo of Super Stair near 50 Yard Line.



**Photo 10-03**  
General Photo of Stairs south of Old Administration Building.



**Photo 10-04**  
General Photo of Stairs and Ramps on West End of Stadium.



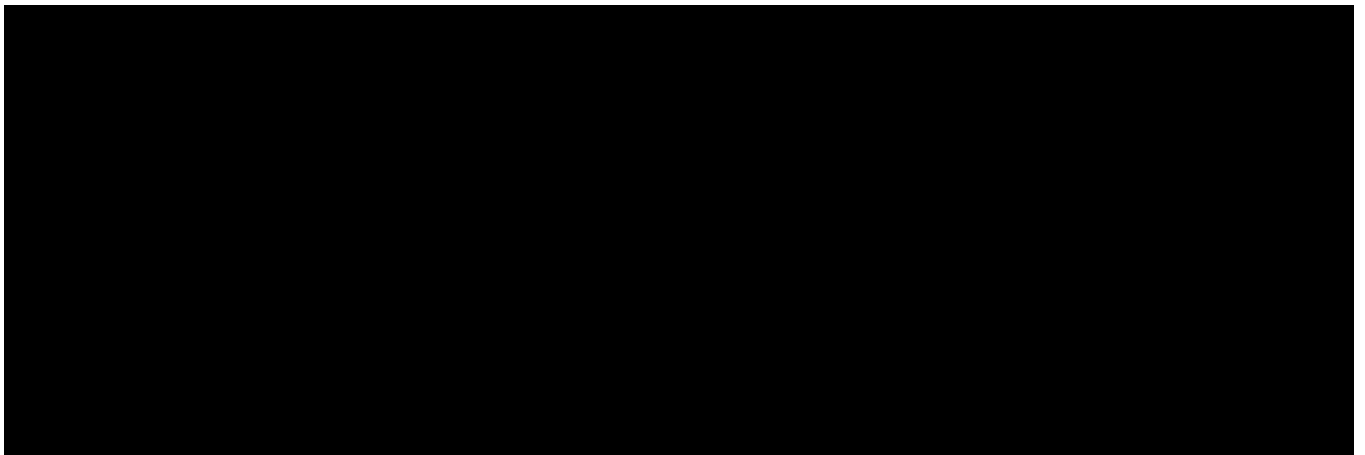
**Photo 10-05**  
General Photo of Gate Canopies.



**Photo 10-06**  
General photo of Exterior Tunnel Retaining Walls

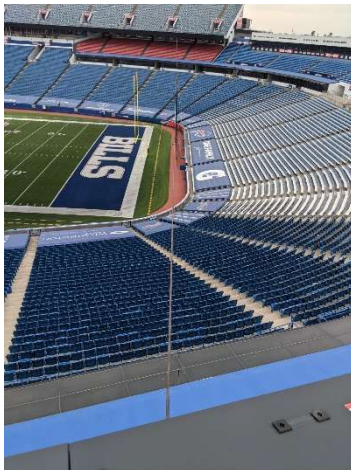
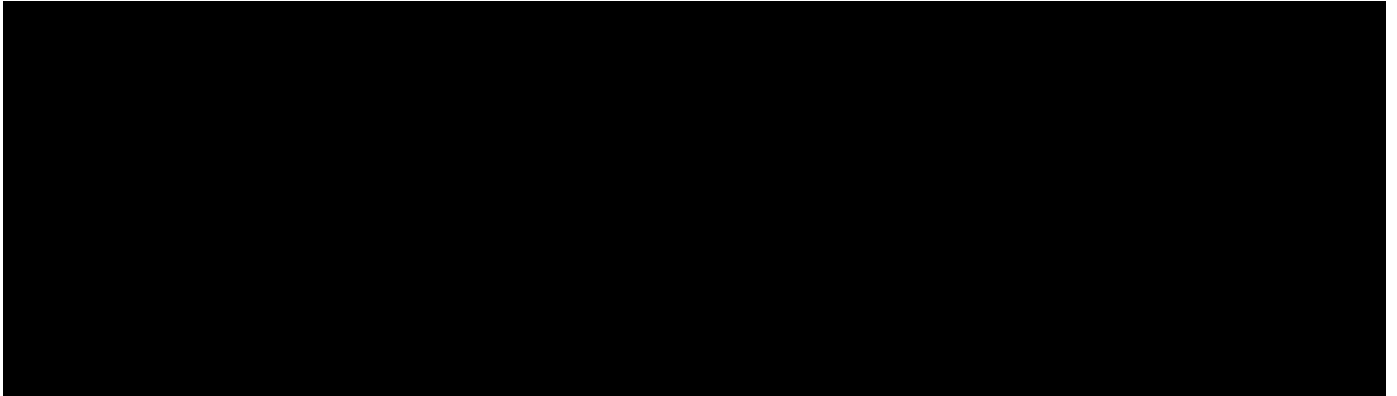


**Photo 10-07**  
General photo of Main Scoreboard

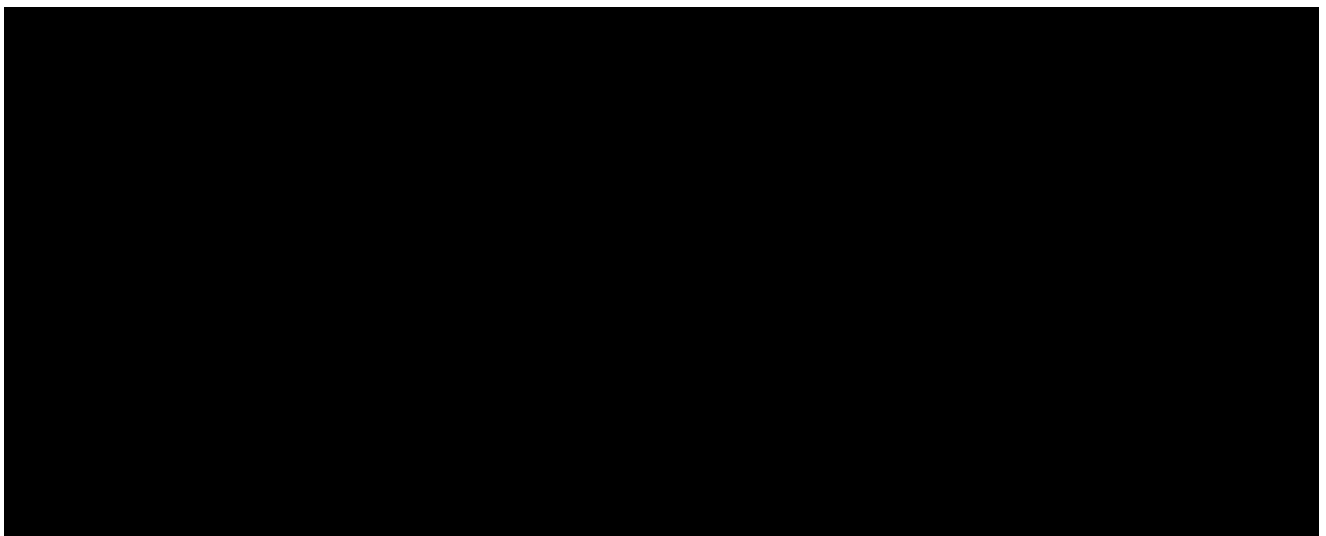


**Photo 10-09**  
General Photo of Trivision and Goal line Club  
Video Displays

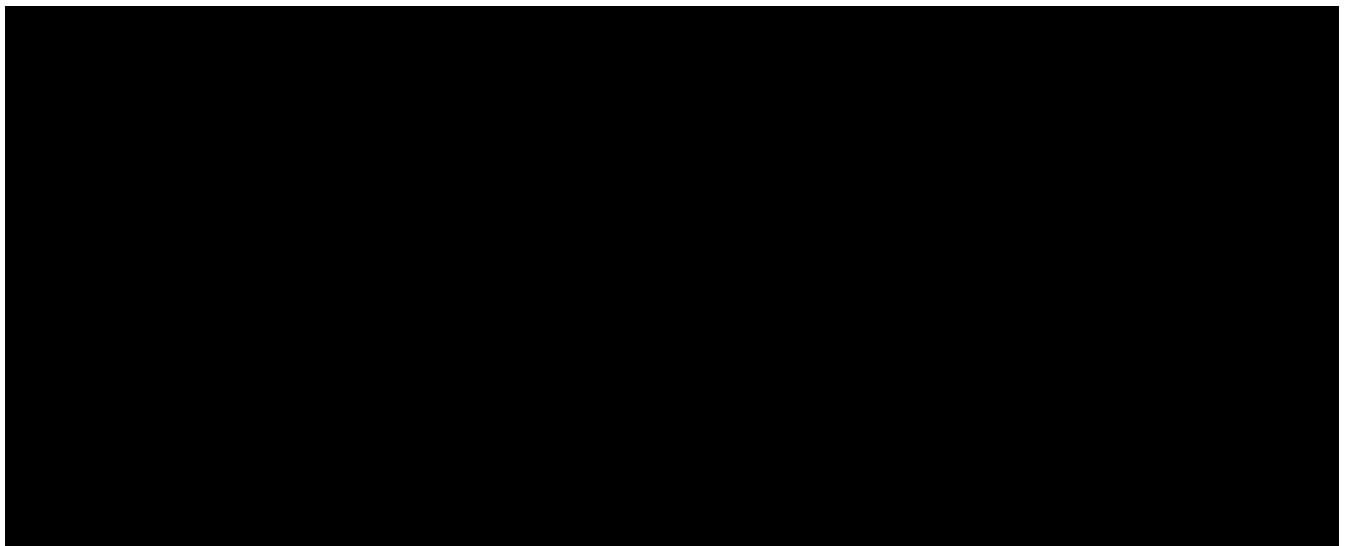
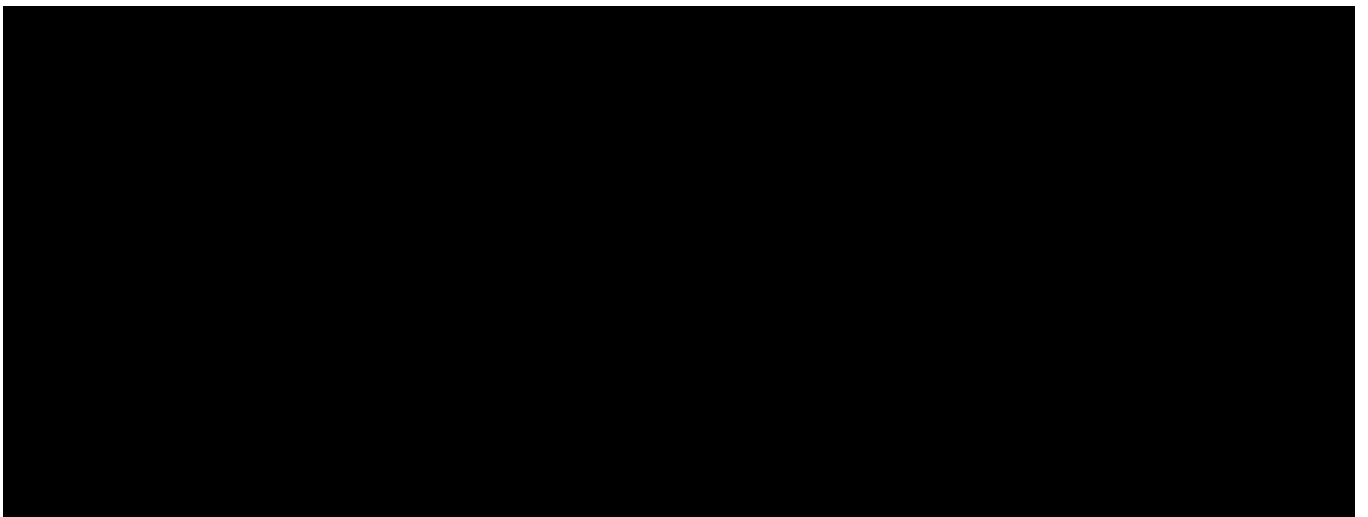
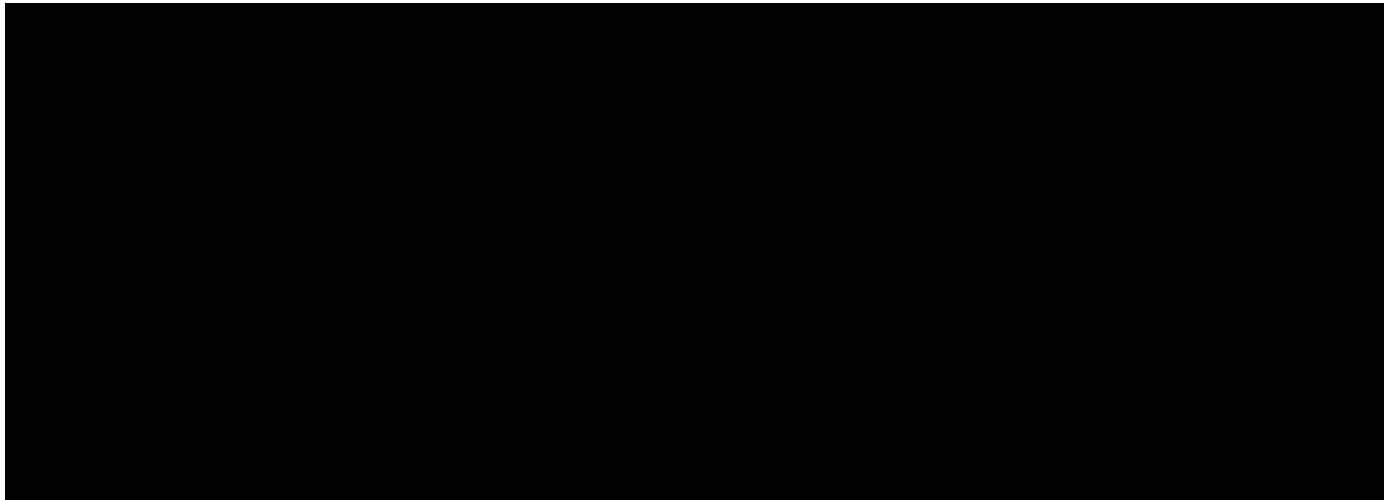




**Photo 10-11**  
General Photo of Field Goal Netting Cable









**Photo 10-16**  
Typical Gate Video Screen with deteriorated pixels.



**Photo 10-17**  
Gate 6 West Video Screen with Failed Module in Bottom Right Corner.

## **SEATING**

### **I. GENERAL**

There were over 80,000 seats in the Stadium after its original construction in 1973; the majority of those seats being aluminum benches. Additional suites, restroom towers, armchair seats and additional accessible platforms have reduced the total capacity of the stadium to **71,870** seats.

In 1999, some of the seating areas were upgraded with new seats, including new armchair seating at the lower bowl sidelines, new aluminum bench seating at the lower bowl endzones and new heated armchair seating at the sideline club levels. Most recently, in 2014, the 200 Level endzone seats were replaced with new aluminum bench seating **and the heated seats in the 200 Level Sideline Clubs were removed and replaced** with radiant heating. The only area in which the original seats remain are in the upper deck.

The areas of study are as follows:

- II. 100 Level Endzone Bench Seats
- III. 100 Level Armchair Seats
- IV. 200 Level Armchair Seats
- V. 200 Level Endzone Bench Seats
- VI. 300 Level Bench Seats
- VII. Estimates
- VIII. Photographs

### **II. 100 LEVEL ENDZONE BENCH SEATS**

There are approximately 9,464 endzone bench seats, which were replaced under a contract in 1999. They consist of an aluminum bench with a continuous molded aluminum back. [REDACTED]

Due to the National Football League and National Football League Players Association regulations regarding the novel Corona Virus the lower 8 rows of 100 endzone metal bench seating was covered and unavailable for inspection during the 2020/2021 survey update.

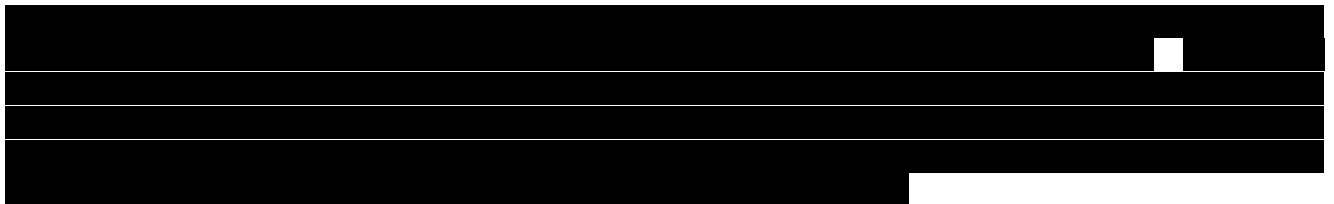
[REDACTED]

[REDACTED]

### III. 100 LEVEL ARMCHAIR SEATS

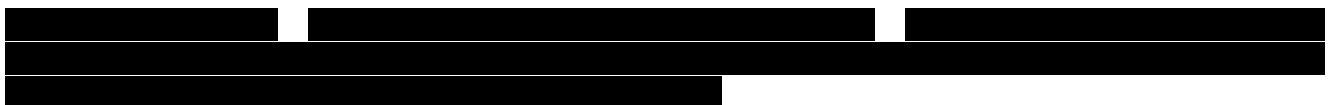
There are 22,004 armchair seats located along the sidelines of the lower bowl, which were installed in 1999 to replace the original aluminum bench seats. The seats and backs of these chairs are made of molded plastic with cast metal frames. The seats are designed to fold to an upright position when they are not occupied.

Due to the National Football League and National Football League Players Association regulations regarding the novel Corona Virus the lower 8 rows of 100 level armchair seating were covered and unavailable for inspection during the 2020/2021 survey update.



### IV. 200 LEVEL ENDZONE BENCH SEATS

The original bench seating was replaced by 7,106 new straight backed bench seats during the 2014 Lease Improvement Project. The backrest of the seats is connected every few seats by rivets (one front and one back) to an aluminum bracket which is then bolted to the underside of the bench seat. The bench seat is then anchored and bolted to the vertical face of the precast seating panel.



### V. 200 LEVEL ARMCHAIR SEATS

There are 6,716 armchair seats located along the sidelines of the club level. These seats were also installed under the 1999 contract. These seats are constructed similar to the lower bowl armchair seats, but originally had heating elements in the back and seat to provide comfort for cold days. The heating element were found to be a maintenance issue and subsequently disconnected.

[REDACTED]

[REDACTED]

[REDACTED]

#### **VI. 300 LEVEL BENCH SEATS**

There are 21,934 upper deck bench seats located along the sidelines of the stadium. These seats are the original bench seats that were installed in 1973 and constructed of an extruded aluminum bench with individual dished contoured backs (Photo 11-05). The backrest of the seats is connected by rivets (two on each side of seat) to an aluminum bracket which is then bolted to the underside of the bench seat. The bench seat is then anchored and bolted to the vertical face of the concrete step.

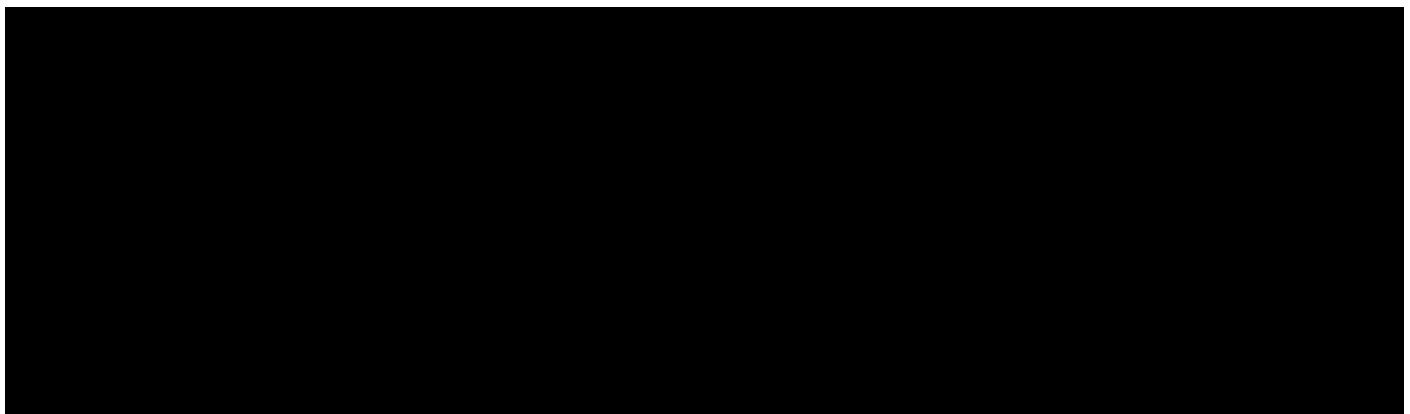
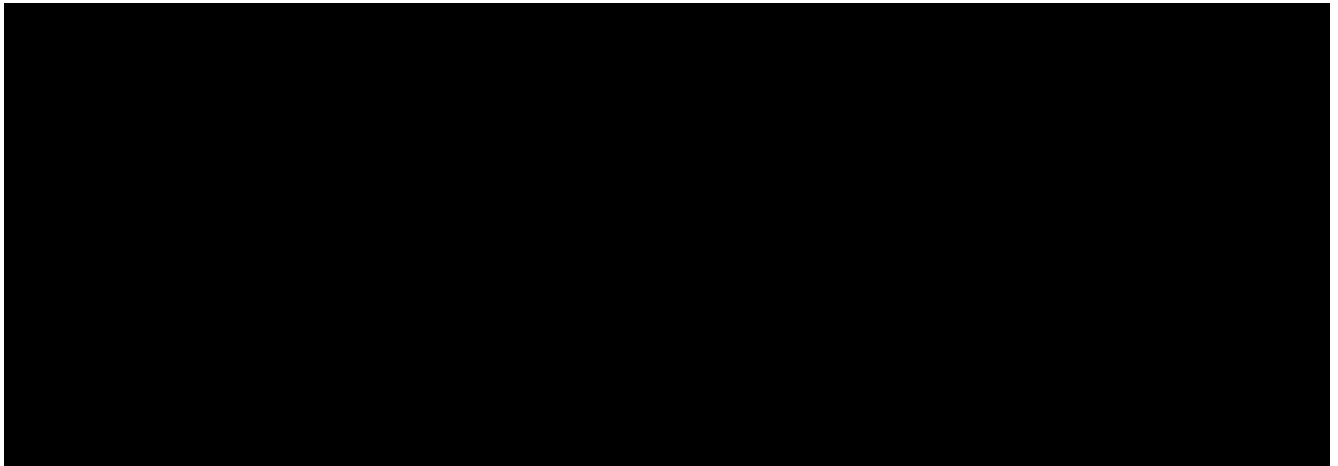
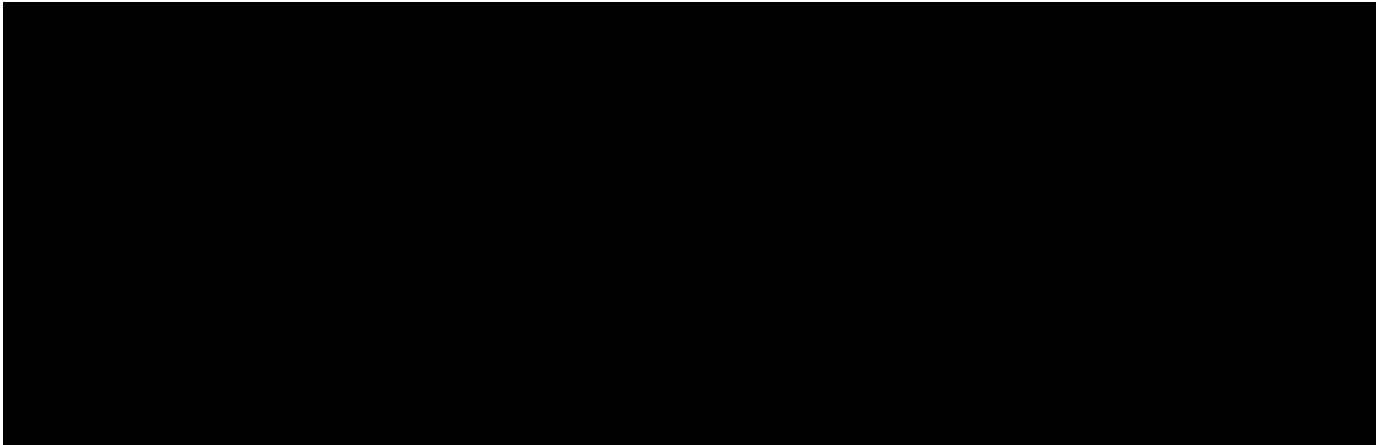
[REDACTED]

[REDACTED]

[REDACTED]



## VIII. PHOTOGRAPHS





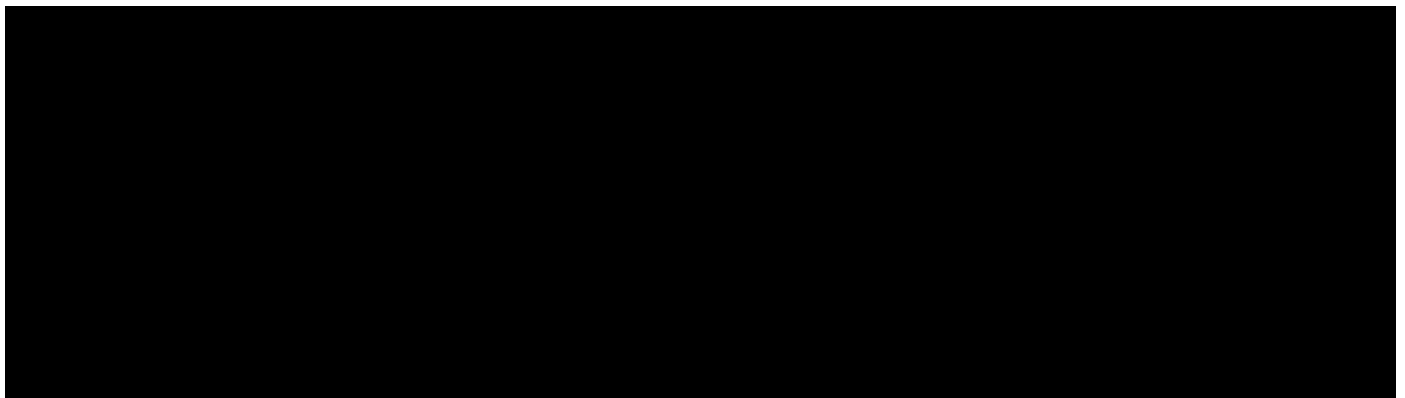
**Photo 11-04**

General Photo Showing Top Row; Access is Difficult on Backside to Rivet Seats.



**Photo 11-05**

General Photo of Riveted Attachment of Seats in Upper Deck (300 Level).





## **SIDELINE CLUB AREAS, CLUB BOXES AND SUITES**

### **I. DUGOUT SUITES**

The dugout suites were installed during the 1998/1999 lease project. Located throughout the 100 level concourse there are 54 suites. Renovation of the dugout suites is ongoing based on requests of the suite leases, as such almost all of the suites have been renovated, including the combining of two smaller suites into one larger suite. During these renovations interior finishes have been updated and or replaced. [REDACTED]

While the interior finishes have been replaced and updated, the skylight/window system is still original from when the dugout suites were installed and could be a cause for future concern. In the summer of 2015, the glazing sealant was replaced. Areas of concern are addressed by the Buffalo Bills as needed. There are several areas where the window system shows signs of failure such as the perimeter sealant at several windows which has released from the corners and can leaves the frame and glazing units vulnerable to wind driven rain and snow (Photo 12-02).

Some of the horizontal (skylight) windows have abnormal staining (Photo 12-03) within the glazing system which would indicate that the seals have been compromised and moisture has penetrated into the air space between the glazing panes. While it was not raining during this inspection, water was observed at some of the dugout suite sills (Photo 12-04) which would indicate that some components of the window unit have failed and water is entering the suite through the window. In addition to sealant replacement at the windows the first row of the 200 level seats have had traffic coating installed to help with water infiltration into the suites below. Additionally, the concrete ring wall in front of the first row of the 200 level seats and above the dugout suites have been repaired.

**Recommendations:** The dugout suite window/skylight assembly has a 25 year life expectancy. Currently the windows have been installed for 22 years. While the life expectancy says that the windows should be replaced within the next 5-10 years the ongoing sealant replacement and maintenance that is takes place on the windows can push back their need for replacement. If the sealant repairs fail to mitigate water infiltration that develops or if frame and window damage becomes excessive, their replacement will become a priority.

### **II. PEPSI EAST & WEST, TOYOTA AND DUNN TIRE CLUBS**

#### **Club Rooms**

The Pepsi East and West Clubs, along with the Toyota and Dunn Tire Clubs were constructed during the 1998/1999 lease project. The clubs were fully renovated during 2018 and are in like-new condition (Photo 12-05).

**Recommendations:** There are no recommendations at this time.

### Suites

The sideline club suites, which are original from the 1972 construction, are directly off of the club rooms and are located directly under the 300 level deck are in very good condition with their finishes being well maintained over the years. Tiered seating exists in almost all the units (Photo 12-06). The sliding windows are 48 years old, these windows are in better condition than the dugout suite windows due to the fact that they are protected by the 300 level deck above. Several suites have had their interior finishes updated over the years (Photo 12-07)

**Recommendations:** All these windows do not need replacement within the next 5 years and should be reevaluated in 5 years to determine if they replacement is necessary.

## III. CLUB SUITES

### Goal Line Club/Business Class and Press Box/M&T Club

The first level club suites were constructed in 1994 and the second level installed in 1999. All of the club suites are in good condition with exception of the leaking skylight in the lobby of the Business Class Suite and areas of water infiltration that can be seen on stained ceiling tiles as noted in the “Roof Section” of this condition survey. The carpeting within the suites has all been replaced within the past 10 years and is in excellent condition.

The panoramic windows facing the field are an aluminum frame window system with butt glazing that were installed on the second floor during the 1998/1999 lease project. The first floor windows, also aluminum frame windows with butt glazing, were installed in 1994 during the construction of the first floor clubs. The windows are in good condition however sealant at the sill flashing is beginning to fail and are a potential place for water infiltration (Photo 12-08). Also, there are 4 units that are either cracked (Photo 12-09) or replacement units that are different color than the original (Photo 12-08).

**Recommendations:** As noted in the roofing section the skylights should be replaced when the roof is replaced. The first floor aluminum storefront window system is 27 years old and the second floor is 23 years old. The life expectancy for an aluminum storefront window system is 40 years. Replacement of the sealant at the first and second floors of both club seats at the sills is recommended.

Finding a replacement glazing unit that will match the remaining glazing is difficult, while the units which are not a matching color are an aesthetic change the cracked unit that faces the field is an obstruction to guests view and should be replaced within the next 5 years.

## IV. WEST END SUITES

The West End Suites are located on the 200 level of the west side of the stadium and were constructed in 1994. Within the West End Suites are 38 individual suites. While the West End Suites have not seen the renovation that the dugout suites have, the suites are in good condition with no signs of excessive wear or abuse, although some of the interior finishes are dated aesthetically the windows are sliding windows that are in good working order with the exception of suites 203C, 203D, 204C, 242C, and

242D which have a new folding glass walls by NanaWall (Photo 12-11). The folding glass wall offers an unobstructed view of the field for a majority of the guests when open (Photo 12-12). The sliding windows used elsewhere throughout the stadium allow for an unobstructed view for about half of the guests when open.

**Recommendations:** Minor cosmetic updates could be performed but are not a necessity and could be done at the request of the suite lessee. The sliding windows are 25 years old and still have approximately 5 years before they reach the end of their useful life expectancy. Based on assumed life expectancy all the original windows should be replaced within the next 5-10 years.

## V. SUPER SUITES

Constructed in the summer of 2014 the two Super Suites are located on the 200 level between the Toyota and Dunn Tire Clubs on either side of the broadcast booths. The suites are in excellent condition.

**Recommendations:** No updates to the super suites are needed.

## VI. SIDELINE CLUB AREA, CLUB BOXES AND SUITES ESTIMATE

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
<u>Dugout Suites</u>				
Window/Skylight Replacement - Corner Suites	480	LF	\$2,500.00	\$1,200,000.00
Window/Skylight Replacement - Midfield Suites	625	LF	\$2,500.00	\$1,562,500.00
<u>Club Suites</u>				
Window Sill Sealant Replacement	4	EA	\$2,500.00	\$ 10,000.00
Single Glazing unit replacement	1	EA	\$50,000.00	\$ 50,000.00
<b>TOTAL =</b>				<b>\$2,822,500.00</b>

## VII. PHOTOGRAPHS



**Photo 12-01**  
Typical Dugout suite with water infiltration



**Photo 12-02**  
Dugout suite aluminum window with failed window gasket

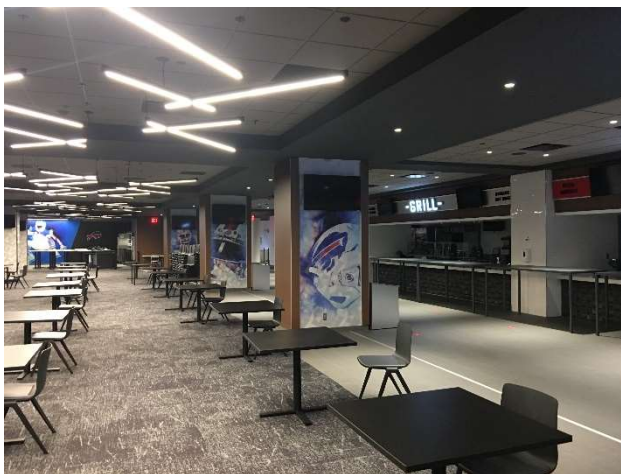


**Photo 12-03**  
Dugout suite with stained skylight window



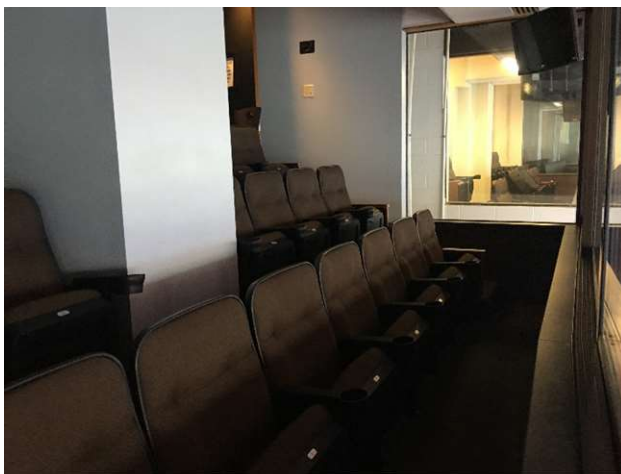
**Photo 12-04**

Dugout suite with water infiltration at window sill



**Photo 12-05**

Renovated Pepsi Club Suite



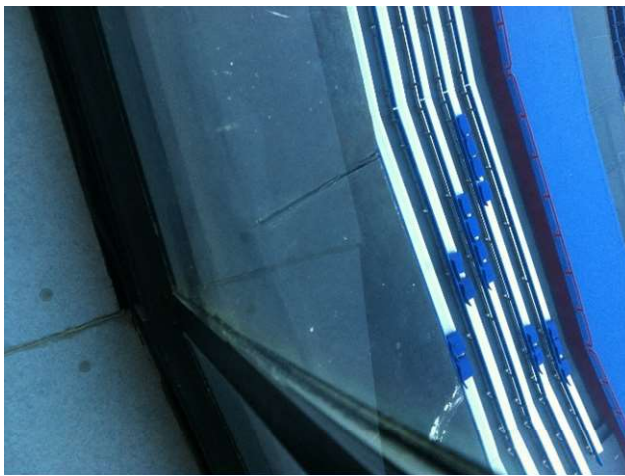
**Photo 12-06**

Sideline suites seating





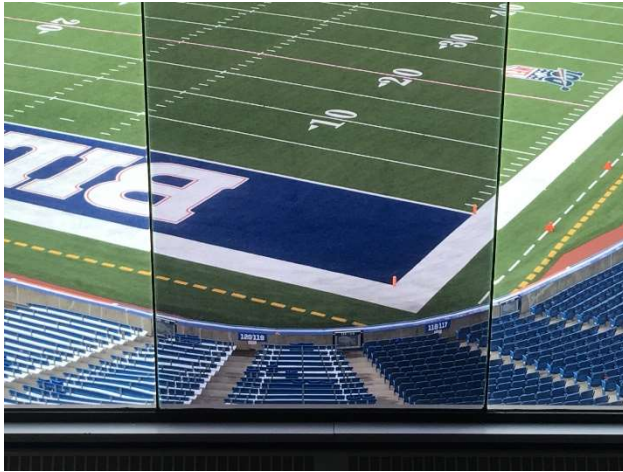
**Photo 12-07**  
Renovated sideline suite



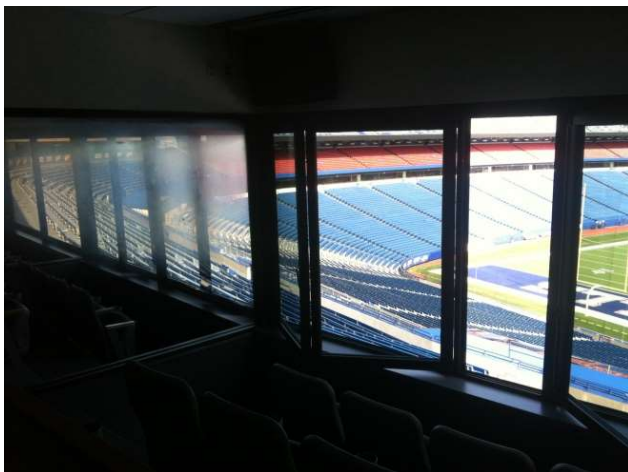
**Photo 12-08**  
Club suites window sill flashing



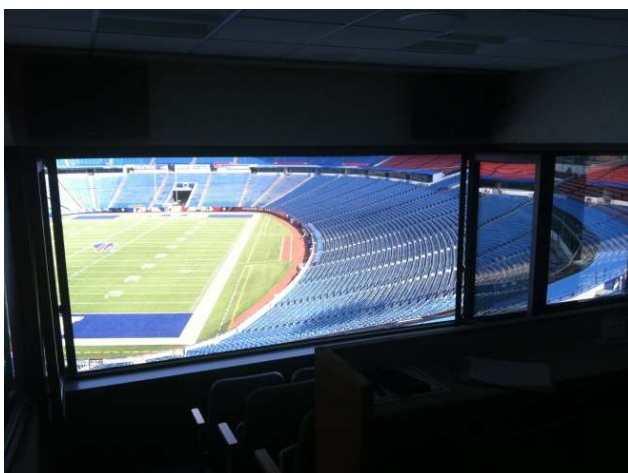
**Photo 12-09**  
Cracked glazing unit at Club Suites



**Photo 12-10**  
Discolored glazing unit at Club Suites



**Photo 12-11**  
West end suite folding glass wall in partially open position



**Photo 12-12**  
West end suite folding glass wall in full open position



## **RESTROOMS**

### **I. 100 LEVEL CONCOURSE**

Most of the bathrooms along the 100 level concourse has been renovated during the Lease Improvements project in 2014 (Photo 13-01). [REDACTED]

[REDACTED]

[REDACTED]

A [REDACTED]

[REDACTED]

### **II. 100 LEVEL CONCOURSE (BERM)**

There are 4 berm bathroom buildings that are located directly off of the 100 level concourse across from sections 106, 118, 126 and 140. These restrooms were originally constructed in 1994 and had renovation work in 2014 which included new epoxy flooring and new toilet partitions and are in good condition .

[REDACTED]

[REDACTED]

### III. PEPSI EAST & WEST CLUBS

#### Pepsi Club Lobby

The Pepsi Club is located on the North side of the stadium and encompasses section 206 through 216. Within the Pepsi Club there are a total of 8 restrooms, 4 men's and 4 women's, dedicated for the suite guests. All 8 bathrooms are of the same construction. The floors are 2x2 floor tiles and a 4x4 wall tile wainscot with gypsum board above. The ceilings are a 2x2 lay in ceiling with LED lights and there are metal toilet partitions (Photo 13-06). The suites were renovated in 2018 however these bathrooms were not part of those renovations.

[REDACTED]

[REDACTED]

[REDACTED]

#### Sideline Suites

Within the Pepsi Club almost all of the sideline suites, 206, 207, 208, 209, 210, 212, 213, 214, 215 and 216, have their own private bathrooms. All of the bathrooms are single use bathrooms and are in very good condition.

**Recommendations:** There is no work needed at this time.

### IV. CLUB SUITE

#### Goal Line Club/Time Warner

Goal Line Club – The Goal Line Club is located on the first floor of the northeast club building. The Goal Line Club has one Men's and one Women's room. Both bathrooms were remodeled in 2018 and have ceramic tile flooring, painted walls, HDPE toilet partitions and solid surfacing countertops.

Business Class Club – The Business Class Club is located above the Goal Line club. The Business Class Club has one Men's room and one Women's room. The restrooms have 12x12 VCT flooring and the walls have a 12x12 ceramic tile wainscot. The restrooms also have metal toilet partitions and a plastic laminate countertop (Photo 13-08).

**Recommendations** –The bathrooms in Business Class Club are good condition but are the most outdated public bathrooms in the stadium. The flooring, countertops, and toilet partitions can be expected to stay in good condition and not need replacement within the next 5 years. Renovation to

the Business Class Club restrooms would be for aesthetic purposes only as such no work is needed at this time.

#### Press Box/M&T Club

**Press Box** – The Press Box is located on the first floor of the southeast club building. In 2014 as part of the Lease Improvement project the space was converted from a private club room to a new press box. The Men's room and Women's restrooms were not a part of that project but are currently being renovated under the Year 8 Capital Improvements Project.

**M&T Club** – The M&T Club is located above the Press Box. In 2018 the restrooms were renovated with new finishes, fixtures and bathroom partitions.

**Recommendations:** At the writing of this report the restrooms in the Press Box are being renovated, no further work will be needed.

### **V. MILLER LITE BREW PUB**

These bathrooms were installed in the summer of 2014 as part of the Lease Improvements project. These bathrooms along with the Miller Lite Brew Pub Bar itself were created from space that was previously used within the Old Administration Building. The North side of the building has a new Women's room while a new Men's restroom is located on South side of the building. Each bathroom also has a family restroom adjacent to them. The bathrooms have an epoxy floor, painted walls, a 2x2 lay in ceiling and HDPE toilet partitions and are in very good condition.

**Recommendations:** No work is needed in these bathrooms.

### **VI. DUNN TIRE CLUB**

#### Dunn Tire Club Lobby

The Dunn Tire Suite is located on the South side of the building and encompasses section 229 through 232. Within the Dunn Tire Club Suite there are a total of 4 restrooms; 2 Men's and 2 Women's, dedicated for the suite patrons. All 4 bathrooms are of the same construction. The restrooms have 2x2 floor tiles and a 4x4 wall tile wainscot. The ceilings are a 2x2 lay in ceiling and there are metal toilet partitions.

**Recommendations** – The bathrooms are in good condition. The ceramic floor tile and ceramic wainscot is in very good condition and the walls also have no sign of abuse. The only update that is recommended is replacing the metal partitions with HDPE partitions that is now the standard throughout the stadium.

#### Sideline Suites

Within the Dunn Tire Club sideline suites 229 and 231 have their own private bathrooms (suite 230

does not have a private bathroom). Both bathrooms are single use bathrooms and are in very good condition.

**Recommendations:** No work is needed in these bathrooms.

## VII. SUPER SUITE

These bathrooms were installed in the summer of 2014 as part of the Lease Improvements project. Each suite has two single use ADA accessible bathrooms. The bathrooms have a ceramic tile floor, painted walls, and a 2x2 lay in ceiling and are in very good condition.

**Recommendations:** No work is needed in these bathrooms.

## VIII. TOYOTA CLUB

### Toyota Club Lobby

The Toyota Club is located on the South side of the building and encompasses section 235 through 238. Within the Toyota Club there are a total of 4 restrooms, 2 Men's and 2 Women's, dedicated for the suite patrons. All 4 bathrooms are of the same construction. The restrooms have 2x2 floor tiles and a 4x4 wall tile wainscot with gypsum wall board above. The ceilings are a 2x2 lay in ceiling and there are metal toilet partitions.

**Recommendations** – The bathrooms are in good condition. The ceramic floor tile and ceramic wainscot is in good condition. The walls also have no sign of abuse. The only update that is recommended is replacing the metal partitions with HDPE partitions that is now the standard throughout the stadium. This replacement would be for aesthetic purposes only,

### Sideline Suites

Within the Toyota Club sideline suites all three suites, 236, 237 and 238 have their own private bathrooms. All the bathrooms are single use bathrooms and are in very good condition.

**Recommendations:** No work is needed in these bathrooms.

## IX. WEST END SUITES

The West End Suite has 6 public bathrooms for use by the suite holders. There are 3 Men's rooms and 3 Women's rooms. The restrooms are in good condition with epoxy flooring, solid surface countertops with integral sink bowls. The restrooms also have tan HDPE toilet partitions with 2x2 wall tile on the walls directly behind the toilets while the remaining 3 walls are freshly painted CMU (Photo 13-09).

**Recommendations:** The bathrooms are in good condition and there is no work needed.

## **X. RESTROOM TOWERS**

Constructed in 1999 under the lease improvement project, there are a total of 4 restroom towers each with a Men's and Women's room at both the lower concourse level and at the top of the 300 level seating.

### Lower 300 Level North

The lower concourse restrooms are in good condition. Their epoxy floors show minor cracking but no signs of delaminating. All of the partitions in all four restrooms are the newer HDPE style and the walls are painted with no signs of cracking.

### Upper 300 Level North

All four restrooms are in good condition. All the restrooms have epoxy flooring with integral base and are all in good condition. The walls are in generally good condition with minor cracking on the floors. The toilet partitions in the women's restrooms are the old metal style and do not match the new black HDPE partition scheme that that the stadium has employed.

### Lower 300 Level South Towers

All four restrooms are in good condition. All the restrooms have epoxy flooring with integral base and are all in good condition. All of the partitions are HDPE, which have been the standard at the stadium for past few renovation projects. The walls are all painted CMU and there is a concrete deck ceiling that is in good condition.

### Upper 300 Level South Towers

All four restrooms are in good condition. All the restrooms have epoxy flooring with integral base and are all in good condition with minor cracking (Photo 13-10). The toilet partitions in the women's restrooms are the old metal style and do not match the new black HDPE partition scheme that that the stadium has employed. The walls are all painted CMU and there is a concrete deck ceiling that is in good condition.

## **Recommendations:**

### Lower 300 Level North and South

All 4 lower restroom tower locations are in good condition and no work is needed at this time.

### Upper 300 Level North and South

All 4 upper restroom tower locations are in similar conditions and no major renovations are needed at this time. The only work that could take place is the replacement of the metal toilet partitions to HDPE but it is not required.

## **XI. 300 LEVEL CONCOURSE – NORTH**

Most of the bathrooms along the 300 level concourse have been renovated during the Lease Improvements project in 2014. The work included new epoxy flooring, new ceiling, new lighting, ADA improvements, new toilet partitions with accessories and the walls were painted. These bathrooms are located in sections 307, 308, 311, 312, 314, and 316. While most of these bathrooms need no work there was delaminating of epoxy flooring at the exit door at restroom 308 (Photo 13-12).

The remaining 300 Level Concourse Restrooms are located in the newly constructed concourse with the 2014 Lease Improvements project and are adjacent to the restroom towers. These restrooms are located in sections 306 and 316. The bathrooms are all new with epoxy flooring and HDPE toilet partitions.

**Recommendations:** There is no work that is required at this time with the exception of epoxy flooring repairs. It is recommended the flooring in 308 exit door be repaired as soon as possible to prevent further flooring deterioration. Similar delamination was observed in the adjacent restroom 307 on the previous condition survey and repaired (Photo 13-13). The same repair should take place at this location.

## **XII. 300 LEVEL CONCOURSE – SOUTH**

Most of the bathrooms along the 300 level concourse have been renovated during the Lease Improvements project in 2014. The work included new epoxy flooring, new ceiling, new lighting, ADA improvements, new toilet partitions with accessories and the walls were painted. These bathrooms are located in sections 329, 330, 333, 334, 336, and 338.

The remaining 300 Level Concourse Restrooms are located in the newly constructed concourse with the 2014 Lease Improvements project and are adjacent to the restroom towers. These restrooms are located in sections 329 and 339. The bathrooms are all new with epoxy flooring and HDPE toilet partitions.

**Recommendations:** No work is needed in these restrooms at this time.

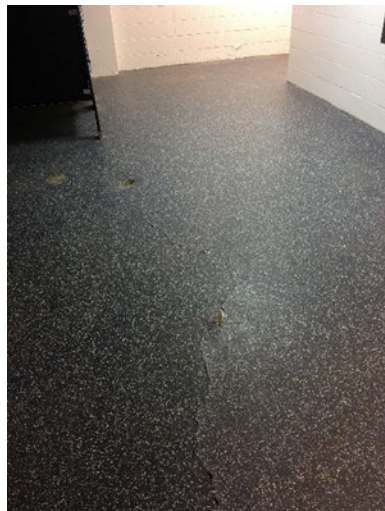
### XIII. RESTROOMS ESTIMATE

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
<u>Restroom 105</u>				
Epoxy Flooring	105	SF	\$45.00	\$ 4,725.00
Concrete Repairs	1	LS	\$15,000.00	\$ 15,000.00
<u>Restroom 137</u>				
Epoxy Flooring	140	SF	\$45.00	\$ 6,300.00
Concrete Repairs	1	LS	\$15,000.00	\$ 15,000.00
<u>Pepsi Club</u>				
Men's Room HDPE Partitions	4	EA	\$8,000.00	\$ 32,000.00
Women's Room HDPE Partitions	4	EA	\$9,500.00	\$ 38,000.00
<u>Business Class Club</u>				
Men's HDPE Partitions	1	EA	\$8,000.00	\$ 8,000.00
Tile Flooring	400	SF	\$20.00	\$ 8,000.00
Tile Removal/Wall Repair	1	LS	\$3,000.00	\$ 3,000.00
Counters	4	LF	\$425.00	\$ 1,700.00
Women's HDPE Partitions	1	EA	\$9,500.00	\$ 9,500.00
Tile Flooring	400	SF	\$20.00	\$ 8,000.00
Tile Removal/Wall Repair	1	LS	\$3,000.00	\$ 3,000.00
Counters	4	LF	\$425.00	\$ 1,700.00
<u>Dunn Tire/Toyota Clubs</u>				
Men's Room HDPE Partitions	4	EA	\$8,000.00	\$ 32,000.00
Women's Room HDPE Partitions	4	EA	\$9,500.00	\$ 38,000.00
<u>Upper 300 Level Restroom North and South</u>				
Men's Room HDPE Partitions	4	LS	\$8,000.00	\$ 32,000.00
Women's Room HDPE Partitions	4	LS	\$9,500.00	\$ 38,000.00
<b>TOTAL =</b>				<b>\$293,925.00</b>

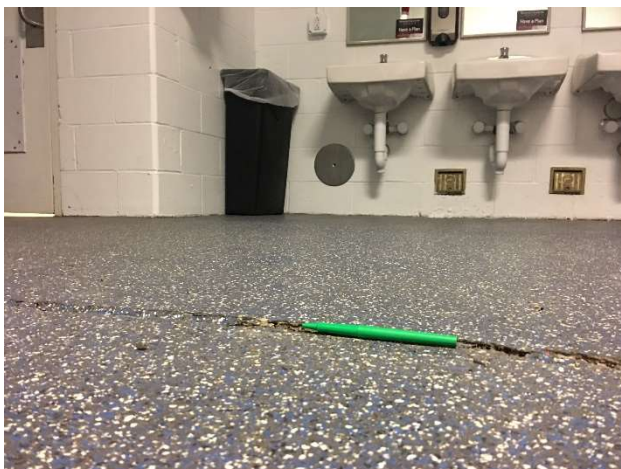
#### XIV. PHOTOGRAPHS



**Photo 13-01**  
Renovated 100 Level Concourse Restroom



**Photo 13-02**  
Delaminating Epoxy Flooring in Men's  
Restroom 105



**Photo 13-03**  
Men's Restroom 137 floor





**Photo 13-04**  
Men's Restroom 138 floor



**Photo 13-05**  
Water infiltration in Berm Bathroom 134



**Photo 13-06**  
Pepsi Club Suite Restroom



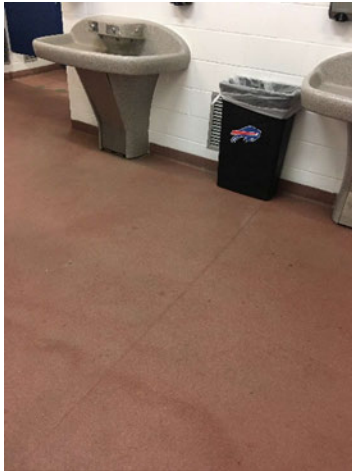
**Photo 13-07**  
Cracked Tile Floor in Women's Restroom 213



**Photo 13-08**  
Business Class Club Men's Restroom



**Photo 13-09**  
West End Suite Men's Restroom



**Photo 13-10**  
Cracked Epoxy Flooring



**Photo 13-12**  
Failed Epoxy Floor at Restroom 308



**Photo 13-13**  
Repaired Epoxy Floor at Restroom 307



## DOORS

### I. STADIUM DOORS

A survey of the stadium doors took place in October 2020. In general the doors within the stadium were found to be in good to very good condition. This can be attributed to the 2014 Lease Improvements project which saw a majority of the doors replaced. In addition to the large 2014 project, the Stadium has had a handful of doors replaced throughout the campus every year over the past couple of years under the Capital Improvements projects. This has left the stadium with only a few doors that are in need of replacement, none of which are crucial at this point.

**Recommendations:** It is recommended that the doors and/or frames that are listed in the chart below be replaced within the next 5 ~~to 10~~ years.

HIGHMARK STADIUM DOOR CONDITION SURVEY													
5/7/21													
Level No.	Door Number	From Room	Door Width	Door Mat'l	Frame Mat'l	Door Condition				Frame Condition			
						New	Good	Fair	Poor	New	Good	Fair	Poor
100	105.05	CONCOURSE	36"	HM	HM								
100	106.06	CONCOURSE	36"	EXIST.	EXIST.								
100	106.07	CONCOURSE	36"	EXIST.	EXIST.								
100	106.08	JANITOR	36"	EXIST.	EXIST.								
100	116.07	ELECTRICAL	30"	EXIST.	EXIST.								
100	116.08	JANITOR	18"	EXIST.	EXIST.								
100	117.09	CONCOURSE	36"	EXIST.	EXIST.								
100	117.10	CONCOURSE		HM	HM								
100	123.03	STORAGE	36"	EXIST.	EXIST.								
100	124.07	JANITOR	36"	EXIST.	EXIST.								
100	125.06	MECHANICAL	60"	EXIST.	EXIST.								
100	127.08	CONCOURSE	36"	EXIST.	EXIST.								
100	127.09	CONCOURSE	36"	EXIST.	EXIST.								
100	130.07	CONCOURSE	72"	HM	EXIST.								
100	132.03	ELECTRICAL	72"	EXIST.	EXIST.								
100	134.04	JANITOR	72"	HM	EXIST.								
100	139.10	CONCOURSE	36"	EXIST.	EXIST.								
100	139.11	CONCOURSE	36"	EXIST.	EXIST.								
100	101.03B	ELECTRICAL		HM	HM								
100	106.06A	WOMEN	36"	EXIST.	EXIST.								
100	106.07A	MEN	36"	EXIST.	EXIST.								
100	117.09A	MEN	36"	EXIST.	EXIST.								
100	117.10A	WOMEN	36"	EXIST.	EXIST.								
100	127.08A	CONCOURSE	36"	EXIST.	EXIST.								
100	127.09A	CONCOURSE	36"	EXIST.	EXIST.								
100	139.10A	MEN	36"	EXIST.	EXIST.								
100	139.11A	WOMEN	36"	EXIST.	EXIST.								
200	219.01	LOBBY	36"	EXIST.	EXIST.								
200	231.15	JANITOR	36"	HM	HM								
300	312.04	CONCOURSE	36"	HM	HM								
300	314.03	WOMEN	36"	HM	HM								
300	315.08	VENDOR	36"	HM	HM								
300	316.07	ALCOVE	36"	HM	HM								
300	316.09	STORAGE	36"	HM	HM								
300	316.10	MEN	30"	EXIST.	EXIST.								
400	433.01	EXTERIOR	36"	EXIST.	EXIST.								

## II. ESTIMATE

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
<u>Stadium Doors</u>				
Single Door Replacement	32	LF	\$6,000.00	\$192,000.00
Double Door Replacement	4	EA	\$8,500.00	\$ 34,000.00
<b>TOTAL =</b>				<b>\$226,000.00</b>

### III. PHOTOGRAPHS



**Photo 14-01**  
Door 105.05



**Photo 14-02**  
Door 116.08



**Photo 14-03**  
Door 132.03



**Photo 14-04**  
Door 134.04



**Photo 14-05**  
Door 117.10A



**Photo 14-06**  
Door 139.11A





**Photo 14-07**  
Door 219.10



**Photo 14-08**  
Door 316.07



**Photo 14-09**  
Door 316.10



## **ROOFING SYSTEMS**

### **I. RESTROOM TOWERS**

Highmark Stadium has 4 restroom towers that service the 300 level by providing restrooms at the upper and lower 300 level. The upper level is adjacent to the wheel chair and standing row at the top of the upper deck and the lower is accessible through the 300 level concourse.

[REDACTED]

[REDACTED]

[REDACTED]

### **II. WEST END SUITES**

#### **Central Roof**

In the summer of 2015 the entire center roof was removed to the roof deck and a new modified bitumen roof system with insulation was installed.

[REDACTED]

#### **North and South Roofs**

In the summer of 2018 the north and south center roofs were removed to the roof deck and a new modified bitumen roof system with insulation was installed.

[REDACTED]

### **III. BERM BATHROOMS**

The Berm Bathrooms are located in four areas on the 100 level concourse. Specifically, they are in sections 106, 117, 127 and 139. [REDACTED]

[REDACTED]

[REDACTED]

#### IV. CLUB SUITES

The two club suite buildings are located on the East side of the stadium. The Club Suites are to the north and south of the Old Administration Building. Each club suite is approximately 11,700 square feet.

[REDACTED]

[REDACTED]

#### V. 300 LEVEL SLOPED CONCESSION ROOFS

[REDACTED]

[REDACTED]

#### VI. 300 LEVEL CONCESSION ROOFS

During the 2014 Lease Improvements Project, new concessions stands, as well as restrooms were constructed adjacent to the restroom towers. Each of the 4 new service areas are approximately 2,850 square feet. The roofing membrane is a white TPO system.

[REDACTED]

## VII. CAMERA/COACHES BUILDING

Located in the south side upper deck seating area along the top walkway is a small camera/coaches building. [REDACTED]

[REDACTED]

[REDACTED]

## VIII. OLD ADMINISTRATION BUILDING

[REDACTED]

[REDACTED]

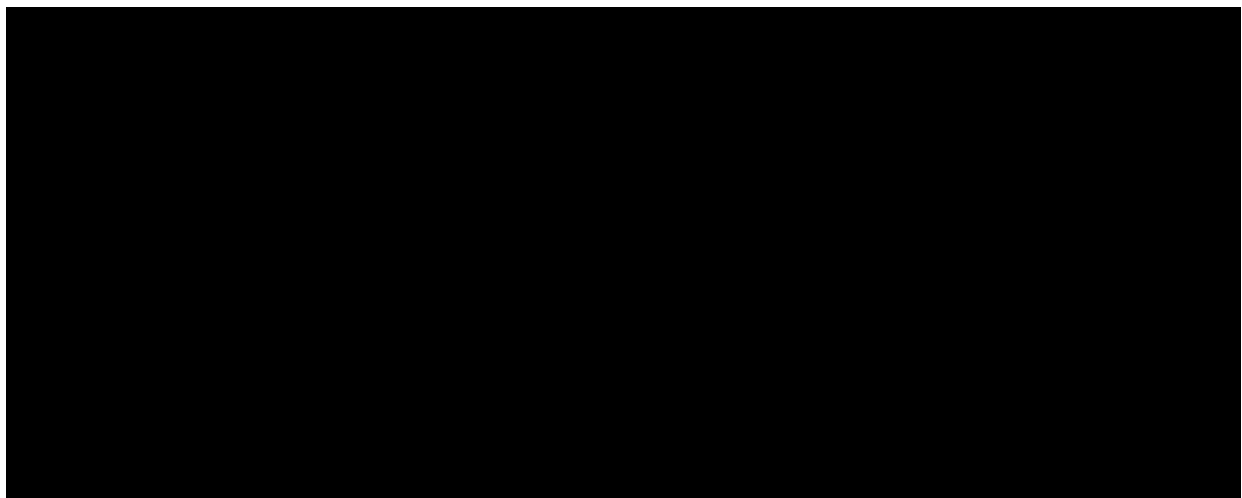
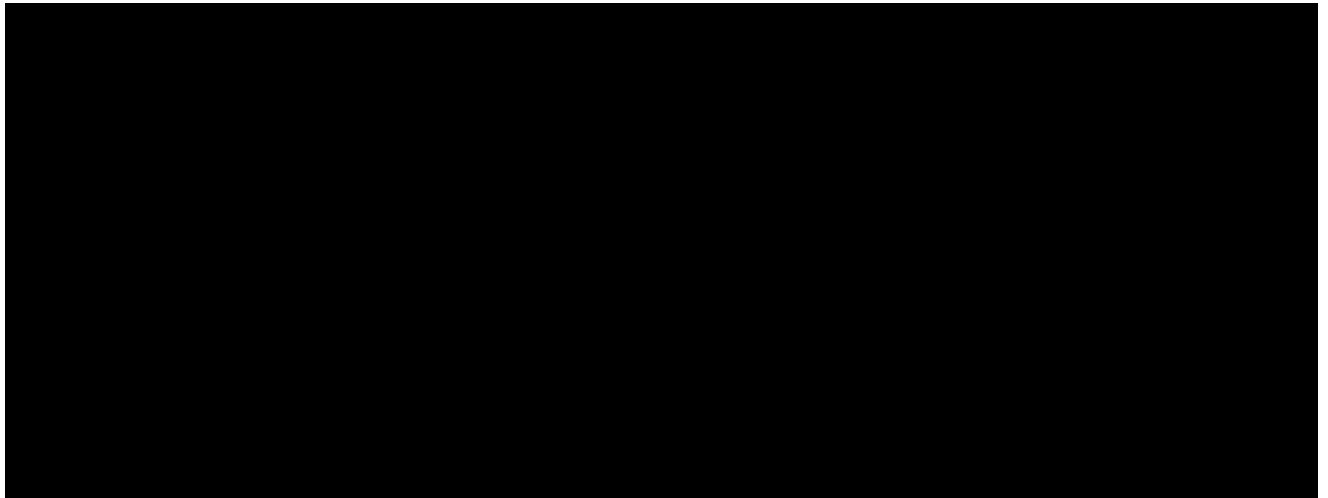
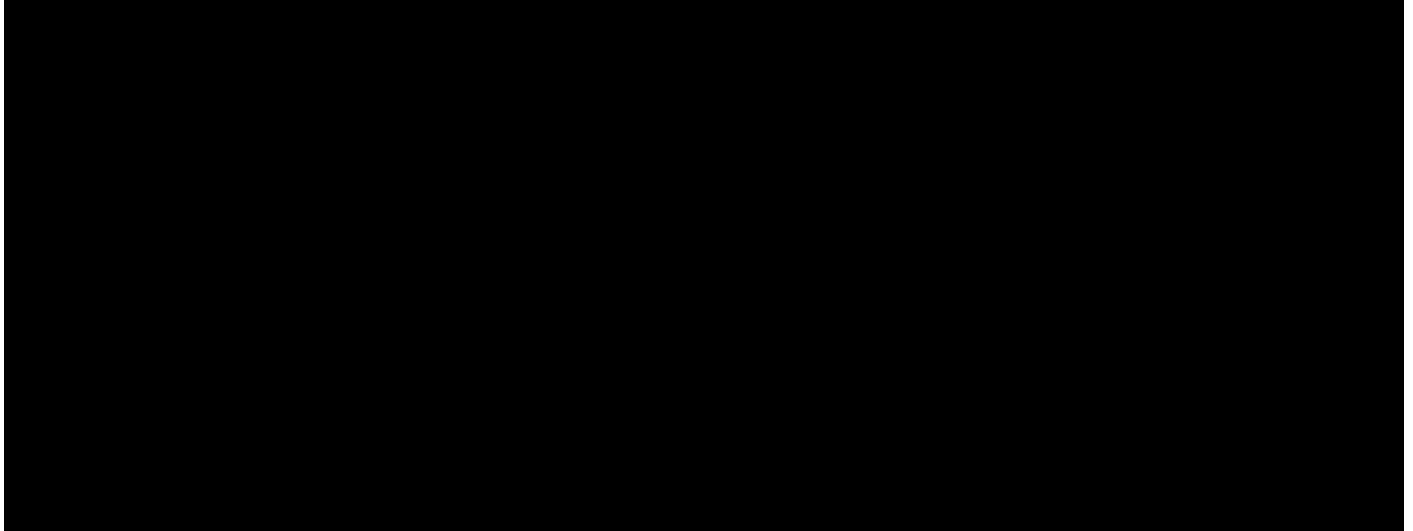
## IX ROOFING WARRANTIES

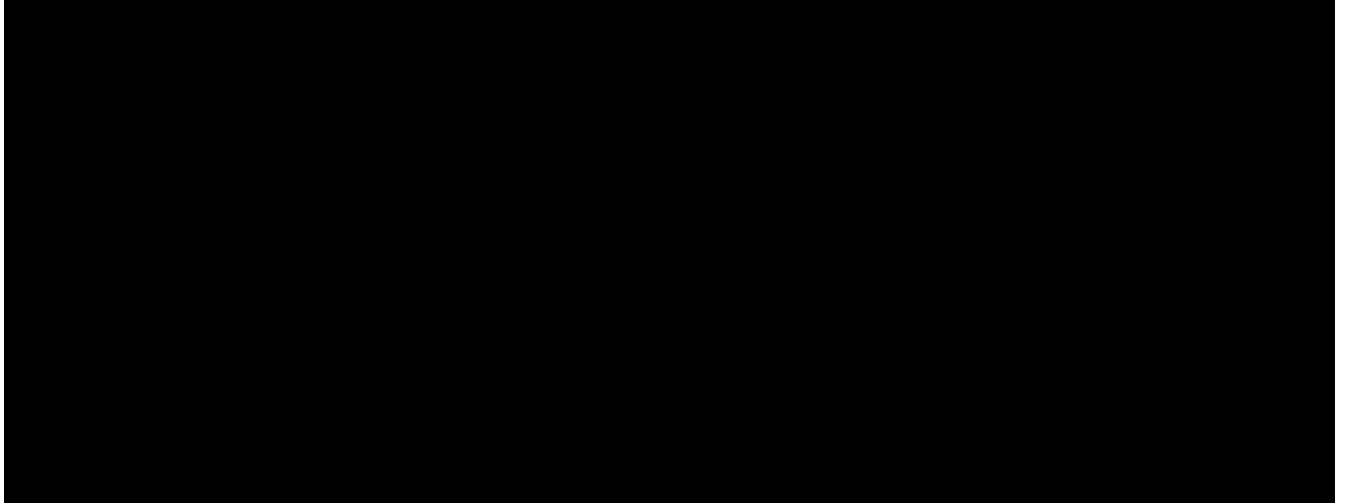
Roof systems typically call for inspections of roof to be the responsibility of, and taken care of by the roofing system manufacturer. These survey intervals are at years 2, 5, 10 and 15 of the warranty period. While some roofing companies will perform these inspections, others may forget their responsibilities to perform these tasks. The Bills/County should institute a program to reach out yearly to the various roofing manufacturers for roofing systems on site to arrange for their field surveys if there isn't already such a program in place.

## IX. ROOFING SYSTEMS ESTIMATE

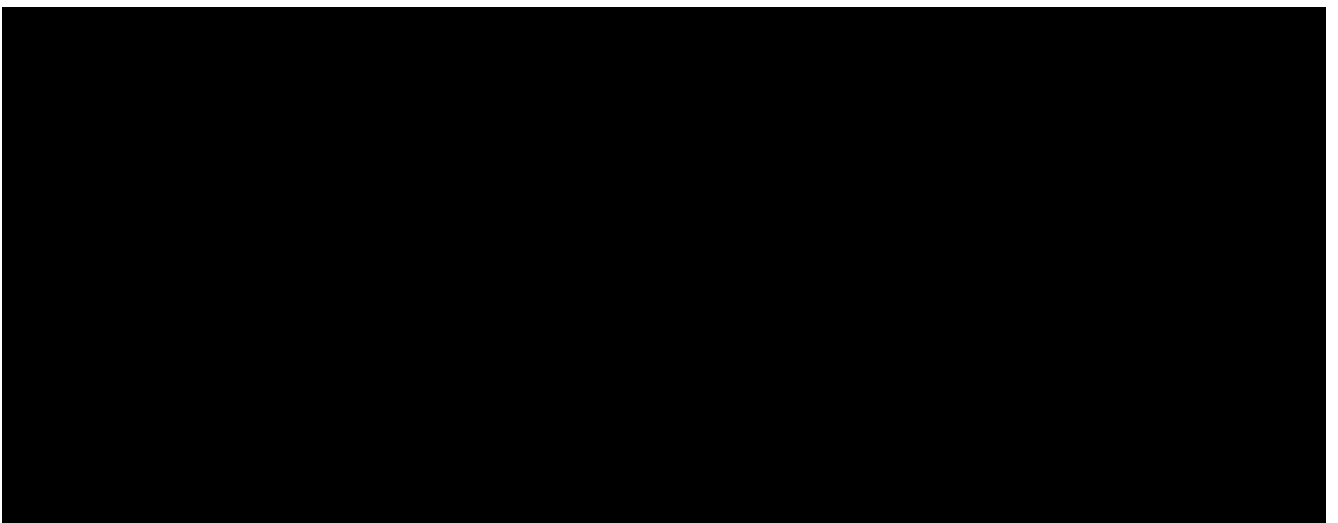
DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
[REDACTED]				
[REDACTED]				\$63,000.00
[REDACTED]				\$63,000.00
[REDACTED]				\$63,000.00
[REDACTED]				\$63,000.00
[REDACTED]				
[REDACTED]				\$52,500.00
[REDACTED]				\$52,500.00
[REDACTED]				\$52,500.00
[REDACTED]			\$35.00	\$52,500.00
[REDACTED]				
[REDACTED]				\$468,000.00
[REDACTED]				\$468,000.00
[REDACTED]				
[REDACTED]				\$15,000.00
[REDACTED]				\$315,000.00
[REDACTED]				
[REDACTED]				\$10,500.00
<b>TOTAL =</b>				<b>\$1,738,500.00</b>

## **X. PHOTOGRAPHS**



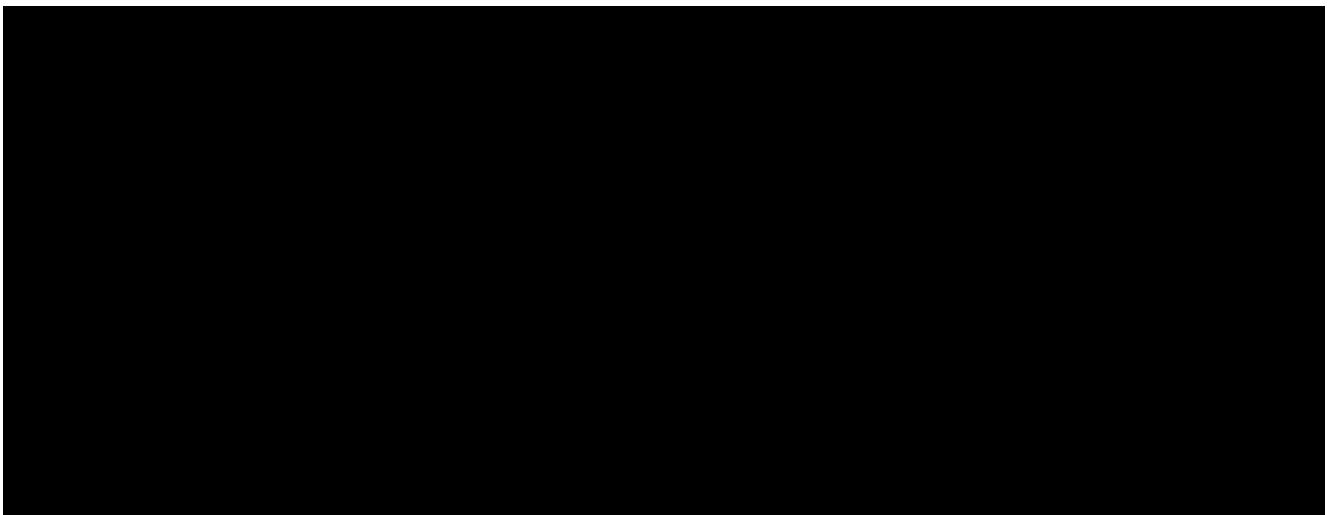
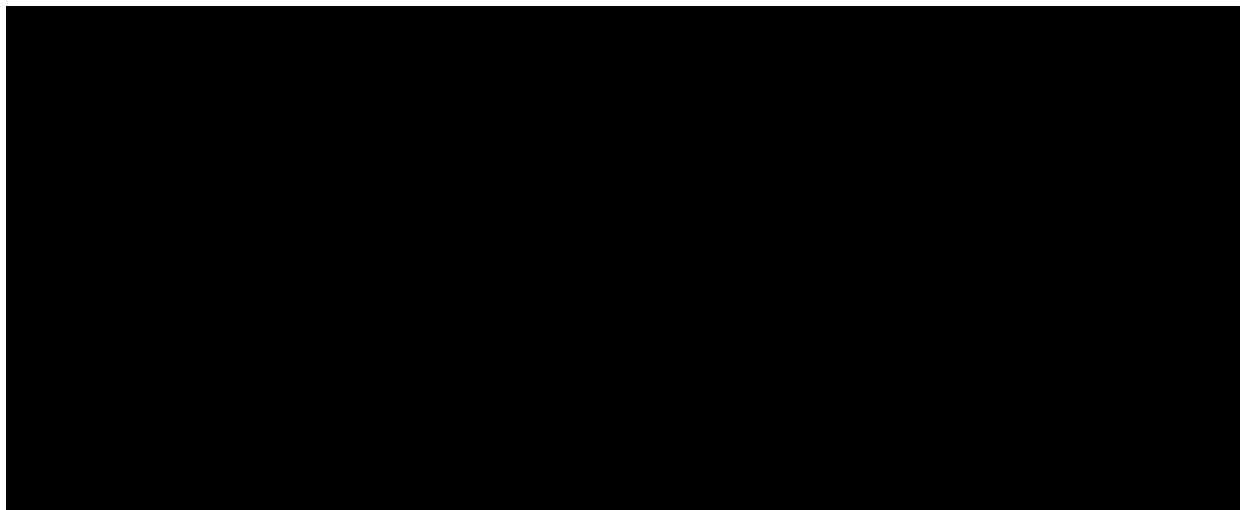


**Photo 15-05**  
Stained ceiling tiles at Business Class Club  
Suites





**Photo 15-07**  
Water damage at Goal Line Club Suite  
skylight



## **ADA ACCESSIBILITY AND USAGE**

The Department of Justice issued the ADA Standards for Accessible Design in 1991 and was revised July 1, 1994. All construction until March 14, 2012 was to follow the 1991 standards. From March 15, 2012 the 2010 ADA Standards for Accessible Design went into effect and is the most current copy. For the purpose of this report the 2010 ADA Standards for Accessible Design was used as the basis of reference for the items observed.

Several of the deficiencies listed below are easily addressed and should be considered as soon as possible for the convenience and comfort of the guests as well as eliminate any potential ADA lawsuits.

### **I. FIELDHOUSE**

#### **Restrooms**

There are four public restrooms in the field house, 2 men's and 2 women's with one pair located at the east side of the building and the other pair on the west side. These restrooms were refurbished in the 2016 capital improvements project with new finishes, new toilet partitions and new counters. The restroom's toilet stalls as well as grab bars meet accessibility standards. The new countertops allow for front wheelchair approach and have ADA faucet controls.

**Recommendations:** There is no work needed at this time.

### **II. 100 LEVEL SEATING**

There are approximately 176 spaces available for wheelchair locations for viewing of the game. 66 of the seats are located at the end of vomitories. There is a dedicated wheelchair space with an adjacent companion chair as required per section 221.3 (Photo 16-01). In addition to the vomitory wheelchair spaces, platforms were constructed in sections 121, 122, 123 on the east side of the stadium and sections 101, 102 and 142 on the west side. These areas provide 108 spaces for wheelchair and companion seating.

**Recommendations:** There is no work needed at this time.

### **III. 100 LEVEL CONCOURSE**

#### **Concourse Restrooms**

Almost all of the restrooms along the 100 level concourse had some degree of renovation to them during the 2014 capital improvements project. Everything that was newly installed, including the entry doors and accessible stalls meet ADA standards. In some bathrooms, some of the existing plumbing fixtures were not replaced and do not meet standards. Bathrooms 109.06, 114.07 and 131.06 do not have ADA compliant faucet handles (Photo 16-02) as required in section 309.4. Bathrooms 118.05,



124.06 and 136.07 (Photo 16-03) do not have ADA compliant faucet handles and the piping under the sink is not insulated to prevent guests from burning their legs as required by code section 606.5.

**Recommendations:** The deficiencies listed above are easily remedied and it is recommended they be upgraded during the next renovation project.

#### Berm Bathrooms

The only deficiency observed in the 8 berm bathrooms along the 100 level concourse was that the mirrors were mounted between 44 and 50 inches above the floor (Photo 16-04). These mirrors are located on the walls adjacent to the entrances and are not above a sink. Code section 603.3 requires that the bottom edge of the mirror be mounted 35" maximum above the floor when they are not located above lavatories or countertops.

**Recommendations:** It is recommended that the mirrors be removed and reinstalled to meet code.

#### Dugout Suites

Throughout the 100 level concourse there are 54 dugout suites. The dugout suites were installed during the 1998/1999 lease project. At the time of installation the suites were designed to meet the current ADA requirements including wheelchair lifts to allow for full access and accessible toilet rooms.

Over the past few years almost all of the suites have been renovated, including the reconfiguration of two suites into one. The only suite that appears to be still in the original 1998 configuration is suite 103B. This suite does not have a space dedicated wheelchair space. Instead it has a transfer seat

Additionally it was observed that almost all suites do not have coat hooks mounted at an accessible height, correct handicap grab bars and piping protection (Photo 16-05).

**Recommendations:** It is recommended that pipe insulation be provided at all bathroom sinks and lower coat hooks where upper coat hooks are provided. When suite 103B is renovated a dedicated space for a wheelchair is recommended.

## **IV. PEPSI CLUB**

The Pepsi Club is located on the North side of the building and encompasses sections 206 through 216. The only issues observed were that there was no pipe insulation below the sinks in the restrooms.

Additionally there was no wheelchair spaces at any of the sideline club seating areas.

There are 22 sideline suites within the Pepsi suites. These suites are only accessible by stairs and none of them are wheelchair accessible.

**Recommendations:** It is recommended that pipe insulation be installed during the next improvements project.

Per section 221.2.1.2 suites in arenas and stadiums wheel chair space is to be provided. The seating at the sideline clubs should be modified to allow for wheelchair space during the next major renovation project in that area.

When the sideline suites are renovated in the future provisions would require that the handicap spaces be provided. The suites are currently only accessible by stairs. To achieve full accessibility would require extensive work as well as requiring significant square footage to be taken away from the club area for the construction of ramps or installation of lifts.

## V. CLUB SUITES

### Goal Line Club/Business Class Club

Goal Line Club – There were no deficiencies noted. The bathrooms meet ADA compliant, there is areas provided for wheelchair spaces and the food counter heights meets ADA standards.

Business Class Club – There were no deficiencies noted. The bathrooms meet ADA compliant, there is areas provided for wheelchair spaces and the food counter heights meets ADA standards.

**Recommendations:** No recommendations at this time.

### Press Box/M&T Club

Press Box – The Press Box is located on the second floor of the M&T Club. In 2013, as part of the Capital Improvement project, the space was converted from a private club room to a new press box. There were no deficiencies noted.

M&T Club – The M&T Club is located above the Press Box on the third floor. There were no deficiencies noted.

**Recommendations:** There is no work needed at this time.

## VI. MILLER LITE BREW PUB

The sportsbar was constructed in the summer of 2014 as part of the Lease Improvements project. The bar was constructed with an integral ADA counter. The bathrooms also meet ADA standards

**Recommendations:** There is no work needed at this time.

## VII. DUNN TIRE/ TOYOTA CLUBS

The Dunn Tire and Toyota Clubs are located on the South side of the stadium and encompass sections 229 through 232 in the Dunn Tire Club and sections 235 through 238 in the Toyota Club. Similar to the Pepsi Club area there is no pipe insulation at the restroom sinks and there is no wheelchair seating at

the 8 sideline suites.

**Recommendations:** As with the Pepsi Club, it is recommended that pipe insulation be installed during the next renovation project.

Per section 221.2.1.2 suites in arenas and stadiums wheel chair space is to be provided. The seating at the sideline clubs should be modified to allow for wheelchair space during the next major renovation project in that area.

When the sideline suites are renovated in the future provisions would require that the handicap spaces be provided. The suites are currently only accessible by stairs. To achieve full accessibility would require extensive work as well as requiring significant square footage to be taken away from the club area for the construction of ramps or installation of lifts

## VIII. WEST END SUITES

The West End Suites are located on the 200 level of the west side of the stadium. Within the West End Suites are 35 individual suites as well as 3 sets of public restrooms.

### Restrooms

The restrooms meet accessibility standards. The only work that should take place is in the 203 and 242 men's room which has exposed supply piping under the counter (Photo 16-06).

**Recommendations:** Unlike other sink areas in other bathrooms, the two sinks, one in restroom 203 and the other in 242 men's room, the supply piping that feeds the sink comes from the floor directly below the sink. It is recommended that those two sink areas have their piping protected during the next renovation project.

### Suites

Of the 35 suites in this area, only suites 242 A & B, 243 B & D, 202 C and 203 D have a dedicated wheelchair space (Photo 16-07). The remaining 28 suites do not, instead they have tiered seating and a full height counter on the entry level floor (Photo 16-08).

**Recommendations:** When these suites are renovated it is recommended a dedicated space for wheelchair viewing be provided.

## IX. RESTROOM TOWERS

Constructed in 1999 under the lease improvement, there are a total of 4 restroom towers each with a men's and women's room at both the lower concourse level and at the top of the 300 level seating.

### Lower 300 Level Towers

There were no deficiencies found in any of the 8 lower restroom tower restrooms.

### Upper 300 Level Towers

There were no deficiencies found in any of the 8 lower restroom tower restrooms. The toilet stalls were wheelchair accessible and the faucets are operated by push button.

**Recommendations:** There is no work needed at this time.

## **X. 300 LEVEL CONCOURSE – NORTH**

### Restrooms

The only deficiencies found within the restrooms was that the faucets in restrooms 308.05, 312.04 and 314.03 have lavatory faucets that do not meet ADA standards. There are 20 faucets in total.

**Recommendations:** It is recommended that the faucets be replaced during the next renovation project.

### Seating

There is currently 60 spaces for wheelchairs available along the top row of the 300 level (Photo 16-09). Several of these seats have limited visibility due to the stairs from the upper walkway to the aisles (Photo 16-10). These spaces are accessible through the elevator located in the northwest restroom tower.

**Recommendations:** No work is required

## **XI. 300 LEVEL CONCOURSE – SOUTH**

### Restrooms

Restrooms 330.04, 334.06 and 336.03 have lavatory faucets that do not meet ADA standards. There are 20 faucets in total.

**Recommendations:** It is recommended that the faucets be replaced during the next renovation project.

### Seating

Similar to the North side there is currently 60 available spaces for wheelchairs along the top row of the 300 level. Several of the spaces on the south side also have limited visibility and are accessible through the elevator located in the southeast restroom tower.

**Recommendations:** No work is required

## XII. ADA ACCESSIBILITY AND USAGE ESTIMATE

DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL
<u>100 Level Concourse Restrooms</u>				
ADA Faucets	30	EA	245	\$15,000.00
Pipe Insulation	22	EA	100	\$2,200.00
<u>Berm Bathrooms</u>				
Mirror Relocation	16	EA	100	\$1,600.00
<u>Dugout Suite Renovations</u>				
Pipe Insulation	32	EA	100	\$3,200.00
Suite 103B Renovation	1	LS	25000	\$25,000.00
<u>Pepsi Club</u>				
Pipe Insulation	32	EA	100	\$3,200.00
Providing Accessibility at Sideline Suites	22	EA	14000	\$308,000.00
<u>Dunn Tire/Toyota Clubs</u>				
Pipe Insulation	32	EA	100	\$3,200.00
Providing Wheel Chair Seating at Sideline Clubs	2	EA	5000	\$10,000.00
Providing Accessibility at Sideline Suites	12	EA	14000	\$168,000.00
<u>West End Suites</u>				
Panel Install at Restroom				
Piping	2	EA	1200	\$2,400.00
Provide Wheelchair Space in Suite	28	EA	3500	\$98,000.00
<b>TOTAL =</b>				<b>\$689,100.00</b>

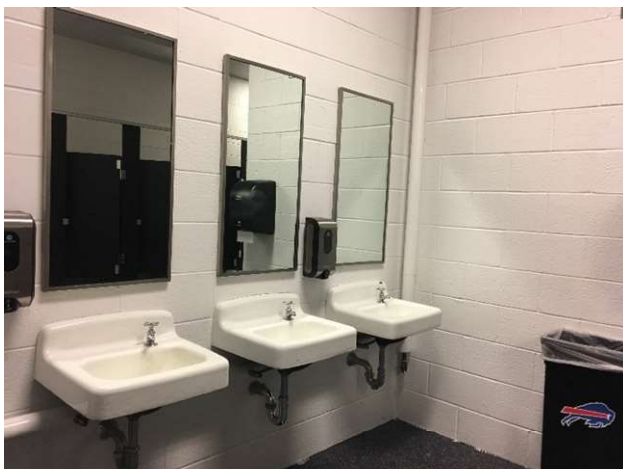
### XIII. PHOTOGRAPHS



**Photo 16-01**  
100 Level Wheelchair Seating with  
companion seat



**Photo 16-02**  
Restroom 131.06 sinks with non-compliant  
faucet handles



**Photo 16-03**  
Restroom 136.07 sinks with non-compliant  
faucet handles or pipe protection



**Photo 16-04**  
Berm bathroom mirror



**Photo 16-05**  
Dugout suite restroom

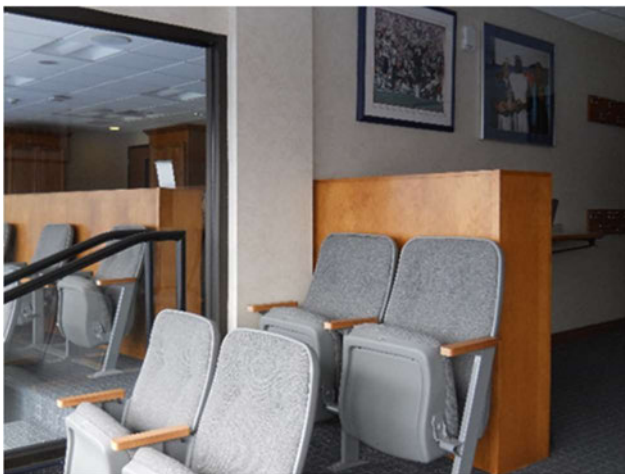


**Photo 16-06**  
West End Suite restroom under counter  
piping





**Photo 16-07**  
West End Suite 243B with wheelchair  
seating

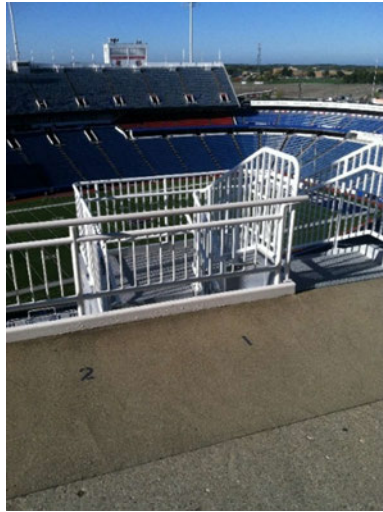


**Photo 16-08**  
West End Suite with full height counter



**Photo 16-09**  
Upper 300 level wheelchair spaces





**Photo 16-10**  
Upper 300 Level obstructed view  
wheelchair space

## **SITE CONDITIONS**

### **I. GENERAL**

The Highmark Stadium Site is approximately 203 acres and encompasses 6 major structures, asphalt parking areas, shot and chip parking, asphalt access roads, asphalt pedestrian walkways and grass areas (Drawing SK.11). The parking areas are delineated by guide railing, boulders or fencing and most include high mast lighting for night time events. The majority of surface runoff is conveyed by overland flow or through underground piping toward Smokes Creek on the east side of the site.

The divisions of Site Conditions are as follows:

- II. Asphalt Parking Areas
- III. Shot & Chip Parking Areas
- IV. Pedestrian Walkways
- V. Access and Service Roads
- VI. Guide railings, Gates and Fences
- VII. Light Poles
- VIII. Drainage Structures
- IX. Erosion
- X. Ponding
- XI. Water Main
- XII. Concrete Curbing
- XIII. Parking Attendant Booths
- XIV. Estimate
- XV. Photographs

### **II. ASPHALT PARKING AREAS**

Approximately 107 acres of the site is dedicated to parking with almost half of those parking lots paved with asphalt. These parking lots include Lot 1, Lot 2, Lot 5, Lot 6, Lot 7 and the Field House Lot, Lot 2- ADA, Bills Store Lot, Lot 6-ADA, Tunnel Lot, Commissary Lot, Training Center Lot, Regional Club Lot, Operations Building Lot, Youth Football Field Lot and Maintenance Lot. Since 2009, many of these lots have been overlaid or reconstructed and remain in good to excellent condition. However, a few of the parking lots were found to have a greater level of distress and are in need of repair. They are as follows:

- Lot 1 is in fair to poor condition with widespread cracking with potholes present and continuing to form in map cracked areas (Photo 18-01).
- The western portion of Lot 2 is in fair condition. The lot is generally cracked having joint and map cracked areas between paving lanes which are starting to form small delaminations and potholes (Photo 18-02).
- Lot 7 is in good condition with the exception of extensive cracking/open joints along the edges of the paving lanes and failed pavement along the unrestrained eastern edge (Photo 18-03).
- Surrounding the salt barn and trash compactor is a small service/delivery lot. Asphalt in this area exhibits areas of ponding and extensive map cracking and raveled pavement (Photo XX).

**Recommendations:** Based on field observations and subsurface examination performed in 2020, the current pavement section within the Lot 1 is insufficient for its current usage. Therefore, this area should be fully reconstructed with a thicker pavement section and new underdrain piping. Asphalt pavement in the west half of Lot 2 should be removed and replaced in kind. The pavement along the west side of Lot 1 and Fieldhouse Drive should be removed and replaced in kind. Open joints/cracks along the paving lanes in Lot 7 North should be sealed with a hot-applied joint sealer and additional stone fill should be placed along the eastern edge prior to repairing the pavement. A geotechnical investigation should be performed to determine the subsurface conditions beneath the pavement surrounding the salt barn and trash compactor on the south side of the Youth Football Stadium. A full depth reconstruction of these areas should be considered based on the findings.

### III. SHOT & CHIP PARKING AREAS

Recently, several of the parking areas with Shot and Chip construction have been replaced with asphalt construction. The Shot and Chip Lots that remain are Lot 3 (including Tailgate Village, the Camper, Bus Lot and Limousine Lot), Lot 4, and the Team Member Lot. All shot and chip lot areas are located along the west side of Abbott Road. The following is the condition and last known construction for these lots:

- Camper Lot adjacent to Lot 3 was redone in 2015 and is in very good condition but includes a top layer of stone that is not as tightly bound with asphalt like portions of other shot and chip lots in good condition (Photo 18-04).
- A portion of Lot 3 was redone in 2018 and is in very good condition. A portion of this area has subsequently been surrounded by chain link fence and designated 'Tailgate Village' (photo 18-05).
- The balance of Lot 3 is in poor condition with a breakdown of the shot and chip for over 50% of the surface area with numerous areas of loose stone, rutting, potholes and standing water. Ground water continues to percolate to the surface in certain areas. This portion of the lot was last reconditioned in 1994 (Photo 18-06).
- Lot 4 has experienced a breakdown of the shot and chip for over 50% of the surface area. This Lot was last reconditioned in 1994. Portions of this Lot were paved in 2018 and are in very good condition. Areas of loose stone, rutting and potholes in the southeast corner of this lot were addressed under the 2016 project and remain in good condition (photo 18-07). The balance of the lot has experienced a 50% to 75% debonding of the shot and chip (photo 18-08).
- Team Member Lot, the game day employee parking lot, has experienced a breakdown of the shot and chip for approximately 80% of the surface area with areas of loose stone, potholes and standing water. Portions of the lot have 100% failure of the surface and exhibit exposure of the subbase stone (Photo 18-09). This lot was first constructed in 1998.

**Recommendations:** The remainder of Lot 3 should be milled and restored with a new shot and chip surface after the addition of underdrain to address the ground water percolation. An asphalt emulsion seal (fog seal) should be considered for the Camper Lot to further stabilize the new top coat of stone. Perform isolated pothole repairs throughout Lot 4. In addition, the application of an asphalt emulsion (fog seal) should be considered to stabilize the broken up and loose top layer of stone that is present in 50% of Lot 4. Isolated loose and damaged shot and chip areas in the Team Member Lot should be repaired and portions of the Lot should be fully reconstructed.

#### IV. PEDESTRIAN WALKWAYS

There are approximately 4.0 miles of pedestrian walkways located around the stadium and throughout the parking areas. Typically the walkways are constructed asphalt or concrete and are on average 10 feet in width. Many of the walkways throughout the site were recently reconstructed or repaired and are in good to excellent condition with little to no cracking.

Three walkways in need a repairs are the sidewalks along the east and west sides of Abbott Road and the walkway along the west side of Lot 1. The walkways along Abbott Road that serve Lots 5 and 6 (east side) and Lots 3 and 4 (west side) on game days have wide transverse cracks spaced 15-25 feet along with longitudinal cracking, map cracking and raveled asphalt. (Photo 18-10). The pedestrian walkway along Lot 1 has transverse cracking approximately every 15 feet (photo 18-11).

**Recommendations:** The pedestrian walkways along Abbott Road should be reconstructed. Transverse cracking in the pedestrian walkway along Lot 1 should be crack sealed.

#### V. ACCESS AND SERVICE ROADS

There are approximately 2.1 miles of access/service roads located around the stadium. Located off Abbott Road, One Bills Drive is approximately 1500 feet long and is also the most heavily used. It serves as the main access for delivery trucks as well as employee vehicles.

For evaluation purposes One Bills Drive has been divided in to two sections. The first section, from Abbott Road to the Guard House, was reconstructed in 2019. This section is in excellent condition. The remaining portion of Bills Drive, from the Guard House to Access Road C, was reconstructed in 2016 and is very good condition.

Access Road 'C' extends along the east side of the property connecting Fieldhouse Drive to Stadium Drive. The worst portion of this road was found along the east side of the indoor practice field and training center annex extending to One Bills Dr. where areas of map cracking and surface raveling were observed (Photo 18-12). This section is scheduled to be reconstructed in 2021. The remainder of Access Road 'C' is in good to very good condition with only intermittent transverse and longitudinal cracking observed south of Bills Drive.

Drive 3 provides access to Lot 3 from Abbott Road. An old triangular shape patch of asphalt on the south half of this road is in poor condition with map cracking and many potholes. (See photo 18-12). The north half on this entrance off Abbott Road is in good condition. The remaining portion of Drive 3 that curves to Community Drive and lies adjacent to ECC Campus is in very good condition.

Fieldhouse Drive is located between Route 20A and Bills Drive and acts as the southern entrance to the stadium. The road is in fair condition with longitudinal, transverse and fairly extensive map cracking at the Route 20A entrance and in the middle third of pavement width. (See photo 18-13).

All other access roads and drives were found to be in good to very good condition.

**Recommendations:** Access Road C from Drive 1 to the southeast corner of the outdoor practice field should be milled and overlaid with 1 ½ inches of asphalt with full depth (4") asphalt repairs completed to the surface that is unraveled and map cracked in the south lane of Access Road 'C'. Intermittent cracks along the remaining portion of Access Road C should be sealed. The triangular shaped asphalt pavement section of Drive 3 off Abbott Road should be reconstructed. Field House Drive should have a mill and overlay treatment completed over its full length; from Route 20A to Bills Drive.

## VI. GUIDE RAILINGS, GATES AND FENCES

Guide railings delineate most of the parking areas, access roads and walkways around the stadium complex. There are approximately 20,780 linear feet of guide railing within the stadium complex. The guide rail is a galvanized w-beam section with embedded posts at approximately 10 foot intervals. The following are some of the conditions (photos 18-14 and 18-15) found with the guide railing at the time of the study:

- 14 disconnected railings
- 25 bent posts
- 18 loose guiderails
- 425 missing bolts
- 25 damaged railing sections
- 9 missing end sections
- 58 damaged/bent end sections

There are 13 gates located at the entrances to the access roads. These typically consist of two galvanized bollards with 4" galvanized pipe swing gates across the entrance and serve to limit vehicular traffic when no events are being held in the stadium. The gates are in good condition with only light rusting of the welded connections on the swing gates and function adequately.

The condition of the approximate 17,019 LF of chain link fencing in and around the stadium complex varies from poor to excellent depending upon age. This includes perimeter fencing around the stadium, practice fields, fencing along drives and other areas. The fencing ranges from 4' high to 10' high. Some fencing and gates require minor repairs while other sections should be replaced. The following list describes the condition of the fencing:

- 25 SF bent mesh
- 19 bent posts
- 12 missing post caps
- 148 LF of 7'-6" foot fence replacement
- 17 disconnected or damaged top rails
- 181 posts/top rails with missing fabric ties
- 550 LF of missing tension wire at bottom of fabric

Included in quantities above is damaged top rail in Lot 7 North from a fallen tree limb. (Photo 18-16). Also, the 7'-6" blue fabric fencing along the top of bank on the east side of the training center storage

lot. (Photo 18-17). The top rail and post caps of the eight-foot-high galvanized chain-link fencing surrounding the Youth Football Stadium continue to corrode.

The approximate 3,462 LF of 10' black wire mesh security fence separating the stadium from the parking lots is generally in excellent condition. The security fence includes eight 16' wide swing gates, sixty-six 10' wide swing gates, seven 6' wide swing gates, six 4' wide swing gates, two 3'-6" wide swing gates, seven 5' diameter exit only turnstiles, one 24' wide and one 19' wide motorized slider gates. Some fencing and gates require minor repairs, the following list describes the condition of the fencing:

- 25 SF bent fabric
- 1 missing top cap
- 1 dented post
- 22 bolts missing at gate hinge-to-post connections
- 23 missing fabric-to post clips
- 3 missing anchor bolts at the fence post base on the west side of gate 7.

**Recommendations:** The damaged guide railing is an on-going maintenance issue and will need to be addressed on a continuous basis. The more critical elements that need to be addressed are the railing replacements and missing end sections. The remaining items can be addressed by maintenance staff throughout the year.

Most of the fencing has been replaced within the last few years. Most areas of bent mesh, bent and disconnected poles and other minor issues do not pose any safety or security issues, however they are aesthetically displeasing. The damaged fence on the north side of Lot 7 North should be repaired along with the bent posts and damaged top rails at the Operations Building parking Lot. The 148 LF of 7'-6" foot high fence along the top of bank on the east side of the training center should be removed and replaced as its failure presents both safety and security issues. The fencing surrounding the Youth Football Stadium shows signs of corrosion but is still in overall good condition. Condition of fencing should be monitored and consideration given to replacing fencing at the Youth Football Stadium should corrosion continue to advance.

## VII. LIGHT POLES

There are 42 high mast poles in the shot and chip parking lots on the west side of Abbott Rd that are in very good condition. Another 13 older high mast poles scattered throughout other parking lots that appear to be in very good condition with some exhibiting minor cracking with efflorescence in their concrete bases. Approximately 3 square feet of the concrete base for Pole # 5, in Lot 1, was found to be delaminated. (Photo 18-18).

There are 60 pipe mast poles with single or twin luminaires located at the west side of the stadium in Lot 2 ADA, and at the west service gate, Gates 2, 3,4 and 5, Bills Store and Founders Plaza that were observed to have heavy weathering, corrosion and rusting. There are also 3 similar poles in the Commissary Building (Bldg. 101) parking lot. (photo 18-19). The remaining light poles in the lots and within the stadium are in good to very good condition.

**Recommendations:** The cracks in the light pole bases should be injected to minimize water penetration and the delaminated concrete in base of Pole #5 should be removed and replaced. **The 60 pipe mast poles should be evaluated to determine the structural integrity of the pole.**

## VIII. DRAINAGE STRUCTURES

There are numerous drainage structures located throughout the stadium parking lots connecting miles of underground piping that convey storm runoff from the parking areas and stadium grounds to Smoke Creek on the east side of the stadium. The original drainage system was constructed with a limited amount of drainage structures in each parking lot. Many of these structures have been replaced as the parking lots have been reconstructed. Those that remain are now nearly 50 years old, typically constructed of masonry and are in fair or poor condition. Over the years, additional drainage structures and piping have been incorporated into the system when facilities were added and to improve the drainage in and around the stadium. These structures were found to be in generally good to excellent condition.

Located around the stadium, there are 2 drainage structures that are in poor to fair condition (northwest corner of Lot 2 and in the Tunnel Lot). These structures exhibit failed mortar joints and have loose or missing bricks. Pavement surfaces adjacent to the structures have left frames and grates susceptible to impact damage throughout the site.

**Frames of the structures adjacent to the outdoor practice field appear to be undersized. This may be cause of distress in the track surface that lies between the practice field and the fieldhouse. - ?**

**Recommendations:** The 2 drainage structures in fair to poor condition should be removed and replaced with new precast concrete drainage structures. These structures should be replaced in a timely manner before they become a safety issue. Pavement conditions adjacent to structures should be addressed and frames and covers reset or replaced, as necessary. **Remove and replace existing frames and grates within track surface adjacent to outdoor practice field when track is replaced.** Continue to clean and monitor all drainage structures and piping to ensure that they are functioning properly.

## IX. EROSION

As previously stated, the majority of the surface runoff from this site is collected by the drainage system and discharged into Smoke Creek. Consistent with the original stadium site plans, **there are seven known outfalls where water collected throughout the stadium and parking lots is discharged into Smoke Creek. One of these outfalls, located across from the south end of the youth field, was found to be surrounded by dense vegetation and not accessible. Two others appear to be functioning without any signs of problems. Outfalls at the four other locations exhibit varying degrees of erosion.**

In early 2015, erosion of the embankment adjacent to 'S' curve along Access Road 'C' (drawing SK-11) was observed to be encroaching very close to the roadway. The erosion in this area appeared to be primarily the result of high flows of surface runoff that over time had eroded the lower portions of the embankment. As this erosion persisted, sections of the piping that were intended to convey the runoff down the slope became unsupported and failed. Subsequent pipe failures allowed the erosion to continue up the embankment. In mid-2015, a stilling basin was added near the reconstructed base of



the embankment, in an effort to slow the flows and prevent future erosion. However, the basin and its stone filling were installed slightly above the intended outfall location. This appears to have allowed small runnels to form beyond the limits of the stone (Photo 18-20).

An energy dissipating structure was installed at the terminus of the 48" storm drainage trunk that follows Bills Drive, as part of the Training Center construction (1999). This structure appears to be generally functioning as intended, with only a small 1' deep erosion pool approximately 40' downstream of the structure (photo 18-21).

The two remaining outfalls are located near the top of the embankment between Bills Drive and the Operations Building. Erosion of the embankment at these locations has left the end sections unsupported; causing one end sections to fall into the creek bed below.

No other significant areas of erosion were observed during our review of the site.

**Recommendations:** Clear all debris and vegetation from the outfalls on a regular basis. Install additional stone filling downstream of stilling basin and energy dissipater. Restore outlets and embankment between Bills Drive and Operations Building. Protect restored embankment with appropriate measures. Provide short stone lined channels down to existing swale along north edge of Lot '7'. Channels should be located where concentrated flow has already eroded the embankment. It should also be noted that the banks of Smoke Creek show signs erosion along the embankment between Bills Drive and the Operation Building this area is outside the scope of this condition study, but should be reviewed as part of future studies.

## X. PONDING

Overall, the majority of the site drains very well with limited area of significant standing water. Ponding is most prevalent in Lots '3' and '4' where the shot and chip surfacing has deteriorated and grades do not promote positive drainage toward existing inlets. Standing water was also observed adjacent to the Training Center loading dock.

**Recommendations:** Regrade to promote positive drainage when performing the rehabilitation of shot and chip surfacing in Lots '3' and '4'. Mill and overlay asphalt pavement near the Training Center loading dock to correct grades in this area. Provided additional drainage structures, as necessary.

## XI. WATER MAIN

The existing 16" transite (ACP) water main that supplies water to the complex was originally installed in 1972 and is nearly 50 years old.

**Recommendations:** Consideration should be given to replacing water main with new 16" ductile iron pipe. Existing waterline can be abandoned in place once the new pipe is brought into service.



## **XII. CONCRETE CURBING**

There is approximately 4,282 LF of raised 6" concrete curb and 302 LF of concrete gutter curb on the stadium campus. The 220 LF of raised 6" curb surrounding the guard house on One Bills Dr. is in good condition exhibiting spalling, cracking and minor chipping. The remainder of the raised 6" curb is in very good condition with only minor localized chips and cracks. The 302 LF of gutter curb is along the west side of Access Rd. 'C' on the east side of the Commissary Building (Bldg. 101). 31 LF of this gutter curb is in poor condition (photo 18-22). The remainder of the section is in good condition with minor chips and cracks.

**Recommendations:** The 31 LF of gutter curb should be replaced in-kind. No other actions are required.

## **XIII. PARKING ATTENDANT BOOTHS**

There are 8 concrete block structures that serve as shelter for parking lot attendants when the lots are in use. 2 are located on the west side of Fieldhouse Drive and are in good condition, one has 5 chipped/broken block and the other exhibits only peeling paint. 1 is located at the One Bills Drive entrance at Abbott Road and is in very good condition. 1 booth is located in Lot 7 North at Stadium Drive is in fair condition with approximately 50 broken and deteriorating block and 30 LF of repointing necessary. The 2 booths located in Lot 4 (at the Abbott Road and Route 20 entrances – photo 18-23), as well as the 1 booth located across from the Camper lot are in poor condition with approximately 50 to 70 broken and deteriorating block, rusted doors and frames and 100 LF to 200 LF of joint repointing at each of the 3 booths. The 1 booth located at the west entrance to the Team Member Lot (from Big Tree Road) is in very good condition with only minor paint peeling.

**Recommendations:** Replacement of broken and chipped blocks on Field House Drive and Stadium Drive along with repointing and repainting should be considered to preserve the structures. Replacement of the 3 booths at both Lot 4 entrances as well as across from the Camper Lot should be considered due to their deteriorated condition. No work is recommended for the booths at One Bills Drive and the Team Member lot west entrance.

#### XIV. SITE CONDITIONS ESTIMATE

Highmark Stadium Condition Report 2020/2021				
Site Conditions				
Annual Repairs				
Description	Quantity	Unit	Unit Cost	Total
<u>Light Poles</u>				
Concrete Repairs	3	SF	\$ 150.00	\$ 450.00
Epoxy Crack Injection	5	LF	\$ 660.00	\$ 3,300.00
Annual Subtotal:				\$ 3,750.00
Single Occurrence Repairs				
Description	Quantity	Unit	Unit Cost	Total
<u>Asphalt Parking Areas</u>				
Fieldhouses Lot Reconstruction	220000	SF	\$ 6.50	\$ 1,430,000.00
Mill & Overlay (Lot 2 East)	18000	SF	\$ 5.50	\$ 99,000.00
Crack Sealing (General)	20565	LF	\$ 2.75	\$ 56,553.75
Mill & Overlay (General)	6600	SF	\$ 5.50	\$ 36,300.00
Full Depth Asphalt Repairs (General)	4000	SF	\$ 15.00	\$ 60,000.00
<u>Shot &amp; Chip Parking Areas</u>				
Lot G Reconstruction	73035	SF	\$ 5.00	\$ 365,175.00
Lot 4 Rehabilitation	667000	SF	\$ 2.00	\$ 1,334,000.00
Lot 3 Rehabilitation	590000	SF	\$ 2.00	\$ 1,180,000.00
Lot X Rehabilitation	35200	SF	\$ 2.00	\$ 70,400.00
<u>Pedestrian Walkways</u>				
Mill & Overlay (Abbott Rd)	20000	SF	\$ 5.50	\$ 110,000.00
Crack Sealing (Lot 1)	600	LF	\$ 2.75	\$ 1,650.00
<u>Access Roads and Service Roads</u>				
Crack Sealing (Abbott Rd C)	2808	LF	\$ 2.75	\$ 7,722.00
Mill & Overlay (Access Road C)	12430	LF	\$ 5.50	\$ 68,365.00
Full Depth Repairs (Access Road C)	1000	LF	\$ 15.00	\$ 15,000.00
Asphalt Repairs (Drive 3)	4625	LF	\$ 5.50	\$ 25,437.50
Mill & Overlay (Fieldhouse Drive)	61000	LF	\$ 5.50	\$ 335,500.00
Crack Sealing (General)	6738	LF	\$ 2.75	\$ 18,529.50
<u>Guide Railings, Gates and Fences</u>				
Guide Railing Repairs/ Replacement	470	LF	\$ 39.00	\$ 18,330.00

Misc. Railing Repairs	1	LS	\$ 10,000.00	\$ 10,000.00
Guide Railing Replacement (Lot G)	1140	LF	\$ 39.00	\$ 44,460.00
4 FT Fence Replacement	144	LF	\$ 39.00	\$ 5,616.00
6 FT Fence Replacement (Drive 4A)	96	LF	\$ 45.00	\$ 4,320.00
<u>Drainage Structures</u>				
Drainage Structure Replacement	2	EA	\$ 5,000.00	\$ 10,000.00
<u>Erosion</u>				
Light Stone Fill Along Tunnel Wall	1	LS	\$ 10,000.00	\$ 10,000.00
Stone Channels Along Lot 7	1	LS	\$ 10,000.00	\$ 10,000.00
Light Stone Fill at Stilling Basin	1	LS	\$ 10,000.00	\$ 10,000.00
Restoration at Outlets	2	EA	\$ 10,000.00	\$ 20,000.00
<u>Ponding</u>				
Mill & Overlay	6000	SF	\$ 5.50	\$ 33,000.00
<u>Water Main</u>				
New 16" DIP	800	LF	\$ 220.00	\$ 176,000.00
<u>Parking Booths</u>				
Replace Parking Booths	8	EA	\$ 25,000.00	\$ 200,000.00
Single Occurrence Subtotal:				\$ 5,765,358.75

## XV. PHOTOGRAPHS



**Photo 18-01**  
Asphalt deterioration in Lot 1.



**Photo 18-02**  
Western portion of Lot 2.



**Photo 18-03**  
Lot 7 North pavement failure at unrestrained east edge.





**Photo 18-04**

Camper Lot (reconstructed in 2015), note minor ponding.



**Photo 18-05**

2018 reconstruction at Lot 3.



**Photo 18-06**

Deterioration of shot and chip in Lot 3 with percolation of ground water.



**Photo 18-07**

Intact shot and chip in southeast corner of Lot 4.



**Photo 18-08**

Extensive deterioration of shot and chip in Lot 4.



**Photo 18-09**

Subbase pumping up through failed shot and chip surface in Team Member Lot.





**Photo 18-10**

Longitudinal, transverse and map cracking with raveled pavement at pedestrian walkway on west side of Abbott Rd.



**Photo 18-11**

Pedestrian walkway along Fieldhouse Dr.



**Photo 18-12**

Asphalt map cracking and potholes at Drive C.



**Photo 18-13**

Asphalt map cracking at Fieldhouse Drive entrance from Route 20A.



**Photo 18-14**

Typical guide railing damage.



**Photo 18-15**

Missing end sections (typ.).





**Photo 18-16**

Damaged fence north side of Lot 7 North.



**Photo 18-17**

7'-6" fencing at top of bank on east side of training center storage lot.



**Photo 18-18**

Light pole base with cracking and efflorescence



**Photo 18-19**

Corrosion/rusting on light poles with single and twin luminaires. Typical on poles in Lot 2 ADA, west service gate, Gates 2, 3,4 and 5, Bills Store, Founders Plaza and the Commissary Building Lot.



**Photo 18-20**

Erosion beyond limits of stone protection at stilling basin



**Photo 18-21**

Vegetation growth at outlet to Smokes Creek located on east side of indoor practice field.





**Photo 18-22**

Broken concrete gutter curb along the west edge of Access Rd. 'C'



**Photo 18-23**

Lot 4 parking attendant booth.

## DIVISIONS OF MECHANICAL, ELECTRICAL AND PLUMBING

### I. GENERAL

The Buffalo Bills Stadium Complex has numerous mechanical, electrical, and plumbing items that allow the stadium to function during everyday operations and during game day events. Several of these items exist from the original construction. The MEP systems were surveyed by visual inspection and current conditions and equipment reviewed with stadium facilities personnel.

The divisions of Mechanical, Electrical and Plumbing are as follows:

### II. HVAC

- II A. Stadium Restroom – Renovation
- II B. Visitor's Locker Rooms
- II C. Officials Office Room
- II D. Cooling Towers and Fluid Coolers
- II E. Training Center HVAC System
- II F. Field House – H & V System
- II G. Complex-Wide Building Management (DDC) Control System Upgrades
- II H. Commissary Building
- II I. Operations Building
- II J. Administration Building – Server Room

### HVAC

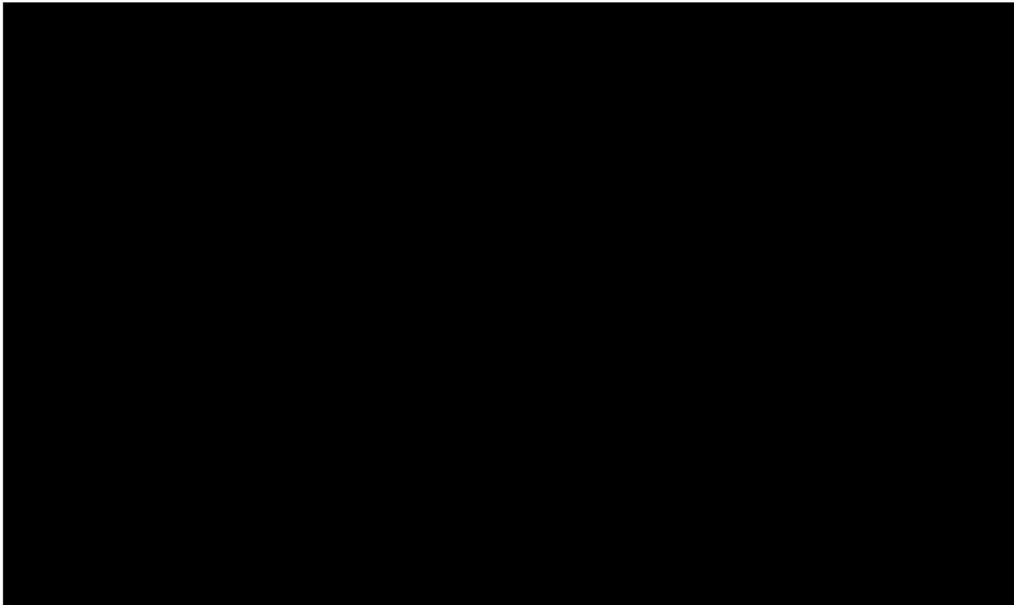
#### II A. Stadium Restroom – Renovation

##### Berm Room Rest Room Facilities:

[REDACTED]

[REDACTED]

[REDACTED]



Conclusion

[Redacted text block]

Recommendation:

[Redacted text block]

Main and Lower Level Restroom Facilities:

Existing Conditions:

[Redacted text block]

Conclusion:

[Redacted text block]

II B. VISITOR'S LOCKER ROOMS

Existing Conditions:

[REDACTED]

[REDACTED]

[REDACTED]  
[REDACTED]  
[REDACTED]

Recommendation:

[REDACTED]  
[REDACTED]  
[REDACTED]

II C. OFFICIALS OFFICE ROOM

Existing Conditions:

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

Recommendations:

[REDACTED]  
[REDACTED]

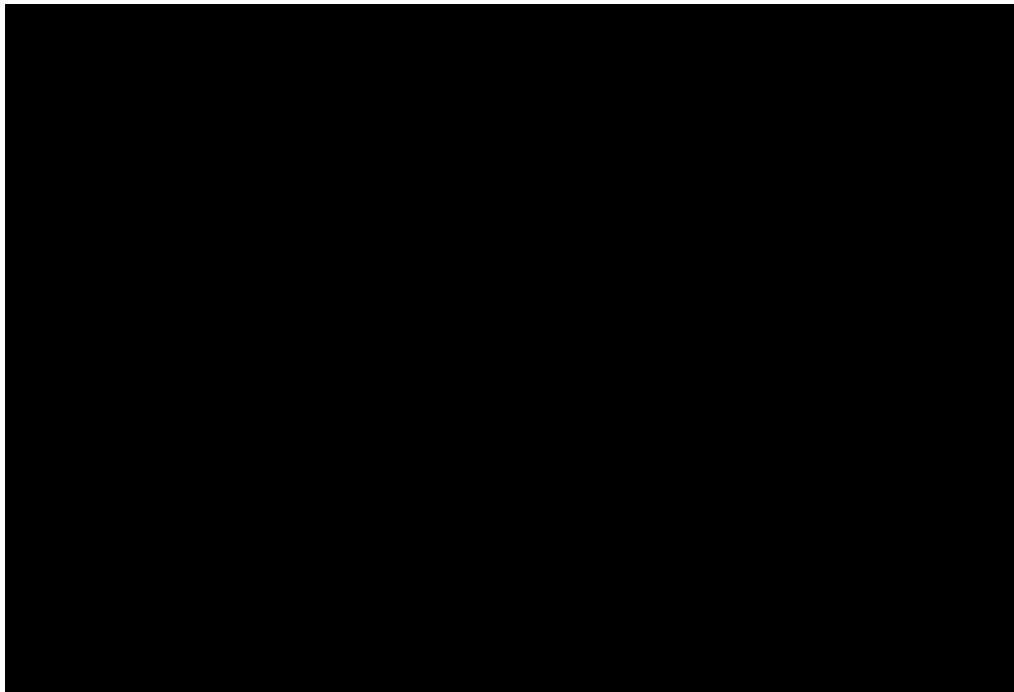
II D. COOLING TOWERS AND FLUID COOLERS

Cooling Towers

Existing Conditions:

[REDACTED]  
[REDACTED]

[REDACTED]



[REDACTED]

[REDACTED]

Recommendations:

[REDACTED]

Fluid Coolers

Existing Conditions:

[REDACTED]

Image M3: Fluid Coolers



Recommendations:

[REDACTED]

**II E. TRAINING CENTER HVAC SYSTEM**

Existing Conditions:

[REDACTED]



Recommendations:

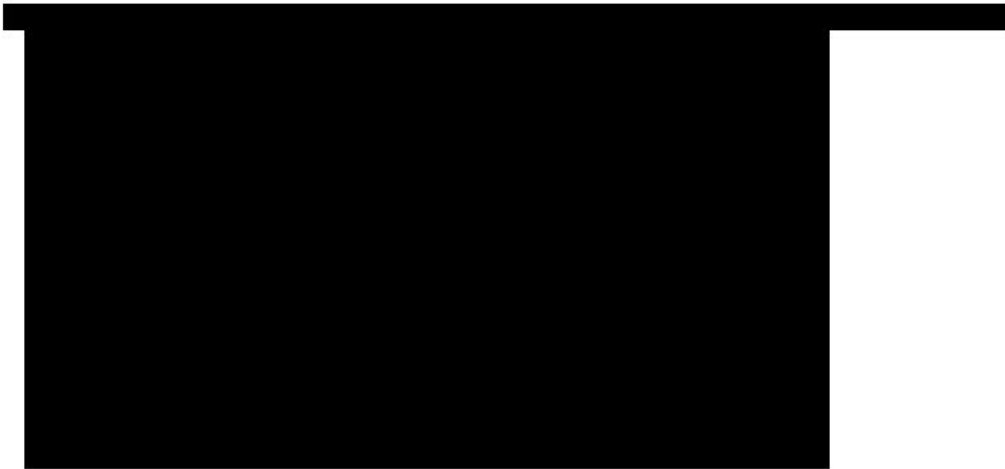
II F. FIELD HOUSE – H & V SYSTEM

Existing Conditions:

- [REDACTED]
- [REDACTED]

II G. COMPLEX-WIDE BUILDING MANAGEMENT (DDC) CONTROL SYSTEM UPGRADES:

Existing Conditions:



Recommendations:

Stadium Ramp Mechanical Rooms, Existing Novar Replacement Scope:

[Redacted text block containing multiple lines of blacked-out content under the heading 'Stadium Ramp Mechanical Rooms, Existing Novar Replacement Scope:']

Stadium Lighting Control Scope, Encelium Replacement:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

II H. CLUBS AND SUITES HVAC

Existing Conditions:

Sideline Clubs

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]



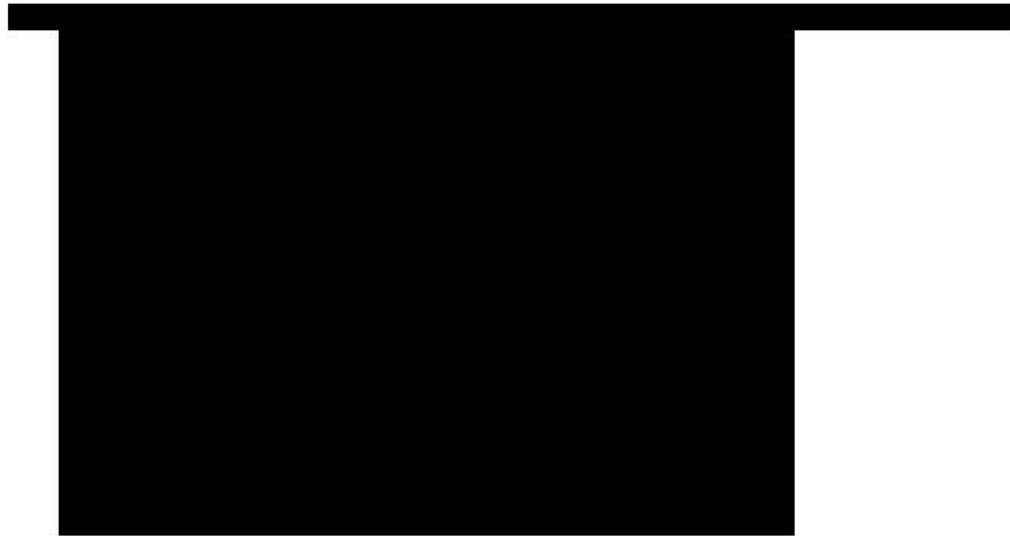
[Redacted text line]

Recommendations:

[Redacted text line]  
[Redacted text line]  
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Red and Goal Line Clubs

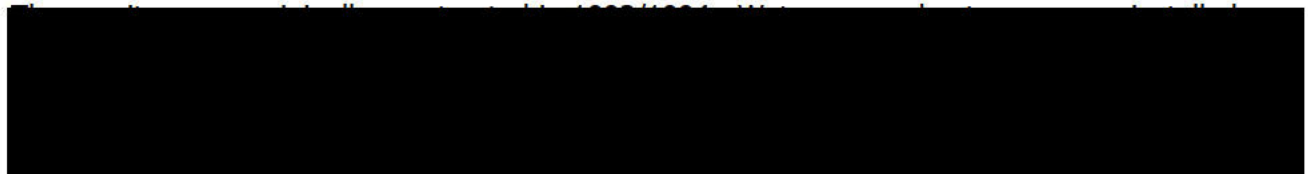
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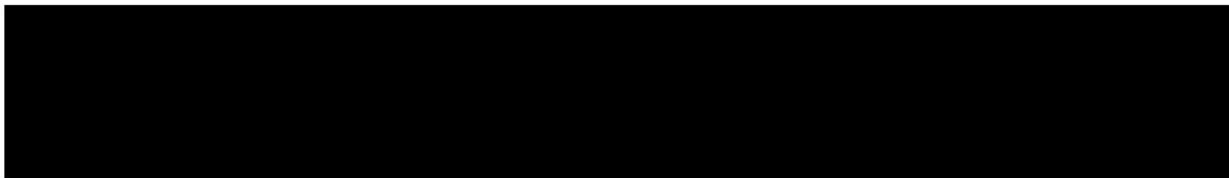
Sideline and Dugout Suite

Existing Conditions:

Side Line Suites



Dugout Suites



II I. COMMISSARY BUILDING

Existing Conditions:



Recommendation:

II J. OPERATIONS BUILDING:

Existing Conditions:

Recommendations:

II K. Administration Building – Server Room

Existing Conditions:

Conclusion:

[REDACTED]

Recommendation:

[REDACTED]

III. Plumbing

III A. Stadium:

1. Restrooms and Fixtures
2. Sanitary and Vent Piping
3. Storm Water Piping
4. Natural Gas Piping
5. Domestic Water Piping
6. Water Heaters
7. Plumbing Specialties
8. Pipe Insulation
9. Valves
10. Fire Protection Piping and Sprinklers

III B. Field House Building:

1. Restrooms and Fixtures
2. Sanitary and Vent Piping
3. Storm Water Piping
4. Natural Gas Piping
5. Domestic Water Piping
6. Water Heaters
7. Plumbing Specialties
8. Pipe Insulation
9. Valves
10. Kitchen
11. Jacuzzi
12. Laundry
13. Pool
14. Fire Protection Piping, Sprinklers, and Fire Pump System

III C. Commissary Building:

1. Restrooms and Fixtures
2. Sanitary and Vent Piping
3. Storm Water Piping
4. Natural Gas Piping
5. Domestic Water Piping
6. Water Heaters
7. Plumbing Specialties
8. Pipe Insulation
9. Valves
10. Kitchen
11. Laundry
12. Fire Protection Piping and Sprinklers

III D. Operations Building:

1. Restrooms and Fixtures
2. Sanitary and Vent Piping
3. Storm Water Piping
4. Natural Gas Piping
5. Domestic Water Piping
6. Water Heaters
7. Plumbing Specialties
8. Pipe Insulation
9. Valves



10. Fire Protection Piping and Sprinklers

III E. Water Services Building:

1. Site Water Piping

III A. STADIUM

1. Restrooms and Fixtures

Ralph Wilson Stadium has 4 restroom towers that service the 300 level by providing restrooms at the upper and lower 300 level.

Restroom toilet facilities for the patrons exist on levels 100, 200, 300 and 400. 86 group use toilet rooms exist throughout the facility and a large number of small individual facilities for single use or suite use throughout all levels. The largest number of facilities are at the lower level 100 and the least at the top 400 level. Travel distances, spacing and access are good. ICC-A117.1 Compliant Accessible and usable Buildings and Facilities for ADA Compliant facilities did not exist at the time of original construction. The fixtures are as follows.

- Wall mounted china water closets with manually operated flush valves and concealed in chase carriers. (Images P1 and P2)
- Wall mounted lavatories with self-closing faucets. These are either the manual original four blade twist handle type or new push button self-closing type. (Image P3)
- Semi-circular multi station wash fountains of solid surface construction. (Images P4 and P7)
- Wall mounted urinals manually operated flush valves with concealed in chase carrier. (Images P5 and P2)
- Trough style urinals with a trickle water supply manually turned on for use during events (Image P6).



Image P1: Wall hung water closet



Image P2: Piping behind bathroom fixtures.



Image P3: Lavatories with exposed piping.



Image P4: Multi station wash fountain.

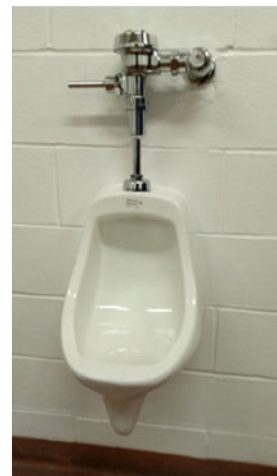


Image P5: Wall hung urinal



Image P6: Trough style urinal.



Image P7: Inside multi station wash fountain.



Image P8: 100-level hand washing station.

The fixtures can be rated as average to good condition. Manufacturers vary as updates and repairs have been performed. The oldest original are 45 years old. Life expectancy 5 to 10 years. The fixtures are generally in good condition due to extensive on-going maintenance and vary in age as various upgrades have been performed, however, many are showing wear due to their age. Also, the fixtures are used "in mass volume" for single large spread-out events, not daily, which attributes to their longevity. Traps and supplies are exposed and covered for wheelchair access (Image P9). Many of the fixtures do not actually comply with current 2009 ICC compliances for ADA accessibility. The four blade handles are not ADA compliant. Tempered water is supplied to the lavatories in toilet rooms through an Eemax electric water heater concealed in a closet with an ASSE compliant mixing valve used to adjust the delivery set point for hot water (Image P10). Most of the current water closets operate at the higher flush rate of 2.0 gallons per minute. Reducing to the current Code compliant flush rate of 1.28 gallons per flush could result in more blockages in sewers with the reduced flow rates.



Image P9: Lavatories with piping exposed.

**Recommendations:**

Long term: Replace all fixtures throughout with new china fixtures. Provide for a uniform selection of fixtures by one manufacturer. Provide for the current 2009 ICC compliances for ADA accessibility. Consider fixtures where all components for the fixture are supplied by the same manufacture as unit. Consider eliminating the trough style urinal arrangement.

Short term: Replace all flush valves and faucets throughout to one style by one manufacturer. Use 0.25 gallon per flush urinals to reduce site water consumption. Provide all new ADA Compliant push button type self-closing faucets. Replace all traps and supplies at lavatories.

**2. Sanitary and Vent Piping:**

The sanitary piping consists of mostly of original cast iron service weight piping. Cast iron piping can have a service life of 70 years. The cast iron piping is in good condition. Schedule 40 PVC piping has been installed at renovation and repair locations. The PVC piping is in good condition. An annual maintenance program is conducted to cable clean and flush and camera the sanitary sewers post football seasons for inspection of the internal condition and preparation for the upcoming season.

**Recommendations:**

Replace sanitary piping only as required for toilet room reconfigurations or as necessary for repairs. Provide schedule 40 solid core PVC at renovated areas.

**3. Storm Water Piping:**

The storm piping consists of mostly of original cast iron service weight piping. Cast iron piping can have a service life of 70 years. The cast iron piping is in good condition. Schedule 40 PVC piping has been installed at renovation and repair locations. The PVC piping is in good

condition. It was reported that a recent failure and rupture of a storm pipe occurred at a west end tower toilet food vending area.

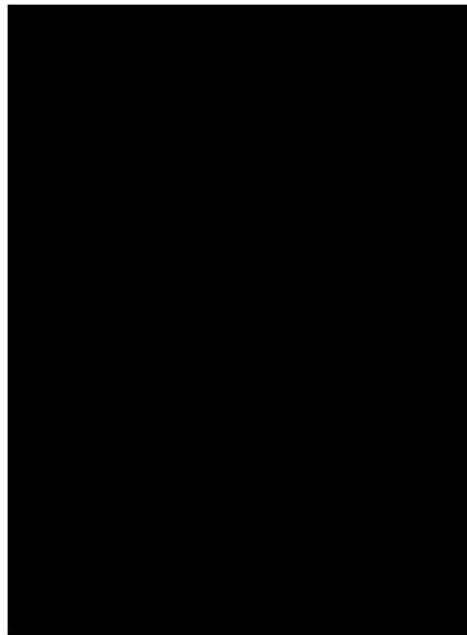
Recommendations:

Obtain the use of a contractor to perform a camera investigation of the vertical storm water stacks and piping in the four towers. Investigate the internal condition of the piping from the roof drains down to the base for rust, condition of joints and obstructions.

Replace storm piping only as required for interior reconfigurations, when accessible while structural repairs are performed, or as necessary for repairs. Provide schedule 40 solid core PVC at renovation locations.

4. Natural Gas Piping:

[REDACTED]



Recommendations:

[REDACTED]



5. Domestic Water Piping:

[REDACTED]

[REDACTED]

Recommendations:

[REDACTED]

6. Water Heaters:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Recommendations:

[REDACTED]

[REDACTED]

■ Plumbing Specialties:

[REDACTED]

[REDACTED]



Image P15: Floor drain in bathroom.



Image P16: Floor drain.

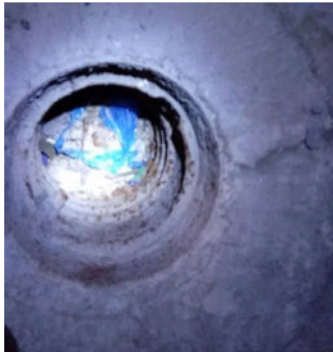


Image P17: Floor drain missing cover.

#### Recommendations:

[REDACTED]

#### 8. Pipe Insulation:

[REDACTED]



[REDACTED]

Recommendations:

[REDACTED]

[REDACTED]

9. Valves:

[REDACTED]

Recommendations:

[REDACTED]

10. Fire Protection Piping and Sprinklers:

[REDACTED]

Recommendations:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

3. Storm Water Piping:

[REDACTED] cast iron piping  
can have a service life of 70 years. The cast iron piping is in good condition.

Recommendations:

[REDACTED]

4. Natural Gas Piping:

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

Recommendations:

[REDACTED]

5. Domestic Water Piping:

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
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[REDACTED]

[REDACTED]  
[REDACTED]  
[REDACTED]

[REDACTED]

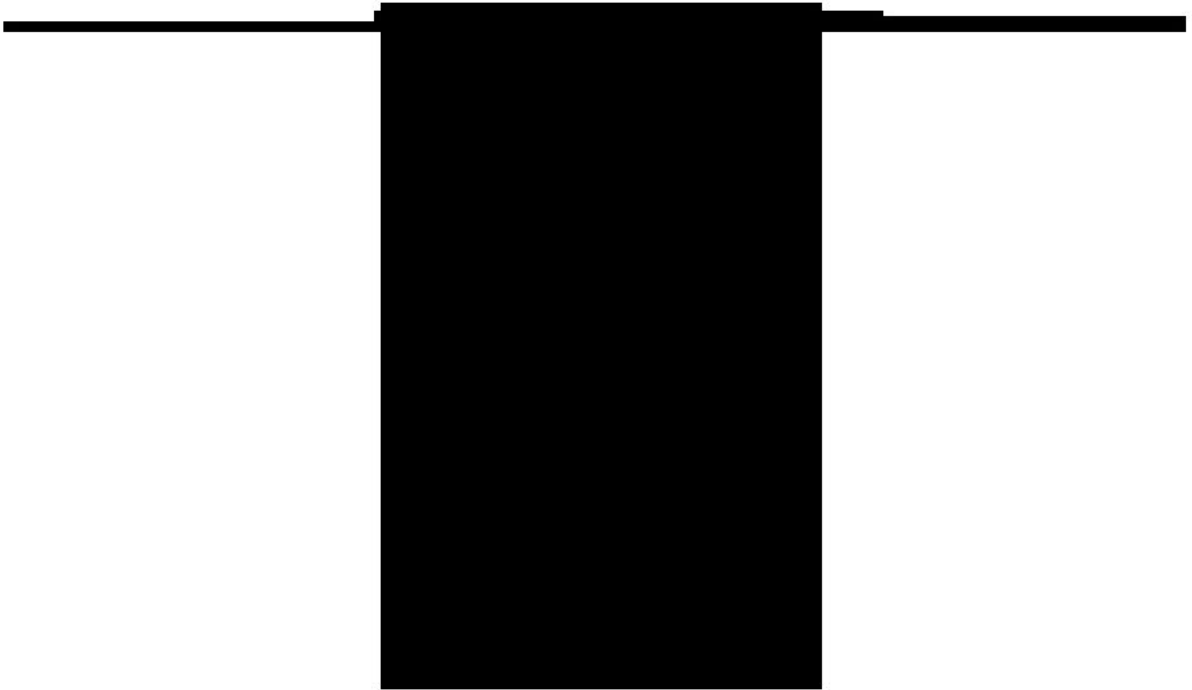
[REDACTED]

Recommendations:

[REDACTED]

6. Water Heaters:

[REDACTED]



Recommendations:

[Redacted text block]

7. Plumbing Specialties:

[Redacted text block]



Image P23: Floor drain in mechanical space.

Recommendations:

8. Pipe Insulation:



Recommendations:

[Redacted text block]

9. Valves:

[Redacted text block]

Recommendations:

[Redacted text block]

10. Kitchen:

[Redacted text block]

Recommendations:

[Redacted text block]

[REDACTED]  
[REDACTED]  
[REDACTED]  
11. Jacuzzi:

[REDACTED]  
[REDACTED]

Recommendations:

[REDACTED]

12. Laundry:

[REDACTED]  
[REDACTED]

Recommendations:

[REDACTED].

13. Pool:

[REDACTED]  
[REDACTED]  
[REDACTED].

Recommendations:

[REDACTED]

14. Fire Protection Piping, Sprinklers, and Fire Pump System:

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

[REDACTED]  
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[REDACTED]  
[REDACTED]



[REDACTED]

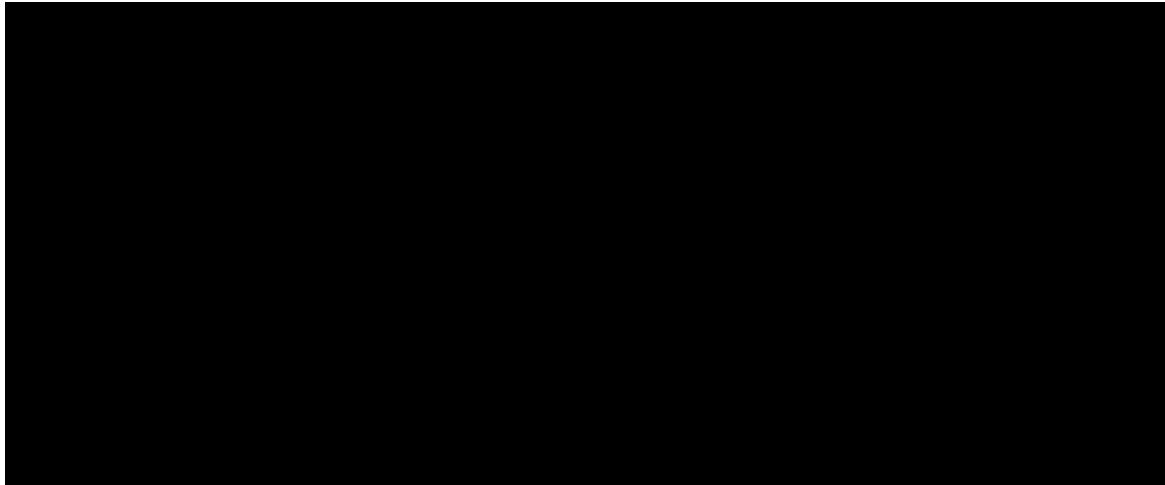
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[REDACTED]

[REDACTED]

[REDACTED]  
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[REDACTED]  
[REDACTED]  
[REDACTED]

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]



Recommendations:



III C. COMMISSARY BUILDING

1. Restrooms and Fixtures:

Restroom toilet facilities for the staff consist of 5 toilet rooms. ICC-A117.1 Compliant Accessible and Usable Buildings and Facilities for ADA Compliant Facilities are provided for throughout this facility. The fixtures are as follows.

- Wall mounted china water closets with battery powered sensor operated flush valves and concealed in chase carriers (Image P31).
- Wall mounted lavatories with concealed carriers and battery powered sensor operated self-closing faucets (Image P31).
- Wall mounted urinals with battery powered sensor operated flush valves with concealed in chase carriers.
- Mop service sinks with vacuum breaker faucets for floor cleaning.
- A polished stainless-steel sink in the break area (Image P32).
- Wall mounted water coolers with bottle filler stations.



Image P31: Bathroom fixtures.



Image P32: Kitchen fixtures.

The fixtures are newer and of high-grade quality and well maintained and rated as very good condition. Life expectancy is 15 to 20 years. Traps and supplies are exposed and covered for wheelchair access. It was noted that at the time of the site visit, many of the fixtures had expired batteries requiring replacement and this result was no water in most urinal and water closet and lavatory traps causing odors to back up through the sewers into the toilet rooms. Facilities was going to address the issue.

Recommendations:

No work is currently required for the short or long term for the plumbing fixtures.

2. Sanitary and Vent Piping:

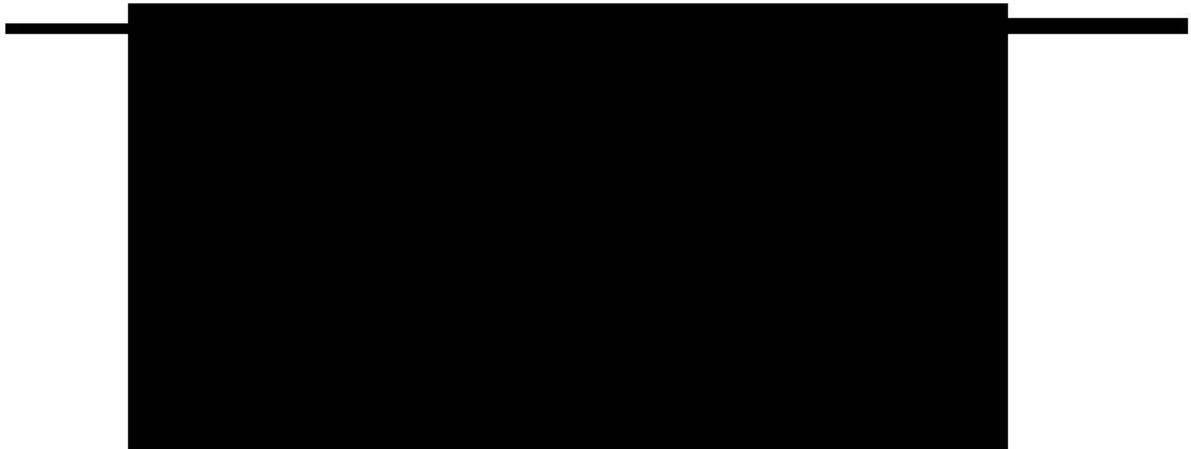
[REDACTED]

Recommendations:

[REDACTED]

3. Storm Water Piping:

[REDACTED]

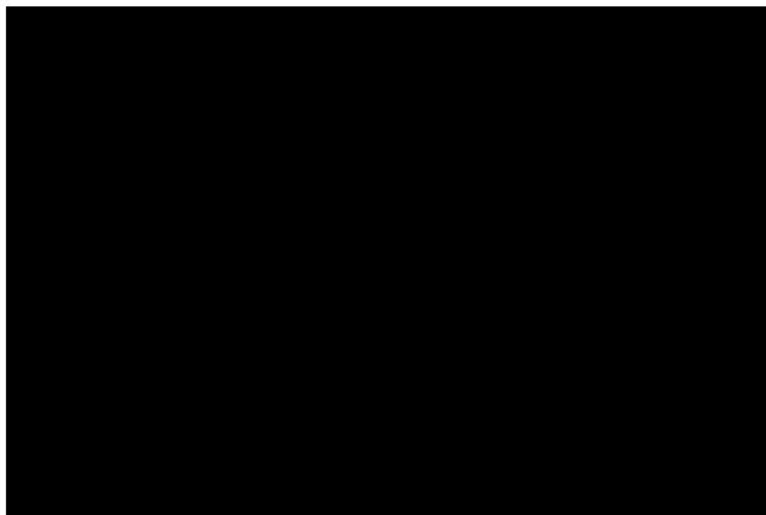


Recommendations:

[Redacted text]

4. Natural Gas Piping:

[Redacted text]



Recommendations:

[Redacted text]

[REDACTED]

5. Domestic Water Piping:

[REDACTED]

[REDACTED]

Recommendations:

[REDACTED].

6. Water Heaters:

[REDACTED]

[REDACTED]

Recommendations:

[REDACTED]

7. Plumbing Specialties:

[REDACTED]

[REDACTED]

[REDACTED]

Recommendations:

[REDACTED]

8. Pipe Insulation:

[REDACTED]

Recommendations:

[REDACTED]

9. Valves:

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

Recommendations:

[REDACTED]

10. Kitchen:

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

[REDACTED]



Image P40: Kitchen hood and cooking equipment.



Image P41: Kitchen cooking equipment.

Recommendations:

No work is currently required for the short or long term for the kitchen.

11. Laundry:

A laundry area is located on the west side of the building for staff cleaning of work clothing. The equipment and piping are maintained and in good condition.

Recommendations:

No work is currently required for the short or long term for the laundry.

10. Fire Protection Piping and Sprinklers:

[REDACTED]

[REDACTED]



[REDACTED]

[REDACTED]

Recommendations:

[REDACTED]

**III D. OPERATIONS BUILDING**

**1. Restrooms and Fixtures:**

Restroom toilet facilities for the staff consist of 4 toilet room or toilet shower rooms. ICC-A117.1 Compliant Accessible and Usable Buildings and Facilities for ADA Compliant Facilities are provided for throughout this facility. The fixtures are as follows.

- Wall mounted china water closets with battery powered sensor operated flush valves and concealed in chase carriers.
- Mostly solid surface in counter mounted lavatories with battery powered sensor operated self-closing faucets.
- Wall mounted urinals with battery powered sensor operated flush valves with concealed in chase carriers.
- Showers of tiled and masonry construction with thermostatic mixing shower valves.
- Mop service sinks for floor cleaning.
- Polished stainless-steel sink with manual faucet in the break area.
- Wall mounted water coolers with bottle filler stations.

The fixtures are newer and of high-grade quality and well maintained and rated as very good condition. Life expectancy 20 years. Traps and supplies are exposed and covered for wheelchair access.

Recommendations:

No work is currently required for the short or long term for the plumbing fixtures.

**2. Sanitary and Vent Piping:**

[REDACTED]

Recommendations:

[REDACTED]

3. Storm Water Piping:

[REDACTED]

Recommendations:

[REDACTED]

4. Natural Gas Piping:

[REDACTED]

Recommendations:

[REDACTED]

5. Domestic Water Piping:

[REDACTED]

[REDACTED]

Recommendations:

[REDACTED]

6. Water Heaters:

[REDACTED]

[REDACTED]

Recommendations:

[REDACTED]

7. Plumbing Specialties:

[REDACTED]

Recommendations:

[REDACTED]

8. Pipe Insulation:

[REDACTED]

Recommendations:

[REDACTED]

9. Valves:

[REDACTED]

10. Fire Protection Piping and Sprinklers:

[REDACTED]

[REDACTED]

Recommendations:

[REDACTED]

III E. WATER SERVICES BUILDING

1. Site Water Piping:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

Recommendations:

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

Electrical:

IV A. Stadium:

1. Men's and Women's Toilet Facilities
2. Switchgear/Unit Substations
3. Field Lighting
4. Fire Alarm System
5. Emergency/Standby Power Systems
6. IR Heaters at Club Level Seating

IV B. Training Center Building:

1. Electrical Service
2. Electrical Distribution
3. Emergency/Standby Power System
4. Fire Alarm System
5. Lighting

IV C. Field House Building:

1. Electrical Service
2. Electrical Distribution
3. Emergency/Standby Power System
4. Fire Alarm System
5. Lighting

IV D. Operations Building:

1. Electrical Service
2. Electrical Distribution
3. Emergency/Standby Power System
4. Fire Alarm System
5. Lighting

IV E. Commissary Building:

1. Electrical Service
2. Electrical Distribution
3. Emergency/Standby Power System
4. Fire Alarm System
5. Lighting

IV F. NYSEG Transformer Building (Abbott Rd. Substation):

1. Electrical Service
2. Electrical Distribution
3. Lighting

IV G. Water Meter Building:

1. Electrical Service
2. Electrical Distribution
3. Lighting

IV H. Site Lighting

1. Stadium Quad/Entry Gates
2. Comfort Station/Bath House Parking Lot

IV I. Appendix:

1. Drawing E-1: FIELD LIGHTING ANALYSIS - BUFFALO ENGINEERING PHOTOMETRIC MODEL
2. Drawing E-2: FIELD LIGHTING ANALYSIS - BUFFALO ENGINEERING MEASURED PHOTOMETRICS
3. Drawing E-3: FIELD LIGHTING ANALYSIS - CAROLINA HIGH MAST ORIGINAL PHOTOMETRIC DESIGN

#### IV A. Stadium

##### 1. Men's and Women's Toilet Room:

###### Existing Conditions:

100 Level Concourse Toilet Rooms: These restrooms were renovated in the 2014 Stadium Improvement Project with the exception of Men's Restrooms 107, 116, 129, 138 which were renovated in the 2010 Project. Electrical systems consist of 2x4 T8 recessed fluorescent fixtures, occupancy sensors, and general receptacles. (Image E1)

100 Level Berm Toilet Rooms: These restrooms were originally constructed in 1994. They consist of 4' wet location suspended T8 fluorescent fixtures, occupancy sensors, and general receptacles. (Image E2)

200 Level Toilet Rooms: These restrooms were constructed/renovated in the 1999 project. Electrical systems consist of 2x2 T8 recessed fluorescent fixtures, recessed fluorescent downlights, speakers, occupancy sensors, and general receptacles. (Image E3)

300 Level Concourse Toilet Rooms: These restrooms were renovated in 2014 under the 2014 Stadium Improvement Project. They consist of 2x4 (4) lamp T8 recessed fluorescent fixtures, occupancy sensors, and general receptacles. (Image E1)

Tower Toilet Rooms: These upper-level tower restrooms were constructed in the 1999 Project, and the mid-level tower restrooms were constructed in the 2002 project. The electrical systems consist of 4' pendant mounted wet location T8 fluorescent fixtures, keyed light switches, and general receptacles. (Image E4)





Image E1 Typical 100 and 300 Level Toilet Room



Image E2 Typical Berm Toilet Room



Image E3 Typical 200 Level Toilet Room



Image E4 Typical Tower Toilet Room

Conclusion:

The convenience receptacles in the toilet rooms appear to be operational and in good condition. The existing lighting, lighting controls, and receptacles are generally in good working condition with the exception of general cleaning/maintenance. The typical life expectancy for a fluorescent fixture is approx. 20-25 years. The typical life expectancy of an occupancy sensor is approx. 10-15 years.

- The 100 Level Concourse Toilet room fixtures are approx. 7-11 years in age.
- The 100 Level Berm toilet room fixtures are approx. 27 years in age.
- The 200 Level toilet rooms are approx. 22 years in age.
- The 300 level concourse toilet rooms are approx. 7 years of age.
- The tower toilet rooms are approx. 19-22 years in age.

Recommendation:

At this time, it is recommended to perform general cleaning of dirt/debris from fixtures, replace any damaged/yellowed acrylic lenses, and replace any T8 lamps or ballasts as required. The 100 and 300 Level Concourse toilet room fixtures still have many years of expected life remaining.

The Tower, 200 Level, and Berm Toilet Rooms are nearing or at the end of their expected life cycle of approximately 20-25 years, but are still in good working condition. Replacement of these fixtures should be considered during the next major renovation of these toilet rooms.

2. Switchgear/Unit Substations:

Existing Conditions:

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]
  - [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

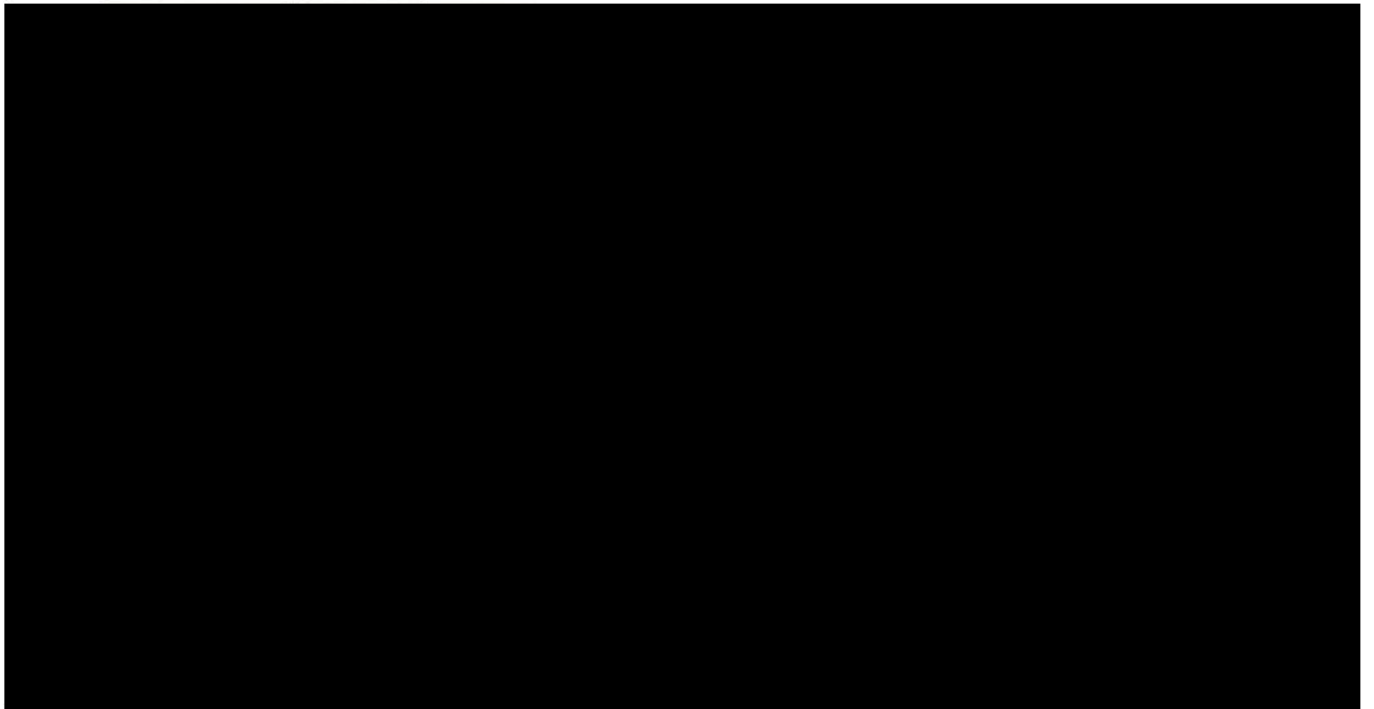
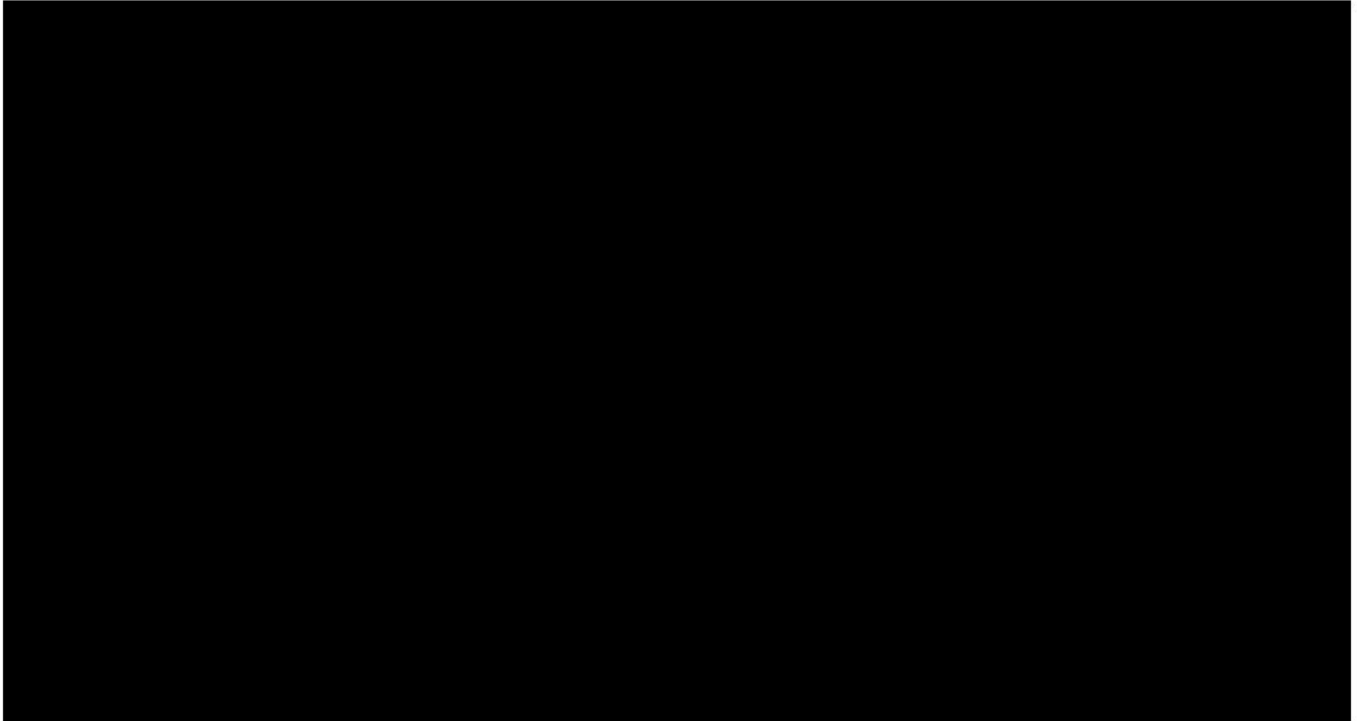
[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]



[REDACTED]

[REDACTED]

Conclusion:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Recommendation:

3. Field Lighting:

Existing Conditions:

The existing stadium field lighting consists of (6) poles with a total of 384 fixtures that provide general lighting and emergency lighting. There are (3) poles on the North Side with 60 fixtures on each pole and (3) poles on the South Side with 68 fixtures on each pole. The existing LED Carolina High Mast "Ultra Spot R" fixtures for the field were installed in 2017. There are currently a total of 32 fixtures that are failing in which 11 of 32 fixtures are completely out and 21 of 32 fixtures are partially out (Image E11).

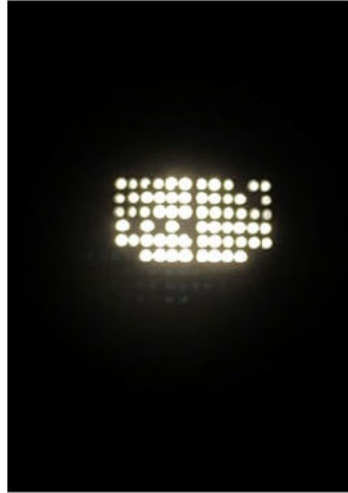


Image E11 Typical Light Pole with full/partial fixtures out

A photometric analysis was performed on the stadium field lighting to compare the light levels in 2021 to the original installation in 2017. Buffalo Engineering modeled the Bills Stadium in the lighting software "Visual Lighting 2020". Information/documentation from the manufacturer's original as-built drawings/submittals were used to determine the existing fixture mounting heights, aiming, IES file and light loss factor. The results of this model show an average of 196 footcandles, calculated at 36" above the field surface (See Drawing E-1). Buffalo Engineering also measured the stadium field lighting levels using a Sylvania DS-3050 light meter which gave the results of an average of 188 footcandles, measured at 36" above the field surface (See Drawing E-2). These results gathered by Buffalo Engineering were compared with the original photometric model done by Carolina High Mast in 2017 (See Drawing E-3), which show an average of 192 footcandles calculated at 36" above the field.

#### Conclusion:

The current NFL standard for stadium field lighting is an average of 250 footcandles. The calculated and measured values show that the light levels are slightly below 200 footcandles. The manufacturer's listed life cycle for the Stadium LED fixtures is as follows:

- 50,000 operating hours (L95 = 95% of initial lumen output).
- 100,000 operating hours (L92 = 92% of initial lumen output).

The fixtures are currently under the 5-year warranty as they were installed 4 years ago. The LED fixtures are still within their life expectancy and replacement fixtures are still available. The photometric analysis done by Buffalo Engineering compared to Carolina High Mast's photometric analysis show that the light levels are still comparable now as to when they were installed. The actual measurements on the field are lower than the calculated values, which could be attributed to the number of fixtures that weren't operating correctly at the time.

[REDACTED]

Recommendation:

It is recommended that the existing LED fixtures remain as they are meeting the footcandle levels that they were designed to achieve, but to replace the fixtures that aren't in good working condition.

To increase the light levels to the current NFL standard of 250 footcandles, additional fixtures would need to be added to the poles as part of a future project. The manufacturer currently does not supply a replacement fixture with enough lumen output for a 1-for-1 replacement to achieve this.

4. Fire Alarm System:

Existing Conditions:

[REDACTED]



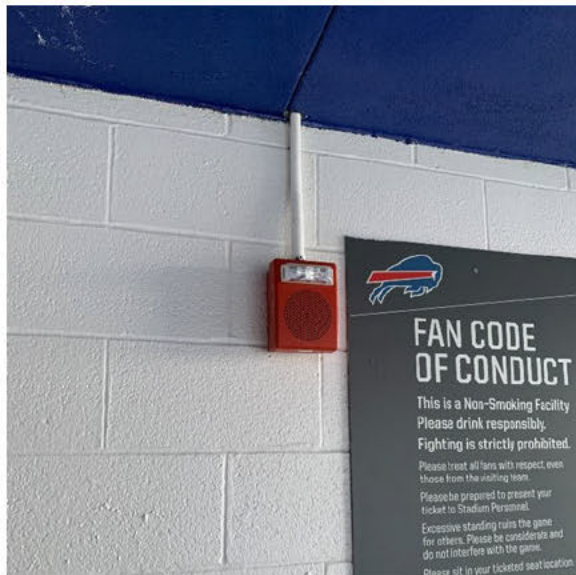
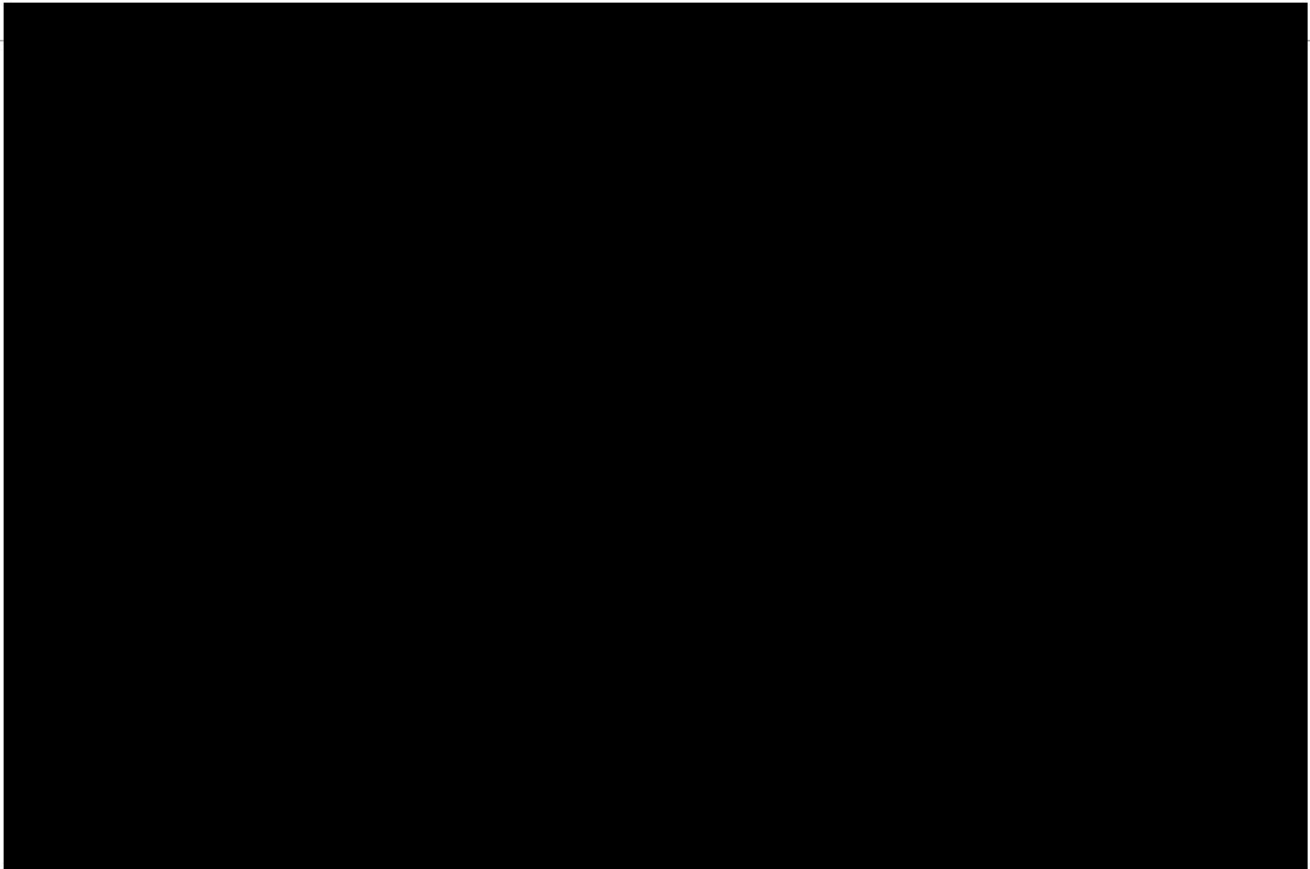


Image E14 Typical Fire Alarm Speaker Strobe

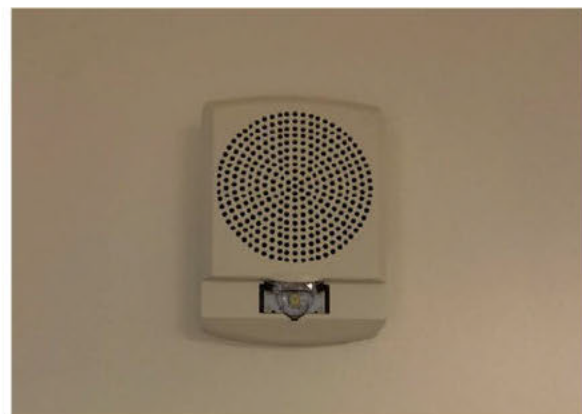


Image E15 Typical Carbon Monoxide Speaker Strobe



Image E16 Typical Restroom Smoke Detector

Conclusion:

[REDACTED]

Recommendation:

[REDACTED]

5. Emergency/Standby Power Systems:

Existing Conditions:

[REDACTED]

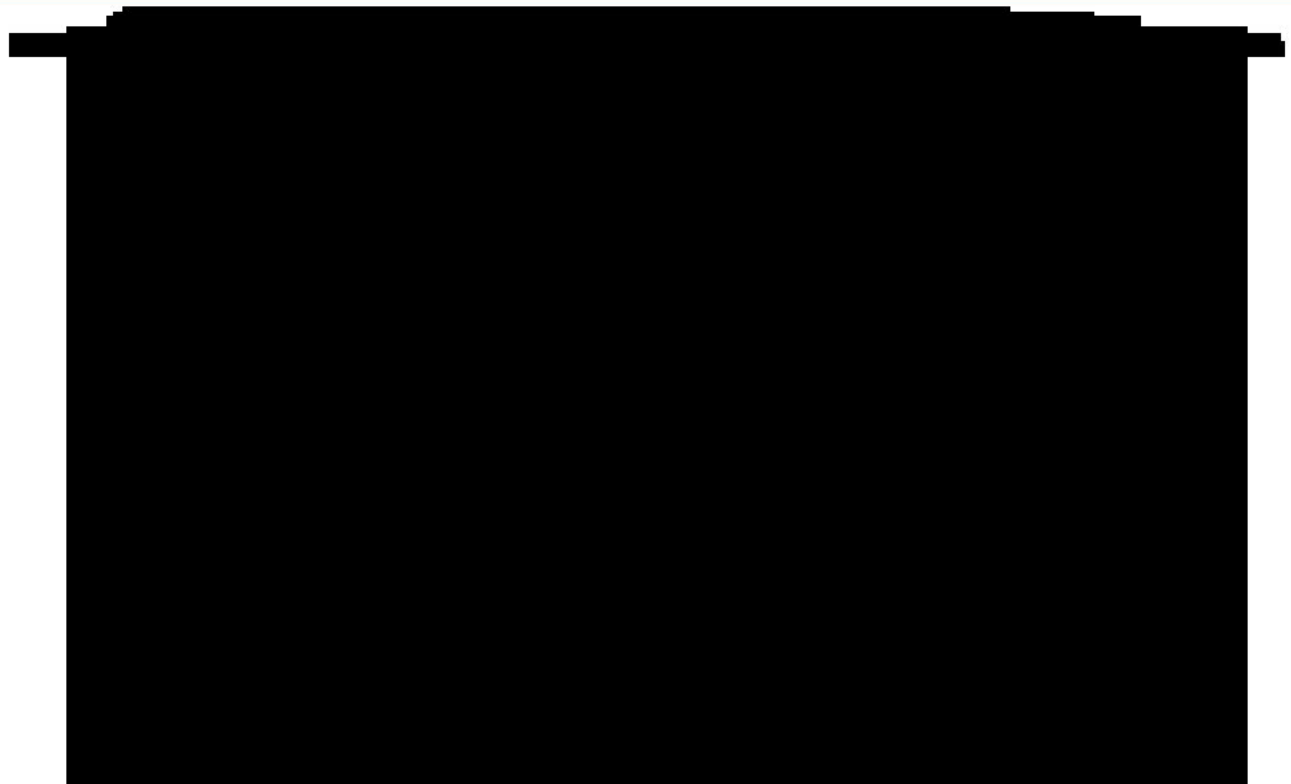
[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]



Conclusion:

[Redacted text line]

- [Redacted text line]  
[Redacted text line]  
[Redacted text line]  
[Redacted text line]
- [Redacted text line]  
[Redacted text line]  
[Redacted text line]  
[Redacted text line]  
[Redacted text line]
- [Redacted text line]  
[Redacted text line]

Recommendation:

[Redacted text line]

[Redacted text line]

- [Redacted text line]
- [Redacted text line]
- [Redacted text line]

[REDACTED]

## 6. IR Heaters at Club Level Seating:

### Existing Conditions:

[REDACTED]

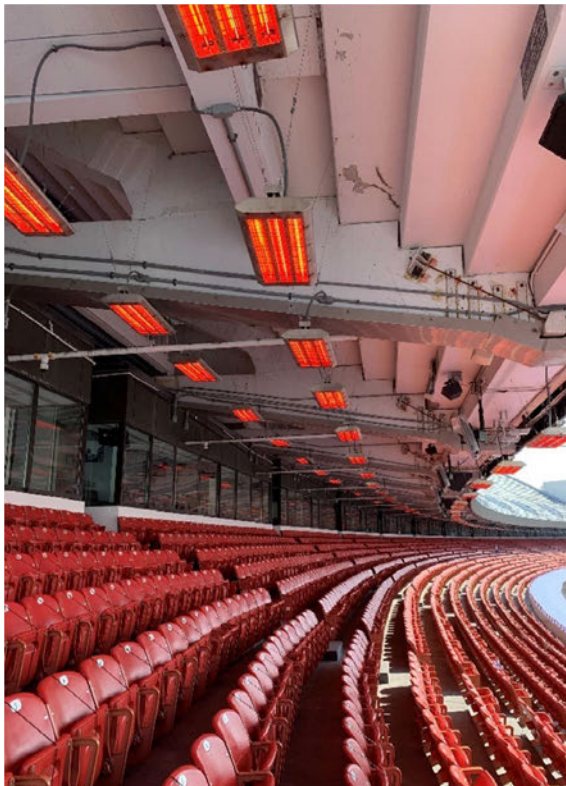


Image E20 Club Level IR Heaters



Image E21 Typical IR Heater with Element Out



Image E22 Typical IR Heater Broken Conduit and Supports

Conclusion:

The IR heaters are generally in good working condition, but are exposed to the elements and subject to adverse weather conditions/wind. There is a stock of spare fixture housings and parts in the club level basement, which is being used to replace/repair any damaged heaters as needed. The life expectancy of an IR heater is approximately 15-20 years. The existing IR heater is still being manufactured and replacement parts are still readily available from the manufacturer.

Recommendation:

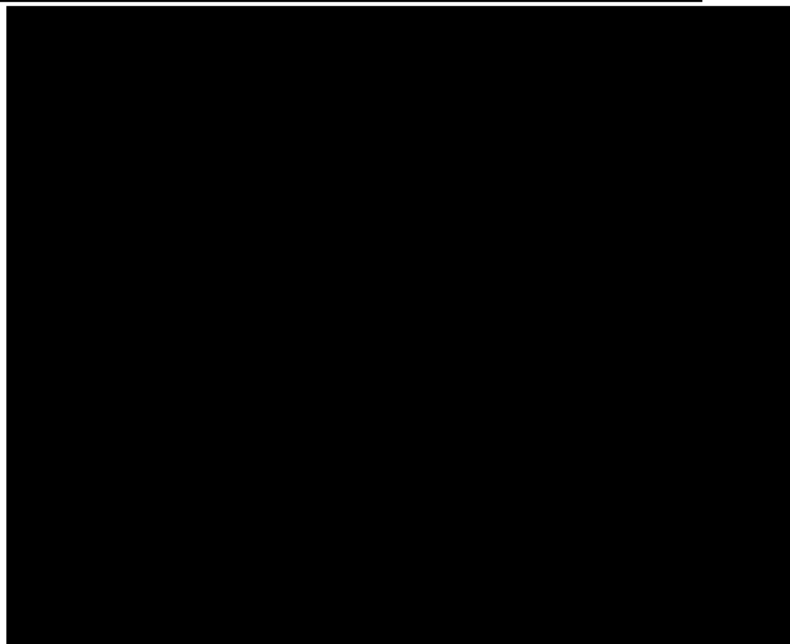
The IR heaters are still within their useful life expectancy and are generally in good working condition. It is recommended to repair any broken hangers/supports, repair any damaged PVC conduits, and replace the heating elements as required.

[REDACTED]  
IV B. Training Center Building

1. Electrical Service:

Existing Conditions:

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]



Conclusion:

[REDACTED]  
[REDACTED]  
[REDACTED]

Recommendation:

[REDACTED]  
[REDACTED]

[REDACTED]

## 2. Electrical Distribution:

### Existing Conditions:

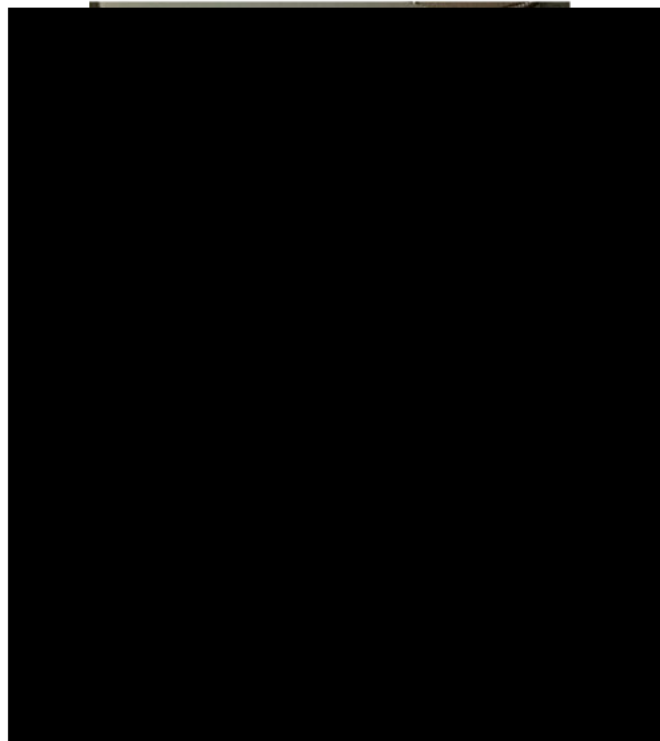
[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]



### Conclusion:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

### Recommendation:

[REDACTED]

[REDACTED]

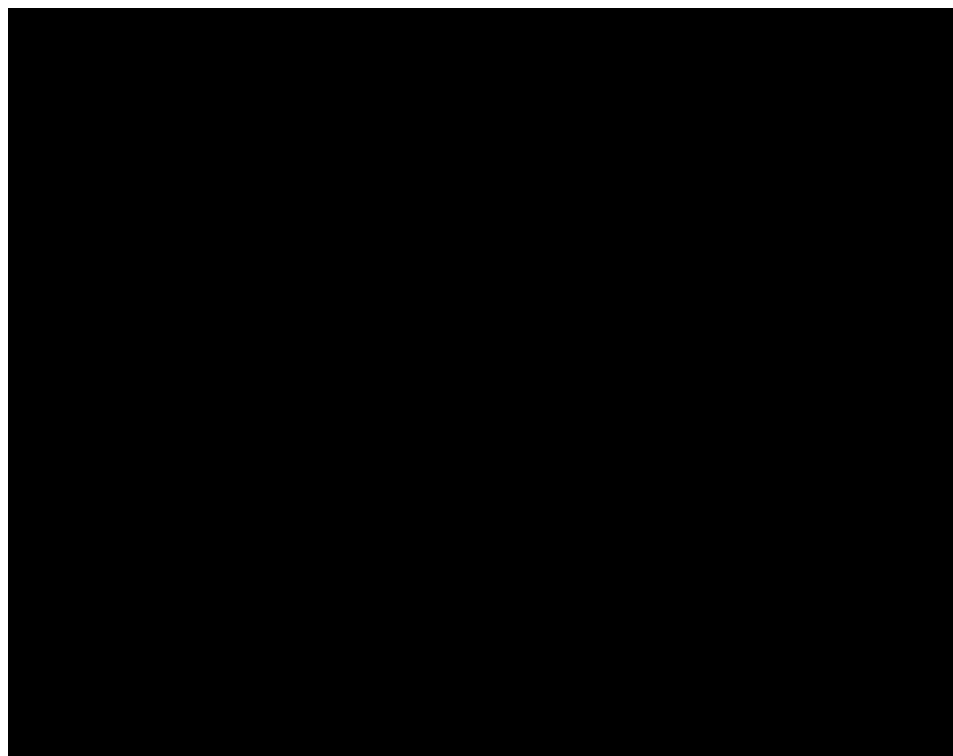


3. Emergency/Standby Power System:

Existing Conditions:

[REDACTED]

- [REDACTED]
- [REDACTED]
- [REDACTED]



Conclusion:

[REDACTED]

- [REDACTED]
- [REDACTED]
- [REDACTED]

Recommendation:

[REDACTED]

4. Fire Alarm System:

Existing Conditions:

[REDACTED]



Conclusion:

[Redacted text block]

Recommendation:

[Redacted text block]

## 5. Lighting:

### Existing Conditions:

A large portion of the interior building lighting has been updated to 2X2 & 2X4 recessed LED fixtures since the original construction in 1999 (Image E27). Portions of the building do still contain the original 2x4 recessed, 2x2 parabolic recessed, 4' suspended/surface mounted T8

fluorescent, and compact fluorescent recessed downlights/wall sconces that was installed in the 1999 project (Image E28). These original fluorescent lighting fixtures are primarily located in the 2<sup>nd</sup> floor west office spaces. The existing lighting controls in these areas were by local switching, with some areas having occupancy sensing controls.

In the 2014 project the locker room, weight room, cafeteria, and kitchen were replaced with new LED fixtures and the equipment, storage, shower, mail, and offices surrounding the locker room were replaced with new linear and 2x2 T5 fluorescent fixtures.

The exterior building mounted lighting has been updated with LED wall packs since the original construction in 1999.

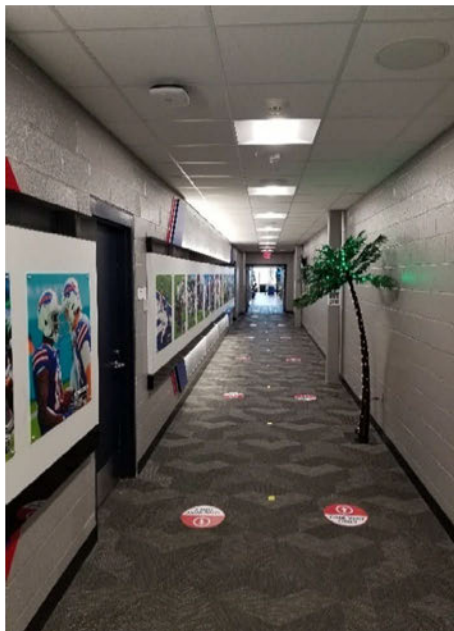


Image E27 Typical Recessed 2'x2' LED Fixture

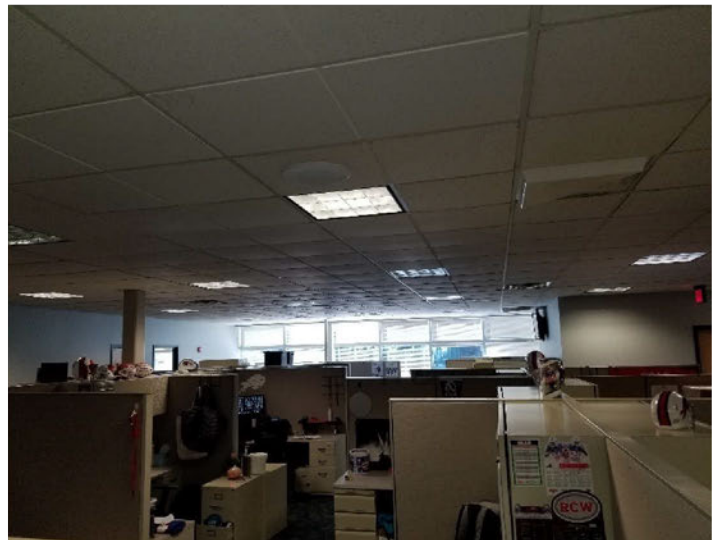


Image E28 Typical 2'x2' Fluorescent Parabolic Fixtures (1999)

### Conclusion:

The life expectancy for a fluorescent fixture is approx. 20-25 years. The life expectancy of an occupancy sensor is approx. 10-15 years. The existing lighting and lighting controls appeared to be in good working condition. The existing fluorescent lighting fixtures that were installed in

[REDACTED]  
[REDACTED]  
1999 are approx. 22 years old and have exceeded their expected useful life, but are still in good working condition.

Recommendation:

Replacement all of the fluorescent lighting that is original to the 1999 project with new LED fixtures and new vacancy sensing controls should be considered to become more energy efficient and comply with current energy codes, and for consistency with the remainder of the office space/corridors which have already been updated with LED.

The new LED and fluorescent lighting that was installed in the 2014 project is in good working condition and should continue to be maintained.

IV C. Field House Building

1. Electrical Service:

Existing Conditions:

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]



Conclusion:

[Redacted text block]

Recommendation:

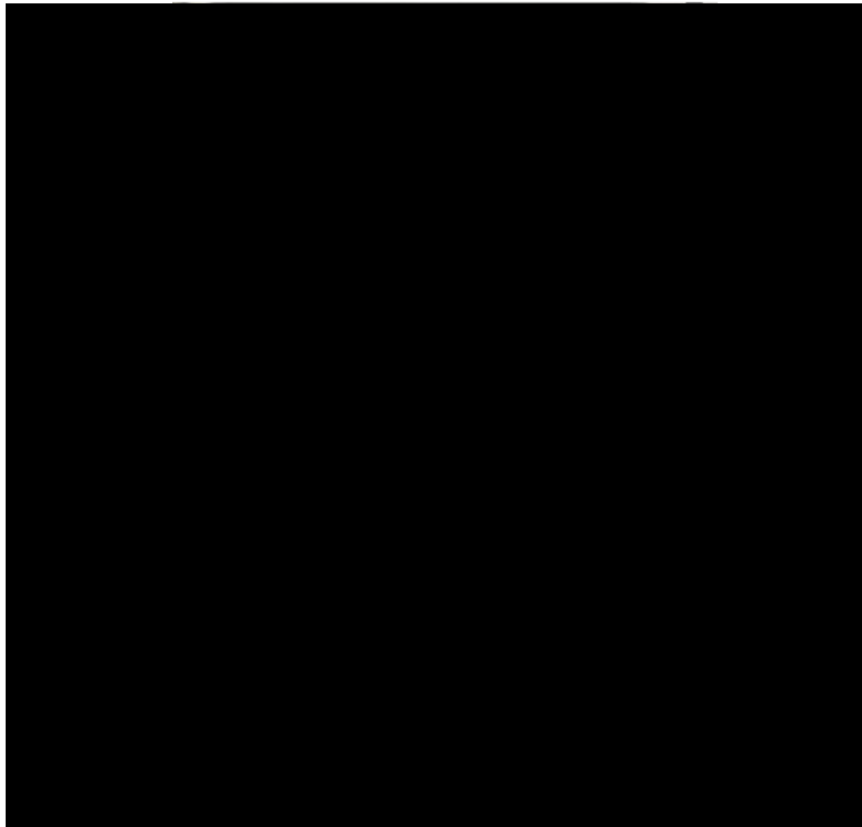
[Redacted text block]

2. Electrical Distribution:

Existing Conditions:

[Redacted text block]

[REDACTED]



Conclusion:

[REDACTED]

Recommendation:

[REDACTED]

3. Emergency/Standby Power System:

Existing Conditions:

[REDACTED]

[REDACTED]

Conclusion:

[REDACTED]

Recommendation:

[REDACTED]



[REDACTED]

#### 4. Fire Alarm System:

##### Existing Conditions:

[REDACTED]

##### Conclusion:

[REDACTED]

##### Recommendation:

[REDACTED]

#### 5. Lighting:

##### Existing Conditions:

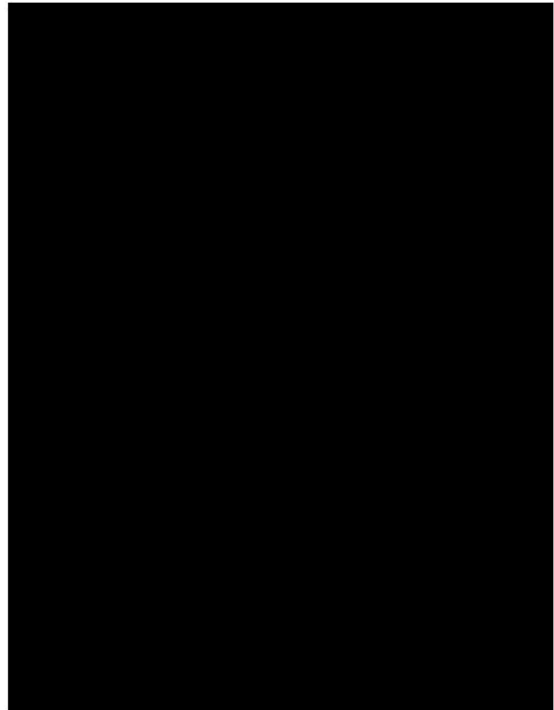
The existing field house lighting was installed in the 2014 Improvements Project. The fixture that was installed was the "Albeo LED Luminaire" manufactured by GE and it is suspended from the rafters (Image E33).

The lighting controls for this space consist of a Crestron "Green Light" GLPD architectural dimming system that was installed in the 2014 project (Image E34).

The mechanical rooms in the Field House consist of suspended 4' T5 fluorescent fixtures.



Image E33 Field House Lighting



#### Conclusion:

The manufacturer's listed life cycle for the field house LED fixtures is 50,000 operating hours (L85 = 85% of initial lumen output). In general, the fixtures were in good working condition. Some of the fixtures were either fully out or partially out, which can likely be attributed to faulty drivers or dimming cards. Replacement LED drivers are still manufactured for these fixtures, but the dimming cards are no longer manufactured and aren't available for purchase. The manufacturer does offer a solution for the existing dimming cards to be repaired.

Replacement parts for the existing Crestron system are still available/manufactured and it has approx. another 5-10 years of useful life remaining.

The typical life expectancy of a fluorescent fixture is approx. 20-25 years. The fluorescent fixtures are reaching the end of their expected useful life, but are generally in good working condition.

#### Recommendation:

It is recommended to continue to maintain the existing LED field lighting fixtures, and continue to replace any fixtures/components that are not fully functional.

It is recommended for the existing Crestron dimming system to remain and continue to be maintained.

The existing fluorescent lighting fixtures are generally in good working condition and should continue to be maintained.

IV D. Operations Building

1. Electrical Service

Existing Conditions:

[REDACTED]

[REDACTED]

Conclusion:

[REDACTED]

Recommendation:

[REDACTED]

## 2. Electrical Distribution:

[REDACTED]

[REDACTED]

## Conclusion:

[REDACTED]

Recommendation:

[REDACTED]

3. Emergency/Standby Power System:

Existing Conditions:

[REDACTED]

4. Fire Alarm System:

Existing Conditions:

[REDACTED]



Conclusion:

[Redacted text block]

Recommendation:

[Redacted text block]

5. Lighting:

Existing Conditions:

The existing lighting throughout the Operations Building was installed in the 2014 project and consists of recessed and chain suspended 2'x4' (2) lamp T5 fluorescent fixtures, surface

A large industrial warehouse interior with high ceilings, exposed pipes, and industrial lighting. A yellow forklift is parked in the center, and tall shelving units are visible on the right side.

It is recommended to perform general cleaning of recessed fixtures to clear lenses of dirt/debris, replace any damaged/yellowed lenses, and replace fluorescent lamps/ballasts as required.

#### IV E. Commissary Building

##### 1. Electrical Service:

##### Existing Conditions:

[REDACTED]

[REDACTED]

##### Conclusion:

[REDACTED]

##### Recommendation:

[REDACTED]



2. Electrical Distribution:

Existing Conditions:

[REDACTED]

[REDACTED]

Conclusion:

[REDACTED]

Recommendation:

[REDACTED]

3. Emergency/Standby Power System:

Existing Conditions:

[REDACTED]

[REDACTED]

Conclusion:

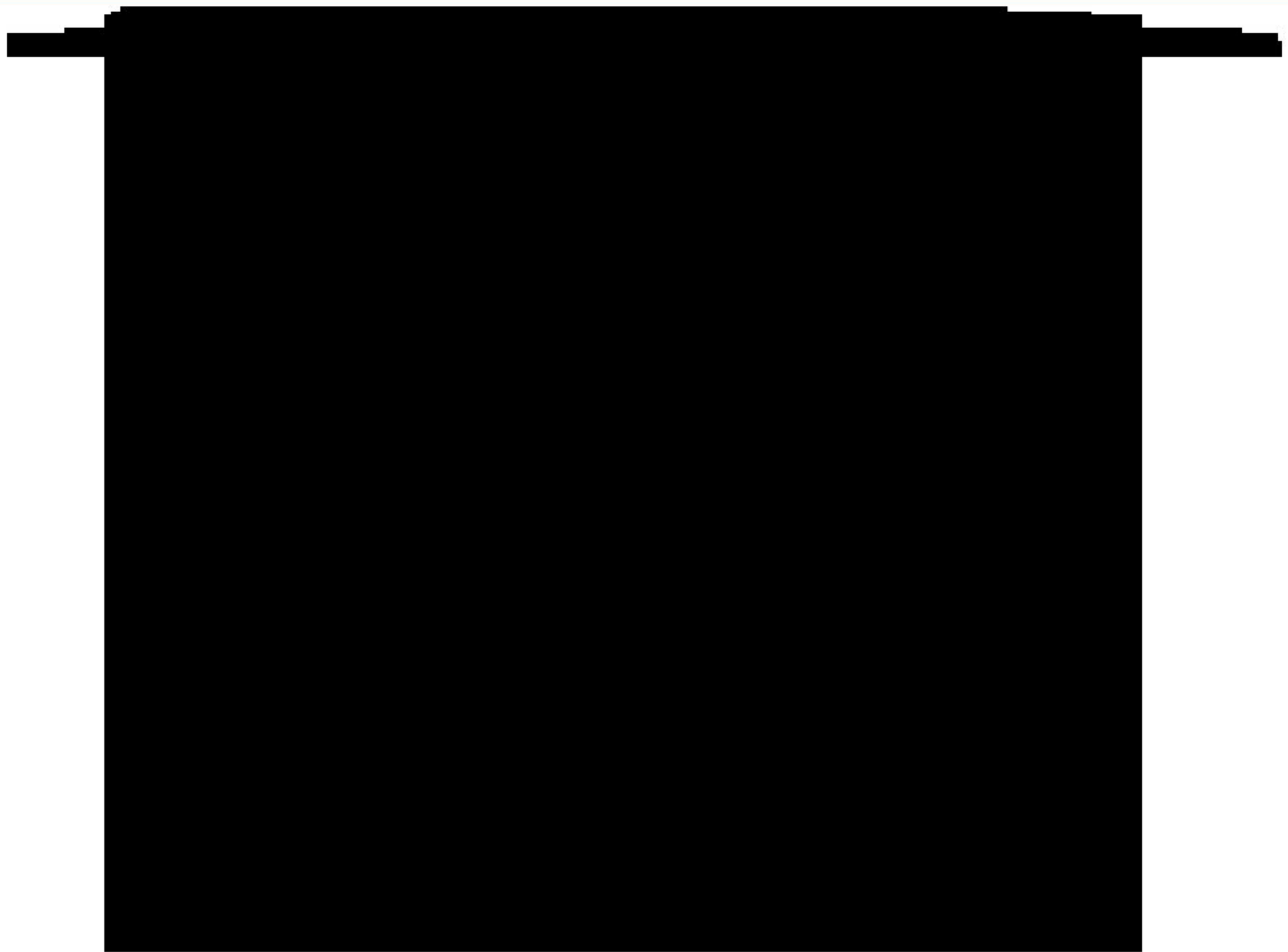
[REDACTED]

Recommendation:

[REDACTED]

4. Fire Alarm System:

[REDACTED]



Conclusion:

[Redacted text block]

Recommendation:

[Redacted text block]

## 5. Lighting:

### Existing Conditions:

The existing lighting throughout the Commissary Building consists of recessed 2'x4' (2) lamp T5 fluorescent fixtures, surface mounted and chain suspended 4' (2) lamp T5 fluorescent fixtures, recessed 2'x2' (2) lamp T5 fluorescent fixtures, 2'x4' recessed wet location rated (2) lamp T5 fluorescent fixtures, 2'x2' recessed wet location rated (2) lamp T5 fluorescent fixtures, 1'x4' surface mounted wet location rated (2) lamp T5 fluorescent fixtures, 8" Triple tube fluorescent downlights, and full cutoff exterior LED wall packs (Image E44-E45). The existing lighting was controlled via occupancy sensors, local switching and a time clock.



Image E44 Typical Recessed 2'x4' Lighting

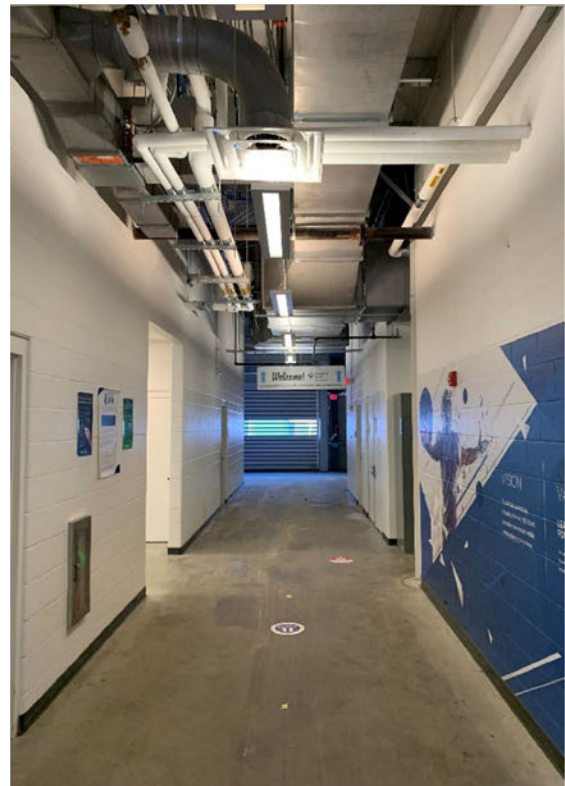
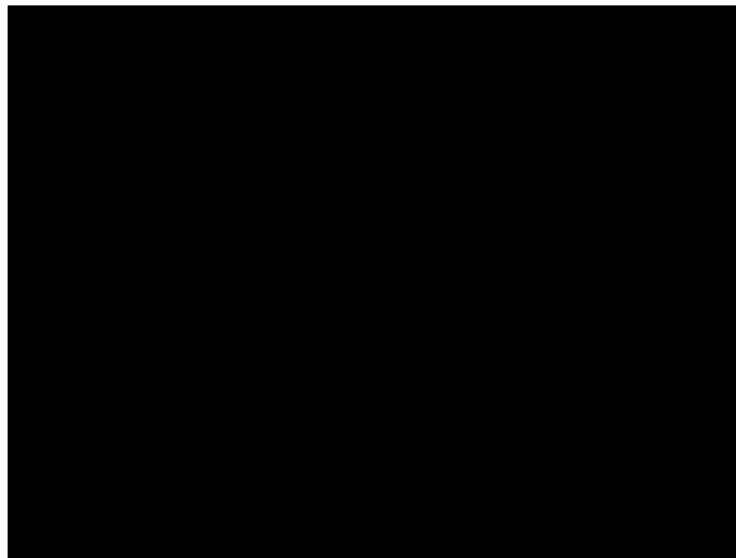
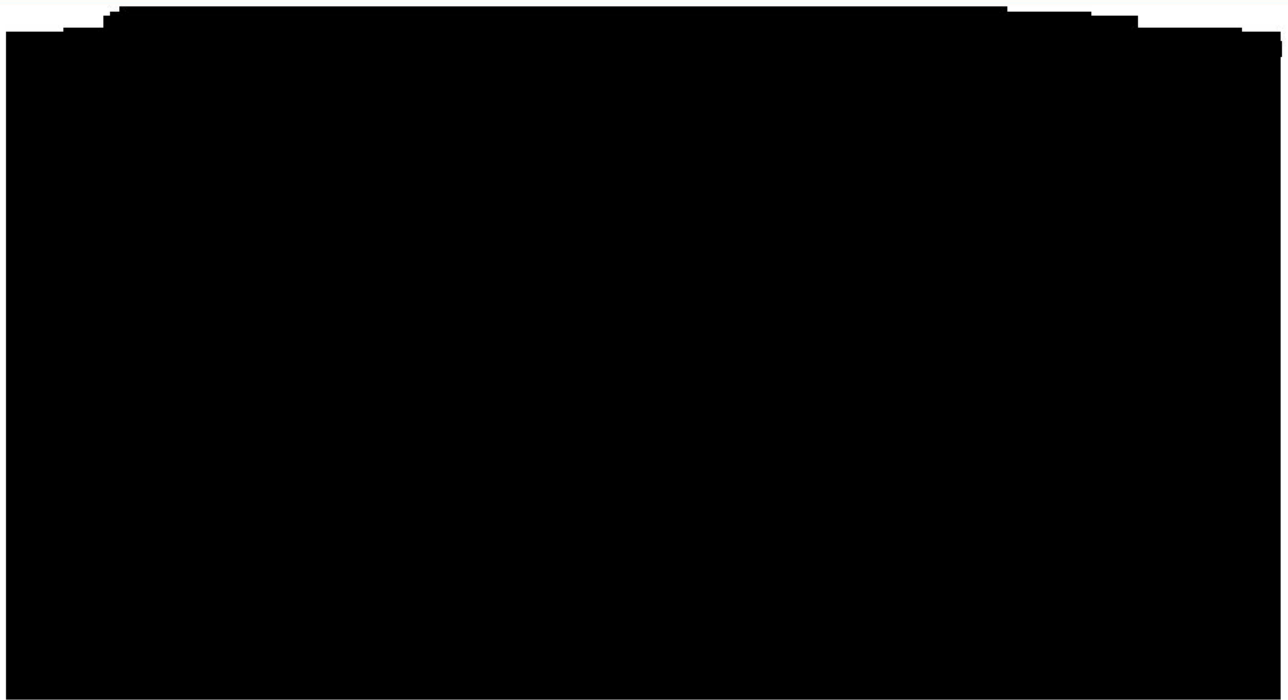


Image E45 Typical Suspended 4' Lighting

### Conclusion:

The typical life expectancy for a fluorescent fixture is approximately 20-25 years. The typical life expectancy for an occupancy sensor is approx. 10-15 years. The existing fluorescent lighting was installed in the 2014 project and is in good working condition. Recessed fixtures were noted to have dirt/debris inside the lens of the fixture.

Existing Conditions:



Conclusion:

[Redacted text block]

[Redacted text block]

[REDACTED]

Recommendation:

[REDACTED]

[REDACTED]

2. Electrical Distribution:

Existing Conditions:

[REDACTED]

[REDACTED]

[REDACTED]



Conclusion:

[REDACTED]

Recommendation:

[REDACTED]

3. Lighting:

Existing Conditions:

[REDACTED]

[REDACTED]

Conclusion:

[REDACTED]

Recommendation:

[REDACTED]

IV G. Water Meter Building

1. Electrical Service:

Existing Conditions:

[REDACTED]

[REDACTED]

Conclusion:

[REDACTED]

Recommendation:

[REDACTED]

[REDACTED]

## 2. Electrical Distribution:

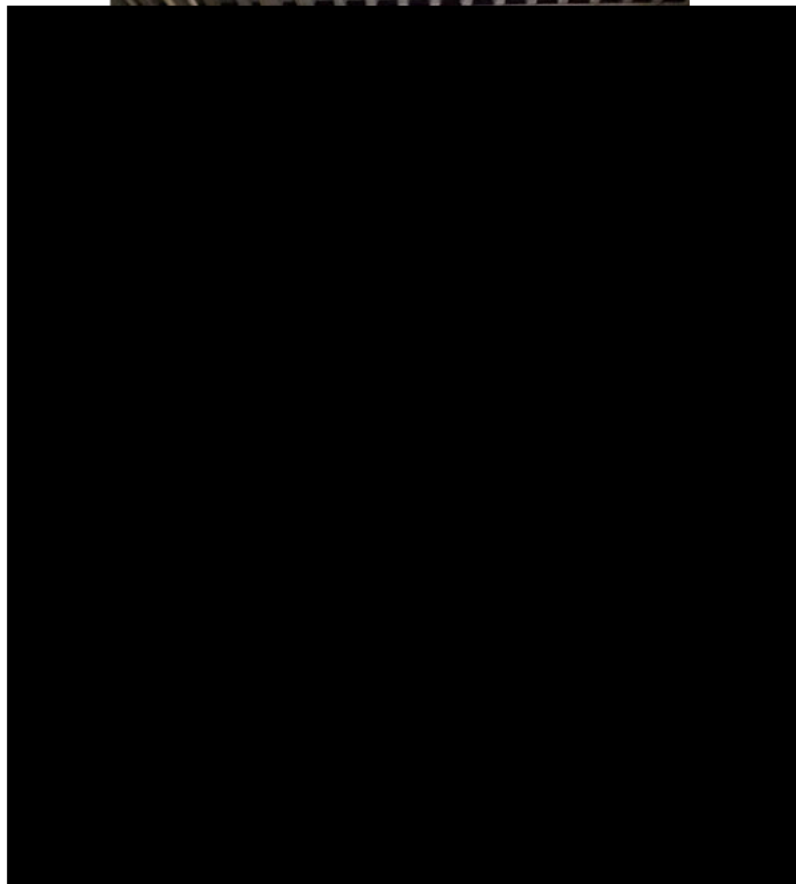
### Existing Conditions:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]



### Conclusion:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Recommendation:

.

3. Lighting:

Existing Conditions:

The existing lighting consists of chain suspended 2'x4' (2) lamp T8 Industrial fluorescent fixtures and was installed in the 1999 project (Image E52). The existing lighting controls for the space consists of a lighting switch at the entry door.



Image E52 Typical Suspended 2'x4' Fluorescent Fixture

Conclusion:

The typical life expectancy of a fluorescent fixture is approximately 20 years. The existing lighting is approx. 22 years old and has reached the end of its expected useful life, but is still in good working condition.

Recommendation:

It is recommended to perform general cleaning of fixtures, and to replace fluorescent lamps/ballasts as required.

**IV H. Site Lighting**

**1. Stadium Quad/Entry Gates:**

Existing Conditions:

Pole-mounted light fixtures were installed in the 2014 improvements project. Fixtures are a combination of LED and HID lamps. Fixture type 'S3A' consists of eight (8) adjustable LED heads mounted on a 40 ft. pole. There are a total of seven (7) poles with 'S3A' fixtures.

Conclusion:

LED fixture heads on type 'S3A' have been failing over recent years. Replacement parts are not available to repair these fixtures, and the entire fixture head needs to be replaced when they fail which has become costly to maintain.

Recommendation:

It is recommended to replace the existing 'S3A' poles and provide a more functional fixture head that can be serviced/maintained. Existing concrete bases and wiring can remain and be reused.

**2. Comfort Station/Bath House Parking Lot:**

Existing Conditions:

There is currently one (1) 100' pole illuminating the parking lot. The pole contains six (6) HID fixture heads.

Recommendation:

It is recommended to replace the existing HID fixture heads with new LED fixtures, mounted on the existing 100' pole.

## BUDGETARY COST ESTIMATES

### II. HVAC

#### II A. Stadium Restroom Renovations

- Berm Room Restroom Facilities

Budgetary Cost Estimate Per location (typical 4 locations)

Gas Fired Unit Heaters \$ 8,000

Roof Exhaust Fan and Make-up Air damper \$ 3,000

BMS Controls \$ 2,000

TOTAL \$ 13,000

TOTAL (4 locations x 13,000) \$ 52,000

- Main and Lower Level Restroom Facilities

Budgetary Cost Estimate

Two (2) ceiling mounted electric cabinet heater

per toilet room \$ 8,000

Four (4) Toilet Rooms TOTAL \$32,000

#### II B. Visitor's Locker Room

Budgetary Cost Estimate –

Replace Fan Coil Unit TOTAL \$22,000

#### II C. Officials Office Room

- New Heat Pump Split System and BMS Controls

Budgetary Cost Estimate \$ 8,000

#### II E. Cooling Towers and Fluid Coolers

- Cooling Towers

Replace fill per cooling tower

Budgetary Cost Estimates: \$10,000

#### II F. Training Center HVAC System

Budgetary Cost Estimates:

- Additional expansion tanks and fittings \$ 10,000
- New chiller, piping, fittings, insulation and controls \$150,000

[REDACTED]

- Hot Yoga Room heating renovations \$ 75,000
- Water source heat pump replacement cost per unit \$ 15,000

**II F. Field House and H & V System**

N/A

**II G. Complex-wide Building Management (DDC) Control System Upgrades**

- Stadium Ramp Mechanical Rooms, Existing Novar Replacement Scope  
Budgetary Cost Estimate \$ 48,000
- Stadium Lighting Control Scope, Encilium Replacement  
Budgetary Cost Estimate \$ 55,000

**II H. Clubs and Suites**

Budgetary Cost Estimate

- Side Line Clubs  
Heat pump replacement \$ 20,000 per unit
- Red and Goal Line Club  
Vertical Unit Replacement \$120,000 per unit  
Heat Pump Replacement \$ 18,000 per unit
- Dugout Suites  
Heat Pump Replacement \$ 15,000 per unit

**II I. Commissary Building**

Budgetary Cost Estimate:

Make-up Air Units TOTAL \$ 250,000

**II J. Operations Building**

N/A

**II K. Administration Building – Server Room**

Budgetary Cost Estimate:

- CRAC Unit/System TOTAL \$95,000

### III. Plumbing

#### III A. Stadium

- Toilet Facility Improvements (Short Term) Fixtures Maintenance

##### Budgetary Cost Estimate

Replace Lavatory Faucets (470 units x 245)	\$ 115,150
Replace Lavatory Supplies (470 units x 90)	\$ 42,300
Replace Lavatory Traps (470 units x 71)	\$ 33,370
Replace Urinal Flush Valves/Battery (280 units x 320)	\$ 89,600
Replace Water Closet Valves/Battery (1,200 units x 320)	\$ 384,000
Replace Trough Urinals with Individual Urinals (120 units x 1,600)	<u>\$ 192,000</u>
<b>TOTAL</b>	<b>\$ 856,420</b>

- Toilet Facility Improvements (Long Term) Replace Fixtures

##### Budgetary Cost Estimate

Replace Lavatory and Piping (470 units x 2,100)	\$ 987,000
Replace Urinal and Piping (280 units x 1,600)	\$ 448,000
Replace Water Closet and Piping (1,200 units x 3,725)	<u>\$ 4,470,000</u>
<b>TOTAL</b>	<b>\$ 5,905,000</b>

- Replace Water Heaters

##### Budgetary Cost Estimate

##### Replace Water Heaters

Includes branch, water, and gas piping

Reconnect Flue



[REDACTED]	
(16 units x 40,000)	\$ 640,000
Replace Recirculation Pumps (16 units x 1,500)	\$ 24,000
Replace Various Deck Drains (40 units x 1,300)	\$ 52,000
Replace Roof Drains (20 units x 1,175)	\$ 23,500
Replace Wall Hydrants (24 units x 650)	\$ 15,600
Replace Valves with Ball Valves (200 units x 150)	\$ 30,000
Scope Roof Drains and Rain Leaders at Four Towers/Suites (1 unit x 20,000)	\$ 20,000
Provide for Manufacturer's Representative Inspection of Booster Pumps and Service Work (7 units x 3,200)	<u>\$ 22,400</u>
TOTAL	\$ 827,500

#### IV. ELECTRICAL

##### IV A.2 Stadium: Switchgear/Unit Substations:

- [REDACTED] L \$265,000
- [REDACTED] \$116,000
- [REDACTED] \$126,000
- [REDACTED] \$216,000
- [REDACTED]
  - \$20,000
  - \$100,000

IV A.4 Fire Alarm System (Campus-Wide):

- [REDACTED]  
[REDACTED] [REDACTED] \$90,000  
[REDACTED]

IV A.5 Stadium: Emergency/Standby Power Systems:

- [REDACTED]  
[REDACTED] [REDACTED] \$130,000  
[REDACTED]  
[REDACTED] [REDACTED] \$210,000  
[REDACTED]  
[REDACTED] [REDACTED] \$62,000  
[REDACTED]
- [REDACTED]  
[REDACTED] [REDACTED] \$75,000  
[REDACTED] [REDACTED] \$26,000
- [REDACTED]  
[REDACTED] [REDACTED] \$165,000  
[REDACTED]

IV A.6 Stadium: IR Heaters at Club Level Seating:

- [REDACTED]  
[REDACTED] [REDACTED] \$30,000  
[REDACTED]

IV B.3 Training Center Building: Emergency/Standby Power System:

- [REDACTED]  
[REDACTED] [REDACTED] \$19,000
- [REDACTED]  
[REDACTED] [REDACTED] \$45,000  
[REDACTED]

IV B.5 Training Center Building: Lighting:

a) Interior Lighting -

Replace Original Fluorescent	TOTAL	\$100,000
Lighting Fixtures in 2 <sup>nd</sup> Floor Offices (Approx. 10,000 SF)		

IV F. NYSEG Transformer Building (Abbott Rd. Substation):

- [REDACTED] [REDACTED] [REDACTED] \$60,000
- [REDACTED] [REDACTED] [REDACTED] \$18,000

IV H. Site Lighting:

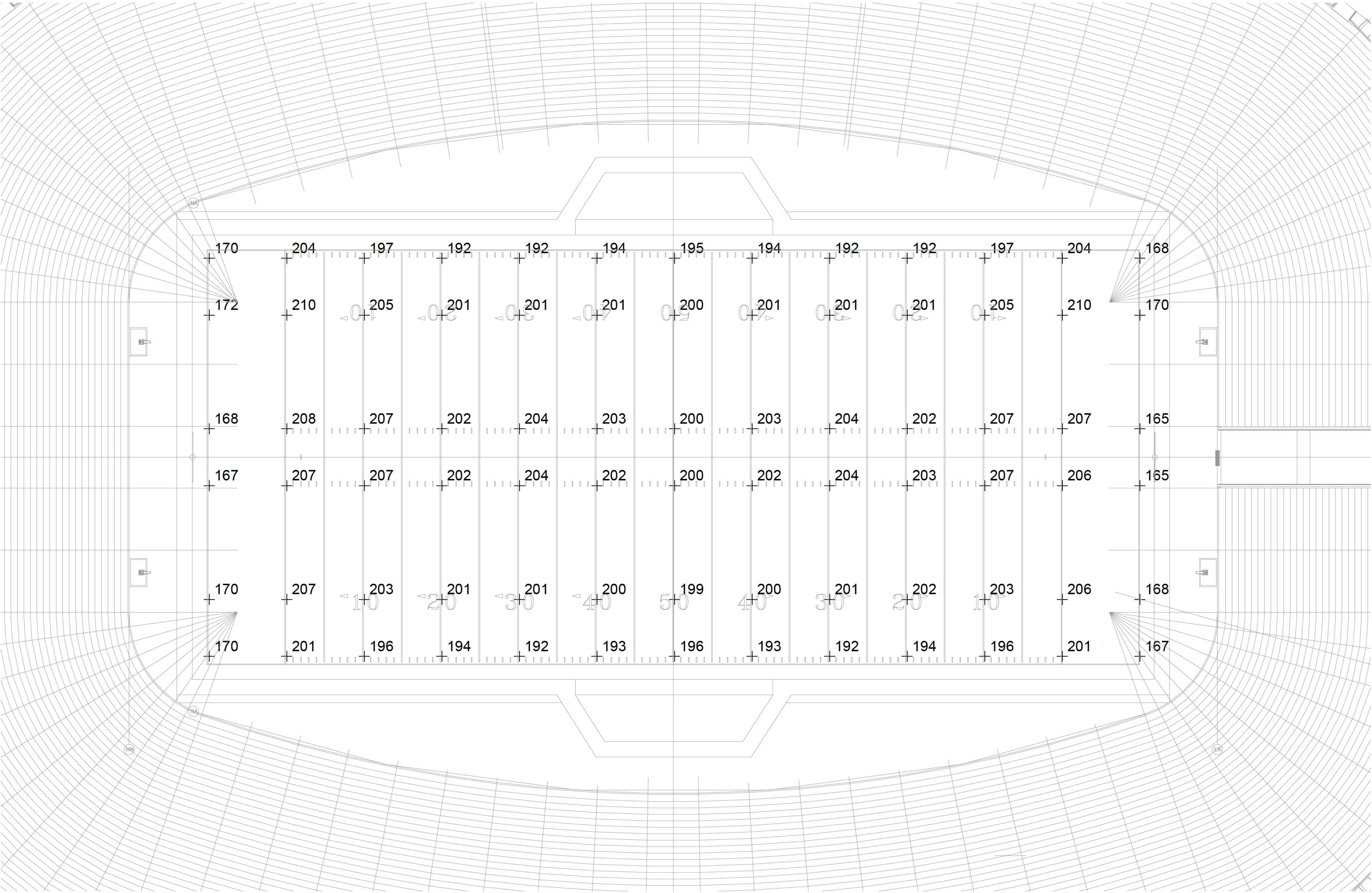
- Type "S3A" Accent Lighting Poles -  
Replace Poles and Provide One (1) New Fixture Head (Quantity: 7) TOTAL \$32,000
- Light Pole at Comfort Station Building/Bath House -  
Replace Existing Heads on 100' Pole with LED (Quantity: 6 heads) TOTAL \$14,000

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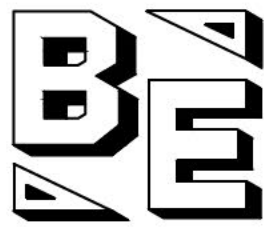
## **APPENDIX A**



BUFFALO ENGINEERING MODELED PHOTOMETRIC STATISTICS				
DESCRIPTION	SYMBOL	AVERAGE	MAXIMUM	MINIMUM
FIELD LIGHTING	+	196 FC	210 FC	165 FC



1  
E-1 FIELD LIGHTING ANALYSIS - BUFFALO ENGINEERING PHOTOMETRIC MODEL  
SCALE: 1" = 20'-0"



**BUFFALO ENGINEERING, P.C.**  
MECHANICAL/ELECTRICAL ENGINEERS  
4245 UNION RD. SUITE No. 204  
BUFFALO, NY 14225  
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WWW.BUFFALOENGINEERING.COM

BE PROJECT No. 230095

Stamp

Date

Revisions

No.

BUFFALO BILLS STADIUM  
2021 CONDITIONS STUDY

1 BILLS DRIVE  
ORCHARD PARK, NY, 14127  
FIELD LIGHTING ANALYSIS - BUFFALO  
ENGINEERING PHOTOMETRIC MODEL

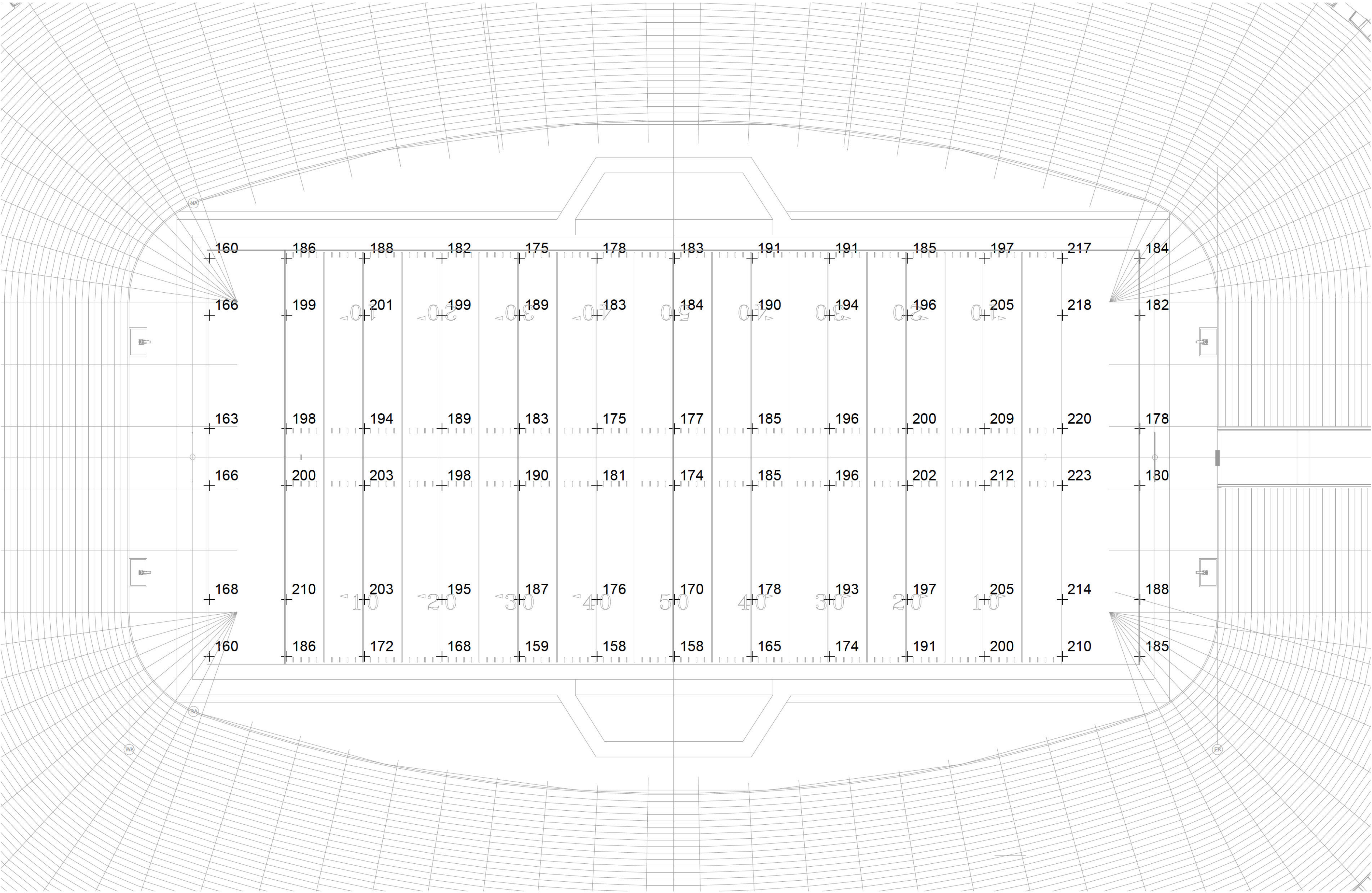
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03-19-2021  
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EMW  
Checked By:  
DTB

DWG. No.

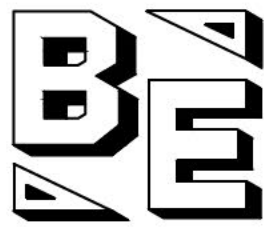
E-1



BUFFALO ENGINEERING MEASURED PHOTOMETRIC STATISTICS				
DESCRIPTION	SYMBOL	AVERAGE	MAXIMUM	MINIMUM
FIELD LIGHTING	+	188 FC	223 FC	158 FC



1  
E-2 FIELD LIGHTING ANALYSIS - BUFFALO ENGINEERING MEASURED PHOTOMETRICS  
SCALE: 1" = 20'-0"



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EE PROJECT No. 230095

Stamp

Date

Revisions

No.

BUFFALO BILLS STADIUM  
2021 CONDITIONS STUDY

1 BILLS DRIVE  
ORCHARD PARK, NY, 14127  
FIELD LIGHTING ANALYSIS - BUFFALO  
ENGINEERING MEASURED PHOTOMETRICS

Date:  
03-19-2021  
Scale:  
NOTED  
Drawn By:  
EMW  
Checked By:  
DTB

DWG. No.

E-2



