Auburn University
Jordan-Hare Stadium
Geotechnical Projects

ASCE Winter Meeting – February 2018
Presented by: Kevin M. Blake P.E.
Alabama Physiographic Regions
Geology of East Alabama
Auburn Geology
Cliff Hare Stadium
1939 to 1949

Construction of Auburn Stadium began in 1939. A grandstand was erected on the west sidelines in time for the season finale against Florida.

Cliff Hare Stadium was officially dedicated in 1949 when 14,000 seats were added on the east sidelines which raised the capacity to 21,290.
Cliff Hare Stadium – 1950’s
Cliff Hare Stadium – Late 1950’s
Cliff Hare Stadium – 1960’s
Cliff Hare Stadium – Late 1960’s
JHS – 1970’s
West Upper Deck Expansion - 1979
West Upper Deck Expansion - 1979
Jordan-Hare Stadium - 1981
Jordan-Hare Stadium - 2008
Auburn Topographic Map
Campus Map

Culvert
1998 South End Score Board Addition
Video Board Tower
1998 South End Score Board Addition
Rock @ 40 ft.

**Boring Log 1998**
NEZ Concourse Expansion - 2017
NEZ Concourse Expansion
Borings in 2012
NEZ Concourse Expansion
Borings in 2012
NEZ Concourse Expansion Test Pits
South End Zone Video Board – 2014 -2016
South End Zone Video Board - 2014
Micro Pile Foundations - 2015

Initial design included Drilled Shafts

Contractor VE with Micro Piles

125 ton piles

March 2015
Micro Pile Foundations
Micro Pile Foundations
Micro Pile Foundations
Micro Pile Foundations
Micro Pile Load Test

Jack on top of load frame
Micro Pile Load Test
Micro Pile Load Test
Test Pile Installation - Video
Load Test Results

Auburn Football Stadium Project:
TP-2 Tension Test Load - Deflection Plot

- 15’ Rock Socket
- 23 ksf unit side friction (ult.)
Foundation Plan
Foundation Plan
Isometric View
Foundation Construction
Foundation Construction
Foundation Construction
Pile Construction - Video
Pile Construction - Video
Pile Cap Construction
Pile Cap Construction
Pile Cap Construction
Pile Cap Construction
Pile Cap Construction
Pile Cap Construction
Tower Construction
Tower Construction
Tower Construction
Construction - 2016
Future North End Zone Expansion
Future North End Zone Expansion
Future North End Zone Expansion
Future North End Zone Expansion
Future North End Zone Expansion
North End Zone – Borings 2015
North End Zone – Borings 2015
<table>
<thead>
<tr>
<th>Depth (FT)</th>
<th>Description</th>
<th>Elev. (FT)</th>
<th>Standard Penetration Resistance</th>
<th>MC (%)</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0</td>
<td>9 1/2&quot; Concrete Pavement, 4&quot; Crushed Stone Base, Ill. Sandy Clay (C), Nat. brown and gray, stiff</td>
<td>638.7</td>
<td>21</td>
<td>14</td>
<td></td>
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<tr>
<td>1.5</td>
<td>Clayey Sand (SC), micaceous, yellowish-brown and black, loose</td>
<td>633.7</td>
<td>7</td>
<td>17</td>
<td></td>
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<tr>
<td>2.5</td>
<td>Clayey Sand (SC), micaceous, brown and tan, firm</td>
<td>633.7</td>
<td>14</td>
<td>24</td>
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<tr>
<td>8.0</td>
<td>Sapsolite, Silty Sand (SM), micaceous, yellowish-brown, gray and black, loose</td>
<td>628.7</td>
<td>6</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sapsolite, Silty Sand (SM), micaceous, gray, tan and yellowish-brown, very dense</td>
<td>623.7</td>
<td>3</td>
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<tr>
<td>19.0</td>
<td>Auger refusal at 15 ft.</td>
<td>618.7</td>
<td>2</td>
<td></td>
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<tr>
<td>29.0</td>
<td>Boring Terminated at 29 ft.</td>
<td>608.7</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**Remarks:**
- Rock @ 19 ft.
- Groundwater encountered at 11 ft., 24 hrs. following soil drilling
- Boring caved at 18 ft.
- Run 1 (19'-20')
  - REC = 83%
  - RQD = 50%
  - C = 1300 psi
- Run 2 (20'-25')
  - REC = 94%
  - RQD = 98%
- Run 3 (25'-29')
  - REC = 94%
  - RQD = 73%

Drill Rig: CME-75
Driller: H. Camley

SOIL BORING LOG

BORING NUMBER: B-08
DATE DRILLED: 3/4/15
PROJECT NUMBER: CS-9281-15
PROJECT: Jordan Hare Stadium - North End Zone Expansion, Auburn University

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CHRISTIAN TESTING LABORATORIES, INC.
Montgomery, Alabama
Culvert Replacement - 2015
Culvert Replacement
Culvert Replacement
Culvert Replacement
Culvert Replacement - PIT
Culvert Replacement - PIT
PIT Results

27 ft.
South End Zone Project 2016 - 2018
SEZ Game Day Support Facility
SEZ Game Day Support Facility
Game Day Support Facility
Rock @ 41 ft.
Game Day Support Facility
Geotech - August 2016
Game Day Support Facility
Geotech - August 2016
Game Day Support Facility
Geotech - August 2016
Game Day Support Facility
Construction – June - July 2016
Game Day Support Facility
Construction – June - July 2016
Game Day Support Facility
Construction – June - July 2016
Game Day Support Facility
Construction – June - July 2016
Game Day Support Facility
Construction – June - July 2016
Game Day Support Facility
Construction – June - July 2016
Structural Framing – Nov 2017
Construction – January 2018
Construction – March 2018
View of the North Endzone Videoboard from inside Jordan-Hare Stadium
Proposed North Endzone Videoboard

View of the North Endzone Videoboard looking North
- 36” and 48” Dia. Drilled Shafts
- 11 to 12 foot Rock Sockets
- 28 to 44 ft. Shaft Lengths
Rock @ 33 ft.
West Press Box Renovations
Geotechnical – Nov. 2017
Rock @ 32 ft.
January 2018
Looking North
Drilled Shaft Construction
Drilled Shaft Construction
WAR EAGLE
Bridge Boring Locations
Top of Rock @ 50 – 75 ft.