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April 15, 2015

Mr. Tim Martin
Stephens County Development Authority
31 West Doyle Street
P.O. Box 340
Toccoa, GA 30577

RE: Subsurface Investigation
Project Hummingbird
Haystone Brady Industrial Park
Toccoa, GA
PGC# 2015012

Dear Tim:

Preston Geotechnical Consultants, LLC (PGC) is pleased to submit the following subsurface investigation report. We completed the field portion of this subsurface investigation on April 8, 2015. The following is a report of our findings.

1. PURPOSE OF SUBSURFACE INVESTIGATION:

The purpose of this subsurface investigation was to assess the existing site conditions to allow us to provide the necessary recommendations for the site preparation procedures to bring the site to the planned elevation and provide a site which will support the foundations for the proposed structure(s).

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2. METHOD OF BORING AND SAMPLING:

A truck mounted drill, mechanically turning a 5 5/8 -inch, hollow stem auger was used to advance six bore holes at locations shown on the enclosed bore hole location sketch. In addition to the location sketch, a boring log of each hole is attached.

Borings B-1 through B-6 were sampled in substantial accordance with "Penetration Test and Split Barrel Sampling of Soils", ASTM D 1586, current edition. The penetration recorded indicates the number of blows required to effect a 12-inch penetration into the undisturbed soil stratum, using a pin guided, 140 pound drive hammer falling 30 inches per blow, driving a split barrel sampler having a 2-inch outside diameter. The depth to the beginning of the test is shown on the boring log. Each penetration test extends 18 inches below the indicated beginning depth. The final 12-inch penetration is reported as the blows per foot or the standard penetration.

The use of the standard penetration test (SPT) along with laboratory tests of the soil removed from the sampler enables us to make an assessment of the ability of the soil to support foundations. These tests can also provide information as to the potential stability of open excavations, the permeability of the soil and other soil index properties.

The borings were backfilled as indicated on the individual borings after a final check for the presence and depth of subsurface water was made.

Soil samples obtained from the project site are the property of the client. Unless other arrangements are agreed upon in writing, Preston Geotechnical Consultants, LLC will hold such

samples for no more than 180 calendar days from the date Preston Geotechnical Consultants, LLC issued the first document that includes the data obtained from these samples. After that date, Preston will dispose of samples that are not contaminated by hazardous substances.

3. GENERAL FINDINGS:

The site is located near the border between the Gainesville Ridges District and the Winder Slope District of the Piedmont Province in Stephens County, Georgia.

The approximate 33 acre site is located in an open field with topographic relief ranging from an approximate high of 886 near the center of the site sloping toward the south to an approximate low of 882 and toward the west to an approximate low of 878. A sanitary sewer line is present along the north side of the site.

Borings B-1, B-2, B-3 and B-5 were advanced within Phase 1 while boring B-4 was advanced in future phase 6 and boring B-6 was advanced within future phase 9. Borings revealed interbedded layers of red/brown to red/tan to gray sands ranging in density from loose to medium/firm to very dense and micaceous silts ranging in consistency from medium to stiff to very stiff. Evidence of soil filling through a depth of approximately 5 feet was noted in boring B-5 near the north end of phase 1. Occasional lenses of shallow fragmented rock were encountered (boring B-2 from 3 to 4 feet) with deeper layers of cemented sand (B-1 from 14 to 20 feet) and fragmented rock (B-2 from 25 to 29 feet and B-6 from 15 to 24 feet) in various borings.

Boring logs showing the soil profile at each bore hole are attached. The logs show changes in soil strata. The depths to changes should be considered to be approximate depths of changes based on the best estimate of the driller.

The soil profile shown on each boring log represents soil conditions at that particular boring. The soils between borings should not necessarily be assumed to be similar to those found in the borings.

The methods used indicate subsurface conditions only at the specific locations where samples were obtained, only at the time they were obtained, and only to the depths penetrated. Samples cannot be relied on to accurately represent the strata variations that usually exist between sampling locations.

It is not unusual to find unexpected conditions between test boring locations. Filled in ditches, soft backfill over utilities, rock ledges, trash pits, old fire pits, springs, and expansive clays are just a few of the unexpected conditions that might be discovered during field site preparation.

Any such unforeseen occurrences should be removed from the zone of construction if they interfere with the construction. All excavations to remove obstructions should be proofrolled and backfilled as described below for structural fill.

With the exception of having obtained utility clearances for drilling operations (call before you dig), Preston Geotechnical Consultants, LLC has obtained no detailed knowledge of the on-site utilities or any other structures beneath the surface of the site.

The following is a tabulation of the depth of the rock encountered:

Boring Number	Existing Grade Elevation \pm	Depth Rock Encountered (Feet \pm)
B-1	N/A	20
B-2	N/A	29
B-3	N/A	None Encountered through depth of boring
B-4	N/A	None Encountered through depth of boring
B-5	N/A	None Encountered through depth of boring
B-6	N/A	24

No subsurface water was noted at the time the borings were made.

4. ANTICIPATED STRUCTURE:

No information is currently available concerning the type of structure anticipated for this site.

If any of the above proposed scope of work is not correct or has been changed, please let us know so that we can provide additional and/or amended recommendations.

5. LAB TESTS:

We secured a bulk soil sample from boring B-5 at a depth of 0 to 5 feet. A laboratory classification (ASTM D 2487) along with a one-point standard proctor (ASTM D 698) was performed on this sample. We found this soil to be a Sandy Silt material (ML), with a maximum dry density of 99.0 pcf and an optimum moisture content of 20 percent.

Optimum Moisture = 20 Percent			
Boring Number	Depth Sample Secured (Feet)	Insitu Moisture Percent	+/- Percent of Optimum Moisture
B-5	2.5	22	+2

6. STRUCTURAL DESIGN RECOMMENDATIONS:

Foundation Support

Based on the results of the subsurface investigation, our laboratory analysis and after completion of the recommended site preparation described later in this report, the proposed structures may be supported on a conventional shallow foundation system. A net maximum allowable bearing pressure of 3000 pounds per square foot may be used in the design of the shallow foundation system.

To reduce the possibility of shear failure, wall bearing and column footings should be designed with a minimum width of 18 and 24 inches, respectively. For frost protection, exterior wall bearing and column footings should be designed with a minimum embedment depth of 18 inches, while interior footings should be designed with a minimum embedment depth of 12 inches. The embedment depth should be measured from the base of the footing to the lowest adjacent outside grade.

To ensure adequate predensification of the soils supporting the footings and columns, the bottoms of all footing excavations should be mechanically tamped prior to placement of steel and concrete to assure a uniformly dense support for the footings.

All footing excavations should be tested for bearing value prior to the placement of the reinforcement steel and concrete.

Floor Support

The building floor slabs may be directly supported on properly predensified residual soils and/or well-compacted suitable structural fill. We suggest a four-inch layer of compacted crushed stone be placed beneath the floor slab to provide a protective cover as well as a uniform working surface.

Expansion and contraction joints should be used to isolate all floor slabs from the load bearing wall and/or isolated columns. This will allow for possible differential movement and diminish the potential of cracking the floor slabs. Provided the slab subgrade is prepared in accordance with our recommendations, a subgrade modulus reaction (K) of 125 pounds per cubic inch (pci) may be used for the slab design.

Based on our experience with similar type of soils and structural loading, we anticipate that all differential and total settlement will be less than 1/2-inch and 1-inch, respectively. Careful field control will contribute substantially to minimizing potential settlements.

Slope Recommendations

Slope stability analysis using laboratory shear strength data was beyond the scope of this study. However, based on our experience with similar subsurface conditions and construction, we recommend temporary slopes no steeper than 2.5 (H): 1.0 (V) and permanent slopes no steeper than 3.0 (H): 1.0 (V) for residual soils or structural fill.

Adjacent to buildings, a top of slope set-back of ten feet is recommended. In pavement areas, a minimum top of slope set-back of five feet is acceptable. During construction, temporary slopes should be regularly inspected for signs of movement or unsafe conditions. Soil slopes should be covered for protection from rain, and surface run-off should be diverted away from the slopes. For erosion protection, a protective cover of grass or other vegetation should be established on permanent soil slopes as soon as possible.

Site Specific Preparation Recommendations

In the event that undercut and/or structural footprints require structural fill to bring the site to grade, we suggest the following procedure.

Remove all organic matter, stumps and other deleterious matter. Predensify the areas to be filled or upon which structures are to be placed. A vibratory pad foot and/or a smooth drum roller, a loaded dump truck or other rubber tired equipment should be used for the predensification. Overlapping passes of the vehicle should be made across the site in one direction and then at right angles to the original direction of rolling. We recommend a proofroll be observed by a geotechnical engineer or his representative prior to the placement of any structural fill.

Any yielding, pumping or soft areas should be cut out and replaced with fill compacted as described below.

The proposed fill soil should be limited to soils classified in accordance with ASTM D 2487 as GM, GC, SW, SP, SM, SC, ML, and CL. Soils classified as Pt, OH, OL, CH and MH are not suitable for structural fill. The on-site soils from cut sections are

suitable for structural fill provided they are at or near their optimum moisture content and free of all organic matter.

The area fill should be spread in loose lifts (layers) of not more than eight inches. Each lift should be rolled with a vibratory roller, a sheepsfoot roller or a loaded, rubber-tired dump truck, scraper or loader. Each lift should be compacted to a minimum density of 95 percent of the maximum dry density as determined in accordance with ASTM D 698, current edition.

The fill soil moisture content should be maintained within three percent of the optimum moisture as determined in accordance with ASTM D 698. In the event that the soil is too wet, harrowing, scarifying and aeration should be used to dry the soils to within the required moisture content. If the soil is too dry, a water truck with spreader bar or a spray hose should be used to bring the soil to the proper moisture range. The water should be thoroughly and evenly mixed within the soil prior to compaction. Backfilling of trenches, walls and structures should be done in six inch loose lifts. Each lift should be compacted using a mechanical tamp such as a vibratory or impact type compactor.

In general, sandy soils are best compacted with vibratory type compaction equipment. Clayey soils should be compacted with an impact type or sheepsfoot compactor.

Horizontally, the compacted structural fill should extend at least as far outside the perimeter footings as the fill is in depth below the bottom of the footings.

Density tests should be taken throughout the placement of all structural fill. Density tests should also be performed on all at grade areas and/or areas that are brought to grade as a result of

a cut section. These areas should be scarified and compacted in accordance with the same criteria.

In this physiographic area, shallow, poorly bedded seams of MH soils may be encountered during grading operations. These soils are not suitable for use as support soils in direct contact with footings, slabs or pavements. These soils may be acceptable for use as fill for grassed areas. If encountered in structural excavations, these class soils should be undercut and isolated from the structure with 18 inches of granular material such as sand or stone.

7. PAVING RECOMMENDATIONS:

For light duty paving, we suggest that six inches of graded aggregate base be compacted on a prepared subbase. The base course should be compacted to 100 percent of the maximum dry density as determined in accordance with ASTM D 698. The graded aggregate base course material properties should conform to GA D.O.T. specifications.

The surface course should be two inches of type "E" or "F" hot mix asphaltic concrete mixture or the approximate equivalent two inches of 12.5 mm Superpave or 9.5 mm Superpave hot mix asphaltic concrete mixture conforming to Georgia D.O.T. specifications.

For heavy duty paving we recommend a six inch thick concrete slab 4000 psi/650 psi flex be placed on a prepared subgrade as described for the light duty paving.

If asphalt pavement is considered for the heavy duty paved sections we recommend a minimum of eight inches of graded aggregate base course (GAB) be compacted on a prepared subbase.

The base should be compacted to 100 percent of the maximum dry density (ASTM D 698). The surface course should be two inches of type "E" or "F" hot mix asphalt over two inches of B-Binder course or the approximate equivalent two inches of type 12.5 mm Superpave or 9.5 mm Superpave hot mix asphalt over two inches of 19 mm or 25 mm Superpave conforming to Georgia D.O.T. specifications.

8. LIMITATIONS:

Although these findings are valid only at the locations and to the depths shown, they are useful for alerting the grading contractor to certain specific conditions pertinent to the preparation of the site.

Frequently, the grading contractor has never seen the geotechnical report or recommendations for site preparation. In addition, we see many cases where the specifications and plans do not reflect the recommendations made in the geotechnical report.

We suggest that every effort be made to alert the grading contractor so that he may avoid the problems that arise due to his lack of knowledge of potential site problems.

This report has been prepared for the exclusive use of the Stephens County Development Authority for specific application to the Hummingbird Project in the Haystone Brady Industrial Park in Toccoa, Georgia. Preston Geotechnical Consultants, LLC has endeavored to comply with generally accepted geotechnical engineering practice common to the local area. Preston Geotechnical Consultants, LLC makes no other warranty, expressed or implied.

The analyses and [preliminary] recommendations contained in this report are based on data obtained from subsurface exploration. The methods used indicate subsurface conditions only at the specific locations where samples were obtained, only at the time they were obtained, and only to the depths penetrated. Samples cannot be relied on to accurately reflect the strata variations that usually exist between sampling locations.

The recommendations included in this report are preliminary, because they have been based in part on assumptions about strata variations that may be tested only during earthwork and foundation construction for deep foundations. Accordingly, these recommendations should not be applied in the field unless a qualified geotechnical engineering consultant is retained to perform construction observation and thereby provide a complete professional geotechnical engineering service through the observational method.

Do not apply any of this report's conclusions or recommendations if the nature, design, or location of the facilities is changed. If changes are contemplated, Preston Geotechnical Consultants, LLC must review them to assess their impact on this report's applicability. Also note that Preston Geotechnical Consultants, LLC is not responsible for any claims, damages, or liability associated with any other party's interpretation of this report's subsurface data or reuse of this report's subsurface data or engineering analyses without the express written authorization of Preston Geotechnical Consultants, LLC.

Although Preston Geotechnical Consultants, LLC has explored subsurface conditions as part of this program, Preston Geotechnical Consultants, LLC has not evaluated the site for the potential presence of contaminated soil.

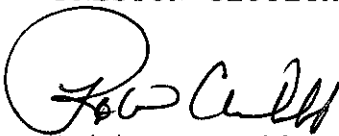
The conclusions and recommendations included in this report are based in part upon the data Preston Geotechnical Consultants, LLC derived from a limited number of soil or groundwater samples obtained from widely spaced subsurface explorations. The nature and extent of variations between these explorations will not become evident until construction or further investigation.

If variations or other latent conditions become evident, Preston Geotechnical Consultants, LLC will reevaluate this report's conclusions and recommendations.

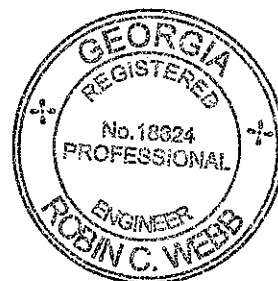
Please call on us if we can be of further service to you on this project.

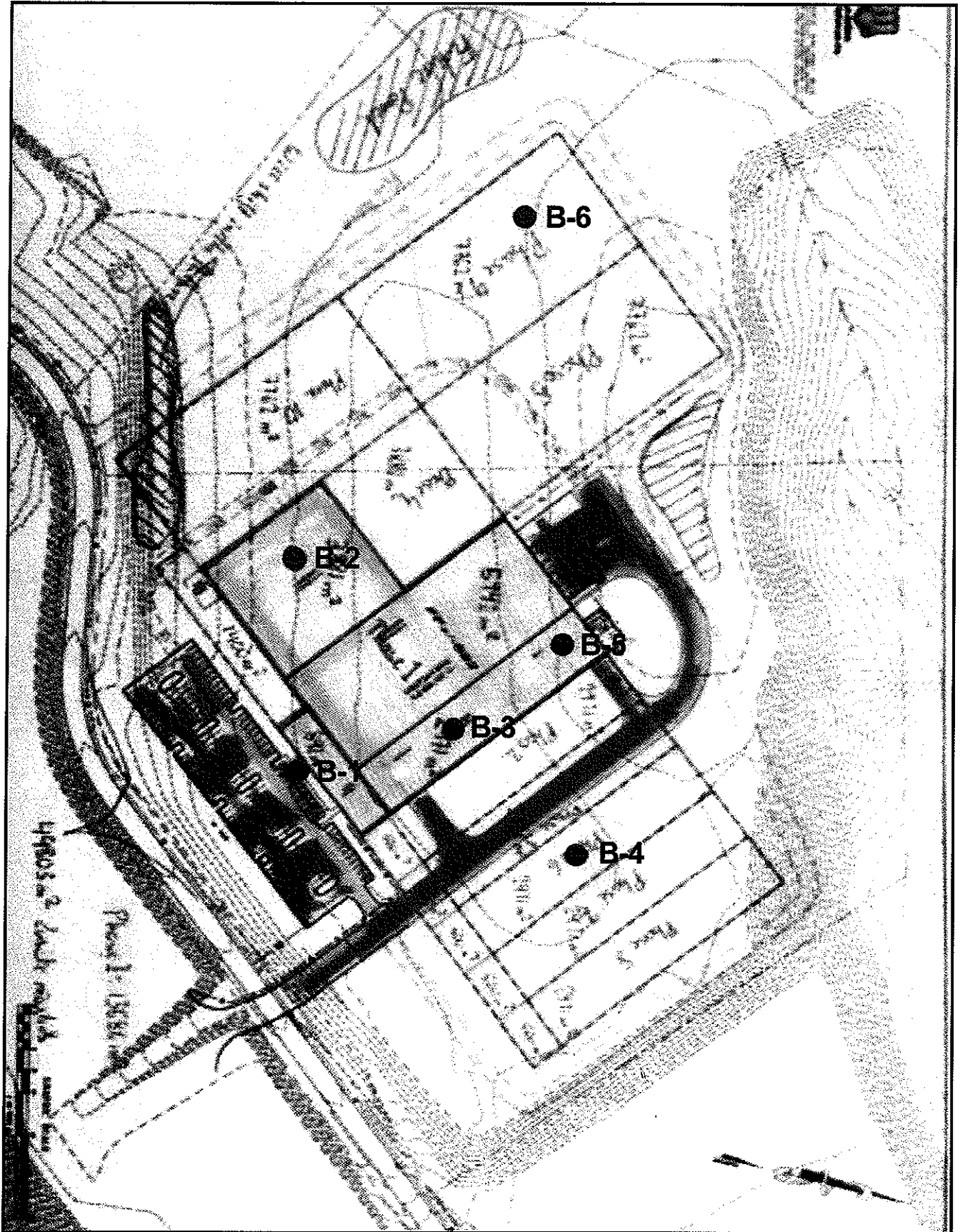
Very truly yours,

PRESTON GEOTECHNICAL CONSULTANTS, LLC



Robin C. Webb, P.E.





BORE HOLE LOCATION SKETCH
PGC NO.: 2015012
NOT TO SCALE



PRESTON GEOTECHNICAL CONSULTANTS, LLC

PGC No. 2015012

CLIENT: STEPHENS COUNTY DEVELOPMENT AUTHORITY **BORING NO.** B-1

PROJECT NAME: PROJECT HUMMINGBIRD, HAYSTONE BRADY INDUSTRIAL PARK, TOCCOA, GA

BORING LOCATION: SEE BORE HOLE LOCATION SKETCH

DATUM: EXISTING GRADE **HAMMER WT.** 140 lbs **HAMMER DROP:** 30 inches **HOLE DIA:** 6 inches

SUBSURFACE WATER DEPTH: NONE OBSERVED @ TIME OF BORING; BACKFILLED @ TIME OF BORING

SURFACE ELEV.: N/A **DATE STARTED:** 04-07-15 **COMPLETED:** 04-07-15 **BORING METHOD:** ASTM D 1586

SAMPLES		BLOWS PER FOOT	DEPTH (FEET)	BORING LOG					
STANDARD PENETRATION BLOWS PER FOOT	DESCRIPTION								
0	10	20	40	60	80	100			
1							20	0.5	RED, FINE TO MEDIUM SANDY MICACEOUS SILT (ML)
2							17	2	
3								2.5	TAN, MICACAEOUS SILTY FINE TO MEDIUM SAND (SM)
4							14	3	
5								4	RED-TAN, MICACEOUS SILTY FINE SAND (SM)
6							8	5	
7								6	
8								7	
9								8	
10							8	9	
11								10	
12								11	
13								12	GRAY, SILTY FINE TO MEDIUM CEMENTED SAND (SM)
14							68	13	
15								14	
16								15	
17								16	
18								17	
19								18	
20							10/0"	19	
								20	

BORING TERMINATED DUE TO AUGER REFUSAL IN CEMENTED SAND



PRESTON GEOTECHNICAL CONSULTANTS, LLC

PGC No. 2015012

CLIENT: STEPHENS COUNTY DEVELOPMENT AUTHORITY

BORING NO. **B-2**

PROJECT NAME: PROJECT HUMMINGBIRD, HAYSTONE BRADY INDUSTRIAL PARK, TOCCOA, GA

BORING LOCATION: SEE BORE HOLE LOCATION SKETCH

DATUM: EXISTING GRADE

HAMMER WT. 140 lbs

HAMMER DROP: 30 inches

HOLE DIA: 6 inches

SUBSURFACE WATER DEPTH: NONE OBSERVED @ TIME OF BORING; BACKFILLED @ TIME OF BORING

SURFACE ELEV.: N/A

DATE STARTED: 04-08-15

COMPLETED: 04-08-15

BORING METHOD: ASTM D 1586

SAMPLES		BLOWS PER FOOT	DEPT H (FEET)	BORING LOG
STANDARD PENETRATION BLOWS PER FOOT	DESCRIPTION			
0	10			
1		11	0.5	TAN-GRAY, MICACEOUS SILTY FINE TO MEDIUM SAND (SM)
2			1	
3			2	
4		10/0"	2.5	FRAGMENTED ROCK
5			3	
6			4	
7		12	5	TAN-GRAY, MICACEOUS SILTY FINE TO MEDIUM SAND (SM)
8			6	
9			7	
10			8	
11			9	
12			10	
13			11	
14			12	
15		44	13	GRAY, MICACEOUS SILTY FINE TO COARSE SAND (SM)
16			14	
17			15	
18			16	
19			17	
20			18	
			19	
		35	20	



PRESTON GEOTECHNICAL CONSULTANTS, LLC

PGC No. 2015012

CLIENT: STEPHENS COUNTY DEVELOPMENT AUTHORITY

BORING NO. B-2

PROJECT NAME: PROJECT HUMMINGBIRD, HAYSTONE BRADY INDUSTRIAL PARK, TOCCOA, GA

BORING LOCATION: SEE BORE HOLE LOCATION SKETCH

DATUM: EXISTING GRADE

HAMMER WT. 140 lbs

HAMMER DROP: 30 inches

HOLE DIA: 6 inches

SUBSURFACE WATER DEPTH: NONE OBSERVED @ TIME OF BORING; BACKFILLED @ TIME OF BORING

SURFACE ELEV.: N/A

DATE STARTED: 04-08-15

COMPLETED: 04-08-15

BORING METHOD: ASTM D 1586

SAMPLES						BLOWS PER FOOT	DEPT H (FEET)	BORING LOG
STANDARD PENETRATION BLOWS PER FOOT								DESCRIPTION
0	10	20	40	60	80	100		
							35	
21								21
22								22
23								23
24								24
25							10/0"	25
26								26
27								27
28								28
29								29
30								30
31								31
32								32
33								33
34								34
35								35
36								36
37								37
38								38
39								39
40								40

GRAY, MICACEOUS SILTY FINE TO COARSE SAND (SM)

GRAY, MICACEOUS SILTY FINE TO COARSE SAND (SM) WITH FRAGMENTED ROCK

BORING TERMINATED DUE TO AUGER REFUSAL IN ROCK



PRESTON GEOTECHNICAL CONSULTANTS, LLC

PGC No. 2015012

CLIENT: STEPHENS COUNTY DEVELOPMENT AUTHORITY

BORING NO. B-3

PROJECT NAME: PROJECT HUMMINGBIRD, HAYSTONE BRADY INDUSTRIAL PARK, TOCCOA, GA

BORING LOCATION: SEE BORE HOLE LOCATION SKETCH

DATUM: EXISTING GRADE

HAMMER WT. 140 lbs

HAMMER DROP: 30 inches

HOLE DIA: 6 inches

SUBSURFACE WATER DEPTH: NONE OBSERVED @ TIME OF BORING; BACKFILLED @ TIME OF BORING

SURFACE ELEV.: N/A

DATE STARTED: 04-07-15

COMPLETED: 04-07-15

BORING METHOD: ASTM D 1586

SAMPLES						BLOWS PER FOOT	DEPT H (FEET)	BORING LOG
STANDARD PENETRATION BLOWS PER FOOT								DESCRIPTION
0	10	20	40	60	80	100		
							13	
21							21	TAN-RED, FINE SANDY MICACEOUS SILT (ML)
22							22	
23							23	
24							24	
25							25	
26							26	
27							27	
28							28	
29							29	
30							11	30
31							31	BORING TERMINATED
32							32	
33							33	
34							34	
35							35	
36							36	
37							37	
38							38	
39							39	
40							40	



PRESTON GEOTECHNICAL CONSULTANTS, LLC

PGC No. 2015012

CLIENT: STEPHENS COUNTY DEVELOPMENT AUTHORITY

BORING NO. B-4

PROJECT NAME: PROJECT HUMMINGBIRD, HAYSTONE BRADY INDUSTRIAL PARK, TOCCOA, GA

BORING LOCATION: SEE BORE HOLE LOCATION SKETCH

DATUM: EXISTING GRADE

HAMMER WT. 140 lbs

HAMMER DROP: 30 inches

HOLE DIA: 6 inches

SUBSURFACE WATER DEPTH: NONE OBSERVED @ TIME OF BORING; BACKFILLED @ TIME OF BORING

SURFACE ELEV.: N/A

DATE STARTED: 04-07-15

COMPLETED: 04-07-15

BORING METHOD: ASTM D 1586

SAMPLES		BLOWS PER FOOT	DEPT H (FEET)	BORING LOG
STANDARD PENETRATION BLOWS PER FOOT	DESCRIPTION			
0	10			
1		11	0.5	RED-BROWN, FINE SANDY MICACEOUS SILT (ML)
2			1	
3		17	2.5	
4			3	
5		14	5	
6			6	
7			7	
8			8	
9			9	RED-TAN, FINE SANDY MICACEOUS SILT (ML)
10		13	10	
11			11	
12			12	
13			13	
14			14	
15		10	15	
16			16	
17			17	
18			18	
19			19	
20		10	20	



PRESTON GEOTECHNICAL CONSULTANTS, LLC

PGC No. 2015012

CLIENT: STEPHENS COUNTY DEVELOPMENT AUTHORITY

BORING NO. **B-4**

PROJECT NAME: PROJECT HUMMINGBIRD, HAYSTONE BRADY INDUSTRIAL PARK, TOCCOA, GA

BORING LOCATION: SEE BORE HOLE LOCATION SKETCH

DATUM: EXISTING GRADE

HAMMER WT. 140 lbs

HAMMER DROP: 30 inches

HOLE DIA: 6 inches

SUBSURFACE WATER DEPTH: NONE OBSERVED @ TIME OF BORING; BACKFILLED @ TIME OF BORING

SURFACE ELEV.: N/A

DATE STARTED: 04-07-15

COMPLETED: 04-07-15

BORING METHOD: ASTM D 1586

SAMPLES		BLOWS PER FOOT	DEPT H (FEET)	BORING LOG				
STANDARD PENETRATION BLOWS PER FOOT				DESCRIPTION				
0	10	20	40	60	80	100		
	●			10				
21								21
22								22
23								23
24								24
25	●			12				25
26								26
27								27
28								28
29								29
30	●			14				30
31								31
32								32
33								33
34								34
35								35
36								36
37								37
38								38
39								39
40								40

RED-TAN, FINE SANDY MICACEOUS SILT (ML)

BORING TERMINATED



PRESTON GEOTECHNICAL CONSULTANTS, LLC

PGC No. 2015012

CLIENT: STEPHENS COUNTY DEVELOPMENT AUTHORITY **BORING NO.** B-5

PROJECT NAME: PROJECT HUMMINGBIRD, HAYSTONE BRADY INDUSTRIAL PARK, TOCCOA, GA

BORING LOCATION: SEE BORE HOLE LOCATION SKETCH

DATUM: EXISTING GRADE **HAMMER WT.** 140 lbs **HAMMER DROP:** 30 inches **HOLE DIA:** 6 inches

SUBSURFACE WATER DEPTH: NONE OBSERVED @ TIME OF BORING; BACKFILLED @ TIME OF BORING

SURFACE ELEV.: N/A **DATE STARTED:** 04-08-15 **COMPLETED:** 04-08-15 **BORING METHOD:** ASTM D 1586

SAMPLES		BLOWS PER FOOT	DEPT H (FEET)	BORING LOG
STANDARD PENETRATION BLOWS PER FOOT	DESCRIPTION			
0	10			
1		16	0.5	RED-BROWN, FINE SANDY MICACEOUS SILT (ML) (FILL)
2		7	2.5	
3		14	5	
4				
5				RED-TAN, FINE SANDY MICACEOUS SILT (ML) (ORIGINAL)
6				
7				
8				
9				RED-TAN, MICACEOUS SILTY FINE SAND (SM)
10		14	10	
11				
12				
13				
14				
15		13	15	
16				
17				
18				
19				
20		11	20	



PRESTON GEOTECHNICAL CONSULTANTS, LLC

PGC No. 2015012

CLIENT: STEPHENS COUNTY DEVELOPMENT AUTHORITY

BORING NO. B-5

PROJECT NAME: PROJECT HUMMINGBIRD, HAYSTONE BRADY INDUSTRIAL PARK, TOCCOA, GA

BORING LOCATION: SEE BORE HOLE LOCATION SKETCH

DATUM: EXISTING GRADE

HAMMER WT. 140 lbs

HAMMER DROP: 30 inches

HOLE DIA: 6 inches

SUBSURFACE WATER DEPTH: NONE OBSERVED @ TIME OF BORING; BACKFILLED @ TIME OF BORING

SURFACE ELEV.: N/A

DATE STARTED: 04-08-15

COMPLETED: 04-08-15

BORING METHOD: ASTM D 1586

SAMPLES		BLOWS PER FOOT	DEPT H (FEET)	BORING LOG				
STANDARD PENETRATION BLOWS PER FOOT	DESCRIPTION							
0	10	20	40	60	80	100		
21			11	21				
22				22				
23				23				
24				24				
25			12	25				RED-TAN, MICACEOUS SILTY FINE SAND (SM)
26				26				
27				27				
28				28				
29				29				
30			13	30				BORING TERMINATED
31				31				
32				32				
33				33				
34				34				
35				35				
36				36				
37				37				
38				38				
39				39				
40				40				



PRESTON GEOTECHNICAL CONSULTANTS, LLC

PGC No. 2015012

CLIENT: STEPHENS COUNTY DEVELOPMENT AUTHORITY

BORING NO. **B-6**

PROJECT NAME: PROJECT HUMMINGBIRD, HAYSTONE BRADY INDUSTRIAL PARK, TOCCOA, GA

BORING LOCATION: SEE BORE HOLE LOCATION SKETCH

DATUM: EXISTING GRADE

HAMMER WT. 140 lbs

HAMMER DROP: 30 inches

HOLE DIA: 6 inches

SUBSURFACE WATER DEPTH: NONE OBSERVED @ TIME OF BORING; BACKFILLED @ TIME OF BORING

SURFACE ELEV.: N/A

DATE STARTED: 04-08-15

COMPLETED: 04-08-15

BORING METHOD: ASTM D 1586

SAMPLES		BLOWS PER FOOT	DEPT H (FEET)	BORING LOG
STANDARD	PENETRATION			DESCRIPTION
BLOWS PER FOOT				
0	10		6	
1			0.5	
2			1	
3			2	
4			2.5	
5			3	
6			4	
7			5	
8			6	
9			7	
10			8	
11			9	
12			10	
13			11	
14			12	
15			13	
16			14	
17			15	
18			16	
19			17	
20			18	
			19	
			20	
			10/0"	

TAN-GRAY, MICACEOUS SILTY FINE TO MEDIUM SAND (SM)

GRAY, MICACEOUS SILTY FINE TO MEDIUM SAND (SM)

TAN-GRAY, MICACEOUS SILTY FINE TO COARSE SAND (SM) WITH FRAGMENTED ROCK



PRESTON GEOTECHNICAL CONSULTANTS, LLC

PGC No. 2015012

CLIENT: STEPHENS COUNTY DEVELOPMENT AUTHORITY

BORING NO. B-6

PROJECT NAME: PROJECT HUMMINGBIRD, HAYSTONE BRADY INDUSTRIAL PARK, TOCCOA, GA

BORING LOCATION: SEE BORE HOLE LOCATION SKETCH

DATUM: EXISTING GRADE

HAMMER WT. 140 lbs

HAMMER DROP: 30 inches

HOLE DIA: 6 inches

SUBSURFACE WATER DEPTH: NONE OBSERVED @ TIME OF BORING; BACKFILLED @ TIME OF BORING

SURFACE ELEV.: N/A

DATE STARTED: 04-08-15

COMPLETED: 04-08-15

BORING METHOD: ASTM D 1586

SAMPLES		BLOWS PER FOOT	DEPTH H (FEET)	BORING LOG				
STANDARD PENETRATION BLOWS PER FOOT	DESCRIPTION							
0	10	20	40	60	80	100		
21			10/0"	21				
22				22				TAN-GRAY, MICACEOUS SILTY FINE TO COARSE SAND (SM) WITH FRAGMENTED ROCK
23				23				
24				24				
25				25				BORING TERMNATED DUE TO AUGER REFUSAL IN ROCK
26				26				
27				27				
28				28				
29				29				
30				30				
31				31				
32				32				
33				33				
34				34				
35				35				
36				36				
37				37				
38				38				
39				39				
40				40				



SOIL CLASSIFICATION

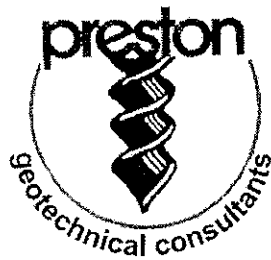
Client: Stephens County Development Authority **Date:** April 15, 2015

Project: Project Hummingbird **PGC No.:** 2015012
 Haystone Brady Industrial Park, Toccoa, GA

Date Sampled: April 8, 2015 **Sampled From:** Boring B-5
 from 0.0' to 5.0'

(ASTM D 4318)		
Liquid Limit 46	Plastic Limit 29	Plastic Index 17
ASTM D 1140		
Percent Finer Than No. 200 Sieve 54.8		
ASTM D 2487		
Soil Classification Group Symbol ML	Soil Description Sandy Silt	

Remarks:



**FAMILY OF CURVES METHOD FOR DETERMINING
MAXIMUM DENSITY OF SOILS
ASTM D 698**

CLIENT: Stephens County Development Authority

DATE: April 15, 2015

PROJECT: Project Hummingbird
Haystone Brady Industrial Park, Toccoa, GA

PGC NO.: 2015012

SAMPLE DESCRIPTION: Red-brown, fine sandy micaceous silt

MAXIMUM DRY DENSITY FROM FAMILY OF CURVES: 99.0 pcf

OPTIMUM MOISTURE CONTENT FROM FAMILY OF CURVES: 20.0 %

DATE SAMPLED: April 8, 2015

SAMPLED FROM: Boring B-5 from 0.0' to 5.0'

ONE POINT PROCTOR RESULTS

WET DENSITY: 118.2 pcf

MOISTURE CONTENT: 18.1%

FAMILY OF CURVES USED: B

"Woman Owned Small Business"

4725 Ivey Drive Suite • Macon, Georgia 31206
Phone 478-474-2941 • Fax 478-471-0202
www.prestontesting.com

DEFINITION OF TERMS

U.D. - Undisturbed sample (ASTM D 1587, Shelby Tube)
SPT - Standard Penetration Test (ASTM D 1586, Split Spoon)
L.L. - Liquid Limit (ASTM D 4318)
P.L. - Plastic Limit (ASTM D 4318)
P.I. - Plasticity Index (ASTM D 4318)
ATOB - At Time of Boring

CLAYS AND SILTS

<u>Consistency</u>	<u>SPT (Blows per foot)</u>
Very soft	Less than 2
Soft (L.L.)	2 - 4
Medium	4 - 8
Stiff	8 - 15
Very Stiff (P.L.)	15 - 30
Hard	Over

SANDS

<u>Relative density</u>	<u>SPT (Blows per foot)</u>
Very loose	0 - 4
Loose	4 - 10
Medium or firm	10 - 30
Dense	30 - 50
Very dense	Over 50

SOIL FRACTIONS

<u>Term</u>	<u>Size Range</u>
Cobbles	Above 3"
Gravel	Coarse 3" to 3/4"
Fine	3/4" to No. 4 Sieve
Sand Coarse	No. 4 to No. 10
Medium	No. 10 to No. 40
Fine	No. 40 to No. 200
Fines Clay-Silt	Below No. 200 sieve
Gravel - Naturally occurring aggregates	
Crushed Stone - Man-made aggregates such as crushed granite	