ADDENDUM TO
GEOTECHNICAL INVESTIGATION
LAFAYETTE STREET DRAINAGE
IMPROVEMENTS
LEON COUNTY, FLORIDA

Prepared For:

GENESIS GROUP
2507 CALLAWAY ROAD
SUITE 100
TALLAHASSEE, FLORIDA 32303

Prepared By:

ENVIRONMENTAL AND GEO TECHNICAL SPECIALISTS, INC.
104 NORTH MAGNOLIA DRIVE
TALLAHASSEE, FLORIDA 32301
(850) 386-1253

June 2012
18-115-12-01
June 5, 2012

EGS File Number: 18-115-12-01

Genesis Group, Inc.
2507 Callaway Road
Suite 100
Tallahassee, FL 32303

ATTN: James Sullivan, P.E.
Project Manager

SUBJECT: ADDENDUM A – Ground Penetrating Radar Study
Report of Geotechnical Investigation for the
Lafayette Street Drainage Improvements
Leon County, Florida
(Report Dated August 4, 2008)

Dear Jim:

Environmental and Geotechnical Specialists, Inc. (EGS) has completed the ground
penetrating radar (GPR) study as authorized by Genesis Group, Inc., for this project.

PROJECT

The project area is located along East Lafayette Street beginning west of the Chili’s
Restaurant entrance continuing (Roadway Stationing 420+00) east toward South Magnolia
Drive (Roadway Stationing 448+00).

The Lafayette Street Drainage Improvement Project involves updating and replacing a
number of stormwater structures along Lafayette Street and replacing much of the roadway
pavement structure.

The original study conducted in 2008 included the installation of 13 cores through the
pavement to evaluate the pavement structure. As can be seen in the original Report, hard
concrete was encountered below the asphalt throughout most of the project limits. Below
the concrete at most locations is a dense layer of clayey sand (SC/A-6). This clayey sand
layer would classify as a “PLASTIC” subgrade soil by the Florida Department of
Transportation (FDOT).
It should be noted that some areas of silty fine sand that would classify as "SELECT" subgrade soil by the FDOT was also encountered. A major portion of this study is to further delineate the areas of silty fine "SELECT" subgrade soils using GPR, if possible.

**SCOPE OF SERVICES**

The Scope of Services authorized by Genesis Group, Inc. for this project consisted of the following:

- installation of two (2) additional pavement cores;
- installation of two (2) 6-feet deep auger borings at each pavement core location to evaluate the subgrade;
- determination of the asphalt thickness, concrete pavement thickness, and the type of roadway subgrade soils using ground penetrating radar;
- testing representative samples of the subsoils for uniformity and classification purposes; and,
- preparation of this Report.

**SUBSURFACE CONDITIONS**

**Pavement Cores**

The geotechnical investigation outlined in this ADDENDUM was conducted in May 2012 by Matthew Monteith, E.I. under the supervision of Myron Hayden, P.E. The soil borings and pavement core locations are listed in TABLE A-1. EGS installed the soil borings using a hand auger coupled with Static Cone Penetrometer Index (CPI) tests conducted on two and one-half (2 ½ ) feet intervals. The Static Cone Penetration Index (CPI) test results presented in this ADDENDUM have been converted to equivalent SPT "N" values using the correlation of SPT "N" = CPI "C"/4.

Representative soil samples were collected and classified in the field by EGS personnel and then sealed and transported to EGS's laboratory for additional testing. The laboratory tests performed included water contents, grain-size distribution, and Atterberg limits. The soil samples were classified with respect to the Unified Soil Classification (UNIFIED) system and the American Association of State Highway and Transportation Officials (AASHTO) Soil Classification system. Copies of the Soil boring Logs and Soil Classification Data Sheets have been included in APPENDIX A.
Ground Penetrating Radar

As part of this study, EGS conducted a Ground Penetrating Radar (GPR) study. The GPR Study was conducted using an 800 and 1,600 MHz Antenna produced by MALA Geosciences. Two (2) transect lines were performed for this study with a transect line running in the center of the east and west bound lanes. Copies of the GPR scans have been included in APPENDICES B and C. As can be seen in these APPENDICES, EGS has included the locations of the Pavement Cores, LC-14 and LC-15, installed for this study.

SUBSURFACE CONDITIONS

Pavement Structure

A Plan View of both the thickness of asphalt pavement and underlying concrete pavement, based on the GPR study, is shown in APPENDIX B. As can be seen in APPENDIX B, the thickness of the asphalt varies from about 1.1 inches to 2.1 inches with the average around 1.6 inches.

Underlying most of the asphalt pavement is approximately six (6) to seven (7) inches of hard concrete pavement. A Plan View with the thickness of the concrete pavement shown has been included in APPENDIX B.

Subgrade

Based on a review of the GPR scans, the type of subgrade along the project route has been identified in a Plan View shown in APPENDIX C. As can be seen in APPENDIX C, most of the subgrade soils are clayey sands, identified by FDOT as PLASTIC, however, there are some areas where the subgrade is less plastic.

It should be noted that EGS identified several locations where it appears that debris has been buried. Based on a soil boring install at these locations, the debris is likely broken concrete, which was likely used as fill to level the roadway subgrade.
RECOMMENDATION

EGS recommends that after the concrete pavement is removed that these areas where the buried debris exists be investigated by a knowledgeable Geotechnical Engineer and an evaluation be made as to its impact on the proposed new pavement. Since there are to be some new utilities installed or updated, it is possible that some or all of this buried debris may be excavated and removed.

CLOSURE

The data and results presented in this Report are intended for the use of Genesis Group, Inc. and the Leon County Department of Public Works for evaluation of the proposed pavement replacement, described herein. This Report is not intended for any other use and will likely not be applicable. The data and recommendations presented in this Report are based on the borings made at the specific locations and depths noted. Subsurface conditions at other locations may vary significantly from those presented herein. Should data become available which is different from the data presented herein, Environmental and Geotechnical Specialists, Inc. requests the opportunity to review the data and make any modifications to the design recommendations which may be appropriate.

If you have any questions concerning the information contained in this Report, please do not hesitate to contact Matthew Monteith, E.I., or myself at (850) 386-1253.

Very truly yours

Environmental and Geotechnical Specialists, Inc.
Florida Certificate of Engineering Authorization Number 6222

Myron L. Hayden, Ph.D., P.E.
Principal Geotechnical Engineer
FL P.E. Number 34067
# Table A-1

**SOIL BORING LOCATION DATA**

**ADDENDUM A**

**LAFAYETTE STREET DRAINAGE STUDY**

**GENESIS GROUP**

**LEON COUNTY, FLORIDA**

<table>
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<tr>
<th>BORING NUMBER</th>
<th>DEPTH $^1$ (FEET)</th>
<th>ELEVATION $^2$ (FEET)</th>
<th>GLOBAL POSITIONING SATELLITE (GPS) COORDINATES $^3$</th>
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<td>DEG ($^\circ$) MIN ('')</td>
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<tr>
<td>LS-14</td>
<td>6.2</td>
<td>156.0</td>
<td>30 26.225 84 16.238</td>
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<td>188.0</td>
<td>30 26.200 84 16.105</td>
<td>BORING IS LOCATED 100 FEET EAST OF THE DESOTO PARK DRIVE IN THE EAST BOUND LANE</td>
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**NOTES:**
1. DEPTH IS BELOW EXISTING GROUND SURFACE
2. ELEVATIONS ESTIMATED FROM TALLAHASSEE-LEON COUNTY GIS MAPS
3. GPS COORDINATES ARE ACCURATE TO WITHIN 10 FEET
# Table A-2
GROUNDWATER DATA
ADDENDUM A
LAFAYETTE STREET DRAINAGE STUDY
GENESIS GROUP
LEON COUNTY, FLORIDA

<table>
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<th>BORING NUMBER</th>
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**NOTES:**
1. DEPTH IS BELOW EXISTING GROUND SURFACE
2. ELEVATIONS ESTIMATED FROM DRAWINGS PROVIDED BY GENESIS, INC.
* GROUNDWATER IS LIKELY PERCHED ON UNDERLYING PLASTIC SOILS
APPENDIX A

SOIL BORING LOGS AND
SOIL CLASSIFICATION DATA
1.25 INCHES ASPHALT

7.0 INCHES CONCRETE

LOOSE ORANGE CLAYEY SAND WITH CONCRETE DEBRIS

-200% = 37
LL = 26
Pl = 12

-200% = 19

MEDIUM DENSE ORANGE SILTY FINE SAND

-200% = 56
LL = 51
Pl = 23

MEDIUM DENSE ORANGE HIGHLY PLASTIC CLAY

-200% = 56
LL = 51
Pl = 23

This information pertains only to this boring and should not be interpreted as being indicative of the site.

NOTES: N-VALUES WERE OBTAINED USING A CONE PENETROMETER INDEX TEST (CPI)
N/T MEANS NOT TAKEN
N/A MEANS NOT APPLICABLE
# Soil Classification Data

**Project:** Lafayette Street Drainage Improvements  
**Client:** Genesis Group  
**Boring:** LS-14  
**Project No.:** 18-115-12-01  
**Location:** Leon County, Florida

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<th>PI</th>
<th>ORG. (%)</th>
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<th>AASHTO</th>
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Environmental and Geotechnical Specialists, Inc.
PROJECT: LAFAYETTE STREET DRAINAGE IMPROVEMENTS
CLIENT: GENESIS GROUP
PROJECT NO.: 18-115-12-01 HAMMER TYPE: CPI
PROJECT LOCATION: LEON COUNTY, FLORIDA ELEVATION (FEET):
BORING NO.: LS-15 DATE: 5/24/2012
DRILLER: M. MCCONNELL
DEPTH TO - WATER> INITIAL:  > 6.3' AFTER 24 HOURS:  > 6.3' CAVING>  NONE

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NOTES: N-VALUES WERE OBTAINED USING A CONE PENETROMETER INDEX TEST (CPI) N/T MEANS NOT TAKEN N/A MEANS NOT APPLICABLE
## SOIL CLASSIFICATION DATA

**PROJECT:** LAFAYETTE STREET DRAINAGE IMPROVEMENTS

**CLIENT:** GENESIS GROUP

**BORING:** LS-15

**PROJECT NO.:** 18-115-12-01

**LOCATION:** LEON COUNTY, FLORIDA

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ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.
APPENDIX B

ASPHALT AND CONCRETE THICKNESS