

TECHNICAL MEMORANDUM

September 22, 2022

From: Daniel C. Stanfill, P.E. and Richard P. McCormick, P.G.

To: Bronze Stephenson, MPA
Lead Planner

Subject: Existing Geotechnical Conditions Technical Memorandum
SR 429-BINION ROAD INTERCHANGE PD&E STUDY
CFX 429-309
GEC Project No. 5126GE

Based on TWO 1 under Contract Number 001844 dated July 19, 2022, Geotechnical and Environmental Consultants, Inc. (GEC) is pleased to present this Existing Geotechnical Conditions Memorandum for the CFX SR 429-Binion Road Interchange PD&E study. GEC has reviewed available documents, the USGS Quadrangle Map, the NRCS Orange County Soil Survey and current plans to prepare this Memorandum. **Figure 1**, which is attached, shows the USGS Quadrangle Map and NRCS Soil Survey for the project location. The following observations are noted.

- Ground surface topography varies from + 115 to +70 feet NGVD in the project area (see **Figure 1**).
- The south portion of the project previously contained citrus groves.
- Citrus groves are currently present southwest of SR 429.
- Near surface soils range from well drained Type A sand soils (soil types 4, 5, 6 and 47) to poorly drained Type D muck soils (soil types 25 and 42).
- The muck soils were likely removed for the SR 429 construction and were present from approximately Stations 575 to 585 along SR 429.
- Groundwater depth varies considerably from about + 70 to + 105 feet NGVD.
- Plastic clay layers are present underneath the sands and groundwater generally is perched on top of the relatively impervious clay soils.
- Project location is in a Karst or sinkhole prone environment.
- Geotechnical considerations include exploration for highly compressible organic muck soils, evaluation of variable groundwater conditions and deep Standard Penetration Test (SPT) borings for bridge foundation design.

- Bridges should be supported on a deep driven pile substructure due to Karst environment and likely high Factored Loads required.
- Dry stormwater ponds may be feasible depending on pond location, the presence of the clay confining layer and groundwater levels.
- Plastic and muck subsoil removal may be required depending on final roadway grades.

USE OF THIS MEMORANDUM

GEC has prepared this memorandum for the exclusive use of our client, The Balmoral Group and CFX and for application to our client's project. GEC will not be held responsible for any other party's interpretation or use of this report's data or recommendations without our written authorization.

GEC has performed the services described in this report in a manner consistent with that level of care and skill ordinarily exercised by members of our profession currently practicing in Central Florida. No other representation is made or implied in this document.

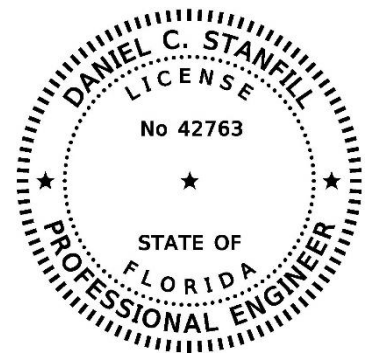
The conclusions and recommendations should be disregarded if the final project design differs from the project description in this report. If such changes are contemplated, GEC should be retained to review the new plans to assess the applicability of this report in light of proposed changes.

We appreciate the opportunity to work with The Balmoral Group and CFX on this project. If you have any questions concerning this report, or if we may be of further assistance, please contact us.

Sincerely,

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS, INC.

Richard P. McCormick, P.G.
Chief Geologist
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Daniel C. Stanfill, P.E.
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This Report has been digitally signed and sealed by Daniel C. Stanfill, P.E. on the date adjacent to the seal. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

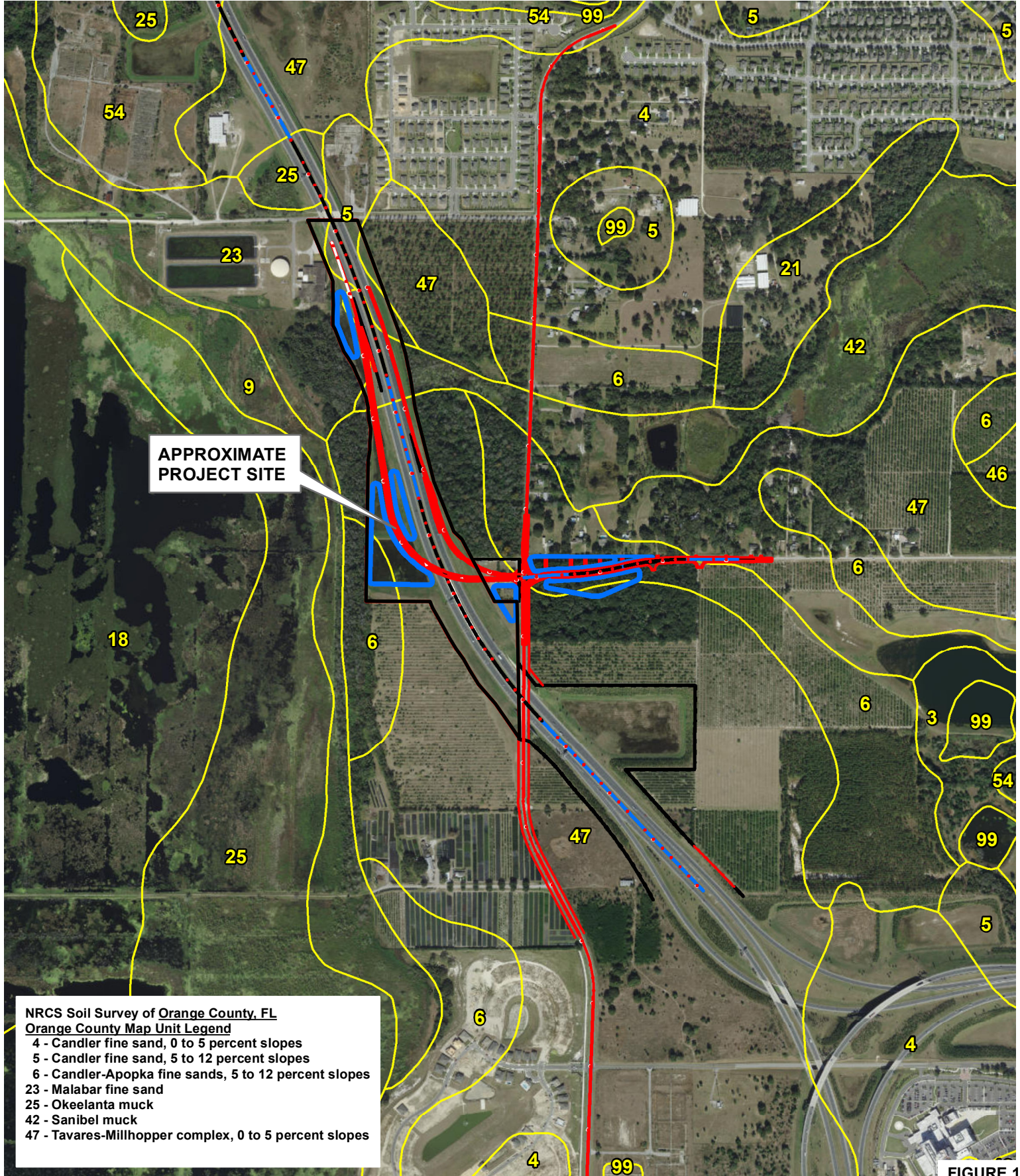
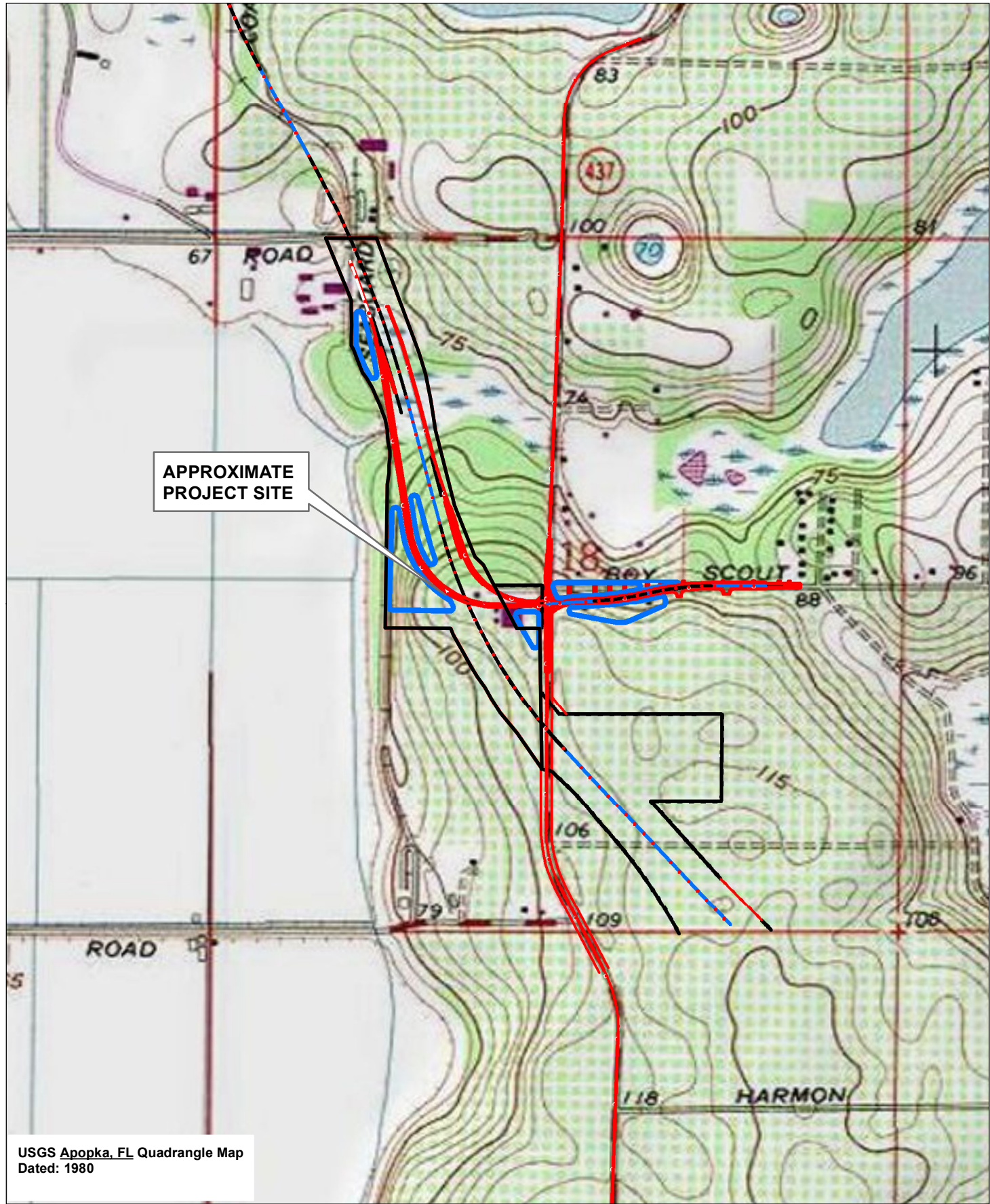


FIGURE 1

0 500 1,000
Feet



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CENTRAL FLORIDA
EXPRESSWAY AUTHORITY

ROAD NO.	PROJECT NO.
SR 429	429-309

**CENTRAL
FLORIDA**
EXPRESSWAY
AUTHORITY

SHEET TITLE

USGS QUADRANGLE AND
NRCS SOIL SURVEY MAPS

PROJECT NAME

SR 429 - BINION ROAD INTERCHANGE

REF. DWG. NO.

SHEET NO.