Computer Programs used in FDOT

Table 1, Driven Piles

FB-Deep	Bridge Software Institute http://bsi-web.ce.ufl.edu/	Computes static pile capacities based on SPT or CPT data. Used for precast concrete, concrete cylinder, steel H- or steel pipe piles, and drilled shafts.
WEAP		Dynamic analysis of pile capacity and drivability.

Table 2, Drilled Shafts

FB-Deep	Bridge Software Institute http://bsi-web.ce.ufl.edu/	Computes static drilled shaft and driven pile capacities based on SPT or CPT data.

Table 3, Lateral Loads

FB-Pier FB-MultiPier	Bridge Software Institute http://bsi-web.ce.ufl.edu/	The Lateral Pile Group Structural Analysis Program is a 3-D nonlinear substructure analysis program.
COM624P	COM624P - Laterally Loaded Pile Analysis Program for the Microcomputer, Version 2.0, FHWA-SA-91-048, 1993. http://www.fhwa.dot.gov/bridge/software.HTM	Computes deflections and stresses for laterally loaded piles and drilled shafts.
LPile	Ensoft	Computes deflections and stresses for laterally loaded piles and drilled shafts.

Table 4, Spread Footings

CBEAR	CBEAR Users Manual, FHWA-SA-94-034, 1996.	Computes ultimate bearing capacity of spread or continuous footings on layered soil profiles.

Table 5, Sheet Piling

CWALSHT	Dawkins, William P., Users Guide: Computer Program For Design and Analysis of Sheet Pile Walls by Classical Methods, Waterways Experiment Station, 1991.	Design and analysis of either anchored or cantilevered sheet pile retaining walls. Moments, shear, and deflection are shown graphically. Analysis of anchored walls does not follow AASHTO requirements.
Shoring	Civil Tech, CT-SHORING http://civiltech.com/software/shoring.php	Excavation supporting system design and analysis.
SPW 911	Pile Buck International, Inc. P.O. Box 64-3609 Vero Beach, FL, 32964-3299 http://www.pilebuckinternational.com/product/spw911-sheet-pile-design-software/	Care must be exercised to ensure analyses are in accordance with the AASHTO code earth pressure diagrams. Program may mix methods when inappropriate values are changed. Use Coulomb method.

Table 6, Slope Stability

PCSTABL	PC-STABL6 Purdue University.	Calculates factor of safety against rotational, irregular, or sliding wedge failure by simplified Bishop or Janbu, or Spencer method of slices.
RSS	RSS Reinforced Slope Stability A Microcomputer Program User's Manual, FHWA-SA-96-039, 1997 http://www.fhwa.dot.gov/bridge/software.HTM	A computer program for the design and analysis of reinforced soil slopes (RSS Reinforced Slope Stability). This program analyzes and designs soil slopes strengthened with horizontal reinforcement, as well as analyzing unreinforced soil slopes. The analysis is performed using a two-dimensional limit equilibrium method.
Visual Slope	Visual Slope, Inc. http://www.visualslope.com/index.html	Visual Slope uses drawing procedures similar to AutoCAD to help users establish analytical models, which allow detailed modeling of a complicated project.

XSTABL	Interactive Software Designs, Inc., http://xstabl.com/index.htm	Program performs a two dimensional limit equilibrium analysis to compute the factor of safety for a layered slope using the modified Bishop or Janbu methods.
SLIDE SLIDE2	RocScience https://www.rocscience.com/software/slide2	2D limit equilibrium slope stability analysis program for all types of soil and rock slopes, embankments, earth dams, and retaining walls. (See Note 4)
SLOPE/W	GEO-SLOPE International http://www.geo-slope.com	Limit state design or load resistance factor design is handled by specifying partial factors on permanent/variable loads, seismic coefficients, material properties and reinforcement inputs.

Table 7, Embankment Settlement

FOSSA	http://www.geoprograms.com/fossaindex.htm	Calculates compression settlement due embankment loads.
Settle 3D	http://www.rocscience.com/products/7/Settle3D	Analysis of vertical consolidation and settlement under foundations, embankments and surface loads.
SIGMA/W	GEO-SLOPE International http://www.geo-slope.com	SIGMA/W is a finite element software product that can be used to perform stress and deformation analyses of earth structures. (See Note 4)

Table 8, Soil Nailing

SNAP-2	FHWA: http://www.fhwa.dot.gov/engineering/geotech/software.cfm	Design and evaluation procedures developed in general accordance with the FHWA guidelines.

Table 9, Walls and Steepened Slopes

GEO5	Bentley GeoStructural Retaining Wall Analysis Software (Ver 19.3)	Care is needed to update the outdated default load and resistance factors.

MSEW 3.0	ADAMA Engineering, Inc., http://msew.com/msewindex.htm	The program can be applied to walls reinforced with geogrids, geotextiles, wire mesh, or metal strips. It allows for reduction factors associated with polymeric reinforcement or for corrosion of metallic reinforcement.
ReSSA 3.0	ADAMA Engineering, Inc., http://msew.com/ressaindex.htm	A computer program for the design and analysis of reinforced soil slopes (RSS Reinforced Slope Stability). This program analyzes and designs soil slopes strengthened with horizontal reinforcement, as well as analyzing unreinforced soil slopes. The analysis is performed using a two dimensional limit equilibrium method.

MSE LRFD	FDOT Structures Design Office http://www.dot.state.fl.us/structures/proglib.shtm (See Note 3)	An Excel spreadsheet for external stability analysis of MSE walls by LRFD methods.
Cantilever LRFD	FDOT Structures Design Office http://www.dot.state.fl.us/structures/proglib.shtm (See Note 3)	An Excel spreadsheet for external stability analysis of cantilever retaining walls by LRFD methods.

NOTE:

1) The programs included in this list are available from public sources and the private sector.

2) Many of the programs listed are continually updated or revised. It is the user's responsibility to become familiarize with the latest versions.

3) FDOT's programs are available on the FDOT's Structures Internet site. The address is: http://www.dot.state.fl.us/structures/proglib.shtm . Geotechnical programs are listed below the table of structural engineering/design programs.

4) Use of finite element programs for complex geotechnical analyses must include the means to determine input parameters, model calibration and the proposed verification of results.

5) **Programs not listed require approval from the State Geotechnical Engineer.**