

## Part 506 – Technical Materials

### AL506.5 Distribution of Engineering Technical Materials Within NRCS.

The state conservation engineer (SCE) is responsible for procuring all engineering technical materials needed in the state.

Materials not available electronically will be filed in loose leaf, three ring binders. They shall be filed in accordance with appropriate instructions. As revisions or new materials are received, they are to be filed in the proper binder. When revised reference specifications are received, the older copy is to be discarded after all contracts which incorporate the older specification are completed. When technical materials become available electronically (eFOTG, NRCS web page, share point sites, etc.), hard copy maintenance is not required.

It will be the responsibility of the district conservationist (DC) to keep hard copies of engineering technical references not available electronically current at the field office.

Engineering technical materials for resource engineers that are not available electronically will be assigned directly to the engineer. It shall be each engineer's responsibility to keep his/her technical materials up-to-date. Engineers relocated within the state shall take all technical materials assigned to them to their new location. Engineers transferred out of state shall leave all technical materials assigned to them at that location.

Engineers assigned to the state office will not have a complete set of technical materials assigned to them individually. They will have access to the complete engineering technical material assigned to the engineering section.

The following, either electronic or in hard copy, shall be considered as the complete engineering technical material for all engineers regardless of their assignment.

- [National Engineering Manual \(NEM\)](#)
- National Engineering Handbook Series  
Parts 600-649.  
Parts 650-659 – Field Office Handbooks include the following:
  - [Part 650 – Engineering Field Handbook – Volumes 1 and 2](#)
  - [Part 651 - Agricultural Waste Management Field Handbook \(AWMFH\)](#)
  - [Part 652 - Irrigation Guide](#)
  - [Part 653 – Stream Corridor Restoration](#)
- Field Office Technical Guide (FOTG) – Section I, Engineering References and [Section IV, Standards and Specifications](#).
- [Alabama Poultry Waste Management – Waste Utilization and Poultry Design Workbook](#).
- Alabama Engineering technical notes and forms.
- Bulletins and Instructions received from the national and state office.
- Miscellaneous technical references as follows:
  - Applicable National Technical Releases
  - Applicable design notes, specification notes, soil mechanics notes, and technical notes from the National Office.

[NOTE: Due to the fact that all technical materials are in the process of being incorporated into the NEHS, it will be necessary to maintain technical material (i.e., technical releases, etc.) as they are until they are incorporated into the NEHS.]
- Exhibit 1 (See AL506 Exhibit 1) lists the complete set of engineering technical materials. They may be available either electronically or as hard copy.

## Title 210 – National Engineering Manual

- The following technical materials should be available to engineers as needed:
  1. Reference Specifications
    - a. Those standard specifications of other agencies, associations, institutes, or societies that are referenced in NRCS National Engineering Handbook, NEH-19, Construction Inspection; NEH Part 645, Construction and Material Specifications; and the FOTG Section IV, Conservation Practice Standards. See NEM 542.40 for list of reference specifications.
  2. Alabama Department of Transportation, Standard Specifications for Highway Construction.
- Reference Textbooks:
  1. Handbook of Hydraulics by King and Brater
  2. Occupational Safety and Health Administration (OSHA), Parts 1910 and 1926 Construction Industry Standards and Interpretations.
  3. Surveying, by Davis and Foote.
  4. Earth Manual, Bureau of Reclamation.
  5. Concrete Manual, U.S. Department of Interior, Eleventh Edition.
  6. Structures and Environment Handbook, Midwest Plan Service, Eleventh Edition, 1987.
  7. Post-Frame Building Handbook Materials, Design Constructions, Construction Procedures, Northeast Regional Agricultural Engineering Service, Revised 1997.
  8. Water Measurement Manual, U.S. Department of the Interior, Bureau of Reclamation, Third Edition, 1997.
  9. Engineering computer software programs shall be distributed to engineers and offices as needed. The following procedures shall apply to the development, distribution, and use of engineering computer software.
    - a. Individual engineers or technicians in Alabama and other states may develop computer programs for the solution of engineering problems for their own use or for use by others. Some programs are developed for nation wide use. Others are initially intended for local use only, but later become widely accepted through sharing among individuals. Many programs are developed within the framework of a commercially available program such as Microsoft Excel. Each individual is responsible for ensuring that the programs they develop for their own use provide accurate results and that the results are checked and verified in the same manner as other engineering calculations. Users of programs not approved or made available by the State Conservation Engineer (SCE), assume responsibility for verification of results obtained using the programs.
    - b. New engineering programs developed by Alabama NRCS employees and made available by the SCE will comply with the following procedures prior to distribution:
      - i. The program author will document all formulas and procedures used in the program. The documentation will be in sufficient detail to enable a person reviewing the program to locate, understand, and follow the processes and calculations within the program. The documentation will be maintained by the author and a copy sent to the SCE for filing. The program password will be included in the documentation.
      - ii. Detailed instructions for applicability and use of the programs will be developed in a form readily available to users, preferably within the program as in Excel programs.
      - iii. The program will be checked by an engineer not directly involved in the development of the program. This check will include verifying the applicability of the formulas and procedures used as well as a detailed check of each step in the program.
      - iv. After the program author and the reviewer are satisfied that the program is ready for use it will be sent to the SCE for distribution and/or posting on the Alabama NRCS web site. Programs developed within Excel or similar programs will be password protected.

## Title 210 – National Engineering Manual

- v. Programs should be titled with a name that is descriptive of its function along with a version number (e.g. Stream Crossing Version 5). As revisions are made to the program the version number should be changed and the latest version distributed and/or posted on the web site. Major revisions should have a whole number change (e.g. Version 2 to Version 3). Minor revisions should have a decimal number change (e.g. Version 2.1 to Version 2.2).
- c. Engineering programs approved for use in Alabama include programs in versions at or above those listed in Exhibit 2 (See AL506 Exhibit 2). This list is not all-inclusive and does not include commercially developed programs adopted by NRCS. The contact persons for the programs developed by Alabama NRCS personnel are listed with the programs.



**AL506.5 Exhibit 1 – Engineering Technical Materials**

DIRECTIVE	DISTRIBUTION					
	ASTC FO	RE	DC	RES CON	SOIL TECH	SOIL CON
<a href="#">National Engineering Manual</a> and AL Supplements	X	X	X			
<a href="#">Engineering Field Handbook – Volumes 1 and 2</a> (NOTE: This Handbook is Part 650 of the National Engineering Handbook Series.) and AL Supplements	X	X	X		X	X
<a href="#">Agricultural Waste Management Field Handbook</a> (NOTE: This Handbook is Part 651 of the National Engineering Handbook Series.) and AL Supplements	X	X	X	X	X	
<a href="#">Irrigation Guide</a> (NOTE: This Guide is Part 652 of the National Engineering Handbook Series.) and AL Supplements	X	X				
<a href="#">Stream Corridor Restoration Handbook</a> (NOTE: This Handbook is Part 653 of the National Engineering Handbook Series.) and AL Supplements	X	X	X	X		
<a href="#">Alabama Poultry Waste Management - Waste Utilization and Poultry Design Handbook</a> and AL Supplements	X	X	X	X	X	X
<a href="#">Alabama Engineering Forms</a>	X	X	X			
Alabama Engineering Technical Notes	X	X	X			

**AL506.5 Exhibit 2 – Approved Engineering Computer Programs**

	<b>PROGRAM</b>	<b>CONTACT</b>
1.	AWM, version 2.3.0	Resource Engineer (Nat'l program)
2.	EFH2, version 1.1.0	Resource Engineer (Nat'l program)
3.	Excavated Pondver6.xls	Jeff Allred
4.	HUA Quantity Calculations, version 1.1	Jeff Allred
5.	Hydraulics Formula, version 2.2.1	Resource Engineer (Nat'l program)
6.	Nutrient Budget Dry 7/2/03.xls	Bill Prince
7.	Nutrient Budget Dry w/o feeding 3-3-04.xls	Bill Prince
8.	Nutrient Budget Wet 7/2/03.xls	Bill Prince
9.	POND program, last revised 05/07/96	Perry Oakes
10.	Riprap flume design version 1.xls	Resource Engineer
11.	Rock_ChuteXP.xls	Resource Engineer (Nat'l program)
12.	SET, build 01.0001.050701	Resource Engineer (Nat'l program)
13.	SITES, version 2005.0.2	Resource Engineer (Nat'l program)
14.	Stage Storage Curve and Graph Ver.1.xls	Resource Engineer
15.	Stream Crossing5.2.xls	Jeff Allred
16.	TERRACE, version 2.5	Resource Engineer
17.	Trapezoidal Rock Structure Quantities V3.xls	Resource Engineer
18.	Watering system design Version 5.3.xls	Resource Engineer
19.	WinPond 2006, build 1.5.2405.11111	Resource Engineer (Nat'l program)
20.	WinTR-55, version 1.00.08	Resource Engineer (Nat'l program)
21.	Yardage Program Ver.3.xls	Jeff Allred