January 7, 2016

NATIONAL ENGINEERING FIELD HANDBOOK
210-VI
NOTICE FL-137

SUBJECT: ENG - NATIONAL ENGINEERING FIELD HANDBOOK, PART 650, FLORIDA SUPPLEMENT.

Purpose. To supplement the National Engineering Field Handbook (NEFH), Part 650.

Effective Date. This supplement is effective when received.

This supplement transmits Florida Engineering Form FL-3 Quality Assurance Plan (QAP) and a revised index to Chapter 5 Chapter 1.

A quality assurance plan (QAP) is required for all construction activities. See National Engineering Manual Part 512 – Construction, Subpart D – Quality Assurance Activities and FL512.32 Quality Assurance Procedures. Form FL-ENG- 3 is a template that can be edited to develop a site specific QAP for Class I –V jobs. The individual preparing the QAP needs to include those items, inspection intensity, inspection requirements, and inspector qualifications necessary to obtain reasonable assurance that the job was installed in accordance with the engineering plans and specifications. If the job is complex a more detailed QAP may need to be developed to address the quality assurance requirements.

Filing Instructions. The attached supplements are to be filed in the NEFH, Part 650, Florida Supplement.

Remove and Destroy Pages	Insert
----------	Notice FL-137
FL5-1 – FL5-4 (05/14)	FL5-1 – FL5-4 (01/16)

Questions regarding the attached supplement should be directed to the State Conservation Engineer.

Electronic copy of FL-ENG-3 can be downloaded from the eFOTG website under https://efotg.sc.egov.usda.gov/treemenuFS.aspx Section I; C. References; 1. Engineering References; Part 650, NEFH – FL Supplement, Chapter 05 - Forms.

ANTHONY HARVEY
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Acting

Jesse T. Wilson
State Conservation Engineer

Enclosure

DIST: A, F, ENG, ECS

Exhibit FL5-1 - Index of Florida Engineering Forms

Form Number	Date	Format	Form Name
FL-ENG-3	01/16	.docx	Quality Assurance Plan
FL-ENG-5A	06/11	.xlsx	Embankment Earthwork Computation Sheet
FL-ENG-5B	06/11	.xlsx	Excavation Computation Sheet
FL-ENG-40	01/15	.doc	Verification of Pre-Construction Conference
FL-ENG-312A	06/10	.xlsm	Waste Management System Agreement and Certification
FL-ENG-312B	06/10	.xlsm	Land Area Requirements for Poultry Wastes and Litter Worksheet
FL-ENG-312C	06/10	.xlsm	Land Application of Litter (Base on Limiting Nutrient) Continuation Sheet
FL-ENG-313A	07/11	.xlsm	Poultry Manure Dry Stack Structure, Design Worksheet (Three Open Sides)
FL-ENG-313B	07/11	.xlsm	Poultry Composter/Litter Dry Stack Structure, Design Worksheet (Three Walls)
FL-ENG-313C	07/11	.xlsm	Poultry Composter/Litter Dry Stack Structure, Design Worksheet (Two Walls)
FL-ENG-313D	07/11	.xlsm	Poultry Composter/Litter Dry Stack Structure, Design Worksheet (Two Walls) Composter and Storage in Same Building
FL-ENG-313E	12/11	.xlsm	Manure Storage/Dead Bird Composting Facility Design Worksheet
FL-ENG-313F	10/11	.xlsm	Litter Storage/Composter Facility Construction Checklist
FL-ENG-313G	07/11	.xlsm	Poultry Composter/Litter Dry Stack Structure Design Worksheet - (Two Walls) Composter (on opposite walls) and Litter Storage in Same Building
FL-ENG-316A	10/11	.xlsm	Dead Bird Composter Sizing Worksheet
FL-ENG-316B	07/11	.xlsm	Poultry Mortality Freezer Worksheet
FL-ENG-317A	10/11	.xlsm	Litter Storage Requirements Worksheet
FL-ENG-317B	10/11	.xlsm	Composting Loading Data
FL-ENG-317C	06/10	.xlsm	Poultry Litter and Compost Data

Exhibit FL5-1 - Index of Florida Engineering Forms (con't)

Form Number	Date	Format	Form Name
FL-ENG-317D	06/10	.xlsm	Dead Bird Rotary Drum Composter Sizing Worksheet
FL-ENG-351/755	07/11	.xlsx	Well Decommissioning or Plugging - Construction Check
FL-ENG-362	07/11	.xlsx	Diversion Design Data Sheet and Construction Check
FL-ENG-372A	04/14	.xlsx	Combustion System Improvement
FL-ENG-372B	04/14	.xlsx	Combustion System Improvement – Engine Replacement Implementation Record
FL-ENG-378A	06/11	.xlsx	Farm Pond Data Sheet
FL-ENG-378B	06/11	.xlsx	Pond (Excavated Type) Design Sheet
FL-ENG-410A	03/11	.xlsm	Grade Stabilization Structure Design and Check Sheet - Hood Inlet
FL-ENG-410B	03/11	.xlsx	Grade Stabilization Structure Design and Check Sheet - Drop Inlet
FL-ENG-412	08/11	.xlsx	Grassed Waterway Data Sheet
FL-ENG-430	10/11	.xlsx	Irrigation Water Conveyance - Pipeline Design Data Sheet
FL-ENG-432	10/11	.xlsm	Dry Hydrant Hydraulic Design
FL-ENG-441A	03/11	.xlsx	Irrigation System, Microirrigation Design Data Sheet
FL-ENG-441B	09/14	.xlsx	Irrigation System, Microirrigation Design Data Sheet for Orchard Crops
FL-ENG-441C	04/11	.xlsx	Irrigation System, Microirrigation - Construction and Operation Check Sheet
FL-ENG-441D	11/11	.xlsx	Irrigation System, Microirrigation Operation Check of Applicators
FL-ENG-442A	08/11	.xlsx	Irrigation System Sprinkler - Permanent Solid-Set Design Data Sheet
FL-ENG-442B	08/11	.xlsm	Irrigation System Sprinkler - Center Pivot Design Data Sheet
FL-ENG-442C	03/11	.xlsx	Irrigation System Sprinkler - Traveling Gun Design Data Sheet

Exhibit FL5-1 - Index of Florida Engineering Forms (con't)

Form Number	Date	Format	Form Name
FL-ENG-442D	12/11	.xlsx	Irrigation System Sprinkler - Center Pivot Certification Check Sheet
FL-ENG-442E	04/11	.xlsx	Irrigation System Sprinkler - Traveling Gun Certification Check Sheet
FL-ENG-449A	12/11	.xlsx	Irrigation Water Management
FL-ENG-449B	04/11	.xlsx	IWM Assistance Provided
FL-ENG-449C	04/11	.xlsx	Record of Irrigation Water Application
FL-ENG-449D	04/11	.xlsx	Daily Water Use and Checkbook Method for Irrigation Scheduling
FL-ENG-464A	12/11	.xlsx	Irrigation Land Leveling and Precision forming Data Sheet
FL-ENG-464B	05/11	.xlsx	Irrigation Land Leveling Cut Sheet
FL-ENG-464C	12/11	.xlsx	Irrigation Land Leveling - Plane Surface Design
FL-ENG-516/614	10/09	.xlsx	Pipeline Design Sheet – Centrifugal Pump
FL-ENG-587A	11/11	.xlsx	Structure for Water Control Design & Check Sheet (Pipe Overfall Structure)
FL-ENG-587B	11/11	.xlsx	Structure for Water Control Drainage and Sub-irrigation
FL-ENG-600A	07/11	.xlsx	Terrace Design Data Sheet
FL-ENG-600B	06/11	.xlsx	Terrace with Underground Outlet - Design Data Sheet & Construction Check
FL-ENG-600C	07/11	.xlsx	Terrace Storage - Design Data Sheet
FL-ENG-600D	07/11	.xlsx	Terrace with Underground Outlet - Construction Check
FL-ENG-606	07/11	.xlsx	Subsurface Drain Data Sheet
FL-ENG-607/608	07/11	.xlsx	Drainage Ditch Design
FL-ENG-620	06/11	.xlsx	Underground Outlet Design Data Sheet

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Instructions for Completing the Quality Assurance Plan (QAP)

A QAP is required for all NRCS construction projects. See National Engineering Manual Part 512, Subpart D – Quality Assurance Activities.

The attached QAP FL-ENG-3 can be used for Class I–V jobs. Edit Table 1 to identify items to be inspected, inspection intensity, and inspection requirements. Edit Table 2 to identify the quality assurance (QA) qualifications for the construction inspector and other requirements necessary to obtain sufficient assurance that the job meets NRCS plans and specifications.

1. A QAP will be developed and approved and adequate staff assigned for quality assurance activities before construction starts.

2. The QAP will include the qualifications required for the construction inspector.

3. The QAP will be prepared during the design phase with input from the individual that will approve the design (if the designer does not have the appropriate engineering job approval authority (EJAA)).

4. The QAP will list all items to be inspected and the intensity of inspection— Continuous (C), Periodic (P), and Final (F). QA activities and intensity will vary in accordance with the complexity and hazard class of the engineering measures being constructed.

    a. Continuous (C) QA is required for construction activities where the quality of work cannot be verified by intermittent observations. Continuous inspection is also required for work that cannot be readily removed and replaced if it fails to meet the requirements of the plans and specifications.

    b. Periodic (P) QA may be adequate for certain phases of project activities depending on the complexity of the installation and the potential impacts upon the health and welfare of the public.

5. The approver of the plans and specifications, in consultation with the designer, will estimate the number of site visits and the estimated hours required to perform the quality assurance activities and enter on the QAP.

6. The approver of the plans and specifications will review and approve the QAP. After approval of the QAP the approver will sign the QAP.

7. The District Conservationist (DC) is responsible to ensure that qualified individuals are assigned to provide QA and are allotted adequate time to perform QA activities. The DC will coordinate with Area Staff as needed.

8. The QA inspector and his/her line supervisor shall review the QAP to verify the adequacy of the inspector's skills to perform the inspection and availability of time to complete the project. This determination will be evaluated and established prior to practice layout.

9. After the individual selected as the QA inspector reviews the QAP and his/her supervisor commits the necessary time to perform QA activities for the project, both will sign the QAP.

Landowner/Project: John Smith **Engineering Job Class[1/]:** III

Service Center: Alachua **County** Alachua

Conservation Practice(s) & Engineering Job Class Included in this Job: Grassed Waterway (II); Diversion (III)

QAP Prepared By: Jason Smith **Job Approved By** Justin Taylor

Est. Construction Start Date: 01/26/2016 **Est. # Site Visits:** 2 **Est. # QA Hours:** 10

[1/] The engineering job class for a given job will is based on the most restrictive element or conservation practice included in the job. Use this template for Class I –V jobs only.

Table 1 - Items to be Inspected and Verified

Items [2/]	Intensity [3/]	Inspection Requirements [4/]
Permits	NA	Verify that the landowner has obtained all required permits prior to construction.
Utility Notification	NA	Verify that landowner has contacted utility companies prior to construction for underground utility location.
Grassed Waterway	P/F	Take cross section to verify the grade, depth, and width of the waterway.
Diversion	P/F	Take cross section to verify the grade, height, and width of the diversion.
Earthfill	P/F	Verify all earthfill is of the quality specified and have the moisture content for proper compaction. Verify compaction is performed as specified.
Riprap Outlet	P/F	Verify the bedding stone and riprap are of the size and gradation specified. Verify that the bedding stone and riprap are installed to the thickness and grad as specified.
Geotextile	P	Verify the specified type of geotextile was used and properly installed under the bedding stone. Verify the geotextile was secured as shown on the drawings.
Vegetation	P	Verify that the seed bed is properly prepared. Verify that the seed is of the type, quality, amount specified.
Quantity Computation	P/F	Perform quantity computations for all materials installed. Computations shall be recorded on standard NRCS forms or NRCS-ENG-523A and checked and initialed by a second person.
Photographs	P	Take photographs of the site, before, during and after construction and maintain log of photos.
As-built Drawings	P	Maintain construction drawings current during construction and complete final as-built drawings within 14 days of final construction.
Survey Notes	P	All construction checks taken including periodic elevation checks shall be recorded on loose leaf survey notes (form ENG 28, 29) or in a bound survey field book.

[2/] Include items that require quality assurance.

[3/] Intensity of inspection: NA – Not Applicable, C – Continuous, P – Periodic, F– Final. The inspector shall immediately notify the approver of the job if continuous inspection is required and cannot be performed with available staff.

[4/] Inspection requirements shall be to the degree necessary to certify that the project is installed in accordance with the plans and specifications.

Quality Assurance Plan (QAP)

Table 2 – Required QA Qualifications for Construction Inspector

QA Qualifications
1. Appropriate EJAA for the engineering job class for construction of the conservation practices to be installed.
2. Knowledgeable of the following references: a) Florida Supplement, Engineering Field Handbook Part 650, Chapter 1, Section A: Procedure for Documenting Planning, Design, Construction, and Checkout of Engineering Conservation Practices b) National Engineering Manual (NEM) Part 512 – Construction c) National Engineering Handbook, Part 645, Construction Inspection

Certification Statements

I certify that the items, intensity, and inspection requirements listed in Table 1 is adequate quality assurance (QA) for this project.

Approver of Engineering Plans (Signature) *Date*

I certify that _____ has the experience necessary to perform the construction inspection for the items shown in Table 1 and has the qualifications as shown in Table 2 for this project. I support this individual as the construction inspector and will allow the individual adequate staff time to perform the QA inspection for this project.

Line Supervisor (Signature) *Date*

I certify that I have reviewed the engineering plans and specifications and fully understand the QA requirements of the subject project. I will contact the Project Approver if I have any questions or concerns regarding the QA activities and will notify and obtain approval from the Project Approver if there is need to make any changes to the plans and/or specification during construction.

QA Inspector (Signature) *Date*