



Natural Resources Conservation Service  
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December 21, 2007

NATIONAL ENGINEERING MANUAL 210-500/545 MISSOURI SUPPLEMENT NO. 21

Subject: Missouri Supplement to National Engineering Manual  
Purpose: To update engineering policy to the National Engineering Manual.  
Effective Date: This supplement is effective upon receipt.  
Explanation of Update: This change is to update the following:

Part MO 501.03 pertaining to technical assistance limitations and responsibility to comply with laws and regulations.

Part MO 501.04 pertaining to engineering job approval authority. All plans must be checked by someone other than the principal preparer.

Part MO 501.04 pertaining to updated engineering job approval authority. A new job approval database has been created and implemented.

Please note that Missouri Supplements are now available on the Missouri NRCS website, Technical Resources Tab, Engineering Tools and Resources, National Engineering Manual, Missouri Supplements to National Engineering Manual.

Filing Instructions:

<u>Item</u>	<u>Location</u>
Directive Tabulation Sheet	Front of NEM
MO 501-1(1)	Replaces MO 501-1(1)
MO 501-2(1) through MO 501-3(1)	Replaces MO 501-2(1) through MO 501-3(1)
MO 501-4(1) through MO 501-4(3)	Behind page 501-4
MO 501-5(1)	Front of page 501-5
MO 501-7(1)	Replaces pages MO 501-6(1) through MO 501-7(1)

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State Conservationist

Attachments

Distribution: Holders of NEM that include the following:  
Director, National Technical Center, Ft. Worth, TX  
All Field Offices (including S&WCD) All Area Offices  
All Engineers Engineering Library  
State Conservation Engineers (via Email): IA, IL, NE, KS, MN, and WI



**DIRECTIVE TABULATION SHEET**

**TITLE NO.** 210      **DIRECTIVE NAME / TYPE** NATIONAL ENGINEERING MANUAL – MISSOURI SUPPLEMENTS

DIRECTIVE NUMBER <sup>1/</sup>	ISSUE DATE	PART, SUBPART, PAGES, ETC., OR BULLETIN SUBJECT	FILED BY
Supp. MO-9	08/04/00	MO 542-6(1 thru 24)	
Supp. MO-10	01/26/01	MO 501-1(1), MO-501-2(1), MO-501-3(1), MO 501-6(1), MO 501-7(2), MO 501-12(3 thru 14), MO 503-1(1), MO 503-2(1 thru 4)	
Supp. MO-11	01/31/01	MO 520-10, MO 520-10(a, b, c, & d)	
Supp. MO-12	02/05/01	MO 505-5(1), MO 512-20(1 thru 3), MO 512-21(1 thru 17), MO 512-29(1), MO 512-31(1), MO 520-11(1 thru 5), MO 520-12(1), MO 520-12(b, c & d), MO 531-8(1 thru 3), MO 540-1(1), MO 540-3(1 thru 4), MO 541-2(2), MO 541-6(1 thru 6), MO 541-7(1 thru 6), MO 544-1(1), MO 545-2(1), MO 501-12(1 thru 2), MO 501-12(7 thru 8)	
Supp. MO-13	06/28/01	MO 512-29(1)	
Supp. MO-14	11/04/02	MO 542-6(1-23)	
Supp. MO-15	12/02/03	MO 520.23 and MO 520.28	
Supp. MO-16	03/10/05	MO 520.21, Pages MO 520-10, and MO 520-10a thru 10d	
Supp. MO-17	04/12/05	MO 541-2 (1 thru 2), MO 541-7 (1 thru 5), MO 541-8 (1 thru 6)	
Supp. MO-18	7/18/05	MO 504-2(1), and MO 504-4(1) thru MO 504-4(3)	
Supp. MO-19	9/28/05	MO 511-6(1), MO 512-8(1), MO 512-20(1 thru 4)	
Supp. MO-20	1/22/07	MO 503-1(1), MO 503-2(1), MO 503-2(3 thru 4)	
Supp. MO-21	12/21/07	MO 501-1(1), MO 501-2(1) thru MO 501-3(1), MO 501-4(1) thru (3), MO 501-5(1), and MO 501-7(1)	
<b>NOTE:</b>		<i>Missouri Engineering Forms used shall be the current version shown in the Missouri Engineering Forms Handbook.</i>	

<sup>1/</sup> PERMANENT DIRECTIVES: INSERT THE ISSUE, EDITION OR AMENDMENT NUMBER  
 BULLETINS: INSERT THE SEQUENCE NUMBER(S), OMIT TITLE AND FY

**PART 501 – AUTHORIZATIONS**

**SUBPART A – REVIEW AND APPROVAL**

**MO 501.00(e)**

**§MO 501.00 General**

(e) To meet quality assurance responsibilities set out in FAR 46.102, each contract acquisition action shall include the quality, quantity, and timeliness of inspection requirements and assure trained, competent staff are available to perform the inspection. A quality assurance plan is to be prepared for each construction and engineering services contract. The quality assurance plan will be prepared in accordance with MO512.32

## SUBPART A – REVIEW AND APPROVAL

MO 501.01(b)(3)

### §MO 501.01(b)(3) Scope

(3) Non-NRCS employees in Missouri operating under the technical supervision of an NRCS employee, but who are not federal employees and who are not licensed to practice engineering in the state, may be assigned job class I or II engineering approval authority for practices defined by the following standards in section IV of the Technical Guide:

- Diversion (362)
- Grassed Waterway (412)
- Irrigation Land Leveling (464)
- Pipeline (516)
  - (Except those connected to a source or supply used for human consumption)
- Spring Development (574)
- Surface Drain Field Ditch (607)
- Terrace (600)
- Watering Facility (614)
- Underground Outlet (620)
- Water and Sediment Control Basin (638)
  - (Maximum fill height of 5 ft. measured from natural ground at centerline of embankment)
- Well Decommissioning (351)

## PART 501 – AUTHORIZATIONS

### MO 501.03(a)(1)

#### §MO 501.03(a) Compliance of engineering work with laws and regulations

(1) Technical assistance limitations and responsibility for compliance with laws and regulations.

When construction activities to install a conservation practice will damage other lands or property, or where the work or designed water levels must extend to land beyond the ownership of the producer, the employee shall not assist with construction layout until the necessary easements, right of way, and other legal aspects have been resolved by the producer.

The producer will be responsible for securing all necessary permits and complying with all laws or ordinances. NRCS personnel will not interpret the law or act as an agent for producers in securing permits. NRCS personnel will advise the producer, prior to designing the practice, that there are or may be laws concerning this type of work and to obtain legal assistance as necessary. NRCS personnel may prepare drawings, designs, or plans needed to assist a landowner in completing permit applications within job approval limits.

Before assisting with a practice likely to require a permit, the producer should have, or agree to obtain, permits in accordance with state law and regulations. NRCS personnel will not give assistance under conditions where the producer declines to obtain a required permit or where litigation exists. NRCS personnel shall not be involved in situations where litigation exists regardless of documented evidence of a vested right. Assistance can be resumed or given after all litigation and controversial issues have been resolved.

#### §MO501.03(c) Compliance of engineering work with laws and regulations

(2)(a) Plans submitted to regulatory agencies for review, approval, or granting permits can be approved by persons having an appropriate design approval limit for the practice.

(3)(a) Plans that state law requires be prepared under the direct supervision of a registered professional engineer can be approved by registered professional engineers in Missouri who have an appropriate design approval limit for the practice.

## PART 501 – AUTHORIZATIONS

### MO 501.04(b)(2)

#### §MO 501.04(b)(2) Engineering job approval authority

(i) Engineering job approval authority is a means of indicating the categories of engineering work an individual has been assigned the authority to approve.

(ii) All plans and designs will be checked by someone other than the principal preparer. The initials of the checker will be recorded on each sheet of the design computations and the plans. The person approving the plans may perform the check if appropriate.

(iii) Some designs may be within an individual's engineering approval authority but still have complex features. This may be the result of complex foundation conditions, unusual site features, unique design requirements, or other complicated factors. Persons exercising engineering job approval need to recognize when a review is needed. Reviewers need to determine whether the job has been properly analyzed and the correct concepts used.

(iv) The person with engineering job approval authority does not need to perform all the functions leading to completion of a job. It is expected that persons lacking engineering approval authority may, within the limitations of their knowledge and abilities, work under the guidance of a person with the required engineering approval authority. A person with the required engineering job approval authority will review and initial documentation of work performed by a person without the required engineering job approval authority.

## SUBPART A – REVIEW AND APPROVAL

### MO 501.04(b)(3)(i)

#### §MO 501.04(b)(3) Engineering job approval authority

(i) Engineering job approval authority may be provided for inventory and evaluation, design, or construction responsibility. (See §501.09)

(ii) Engineering job approval authority shall be delegated by an NRCS engineer. Generally, the Area Engineer will delegate engineering job approval authority for field office personnel and the State Conservation Engineer for area, state office, and project engineers and staff. The person's administrative supervisor must concur with the recommended engineering job approval authority chart for NRCS employees. For non-NRCS employees, District Conservationists and the organization employing the individual must concur with the job approval charts. In a case where the delegating engineer is the administrative supervisor, the State Conservation Engineer must concur with the engineering job approval chart.

(iii) Engineering job approval authority will be delegated to employees based on demonstrated competence, training received, and experience at the various stages of planning, design, and construction. A sustained workload is necessary to retain competence and engineering job approval authority for an engineering practice. When more than 3 years have passed since the employee designed a practice, or one with similar components, consideration should be given to reducing the level of delegated authority for that practice. Job approval authority for all employees must be reviewed at least once every 3 years.

(iv) The Missouri NRCS job approval database will be used to document a person's job engineering approval authority. The approval levels will be printed on the database version of the MO-ENG-C12 form. Signed copies of these printed forms will be given to the person receiving engineering job approval, the administrative supervisor, and a copy will be filed with the Area Engineer. The database with the engineering approval authority for all persons in Missouri will be maintained by the State Conservation Engineer.

(v) Employees must sign the Engineering Approval Authority ethics statement before the approval authority is valid.

## **SUBPART A – REVIEW AND APPROVAL**

**MO 501.04(b)(5)(i)**

### **§MO 501.04(b)(5) Engineering job approval authority**

(i) Area Engineers with Class V authority in any category may not delegate that authority to others without the concurrence of the State Conservation Engineer.

(ii) Major changes are often proposed in an approved project during or preceding construction. These changes must be approved in the same manner as the originally approved project. When the changes must be approved by a person not readily available, verbal approval may be obtained to expedite work. However, the completed records must include correct written approval and AS-BUILT plans must be completed. If these changes increase the engineering job class of the practice, the person approving those changes must have engineering job approval authority for the higher job class.

(7) Employee transfers to a new supervising engineer or administrative area will require a new job approval form be completed. Transferring employees are responsible for sending their old job approval form to their new delegating engineer. A new job approval authority shall be issued within 60 days. The receiving engineer may consult with the former delegating engineer before recommending a new job approval authority.

(8)(a) A project may contain one application of a conservation practice (one waterway), more than one application of the same practice (two or more waterways), or the application of more than one type of conservation practice (waterway and grade stabilization structure). The job class for each practice application shall be determined using the practice controlling factor(s):

(i) For practices with multiple controlling factors, the factor with the highest assigned job class will determine the job class for the practice application.

(ii) A person approving a practice with multiple controlling factors must possess appropriate job approval authority for each controlling factor.

(b) Projects with more than one application of a conservation practice (either the same or different practice type) will be considered one job (system) if the operation of any one practice application can affect the operation of another practice application.

## **SUBPART A – REVIEW AND APPROVAL**

**MO 501.04(c)(3)**

### **§MO 501.04(c)(3) Engineering job approval authority**

The planning, design, and construction of class VI and higher jobs shall be a coordinated effort between project office personnel, geologists, planning engineers, hydrologists, design engineers, and construction engineers. Project office personnel, geologists, planning engineers, and hydrologists have the primary responsibility for data collection and evaluation and primary design. Information supporting preliminary designs (work plans, etc.) will be reviewed by a design engineer and operations geologist prior to final publication. The design report will be available for this review. Planning personnel and operations personnel will meet when a project is approved for operations to transfer the design reports and other available data. The operations geologist and design section personnel are responsible for collecting any additional data and preparing the final design. Check prints, drawings, and specifications will be developed for each design and routed to construction engineers, contract personnel, project office personnel and the state office key staff for review and comment. The construction engineer is responsible for evaluating the inspection requirements and inspection personnel for making periodic site visits during construction. As-built plans will be prepared by the project office staff and reviewed by the construction engineer, design engineer, and operations geologist.

## **PART 501 – AUTHORIZATIONS**

**MO 501.06**

### **§MO 501.06 Engineering work reviewed for other agencies**

NRCS review of engineering design for cooperating agencies shall be done in accordance with memorandums of understanding with the agency or at the request of the State Conservationist. Review responses are to be signed by a person having adequate design approval authority for the plan features being reviewed. The response shall be transmitted to the agency by the appropriate line officer.