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**Construction Management**

NRCS Engineers

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**Time to Restore!**

- Engineering Schedule
  - ☑ Application phase, fast and furious, ~ 2 months
  - ☑ ACEP Team executes supplement (offers), ~ 6 months
  - ☑ ACEP Team works their magic and easement is closed ~ 1 1/2 yr
  - ☑ WRPO required to be obligated, 3 yrs after offer
    - Restoration completion, 3 yrs after Easement Closed

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**After Easement is Closed Chronological Steps for Construction**

- Final Plans are completed with **landowner agreement**
- Staking
- Pre-Bid Showing?
- Project goes out for bid
- Bid Acceptance
- Restake before construction
- **Pre-Construction Meeting**
- Construction
- Construction Completion / As-Built

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### Types of Contracts

- Federal Contract
  - Federal agency designs project, advertises, awards, and makes 100% payment on project.
- Landowner agreement contract
  - Private landowner hires contractor to implement agency engineer's design and receives payment from agency.

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### Roles common to all contracting

- Contractor
- Contracting Officer
  - Agency Contract Specialist in Federal Contract.
  - Landowner in Landowner Agreement Contract.
- Owner
- Engineer
- Inspector

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### Contractor Role

- Estimates the work and proposes cost (Bid)
- Becomes familiar with design and designer's intent
- Implements design diligently
  - Plans & Specs
- Informs Contracting Officer of errors or omissions in plans
- Performs Quality Control
- May propose changes (modifications)

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### Contracting Officer's Role

- Awards Contract
- Approves changes (modifications)
- Makes Payment
- Settles Disputes (Claims)
- Makes equitable adjustments in cost and time

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### Owner's Role

- Approves Plans and Specifications
- Secures Permits
- Secures funding for project
- Makes payments when due
- Accepts completed work

Note: NRCS assumes some of the roles of owner on permanent easements, federal contracts

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### Engineer Role

- Determines contract performance time
- Provides technical assistance to the CO & Owner
- Determines level of inspection required

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## Inspector's Role

- Becomes intimately familiar with Plans & Specs
- Observes the work, performs tests, documents results, and records construction activities
  - Quality Assurance
- Informs contractor, engineer, and CO of adequacy of work and recommends acceptance or rejection

**Construction Quality Assurance Plan**

**OWNER:** The purpose of this plan is to ensure that the construction of the project meets the minimum quality standards set forth in the contract documents. The contractor shall be responsible for the quality of the work and shall provide the necessary resources to ensure that the work is completed in accordance with the contract documents.

**CONTRACTOR:** The contractor shall be responsible for the quality of the work and shall provide the necessary resources to ensure that the work is completed in accordance with the contract documents.

**INSPECTOR:** The inspector shall be responsible for the quality of the work and shall provide the necessary resources to ensure that the work is completed in accordance with the contract documents.

**NOTES:** The inspector shall be responsible for the quality of the work and shall provide the necessary resources to ensure that the work is completed in accordance with the contract documents.

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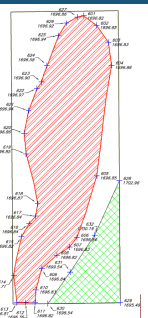
## Inspector's Role

- Staking a project / Machine Control
  - Done so as a convenience, if there is a conflict the signed construction specs/plans shall govern
- Measures
  - Construction notes & Layout Tables:

6. Excavation tolerances on all borrow areas are to grade or -0.2 feet of elevation shown on the drawings.

7. Earthfill tolerances are to grade or +0.2 feet of elevation shown on the drawings.

- As-built drawings are developed based on every layout point meeting construction notes tolerances



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## Inspector's Role

- Final Checkout
  - Clearing and Grubbing
  - Seeding
- Periodic - 1 to 2 times / week
  - Excavation
- Daily - 2 to 4 hours / day
  - Earthfill, Excavation close to completion
- Continuous - Contractors Hours
  - Structure/Pipe Installation

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# What We Give the Contractor and LO

**CONSTRUCTION INSPECTION REQUIREMENTS**  
EXAMPLE WETLAND RESTORATION

TYPES OF INSPECTION	TYPE OF INSPECTION
C - Continuous Contractor's job	NY - Soil Conservation Technician
D - Daily 20% to 30%	OT - Civil Engineering Technician
P - Periodic - 1 to 2 times/week	AE - Field Engineer
E - Final Check-out	EE - Area Engineer

INSPECTION ITEM	NY	OT	AE	EE
Site Prep and Final Restores, PE Area				
Land Clearing and Grading, PE Area				
Site Preparation, Ditch (or Area 1)				
Site Preparation, Ditch (or Area 2)				
Excavation, Striping PE Area				
Excavation, Striping Ditch (or)				
Excavation, Ditch (or)				
Excavation Area 1				
Excavation Area 2				
Earthfill, Striping, Ditch Area				
Earthfill, PE				
Earthfill, Striping, Ditch (or)				
Earthfill, Ditch (or)				
Seed / Sodding (Ditch (or))				

**REMARKS:**  
Construction Inspection services will be completed between 7:00 a.m. and 3:00 p.m. on Monday through Friday excluding all Federal holidays. Inspection services are for the sole benefit of the NRCS and do not include the contractor from their responsibility for meeting plan specification requirements.

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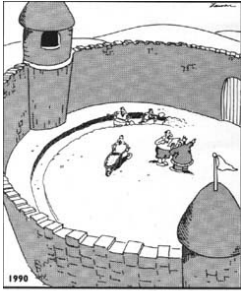
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# Quality Control?



1990  
Suddenly, a heated exchange took place between the king and the most contractor.

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# Responsibilities

	Contractor	Inspector	NRCS
<b>During Planning</b>	<ul style="list-style-type: none"> <li>Obtain permit/consent to construct</li> <li>Obtain all permits and site location as needed</li> <li>Obtain all necessary survey</li> <li>Obtain all necessary environmental reports</li> </ul>	<ul style="list-style-type: none"> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> </ul>	<ul style="list-style-type: none"> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> </ul>
<b>During Design</b>	<ul style="list-style-type: none"> <li>Obtain all necessary permits</li> <li>Obtain all necessary permits</li> <li>Obtain all necessary permits</li> <li>Obtain all necessary permits</li> </ul>	<ul style="list-style-type: none"> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> </ul>	<ul style="list-style-type: none"> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> </ul>
<b>During Construction</b>	<ul style="list-style-type: none"> <li>Obtain all necessary permits</li> <li>Obtain all necessary permits</li> <li>Obtain all necessary permits</li> <li>Obtain all necessary permits</li> </ul>	<ul style="list-style-type: none"> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> </ul>	<ul style="list-style-type: none"> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> </ul>
<b>Maintenance</b>	<ul style="list-style-type: none"> <li>Obtain all necessary permits</li> <li>Obtain all necessary permits</li> <li>Obtain all necessary permits</li> <li>Obtain all necessary permits</li> </ul>	<ul style="list-style-type: none"> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> </ul>	<ul style="list-style-type: none"> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> <li>Verify location and design</li> </ul>

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## Landowner Responsibilities

**During Construction**

- Is available for consultation and decision.
- Follows all Federal/state/local laws, rules, and regulations.
- Hires contractors.
- Hosts pre-construction conference.
- Notifies utilities prior to construction activities.
- Notifies contractor of utility location.
- Notifies agency before starting construction.
- Authorizes contractor to begin work.
- Protects cultural and historical resources, as required.
- Implements landowner part of Construction Quality Assurance Plan (QAP).
- Assures compliance with design.

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## Changes and Modifications

- Changes affect the timing of the project, Communicate
- Notify appropriate individuals
- Determine if the change can be made
- Determine if the change affects other practices (domino)
- Get measurements so quantities can be calculated

At NRCS, modifications must be approved before the work is started!

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## Don't always Assume

There are no dumb questions...  
The only dumb question is the one that should've been asked



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## Documentation

- Ensuring the Practice Standard and Construction Specifications are or are not met
- Ensuring proper installation, providing supporting information for as-builts
- Recording the units or amounts installed for contract cost share payments
- Remember, if it's not documented it didn't happen

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## Documentation

- Usually, written words in narrative form
- Photography
- Gather material certifications

### NEM 210.512.41 Records

- Document in a job diary or conservation assistance notes

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## Landowner Contract – Certification of Completion

- Deliverables sent to Team Lead
  - Certification statement with signature
  - Contractor's invoice to landowner
    - Provide comparison of invoice to approved bid schedule
  - Photos
  - As-built drawings

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### Construction Timeline

- **Pre-Construction Meeting**
- Site prep
- Majority of Earthwork
- Structure installation (Water Control Structure, Weir, Rock Chute)
- Final Grading and Earthwork Finishing
- Seeding
- As-Builts

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### We are done?

Ex: FY18

- Engineering Schedule
  - ✓ Application phase, fast and furious, ~ 2 months Jan 2018
  - ✓ ACEP Team executes supplement (offers), ~ 6 months Aug 2018
  - ✓ ACEP Team works their magic and easement is closed ~ 1 1/2 yr Apr 2020
  - ✓ WRPO required to be obligated, 3 yrs after offer Aug 2021
  - ✓ Restoration completion, 3 yrs after Easement Closed - Due Apr 2023\*

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