Construction Management - Engineering

NRCS Engineers
Where we left off... 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 ½ yr

- WRPO required to be obligated, 3 yrs after offer
  - Restoration completion, 3 yrs after Easement Closed
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.
Roles common to all contracting

- Contractor
- Contracting Officer
  - Landowner in Landowner Agreement Contract.
- Owner
- Engineer
- Inspector
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)
Contracting Officer’s Role

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

- Determines contract performance time
- Provides technical assistance to the CO & Owner
- Determines level of inspection required
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
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
Suddenly, a heated exchange took place between the king and the moat contractor.
# Responsibilities

## Responsibilities of:

<table>
<thead>
<tr>
<th>Landowner</th>
<th>Contractor</th>
<th>Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>During Planning</strong></td>
<td><strong>During Design</strong></td>
<td><strong>Agency</strong></td>
</tr>
<tr>
<td>- Identifies problems and management objectives.</td>
<td>- Is available for consultation.</td>
<td>- Inventory resources and identify resource problems.</td>
</tr>
<tr>
<td>- Checks utility locations.</td>
<td>- Follows up with historical society, if required.</td>
<td>- Analyzes resource data.</td>
</tr>
<tr>
<td>- Assists with survey and site investigation as needed.</td>
<td>- Obtains permits and easements.</td>
<td>- Alerts landowner to apparent wetlands, threatened and endangered species, archaeological sites, and utilities.</td>
</tr>
<tr>
<td>- Identifies needed permits.</td>
<td>- Identifies utilities and contacts utility company to locate buried utilities.</td>
<td>- Formulates alternatives to protect resources and meet objectives of landowner.</td>
</tr>
<tr>
<td>- Notifies state historical society, if needed.</td>
<td>- Reviews design for agreement.</td>
<td>- Evaluates alternatives.</td>
</tr>
<tr>
<td>- Selects from alternatives.</td>
<td>- Concurs in Operation, Maintenance, and Replacement Plan.</td>
<td>- Develops plan for landowner’s selected alternative.</td>
</tr>
<tr>
<td>- Identifies and applies for cost-share, if desired.</td>
<td></td>
<td>- Conducts site investigations and surveys as needed.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Informs landowner of operation and maintenance responsibilities.</td>
</tr>
</tbody>
</table>

| **During Construction** | | **Maintenance** |
| - Is available for consultation and decision. | | **Maintenance** |
| - Follows all Federal/State/local laws, rules, and regulations. | | The landowner is ultimately responsible for the proper construction and maintenance of a conservation system. |
| - Hires contractors. | | The contractor is responsible for constructing the system according to design and specifications, for quality control and safety. |
| - Hosts pre-construction conference. | | The technical agency is responsible for inspecting and certifying that project plans and specifications are met. Agency staff cannot train or serve as foreman for contractors. |
| - 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 (CQAP). | | |
| - Assures compliance with design. | | |

- Landowner: As used here is the person responsible for making decisions for the property. In most cases, that is the owner but it may be an operator or farm manager. The technical agency is the Natural Resources Conservation Service.
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• Follows all Federal/state/local laws, rules, and regulations.  
• Hires contractors.  
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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 completed!
Don’t always Assume

There are no dumb questions…
The only dumb question is the one that should’ve been asked
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
Documentation

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

512.41 Records

- Document in a job diary or conservation assistance notes
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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Certification of completion

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<tr>
<th>Item Description</th>
<th>Spec.</th>
<th>Quanity</th>
<th>Unit</th>
<th>Unit Price</th>
<th>Total Cost</th>
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</thead>
<tbody>
<tr>
<td>Site Preparation and Stumps Removal, Pit Area</td>
<td>DF</td>
<td>1</td>
<td>TA</td>
<td>$25,000.00</td>
<td>$25,000.00</td>
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<tr>
<td>Land Clearing and Grading, Pit Area</td>
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<td>AC</td>
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<td>$35,000.00</td>
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<td>2</td>
<td>AC</td>
<td>$0.00</td>
<td>$0.00</td>
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<tr>
<td>Excavation, Stairs/Driveway Area</td>
<td>DF</td>
<td>2</td>
<td>CY</td>
<td>$75,000.00</td>
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Application, Ranking, Offers, Restoration – One engineer’s opinion of timeline

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* We’ve been able to cut a year or so off this date with all FY18 projects completed in 2021 & 2022