Construction - Part 1

- Preconstruction Meeting
- Contractors CPM Schedule
- Oversight & Inspection
- Project Records
- Construction Reimbursement

Section #27
Prior to beginning

- Received approval from NHDOT to enter into contract with lowest responsive and responsible bidder

- Received approval from NHDOT to enter into contract with Construction Engineer

or “RATS” work is ineligible!!

Preconstruction Meeting

- Held at start of project
- Establishes schedule, contacts
- Highlights special details and requirements

Document meeting with conference report to project file

Section #27
Preconstruction Meeting

Who attends?

* Project Sponsor/Person in Responsible Charge
* Design Engineer of Record (from PE phase)
* CE Engineer of Record
* CE Contract Administrator
* Contractor
* NHDOT Project Manager
* NHDOT Office of Federal Compliance
  NHDOT District Office (if on State highway)
  Utility Companies, Police and Fire Chiefs
  FHWA (optional)
* Mandatory

Section #27

Preconstruction Meeting

Agenda

- Introductions
- Emergency contacts (after hours)
- Project overview
- Final and intermediate completion dates
- Traffic control / work hours
- Environmental requirements

Section #27
Preconstruction Meeting

Agenda continued

- Right-of-Way constraints / issues
- Utility coordination
- Quality Assurance Program / Testing requirements
- *Federal Compliance speaks
- Proposed contractor’s schedule

*Mandatory or separate meeting

Section #27

Construction - Part 1

- Preconstruction Meeting
- Contractors CPM Schedule
  - CPM = Critical Path Method
- Oversight & Inspection
- Project Records
- Construction Reimbursement

Section #27
<table>
<thead>
<tr>
<th>Contractor’s Schedule</th>
<th>Schedule Basics:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Required!</td>
<td></td>
</tr>
<tr>
<td>- Updated throughout project</td>
<td></td>
</tr>
<tr>
<td>- Available at project at all times</td>
<td></td>
</tr>
<tr>
<td>- Can withhold reimbursement if not done</td>
<td></td>
</tr>
<tr>
<td>- “Critical Path Method” required</td>
<td></td>
</tr>
</tbody>
</table>

Section #27

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<table>
<thead>
<tr>
<th>Contractor’s Schedule</th>
<th>Critical Path Method (CPM) schedule shows:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Final and intermediate completion dates</td>
<td></td>
</tr>
<tr>
<td>- Construction activities</td>
<td></td>
</tr>
<tr>
<td>- Critical material deliveries</td>
<td></td>
</tr>
<tr>
<td>- Shop drawing schedule</td>
<td></td>
</tr>
<tr>
<td>- Engineer review times</td>
<td></td>
</tr>
</tbody>
</table>

See handout for sample CPM schedule  

Section #27
**Contractor’s Schedule**

**Why CPM schedules?**
- Track construction progress
- Identify potential issues
- Justify contract time extensions
- Determine liquidated damages

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**Contractor’s Schedule**

**Liquidated damages**
- Required by FHWA
- Financial charges to contractor if delays occur
- Amount based on value of inconvenience to public
- Importance of CPM schedule
- NHDOT General Provision 108.09

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Section #27
Construction - Part 1

- Preconstruction Meeting
- Contractors CPM Schedule
- **Oversight & Inspection**
- Project Records
- Construction Reimbursement

**Ins**

Section #27

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**Oversight & Inspection**

What is not covered:

- Nuts & bolts of construction inspection is **not covered** here

For example:

- Paving Operation Inspection
- Concrete Pour Inspection
- Drainage Construction Inspection
- Line and grade verification

Section #27
Oversight & Inspection
Who can do it?

- Project Sponsor can do it – if staff is qualified and available – check with NHDOT Project Manager

- Often, Project Sponsor hires a consultant

- If DOT Manages the Construction Phase for the LPA, we will hire an on-call consultant to do the oversight & inspection

Section #27

Oversight & Inspection
Sub-Consultants

- Often, consultants hire sub-consultants with special expertise

For example:
- Concrete or Asphalt Testing
- Steel Fabrication Testing/Inspection
- Bridge Painting Inspection
- Underwater Inspection

Section #27
Oversight & Inspection

Contract Administrators

- Don’t have to be licensed PE’s themselves
- Must be under Supervision of Professional Engineer (PE) or Licensed Architect
- Shall be “Close to Full Time”

Section #27

What is “Close to Full Time”?

- Depends of complexity of project
- Not every hour that contractor works
- Enough to meet Office of Federal Compliance requirements
- Average 30 to 40 hours per week

Section #27
Oversight & Inspection

What should Contract Administrators (CA) be doing?

- Observing that project is built per plans, specifications and contract requirements
- Monitoring for compliance with environmental best management practices, permits and NEPA commitments
- Monitoring for compliance with Right-of-Way Agreements/abutter coordination

Oversight & Inspection

What should CA’s be doing?

- Monitoring traffic control
- Looking for safety compliance
- Testing material / implementing Quality Assurance Plan (QAP)
- Rejecting non-compliant materials & work
Oversight & Inspection

What should CA’s be doing?

- Approving payments for satisfactory work
- Managing all required documentation (Project Records – next section)
- Assisting NHDOT Office of Federal Compliance with federal labor requirements and documentation

Construction - Part 1

- Preconstruction Meeting
- Contractors CPM Schedule
- Oversight & Inspection
- Project Records
- Construction Reimbursement
Acceptable Project Records are required

Part or all of Project could be ineligible for reimbursement if Project Records are not acceptable

Project Records

Why?

NHDOT record format required

- NHDOT format is clear and reliable
- Understood by independent auditors
- Understood by FHWA and NHDOT

Records shall be available at all times at project location
Project Records
Types of records:

1) Notice to Proceed
2) Daily Reports
3) Project correspondence
4) Pay items
   a) Bound Field notebooks
   b) Quantity Book
   c) Record Book
5) Balance & Excess (B&E) calculations
6) Change Orders
7) Delivery Slips

Section #27

Project Records
Types of records:

8) Certificates of Compliance
9) Buy America Certificates
10) Record Plan / As-Built Plan
11) Testing Records “Lab Book”
12) Office of Federal Compliance records
13) New - MS-4 Records
14) New - LRS Records

Section #27
#1) Notice to Proceed (NTP) Records

- Project Sponsor issues formal NTP to contractor with start date
- Winter shut downs and Spring re-starts need formal notices
- Copy all NTPs to project records
- Copy all NTPs to Office of Federal Compliance
- Needed for Liquidated Damages

Section #27

#2) Daily Report Records

Provide Documentation of:

- Contractor’s progress by item & location
- Orders given
- Conversations with contractor
- Working conditions and weather
- Delays
- Visitors
- Accident information

See handout for sample Daily Report

Section #27
#3) Project Correspondence Records

Keep and file all:

- Letters, e-mails, faxes, project schedules
- Approvals
- Letters of transmittal
- Utility force account agreements
- Shop drawings
- Office of Federal Compliance records
- Storm Water Pollution Prevention Plan
- Pictures and Videos, etc...

Section #27

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#4) Pay Item Records

NHDOT standard pay item nomenclature required

- Found in NHDOT Road & Bridge Standard Specifications Sections 200 thru 600
- Examples
  - Item 201.1 Clearing & grubbing
  - Item 520.11 Concrete Class A
  - Item 609.3 Straight Granite Curb

Section #27
#4) Pay Item Records

Three types of pay item records (all needed)

4a) **Bound Field Books**

4b) **Quantity Book (QB)**

4c) **Record Book (RB)**

---

#4a) **Bound Field Book**

Contract Administrator (not contractor) records:

➢ Quantities of items installed

➢ Item numbers

➢ Dates and locations

➢ Reference to Quantity Book and Record Book

*May need more than 1 field book*

*See handout and next slide for sample Field Book entry*
#4a) Bound Field Book

Sample Field Book Entry:

<table>
<thead>
<tr>
<th>Item #645.531 Silt Fence</th>
<th>Section #27</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/5/96</td>
<td>50 ft</td>
</tr>
<tr>
<td>3/10/96</td>
<td>60 ft</td>
</tr>
<tr>
<td>3/22/96</td>
<td>70 ft</td>
</tr>
<tr>
<td>3/29/96</td>
<td>80 ft</td>
</tr>
</tbody>
</table>

To QB & RB

#4b) Quantity Book

- Separate page for every pay item
- Documents chronology of pay item installation (when and how much)
- Use to make progress payments to contractor
- References Field Book source and Record Book location

See handout and next slide for sample Quantity Book entry

Section #27
#4b) Quantity Book

- Project Name
- Project Number
- Item number
- Total quantity
- Accum quantity installed to date
- Pay estimate #
- Amount paid
- Source of Info
- Who entered
- Cert. of Compliance needed?

#4c) Record Book

- Separate page for every pay item (Similar to QB)
- Final record of all items constructed
- References Field Book source and Quantity Book location

See handout and next slide for sample Record Book entry
#4c) Record Book

- Project Name
- Project Number
- Item number
- Total quantity
- B&E quantity
- Accum quantity installed to date
- Amount paid
- Source of Info
- Who entered
- Checked by
- Approved by

- Compares pay item totals with the installed quantities at the 25%, 50%, 75% and 90% stages of a project
- Predicts overruns and underruns
- Allows time for Change Orders prior to end of project

Danger – Balancing Change Order at the end of project cannot authorize additional funds

#5) Balance and Excess (B&E) Records

Tool to avoid over expenditures

Compared pay item totals with the installed quantities at the 25%, 50%, 75% and 90% stages of a project

Predicts overruns and underruns

Allows time for Change Orders prior to end of project

Danger – Balancing Change Order at the end of project cannot authorize additional funds
#6) Change Order Records

Change Orders need to be documented and kept on file

1) Emergency condition
2) Critical path
3) Non-Critical path
4) Time extension
5) Non-Participating
6) Balance and excess
7) Final balancing

Change Orders are presented in Construction Part 2 – later this afternoon

Section #27

#7) Delivery Slip Records

Concrete and Paving

- Contract Administrators collect and sign slips

Section #27
#8) Certificates of Compliance Records

**Manufactured & fabricated items**

- Reinforcing steel, drainage pipe, structural steel, precast concrete structures, guardrail, etc....

See handout and next slide for sample Certificate of Compliance

<table>
<thead>
<tr>
<th>Model</th>
<th>thinksheets</th>
<th>Title</th>
<th>County</th>
<th>Item name</th>
<th>Item number, Project name, Project number, Tied to specific delivery, Notarized</th>
</tr>
</thead>
</table>

**Section #27**
#9) Buy America Certificate Records

Requirements

- Steel and iron products permanently incorporated in project must be certified American made
- Includes all steps in process: milling, manufacturing, fabricating and coating of iron or steel products
- Step Certification for each process

Examples

- Structural steel (bridge girders)
- Reinforcing steel (bridge deck)
- Guardrail (galvanized beam rail)
- Drainage (cast iron catch basin grates and frames)

Exception: Cost of material including foreign steel and iron less than one-tenth of one percent (0.1%) of total contract price or $2,500 whichever is greater
#9) Buy America Certificate Records

Buy America Video Presentation

---

#10, #11, and #12 Records

- **#10 Record Plans / As-Builts** are required (see Project Manager for requirements)

- **#11 Testing / Lab Book Records** are covered later this afternoon in Part 2

- **#12 Office of Federal Compliance (OFC) Records** are covered in separate Labor Compliance training with the OFC
#13 MS-4 Records

If **MS-4** regulations apply to your project, then copy your NHDOT Project Manager on the following:

- EPA Construction General Permit (CGP) Authorization
- EPA Construction General Permit (CGP) Notice of Termination
- Maintenance Agreement for any new drainage or other new MS-4 features

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#14 LRS Records

If your project has Limited Reuse Soil (**LRS**) and/or a Soil Management Plan, then the Contractor’s Project Operations Plan (POP) describing how **LRS** will be handled needs to be reviewed and approved by the Contract Administrator as well as NHDOT Bureau of Environment.

Keep copies of all LRS documentation.
Construction - Part 1

- Preconstruction Meeting
- Contractors CPM Schedule
- Oversight & Inspection
- Project Records
- **Construction Reimbursement**

**Section #27**

**Construction Reimbursement**

Sponsor’s payment to contractor

- Typically once or twice per month (varies)
- Based on Project Records noted previously (Quantity Book, etc...)
- Measured & certified by Engineer
- Agreed to by Contractor, and
- Approved by Sponsor
- **Retainage is not allowed!**
Construction Reimbursement

Sponsor’s monthly reimbursement request to NHDOT includes:

- Proof of payment to contractor
- Status report of work during time period
- Certification statement from Sponsor (true and accurate)
- Certified item summary from engineer

Construction Engineering (CE)

- Reimbursement of consultant CE charges was covered in Project Administration Step #6
- Also covered in Section #12 of the LPA Manual
- Monthly Electronic Reimbursement Requests from the Sponsor are required (ReimburseRequest@dot.nh.gov)
Construction Reimbursement

Multi-funded projects

- Clearly track and show both participating and non-participating work
- NHDOT and FHWA track non-participating work as part of the process
- Complete financial summary needed during project close-out

Section #27

Questions?

Next Up:
Construction – Part 2