



# Contractor quality control

A direct approach in 2006



- Background
- Thoughts about revised specification
- Specification
- Discussion



# Contractor QC Issues

- Current specification too vague
- Difficult to bid, unclear expectations
- Lack of consequences for non performance
- Hard to objectively evaluate
- Some contractors and WFL staff making the motions, not performing
- Is it good enough syndrome



# Purpose of QC according to AASHTO

- The purpose is to measure quality and inspect activities that impact production at a time when corrective action can be taken to prevent nonconforming material (anything) from being incorporated in the project.
- *We add planning and other preventative measures to this*



- What do we want contractors to do?





- **Contractor accountable for the work**
- **Have greater assurance that the end product will meet requirements**



# What we are going to do?

- We are going to be more direct
- More specific details in contract requirements
- More method spec less end product spec



- Personnel and quality control staff
- Quality control plan
- Reporting
- Testing (FP 03)
- Government inspection
- Acceptance, measurement and payment



# Personnel

- Quality control manager
- Higher qualifications
- Alternates
- Stop work
- Additional staff as needed to implement quality control





# Quality control plans

- Individual plans will be pre-selected during project development stage
- Template provided WFLHD form 471
- Work not to be performed until the plan is accepted
- Reports

Work Feature:

Major bid items associated with the work:

Is a WFLHD 470 required for this feature of work?

Yes

No

Add pages as necessary.

		PRE-WORK			PRODUCTION/POST-WORK	
		Who will perform the task?	What will be done to accomplish the task?	When and where will activities be performed and at what frequency?	Date completed.	Comments - As quality control activities (1) thru (6) are completed, provide a description of results or issues associated with the activity. Provide the completed form to the CO. See 153.02(d)
PREPARATORY QC ACTIVITY 1	Independently and with contractor staff review contract requirements plans and specifications.					
PREPARATORY QC ACTIVITY 2	Check and verify submittals, plans and materials certifications for contract requirements and submit to FHWA. Provide statement and signature of verification.					
PREPARATORY QC ACTIVITY 3	Check site conditions for constructability, including staging, disposal and storage areas. Identify potential quality control issues.					
PREPARATORY QC ACTIVITY 4	Review construction staging to assure accuracy and sufficiency at each stage of construction.					
PREPARATORY QC ACTIVITY 5	Verify the materials delivered to the site conform to accepted materials certifications, submittals, plans and contract requirements.					
START UP QC ACTIVITY 6	Conduct pre-work meeting. Review contract requirements with construction crew, foreman and FHWA personnel prior to beginning work.					
PRODUCTION QC ACTIVITY 7	Verify that the ongoing construction will result in the end product meeting the contract requirements. Verify by inspecting, measuring and testing. See table 153-4.					Report - As quality control activities (7) thru (9) are performed, provide reports of verification activities including discussions, inspections, measurements and testing results. Include deficiencies encountered and description of corrective actions completed. Provide reports to the CO daily. See 153.02(c)
PRODUCTION QC ACTIVITY 8	Provide immediate presence to communicate status of work to FHWA personnel and contractor personnel for quality control issue resolution.					
COMPLETION QC ACTIVITY 9	Verify completed work meets contract requirements. Implement Notification of completion of Work as required. See 153.04					

PRE-WORK		PRODUCTION / POST-WORK	
Contractor Quality Control Manager Signature _____		Contractor Quality Control Manager Signature _____	
Approval _____	Date _____	Completed _____	Date _____
FHWA Signature _____		FHWA Signature _____	
Accepted _____	Date _____	Accepted _____	Date _____



# Implementation and reporting

- Cannot begin work until plan is accepted
- Cannot begin work until a pre-work meeting is performed
- Fill out first three columns of form 471 for acceptance
- Report on activities daily – Activity 7-9
- Provide fully completed form when work feature is completed

1. Independently and with contractor staff review contract requirements, plans and specifications



## 2. Inspect and verify submittals certifications and plans



### 3. Inspect site conditions for constructability



#### 4. Review construction staking



## 5. Verify materials on site



6. Complete operational work plan and hold pre-work meeting with crews



7. Verify, inspect, measure, test, correct –  
Table 153.1





# Table – 153.....Measuring, Inspecting

<b>Table 153-1</b> Minimum inspection, measurement, process control (quality control) sampling and testing requirements. See SCR and FP sections for additional sampling and testing requirements.							
Material or Product	Characteristic	Test Method, Specification or Activity	Tolerances and Reference	Sampling, Testing, Measurement or Inspection Frequency	Point of Sampling, Inspection or Measurement	Split Sample and Material Sample	Reporting Time
<b>Section 152</b>							
Construction staking	Construction staking	Measurements to check accuracy and adequacy of construction staking	Subsection 152.03 and Table 152-1	15% of stakes, line posts or marks, and 100% of stakes or surveyed points, marks or lines on bridges, walls or other major structures	Completed staking	No	End of shift
<b>Section 201</b>							
General clearing	Clearing and grubbing preparation, preservation of adjacent vegetation	Visual inspection	Subsection 201.03	Daily	Clearing operation	No	24 hrs.
Clearing	Felling, rounding area and trimming	Visual inspection	Subsection 201.04	Daily	Clearing operation	No	24 hrs.
Grubbing	Grubbing excavation and embankment areas and backfill	Visual inspection	Subsection 201.05	Daily	Clearing operation	No	24 hrs.
<b>Section 203</b>							
Subgrading material	Use of reasonable care replacing or repacking, packing, matting, marking and stockpiling	Visual inspection	Subsection 203.03	Daily	Subgrading operation	No	24 hrs.
Removing material	Saw cutting, debris containment removal of culverts and structures and obstructions	Visual inspection	Subsection 203.04	Daily	Removing operation	No	24 hrs.
Digging material	Removes, loosens, bury	Visual inspection	Subsection 203.05	Daily	Digging operation	No	24 hrs.



# Table – 153.....Testing

				other <u>app.</u>			
<b>Section 209</b>							
Preparation for structural excavation	Preparation	Visual inspection	Subsection 209.03	Daily	Structural excavation	No	24 hrs
General structure excavation	Excavation, OSHA, saw cutting, conserving stockpiling and disposing	Visual inspection	Subsection 209.04	Daily	Structural excavation	No	24 hrs
Foundation preparation	Unsuitable material and keying	Visual inspection	Subsection 209.08	Daily	Structural excavation	No	24 hrs
Bedding	For box culverts and structures other than pipe culverts For pipe culverts	Visual inspection	Subsection 209.09	Daily	Structural excavation	No	24 hrs
Backfill	Pipe culverts, Arch culverts with headwalls, patching existing pavement, loads against concrete	Visual inspection	Subsection 209.10	Daily	Structural excavation	No	24 hrs
Bedding/Backfill for Structures and Culvert Pipe	In-place density and moisture content <sup>6277</sup>	AASHTO T310	Subsection 209.11	1 per 30 meters/every other <u>lift</u> .	Compacted bedding or backfill	No	End of shift
<b>Section 211</b>							

8. Provide presence and communicate



9. Verify completed work – 470 process





- **Quality Assurance**
- **470 form remains in place**
- **470 process may be requested for other work**
- **Government still has the responsibility to inspect measure and test to verify all contractor QC.**
- **We may use contractor QC data in our acceptance of any item just like we use testing data for materials items**
- **How much we do depends**



# Quality Control Testing

- **Process control testing**
- **More than just aggregate production**
- **FP 03 will have all process control testing in section 153**
- **WFL has expanded the testing requirements ie....  
Compaction for culverts**



- **10 % of progress payment may be withheld**
- **Work may be suspended in accordance with Section 108**
- **Schedule of values for lump sum item**



- **Contractor Daily Record Form 465, Moved to Section 109**
- **Contractor pay notes, moved to section 109 (Emphasize QC not administrative activities)**
- **Section 106, revised to require all certs to be provided to the CO.**



**....So....You are the builders, you innovate, plan and execute the work.  
You must also provide the feedback to improve it.**



**This or.....**





# Questions

