

## Concrete Lessons Learned

1. Concrete Mix Design Approval Process
  - Use project's QC Plan page CNC 3.3 or the attached form for submitting mix designs
  - Mix design process:
    - Contractor ↔ Producer → PA → M&R → PA & Producer
2. Proper Class of Concrete
  - Refer to Standard Indexes, Project Specifications and Plans
  - When submitting mix designs list application and environmental class
  - If confusion please ask before placing concrete
3. Mass Concrete
  - Mass plan is in addition to and separate of the project QC plan
  - Temperature logs submitted to M&R in a timely manner
  - Does data make sense (inside hotter than outside), missing data
  - Contractor takes corrective action in the field if the temperature differential exceeds the mass plan preventative temperature
  - If the temperature differential exceeds the specification (35°F) revise the mass plan
4. Drilled Shaft Plans
  - Drilled Shaft Plan is in addition to and separate of the project QC plan
  - Include elapse time (total time from first batching to finish placing entire drilled shaft), not the transit time for the truck
  - Proper finishing of top of shaft (over flow of concrete)
  - Mix design approved after elapse time is known to verify slump loss
5. LIMS sample numbering
  - Sample numbering spreadsheet attached
  - Keep LOTs by mix design
  - Randomly verify 1 of 4 LOTs and list verified LOTs in LIMS.
6. Pre-pour meeting, Pre-drill meeting and concrete pour notifications
  - Use **D5\_Pour@dot.state.fl.us** and **D5\_Drill@dot.state.fl.us** emails
  - Give as much notice as possible
  - M&R sends a representative to all pre-pour & pre-drill meetings
  - M&R may miss actual concrete pours. M&R does random IAs/QARs
7. Field Quality Assurance Review (QAR) Findings
  - Curing Boxes - insulation, location, size, Hi-Lo thermometer.
  - Sampling at final placement (i.e. end of pump on deck)
  - Testing equipment marked and calibration paperwork in field
  - Technician Roles
    - QC – not reporting failing test results and not rejecting trucks
    - VT – w/c ratio, 1% batch tolerances, truck ID cards, verify water addition

