*ADD THE FOLLOWING SECTION:*

SECTION 114 – CONTRACTOR QUALITY CONTROL PROCEDURES

114.01 GENERAL

* 1. Contractor Quality Control shall follow the Contractor Quality Control Program to ensure that materials and workmanship incorporated into the work meet the requirements of the Standard Specification, Special Provisions, and all other Contract Documents. (Add CLV manual)
	2. Oversight and test results shall be documented in accordance with the Quality Control Program requirements in Section 112, “Contractor Quality Control Administration”. Test results shall be evaluated and the acceptance determined by the Engineer.
	3. The Quality Control personnel shall be qualified as required in Section 113, “Contractor Quality Control organization and qualification of Laboratories and Technicians,” or as stated in other contract documents.
	4. Process oversight and testing of items under construction shall be performed for work activities as required in the Contract Documents and at the frequency referenced in the specifications and these special provisions. This includes, but is not limited to, qualification tests, factory fabrication and manufacturing tests, material tests, verification tests, pre-operational checks/tests, installation oversight, and construction oversight.
	5. A combination of testing and process oversight shall be performed in a systematic manner to ensure the specific requirements for control of the process and quality of the item are being achieved throughout the duration of the process.
	6. Modifications, repairs, or replacement of items subsequent to final acceptance shall be re-inspected and/or retested to verify compliance with requirements set forth in the Contract Documents.

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114.03 ORGANIZATION

* 1. The organization is based on Section 113, “Contractor Quality Control Organization and Qualification of Laboratories and Technicians," that identifies the minimum levels for communication and delegation for the Quality Control program.
	2. The Responsible Person-in-Charge (RPC) shall have the experience to manage the type of construction implemented in the Contract Documents and have the ability to read and understand construction drawings and specifications.
	3. The Contractor Quality Control Coordinator (QCC) shall have the experience to observe, document, instruct, and in general ensure that the work is installed as designed and all testing requirements have been met as stated in the contract documents.

114.04 INSPECTION PROCESS

* 1. Pre-Activity Meeting
		1. Prior to the start of any new work activity, a meeting shall be conducted with all persons involved. Each activity of work shall have a procedure approved by the Engineer containing descriptions of the processes, which address the requirements for material testing and inspection for the particular activity.
		2. It is encouraged that the information outlined below be relayed during the daily course of the project and through any periodic progress meetings to reduce the number of time consuming meetings. However, formal pre-activity meetings shall be held prior to the beginning of a new activity or prior to restarting an activity that has been delayed or stopped.
		3. It is intended that the Pre-Activity Meeting be held at the actual location of the work.
		4. The Pre-Activity Meeting shall be held within one week of the first item of work on the shift that the actual work shall begin. When working a multi-jurisdictional project such as with NDOT, 2 days' advance notice is required prior to the meeting being held.
		5. The meetings shall be held to discuss all Quality Control and operational aspects of proposed activities. All activities may not necessitate meetings. Extenuating circumstances may dictate the need for meetings on general and common activities.
		6. The meetings may be held under special requests made by the Engineer and shall also be held in the event of major personnel changes with respect to the project such as a Project Manager for the Engineer or the Contractor.
		7. The RPC shall facilitate the meetings at the project level.
		8. Documentation of the meetings shall be provided by the RPC in the form of written documentation. A copy of the documentation shall be provided to the Engineer within one shift of the meeting.
		9. The meetings shall accomplish the verification of the following items:
			1. Description.
			2. Ensure that all submittals are approved.
			3. Review Plans, Specifications, and Procedures that apply.
			4. List materials.
			5. List any mandatory procedures (i.e., Manufacturers' specifications).
			6. Review Deficiencies in prior related work and note.
			7. Verify that no outstanding deficiencies exist for work that led up to this activity.
			8. Discussion of acceptance criteria.
			9. Particular items of interest to the Engineer; QA’s expectations.
			10. List Control Measures and responsible parties, Review of Frequency of Control Measures.
			11. Discussion of off-site and on-site QC responsibilities.
			12. Discuss “What do we do when something goes wrong?”
			13. Traffic Control and Safety Issues and Notification to the Public.
			14. Reminder that the public comes first.
			15. Items requiring QC.
			16. Itemize frequency of inspection and testing.
			17. Provide list of required inspections to the Engineer
			18. Define any revision of contract Specification protocol and documentation approved by the Engineer.
		10. The following individuals are required to attend the Pre-Activity Meeting for work that they perform:
			1. Responsible Person in Charge
			2. Quality Control Coordinator
			3. Quality Assurance Inspector
			4. Responsible activity foreman
			5. Owner Project Representative
	2. Advance Notification Cards
		1. The Contractor shall utilize the Advance Notification Cards to schedule all activities.
	3. Quality Control Activity Card Process
		1. QC Activity Cards will not be required when activities do not necessitate testing or inspection to be performed on the item.
		2. The RPC is responsible for verifying all documentation on the QC Activity card is in compliance with this program before being presented to the QA Representatives for “sign-off” and closeout of the activity.
		3. The testing staff utilized for this project can be comprised of any of the technicians with appropriate certification. The RPC shall use the following guidelines for QC Activity Card identification and logging:
			1. QC Activity Card shall be issued a sequential number to uniquely identify it with the activity.
			2. QC Activity Card generated and filed shall be logged on the QC Activity card Log as described in Section 112, “Contractor Quality Control Administration.”
		4. QC Activity Card Section 1 – Actual Work Performed
			1. Used to document the actual work performed for the activities listed. Locations shall be listed to correlate with the type of work performed.
		5. QC Activity Card Section 2 – Deficiency Check
			1. Used for documenting existing deficiencies associated with the activity listed in QC Activity Card section 1 above. If no deficiencies exist or occur for the activity, the Technician shall check-off and initial this section. If deficiencies do exist, the Technician shall complete the lower area of this section. Each material number shall be verified against outstanding deficiencies.
		6. QC Activity Card Section 3 – Inspection Items
			1. Used for documenting tests associated with the activities listed in QC Activity Card section 1 above, and for documentation of QA verification testing.
			2. Each tested material utilized during the activity shall be entered. The completion of the “QC Initial/Date” section by the RPC shall serve as documentation of the Quality Control performed. There shall be instances where the QCC fills out the QC Activity Card but does not initial the QC Activity Card. In these cases, the QCC shall require the particular activity Foreman, or subcontractor Foreman/Supervisor, to initial the QC Activity Card. Electrical items shall always be initialed by the activity Foreman.
			3. Inspections and testing to be performed are listed in Table I, Appendix X.
			4. The next section “QA Initial/Date” shall be utilized for QA’s documentation of verification of the inspections listed within the section.
			5. The RPC, QCC, and/or Foreman shall give a minimum one-day advance notice to QA of required inspections to be performed by Engineer. The time that the material will be ready for inspection by the QA shall be documented in the “Time Requested for QA” section. There shall be circumstances when the work conducted has not reached a hold point for QA inspection and therefore a time cannot be determined. In these cases, this section shall have the estimated completion date of the work reaching the hold point.
		7. QC Activity Card Section 4 – Testing and Sampling Items
			1. Used for documenting field tests associated with the activities listed in Activity Card section 1 and Section 2 above.
			2. All tests shall be separated based on “Bid Item No.” and the numbering for the range of tests taken on each Bid Item need to be documented in the “Sequential Test Nos.”. Special attention shall be made to continue the sequential numbering from the last occasion testing was performed on these particular Bid Items. All tests taken throughout the entire project shall be numbered sequentially based on Bid Item No.
			3. The RPC or QCC shall indicate the “Description of Test” performed. Descriptions shall be kept constant for the tests throughout the project.
			4. The “Quantity of Material to be Tested” is the numerical amount of material actually available or “ready” for testing. The amount shall be followed by the appropriate unit (square feet, cubic yard, linear feet, etc.). Calculations shall be shown to justify the number entered, for instance, when there may be multiple lifts of trench backfill tested and documented.
			5. The “Testing Frequency” shall be determined by Table I, Appendix X and indicated by the RPC.
			6. The “Required Quantity of Tests” shall be calculated by dividing the “Quantity of Material to be Tested” by the “Testing Frequency”. All minimum test numbers calculated shall be rounded up.
			7. The final column, “Actual Tests Performed” shall be completed by the RPC or QCC and shall indicate the actual amount of tests performed during the shift covered by the QC Activity Card for each Bid Item.
		8. QC Activity Card Section 5 – Remarks
			1. Used for documentation of miscellaneous information associated with the activities listed on the card. This section shall also be used to document formulas used to calculate the number of tests required.
		9. QC Activity Card Section 6 – Quality Assurance Sign-Off
			1. Used for documentation of the QA sign-off of the QC work performed associated with the activity listed. Upon sign-off, a copy of the QC Activity Card with applicable test and inspection observation reports results shall be delivered to RPC.
	4. Sampling and Testing
		1. All sampling and testing shall be performed in accordance with Table I, Appendix X.
		2. All density testing locations shall be clearly identified by paint marking on the grade at the time the testing is performed. All trench walls or structural backfill shall have lift thickness marked in paint. This requirement will aid in the correlation testing by Quality Assurance.
	5. Final Inspection and Testing
		1. Final inspection(s) and tests shall be performed to demonstrate and verify functional operation and conformance to the contract requirements of the products, subsystems and systems constructed, fabricated, manufactured, and installed by the Contractor or its subcontractors and suppliers for the Project in accordance with the Contract Documents.
		2. Prior to final inspection(s) and tests, a review of the deficiencies identified during the in-process inspections and tests shall be performed by the RPC to verify that corrective action has been completed, verified, and documented. The final inspection or test shall demonstrate the conformance of the item to specified requirements.
	6. Material Sources
		1. On-site delivery of material items furnished by suppliers to be incorporated into the work shall be jointly inspected upon receipt by the Contractor's Quality Control personnel and the Engineer to verify conformance to specified requirements. Source inspection of items fabricated or manufactured specifically for the Project shall be performed jointly as required by the Contract Documents.
		2. The Engineer may conduct additional independent Quality Assurance and/or Independent Assurance (IA) inspection/testing and source inspections as deemed necessary. The Engineer or Engineer's representative shall coordinate these inspections and tests as required.

114.05 FIELD PROBLEM IDENTIFICATION AND REPORTING PROCESS

* 1. The following procedure outlines the identification and reporting of a deficiency:
		1. If a problem is observed by a Non-Quality Control Personnel:
			1. Locate the Quality Control Coordinator.
			2. Inform the Quality Control Coordinator of the Deficiency and any additional information details special circumstance.
		2. If a problem is observed by a Testing Technician:
			1. Your testing indicates deficient work:
				1. Record all testing data.
				2. Locate Quality Control Coordinator.
				3. Provide detail of Deficiency to Quality Control Coordinator.
			2. You observed deficient work:
				1. Locate Quality Control Coordinator.
				2. Provide detail of Deficiency to Quality Control Coordinator.
		3. If a problem is observed by the Quality Control Coordinator:
			1. Gather information from anyone with knowledge of the deficiency.
			2. Notify and discuss deficiency with QA Inspector to identify possible resolution.
			3. Quality Control Coordinator to provide possible solution, QA agrees with proper solution.
			4. If the deficiency requires a decision by personnel with an “authority” level higher than that which is available daily on the project, then it is considered non-compliant work and will need direction that is approved by the Engineer.
			5. If resolution cannot be achieved within that day, one of two courses of action needs to be taken as follows:
				1. If resolution can be achieved the following day:

Verify that the resolution was performed and that all aspects of work are now in compliance with Contract Documents.

If it is not in compliance, Notify QA immediately.

* + - * 1. If resolution cannot be achieved the following day, note in the remarks any portion of the Activity Card that has a Deficiency pending. Notify the RPC of the deficiency for tracking purposes.
			1. If work is now in compliance, note resolution in deficiency area of Activity Card, with written description of resolution, making notes in remarks which detail the resolution process then:
				1. Notify QA Inspector of Resolution.

114.06 DEFICIENCY TRACKING RESPONSIBILITY

* 1. The RPC or QCC shall be responsible for logging and tracking deficiencies on the QC Activity Card. Constant comparison against the deficiency log shall ensure no deficiency is left unresolved.
	2. The RPC shall document deficiencies that are new or have been cleared for each item relative to each activity. Every effort shall be made to resolve deficiencies as soon as possible.
	3. Section 2 of the QC Activity Card is used for documenting existing deficiencies associated with the activity listed in section 1 of the QC Activity Card. If no deficiencies exist or occur for the activity the RPC shall check-off and initial this section. If deficiencies do exist, the lower area of this section shall be completed. Each material number shall be verified against outstanding deficiencies.

114.07 TESTING IDENTIFICATION RESPONSIBILITY

* 1. The RPC, utilizing Table I, Appendix X, shall identify the test methods, frequency of the tests, and the planned number of tests to be taken for each material used in the respective activity as explained in Section 112, “Contractor Quality Control Administration.”
	2. The planned number of tests to be taken shall be documented on the Advanced Notification Card. The actual number of tests taken on each material shall be documented by the RPC in the appropriate space provided on the QC Activity Card. There may often be a large difference between the planned number of tests and actual number of tests taken. There may also be instances where a large number of planned tests were documented on the Advanced Notification Card and no actual tests were taken, given the probability of the cancellation of activities.
	3. The “Quantity of Material to be Tested” is the numerical amount of material actually available or “ready” for testing shown in units defined in Table I, Appendix X or related Agency testing of this program relative to the frequency of the material and based on the stationing information documented on the card. For example, the testable quantity of Type II grade for compaction from station 0+00 to station 10+00, given a width of 30 feet would be 30,000 square feet (SF). Given this example and using Table I, Appendix X, the minimum number of tests required for this item would be 6 total tests based on the required frequency of 1 test per 5,000 SF.
	4. The RPC shall perform all necessary calculations to ensure the number of tests performed meet the required number. All minimum test numbers calculated shall be rounded up.
	5. In the event that multiple lifts of material are represented or given that the testable quantity shown on the QC Activity Card is not readily identifiable with documented stations and dimensions, appropriate documentation and/or calculations shall be provided on the QC Activity Card Section 5 to facilitate easy verification of the testable quantity. This process allows the technician to show documentation for the entire amount of material represented without documenting repetitive entries.
	6. The RPC shall generally arrive at total quantities for each activity by documenting pertinent information such as stations, widths, and other miscellaneous dimensions at the beginning of the activity and comparing them against dimensions at the end of the activity. If situations arise where RPC cannot be present during all operations and would not be able to derive total quantities, the RPC shall retrieve the information from the activity Foreman. The Materials Tracking Logs shall also be utilized in this respect.
	7. The QC Activity Card shall reflect certain bid item payment quantities. However, the Contractor shall not use them for compilation of the monthly pay estimate or for bid item payment tracking. This is due to the difference between the pay item unit of measurement and the testable quantity unit of measurement shown in the QC table(s), and also given that payable activities may take place without the presence of a QC Activity Card. (No testing or Inspection.)
	8. REPORTING
	9. Daily Reporting
		1. The QC Activity Cards with the inspection forms, daily reports, and any field tests attached shall be used to satisfy the requirements of Daily Reporting
	10. Monthly Reporting
		1. The RPC shall be responsible for coordinating the monthly quality control summaries at the end of each calendar month and submitting to the QA within the time period allowed by agreement between the Engineer and Contractor after each calendar month.
		2. The RPC shall generate a cover letter stamped by the Nevada Professional Engineer who has responsible charge of reviewing attached material. The cover letter shall attest that the summary has been reviewed, that any short falls in testing, sampling, or qualities have been identified, quantified, and acknowledged. All deficiencies shall be acknowledged including their status on being resolved.
		3. The report may be submitted on media as follows:
			1. PDF format.
			2. Spectraqest test report printouts.
			3. Other word processor documents.
			4. Or any combination.
		4. The summary shall be submitted in the following format:
			1. Cover letter generated by RPC and/or QCC.
			2. P.E. stamp on the cover letter stating review and approval of the test summary.
			3. Field Test Result Summary that shall indicate all field test procedures and results performed during the reporting period. Items and tests shall be summarized by type. The associated daily field reports for inspections and testing shall be attached behind this summary.
			4. Field Density Test Result Summary indicating all pertinent information generated during all field density testing. The associated daily field reports for test results shall be attached behind this summary.
			5. Laboratory Test Result Summary that shall indicate all laboratory test procedures and results performed during the reporting period. Items and tests shall be summarized by type. Individual test results shall be attached behind this summary.
			6. Laboratory Concrete Break Result Summary facilitating brief analysis of critical concrete strength data. Items shall be summarized by cylinder set numbers. Individual Concrete Break Results for each set of samples shall be attached behind this summary.
			7. Laboratory Aggregate and Soils Result Summary indicating all gradation test procedures or other testing performed during the reporting period. Individual test results shall be attached behind this summary.
			8. Deficiency log.
			9. Testable Quantity Summary that shall indicate total month and to-date counts of tests performed relative to the testable quantities and to-date testable quantities.
			10. A copy of the most current AASHTO accreditation status for the laboratories referenced in the report from the AASHTO web site. The report shall also attach a list of the NAQTC certified technicians that were working at the referenced laboratories or in the field for the project during that report period.
	11. Final Reporting
		1. A final summary report shall be generated in accordance with Subsection 112.09 and shall not be submitted until such time as all discrepancies and non-conformances have been resolved as well as a compliant close-out audit if required.

END OF SECTION 114