Appendix A Inspection Checklists

The following checklists are designed to assist quality assurance (QA) inspectors in performing inspections of construction of NRCS projects. The checklists may not include every item that must be inspected to verify compliance with the applicable contract requirements. Checklists should be completed as the work progresses or at milestones during the contract performance period. Maintain completed checklists at the jobsite with the inspection records, and submit them to the contracting officer's representative (COR)/government representative (GR) along with the job diary after work is completed. Document in the job diary when each checklist is completed.

Each checklist is designated NEH 645 CL #.#. The first number corresponds to the NEH 645 chapter to which the checklist is directly associated. The second number corresponds to the number of the checklist(s)

Appendix A Inspection Checklists

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NEH 645 CL 3.1 Quality Assurance Inspection Checklist

This checklist is intended to be a guide for an NRCS QA inspector in preparation for and in performance of the inspection of construction of NRCS projects. It may not address all items required of the QA inspector, and some parts of the checklist may not be applicable to a particular project.

Project Name: _____ Project #: _____

Location: _____ Date: _____

Field Inspector: _____

Work Inspected: _____

_____

_____

No.	Task	Completed		
		Yes	**No**	**NA**
	Prior to contract award			
1	Review appointment letter and fully understand responsibilities.	☐	☐	☐
2	Review QA plan and prepare equipment and supplies needed to conduct tests and inspect work.	☐	☐	☐
3	Review the contract and seek clarification from COR/GR for items not completely understood.	☐	☐	☐
4	Begin the job diary at the initial site showing.	☐	☐	☐
5	Mark changes on field copies of bid schedule, drawings, and specifications as per contract addendum or amendment.	☐	☐	☐
6	Obtain current copy of reference standards needed to perform inspection duties.	☐	☐	☐
	Prior to beginning construction			
7	Make diary entry at the preconstruction conference.	☐	☐	☐
8	Photograph pre-work site conditions such as ingress/egress road and all structures.	☐	☐	☐
9	Verify existence of an approved safety officer and safety plan.	☐	☐	☐
10	Review safety checklist with contractor.	☐	☐	☐
11	See that the contractor conducts a safety meeting prior to the start of work.	☐	☐	☐
12	Verify at least one person from each foreman's work crew has a current first-aid card.	☐	☐	☐
13	Verify that all postings required by the contract (EEO posters, emergency contact information, NPDES permit notice, etc.) are maintained and are legible and visible to all contractor personnel.	☐	☐	☐
14	Verify all known cultural resources and properties of historical significance are identified and protected.	☐	☐	☐

No.	Task	Completed		
		Yes	**No**	**NA**
15	Verify SWPPP will be implemented at beginning of work and other NPDES requirements are addressed.	☐	☐	☐
16	Verify sanitation facilities are operational.	☐	☐	☐
17	Verify the specified hard hat sign is prominently displayed at site entrances.	☐	☐	☐
18	Verify utilities and existing works are identified and protected.	☐	☐	☐
19	Verify utility owners are notified as applicable.	☐	☐	☐
20	Verify contractor has a notice-to-proceed prior to beginning any work	☐	☐	☐
	During construction			
21	Recognize and immediately report, to the COR/GR, potential cultural resources and properties that may be of historical significance whenever such resources or properties will be disturbed by construction activities.	☐	☐	☐
22	Verify and document that all erosion and pollution control requirements are carried out in accordance with contract requirements.	☐	☐	☐
23	Verify and document that all safety and sanitary requirements are maintained in accordance with the contract.	☐	☐	☐
24	Verify and document that the contractor has done everything possible to identify and protect all utilities that exist in the general work area.	☐	☐	☐
25	Schedule government/owner performed surveys with COR/GR to ensure that contractor's production is not impeded by lack of surveys.	☐	☐	☐
26	Determine that satisfactory material samples and certifications have been furnished and materials are approved by COR/GR before incorporated into the work.	☐	☐	☐
27	Perform tests to verify the adequacy of the contractor's quality control system	☐	☐	☐
28	See that the work is performed in accordance with the terms and conditions of the contract.	☐	☐	☐
29	Maintain a field copy of drawings and specifications showing all changes (as-built plans).	☐	☐	☐
30	Notify the contractor if work does not meet contract requirements.	☐	☐	☐
31	Notify the COR/GR if unsatisfactory work is not immediately corrected.	☐	☐	☐
32	Document noncompliance and all related correspondence.	☐	☐	☐
33	Verify contractor compliance with minimum wage rate requirements where applicable.	☐	☐	☐
34	Maintain an accurate and complete chronological record of the project in the job diary.	☐	☐	☐
35	Support the job diary with photographic documentation.	☐	☐	☐
36	Keep track of work accomplished, review contractor's invoices, and inform COR/GR of discrepancies between record of work accomplished and invoices.	☐	☐	☐
37	Where allowed and when authorized, issue suspend and resume work orders on behalf of the CO.	☐	☐	☐
38	Immediately report disputes, differing site conditions, and unusual occurrences to the COR/GR.	☐	☐	☐

No.	Task	Completed		
		Yes	**No**	**NA**
39	On Federal contracts, if delegated authority by the CO, suspend the contractor's right to proceed if there is imminent danger to the health or safety of the public or government personnel; if not delegated authority, notify COR/GR immediately.	☐	☐	☐
40	Elevate questions, issues, and concerns to the COR/GR whenever an answer is unknown or disputes cannot be resolved.	☐	☐	☐
41	Schedule check-prior-to-final inspection with COR/GR and prepare a list of items remaining to be accomplished to be reviewed during the inspection.	☐	☐	☐
42	When final surveys are the responsibility of the government/owner, schedule final surveys to document completion of work and provide data for as-built plans.	☐	☐	☐
43	Verify that all items listed during the check-prior-to-final inspection are completed.	☐	☐	☐
44	Verify that all temporary erosion control measures are removed as specified.	☐	☐	☐
45	Schedule the final inspection with COR/GR and prepare a list of items remaining to be accomplished to be reviewed during the inspection.	☐	☐	☐

Comments: _____

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U.S. Department of Agriculture
Natural Resources Conservation Service

NEH 645 CL 4.1 Construction Safety Checklist

This checklist is intended to be used as a guide for periodically assessing safety on construction projects. Its use is optional. It may not address all potential hazards that could exist, and some parts of this checklist may not be applicable to a particular project. Results of safety assessments should be shared with the contractor's supervisory personnel.

Project Name: _____ Project #: _____

Location: _____ Date: _____

Work Period: _____ A.M./P.M. to _____ A.M./P.M.

Field Inspector: _____

Work Inspected: _____

_____

Fill out sections I and II at start of project. Complete sections I and II again only when a factor has changed.

I. General requirements

Written safety program received (date): _____

Preconstruction safety meeting held (date): _____

Safety supervisor: _____ Alternate: _____

Scheduled weekly safety (tailgate) meeting (day/time): _____

No.	Inspection item	Yes	No	NA
1	Contractor requires subcontractors to comply with all safety requirements.	☐	☐	☐
3	Communications and transportation facilities available at jobsite to handle injury situations.	☐	☐	☐
4	New employees given safety instructions for their jobs and the jobsite.	☐	☐	☐

Comments: _____

_____

_____

_____

_____

II. Contractor's employees with first aid training certification (Red Cross, Bureau of Mines or equivalent):

Name: _____ Title: _____

Name: _____ Title: _____

Name: _____ Title: _____

III. Technical requirements

No.	Inspection item	Yes	No	NA
1. Medical services and first aid				
1.1	Phone numbers of offsite medical attention and ambulance service posted outside first aid facility **and** all jobsite offices. (OSHA 1926.50(f) and NRCS OSHA Supplement)	☐	☐	☐
1.2	Locations of first aid kits and other medical supplies posted conspicuously on signs outside first aid facility **and** all jobsite offices. (NRCS OSHA Supplement)	☐	☐	☐
1.3	Complete first aid kits available, compliant with ANSI Z308.1–1998 Type III. Minimum of 1 kit per 25 employees. (OSHA 1926.50(d)(1) and (2) and NRCS OSHA Supplement)	☐	☐	☐
1.4	Employee with a valid certificate in first aid is assigned during each work shift. (OSHA 1926.50(c))	☐	☐	☐
1.5	At least one stretcher and two blankets available at jobsite.	☐	☐	☐
2. Sanitation				
2.1	Potable water supply available at jobsite. (OSHA 1926.51(a))	☐	☐	☐
2.2	Potable water dispensers clearly marked; each equipped with tight cover and tap. (OSHA 1926.51(a)(2))	☐	☐	☐
2.3	No common drinking cups. (OSHA 1926.51(a)(4))	☐	☐	☐
2.4	Waste receptacles available for disposable cups and other litter, if single service cups are supplied. (OSHA 1926.51(a)(5))	☐	☐	☐
2.5	Electrolyte supplements available as needed. (NRCS OSHA Supplement)	☐	☐	☐
2.6	Adequate toilets provided at jobsite. Number of toilets and urinals required are listed in OSHA 1926.51(c), table D–1.	☐	☐	☐
3. Head protection				
3.1	Hard hats worn by all persons entering any part of jobsite. (NRCS OSHA Supplement)	☐	☐	☐
3.2	Hard hat area signs, 3- by 4-foot minimum size, erected at all jobsite access locations. (NRCS OSHA Supplement)	☐	☐	☐
4. Noise exposure				
4.1	Ear protection devices worn when noise exceeds allowable exposure. (OSHA 1926.101)	☐	☐	☐
5. Illumination				
5.1	Worksites, offices, shops, and storage areas lighted as required. (OSHA 1926.56)	☐	☐	☐
6. Eye and face protection				
6.1	Eye and face protection provided for hazardous jobs. (OSHA 1926.102)	☐	☐	☐
6.2	Goggles or other protective equipment kept clean and in good repair. (OSHA 1926.102(a)(4))	☐	☐	☐

No.	Inspection item	Yes	No	NA
7. Respiratory protection				
7.1	Respirators are worn when dust concentrations exceed safe hygienic levels. (OSHA 1910.134)	☐	☐	☐
7.2	Employees protected from other hazardous concentrations. (OSHA 1910.134)	☐	☐	☐
7.3	Respirators kept clean and in good condition. Respirators inspected regularly. (OSHA 1910.134)	☐	☐	☐
8. Fall protection (OSHA 1926 Subpart M)				
8.1	Employees protected by safety belts and lines when working on steep slopes or unguarded heights. (NRCS OSHA Supplement)	☐	☐	☐
8.2	Employees working on surfaces 6 feet or higher with an unprotected side or edge are protected from falling. (OSHA 1926.501(b)(1))	☐	☐	☐
9. Working over or near water				
9.1	U.S. Coast Guard-approved life jackets or vests worn by employees if there is danger of drowning. (OSHA 1926.106(a))	☐	☐	☐
9.2	Protective equipment inspected for defects that would alter the buoyancy and strength. (OSHA 1926.106(b))	☐	☐	☐
9.3	Ring buoys and 90-foot lifelines readily available for rescue operations. (OSHA 1926.106(c))	☐	☐	☐
10. Fire protection				
10.1	Fire extinguisher with 10B rating required within 50 feet when more than 5 gallons of combustible liquid are used. (OSHA 1926.150(c)(1)(vi))	☐	☐	☐
10.2	Portable extinguishers serviced and maintained. (OSHA 1926.150(c)(1)(viii))	☐	☐	☐
10.3	Fire extinguishers have been listed or approved by a nationally recognized testing laboratory. (OSHA 1926.150(c)(1)(ix))	☐	☐	☐
11. Fire prevention				
11.1	Combustion engine exhaust kept clear of combustible materials. (OSHA 1926.151(a)(2)	☐	☐	☐
11.2	Signs posted at and around operations having fire hazards, “NO SMOKING OR OPEN FLAME.” (OSHA 1926.151(a)(3)	☐	☐	☐
11.3	Storage area kept free of weeds, grass, and other combustible materials.	☐	☐	☐
11.4	Materials stored indoors are handled and piled in ways that minimize fire hazard. (OSHA 1926.151(d)(3)	☐	☐	☐
12. Flammable and combustible liquids				
12.1	Metal safety cans (smaller than 5-gal capacity) used to store or handle flammable liquids. (OSHA 1926.152(a)(1))	☐	☐	☐
12.2	Storage of flammable liquids in open room or trailer limited to 25 gallons.	☐	☐	☐
12.3	Storage of liquids in any one cabinet limited to 60 gallons flammable and 120 gallons combustible. (OSHA 1926.152(b)(3))	☐	☐	☐
12.4	Cabinet containing such liquids labeled conspicuously, “FLAMMABLE—KEEP FIRE AWAY.” (OSHA 1926.152(b)(2)(iii))	☐	☐	☐
12.5	Outdoor portable storage tanks positioned at least 20 feet away from any building. (OSHA 1926.152(c)(4)(i))	☐	☐	☐
12.6	Portable storage tanks equipped with vents. (OSHA 1926.152(i)(2)(iv)(A)	☐	☐	☐
12.7	Containers, tanks, and hoses interconnected (bonded) electrically when transferring liquids. (OSHA 1926.152(e)(2))	☐	☐	☐

No.	Inspection item	Yes	No	NA
12. Flammable and combustible liquids—continued				
12.8	Dispensing devices and nozzles for flammable liquids shall be of an approved type. (OSHA 1926.152(e)(5))	☐	☐	☐
12.9	Flammable liquids kept in closed containers when stored. (OSHA 1926.152(f)(1))	☐	☐	☐
12.10	Portable fire extinguishers with 20 BC rating required within 75 feet of refueling truck or station. (OSHA 1926.152(g)(11))	☐	☐	☐
12.11	Motors of all equipment shut off during refueling. (OSHA 1926.152(g)(10))	☐	☐	☐
12.12	Sign at refueling area posted conspicuously, "NO SMOKING OR OPEN FLAME WITHIN 50 FT." (OSHA 1926.152(g)(8))	☐	☐	☐
13. Temporary heating devices				
13.1	Adequate fresh air provided to ensure personnel safety. (OSHA 1926.154(a)(2))	☐	☐	☐
13.2	Solid noncombustible material used to support heating units. Material extends 2 feet beyond each side of heater. (OSHA 1926.154(b)(3))	☐	☐	☐
13.3	Minimum 10-foot clearance provided in temporary job enclosures between heater and combustible coverings. (OSHA 1926.154(b)(4))	☐	☐	☐
13.4	Oil-fired heaters equipped with safety oil stop for protection during possible flame out. (OSHA 1926.154(e)(1))	☐	☐	☐
14. Signs, signals, and barricades				
14.1	Barricades erected and legible traffic signs posted at hazardous locations. (OSHA 1926.200(b)(1)); (Federal Highway Administration Manual on Uniform Traffic Control Devices (MUTCD))	☐	☐	☐
14.2	Signs posted and barricades installed to prevent public access.	☐	☐	☐
14.3	Nighttime signs and barricades lighted or reflectorized.	☐	☐	☐
14.4	Flaggers used when working conditions warrant.	☐	☐	☐
14.5	Red flags or sign paddles 18-inches square used by flaggers to make hand signals.	☐	☐	☐
14.6	Reflectorized safety vests or coats worn by flaggers.	☐	☐	☐
14.7	Detour signs posted on streets and highways. Sign types and placement meet State and local regulations and codes. (OSHA 1926.200(g)(2))	☐	☐	☐
15. Material handling, storage, use, and disposal				
15.1	Storage areas kept approximately level, well arranged, and free of flammable materials.	☐	☐	☐
15.2	Construction material stacked, racked, or blocked to prevent movement. (OSHA 1926.250(a)(1))	☐	☐	☐
15.3	Lifelines with safety belts used by workers entering hoppers or tanks. (OSHA 1926.250(b)(2))	☐	☐	☐
15.4	Excess material not stored on scaffolds or runways. (OSHA 1926.250(b)(5))	☐	☐	☐
15.5	All nails removed from used lumber. (OSHA 1926.250(b)(8)(i))	☐	☐	☐
15.6	Material to be handled by crane stored in area clear of overhead power lines.	☐	☐	☐
16. Rigging equipment for material handling				
16.1	Equipment inspected before use and during material handling. (OSHA 1926.251(a)(1))	☐	☐	☐
16.2	Equipment is adequate to handle loads. (OSHA 1926.251(a)(2))	☐	☐	☐
16.3	Tagged equipment (determined by the contractor to be defective) removed or replaced.	☐	☐	☐

No.	Inspection item	Yes	No	NA
17. Chains				
17.1	Steel alloy chains identified by size, grade, and capacity. (OSHA 1926.251(b)(1))	☐	☐	☐
17.2	Hooks, rings, and other attachments not shop-made. Capacity of hooks, rings, and other attachments at least as great as chain capacity. (OSHA 1926.251(b)(3))	☐	☐	☐
17.3	Hoisting hooks equipped with safety keepers.	☐	☐	☐
18. Wire rope				
18.1	Eye splices made with at least three full tucks. (OSHA 1926.251(c)(4)(i))	☐	☐	☐
18.2	Protruding splice ends covered or blunted. (OSHA 1926.251(c)(2))	☐	☐	☐
18.3	Hoisting or pulling liner made of one continuous rope with no knots or splices. (OSHA 1926.251(c)(4)(ii))	☐	☐	☐
18.4	Wire rope replaced when 10% of strands are broken in any length that equals 8 diameters of the rope. (OSHA 1926.251(c)(4)(iv))	☐	☐	☐
18.5	U-bolt clips are correct size and spaced properly. (OSHA 1926.251(c)(4)(iv))	☐	☐	☐
18.6	U-section attached to dead-end rope. (OSHA 1926.251(c)(5)(i))	☐	☐	☐
19. Fiber rope				
19.1	Fiber rope rings meet requirements. (OSHA 1926.251(d)(1))	☐	☐	☐
19.2	Repairs made with splices; knots prohibited. (OSHA 1926.251(d)(2)(v))	☐	☐	☐
19.3	Coding for manufacturer, type of material, and capacity of rating shown on synthetic webbing. (OSHA 1926.251(e)(1))	☐	☐	☐
19.4	Shackles and hooks meet requirements. (OSHA 1926.251(f))	☐	☐	☐
20. Waste material disposal				
20.1	Scrap lumber, waste, and rubbish removed as work progresses. (OSHA 1926.252(c))	☐	☐	☐
20.2	Solvent waste, oily rags, and flammable material stored in covered metal containers until removed from jobsite. (OSHA 1926.252(e))	☐	☐	☐
21. Power and hand tools				
21.1	Power tools equipped with guards (as manufactured) over all exposed moving parts. (OSHA 1926.300(b)(1))	☐	☐	☐
21.2	Handheld power tools equipped with pressure control switches. (OSHA 1926.300(d)(3))	☐	☐	☐
21.3	Goggles and other protective equipment worn by workers as required. (OSHA 1926.300(c))	☐	☐	☐
21.4	Tools with mushroomed heads or defective handles prohibited. (OSHA 1926.301(c) and (d))	☐	☐	☐
21.5	Electric-powered tools double insulated or grounded with 3-wire conductors.	☐	☐	☐
22. Grinders				
22.1	Machines equipped with guards and tool rests. (OSHA 1926.303(b))	☐	☐	☐
22.2	Grinding wheels checked for cracks and defects. (OSHA 1926.303(c)(7))	☐	☐	☐
22.3	Grinder spindles operated at safe speeds.	☐	☐	☐
24. Gas welding and cutting				
24.1	Gas cylinders meet U.S. Department of Transportation requirements. (49 CFR–178–C) and (OSHA 1926.350(c)(2))	☐	☐	☐

No.	Inspection item	Yes	No	NA
24. Gas welding and cutting—continued				
24.2	Hose lines distinguished either by color (such as, fuel is red, oxygen is green) or by surface texture. Oxygen and fuel lines shall not be interchangeable (OSHA 1926.350(f)(1))	☐	☐	☐
24.3	Cylinders placed upright when stored or in use, chained to prevent overturning, and capped tightly when not in use. (OSHA 1926.350(a))	☐	☐	☐
24.4	Cylinders kept upright when moved (tilt and roll on bottom edge) and anchored to pallet before hoisting. (OSHA 1926.350(a)(3))	☐	☐	☐
24.5	Cylinders protected from excessive heat or cold and from electric currents.	☐	☐	☐
24.6	Defective gauges, regulators, valves, and hoses repaired or replaced.	☐	☐	☐
24.7	Friction lighters used to ignite gas torches. Matches prohibited. (OSHA 1926.350(g)(3))	☐	☐	☐
24.8	Welding and cutting done only by authorized operators.	☐	☐	☐
24.9	Goggles or shields worn by welders and helpers.	☐	☐	☐
25. Arc welding and cutting				
25.1	Handgrips and jaws insulated for maximum ground voltage. (OSHA 1926.351(a)(2))	☐	☐	☐
25.2	Cables and connectors rubber covered. Splices not made within 10 feet of electrode holders. (OSHA 1926.351(b)(2)	☐	☐	☐
25.3	Framer of welding units grounded with 3-wire conductors or with separate wires at source. (OSHA 1926.351(c)(5))	☐	☐	☐
25.4	Protective eye shields used by welders and helpers.	☐	☐	☐
25.5	Other workers near arc protected by screens or goggles. (OSHA 1926.353(d)(1)(ii))	☐	☐	☐
25.6	Precautions taken to prevent fires. Fire extinguisher is available. (OSHA 1926.352(a))	☐	☐	☐
26. Electrical				
26.1	Hot circuits de-energized or equipped with guards before starting work.	☐	☐	☐
26.2	Hot voltage circuits equipped with guards. Signs posted, “DANGER–HIGH VOLTAGE.” (OSHA 1926.404(d)(2)(ii))	☐	☐	☐
27. Grounding and bonding				
27.1	Portable plug-in equipment double insulated or grounded with 3-wire conductors. (OSHA 1926.404(f)(3))	☐	☐	☐
27.2	Metal parts and frames of fixed equipment grounded. (OSHA 1926.404(f)(3))	☐	☐	☐
27.3	Hand lamps equipped with handles. Guard attached to each handle. (OSHA 1926.405(j)(1)(iii)(B))	☐	☐	☐
27.4	Extension cords kept clear of walkways, sharp corners, and projections.	☐	☐	☐
27.5	Worn or frayed electric conductors not permitted.	☐	☐	☐
27.6	Fuses or circuit breakers provided for overcurrent protection. (OSHA 1926.404(e)(1)(vi))	☐	☐	☐
28. Ladders (OSHA 1926.1053)				
28.1	Ladders provided for access to work.	☐	☐	☐
28.2	Ladders meet requirements of OSHA 1926.1053.	☐	☐	☐
28.3	Portable ladders set on solid bare ground. Space around top and bottom of each ladder kept clear.	☐	☐	☐

No.	Inspection item	Yes	No	NA
28. Ladders (OSHA 1926.1053)—continued				
28.4	Portable ladders tied or blocked to prevent movement.	☐	☐	☐
28.5	Minimum dimensions of job-made wooden ladders are: 2- by 4-inch side rails, 16 feet long, 3/4- by 3-inch cleats 18 to 23 inches long, and 12 inches between cleats. Rails notched to fit cleats, or fill blocks used to secure cleats.	☐	☐	☐
28.6	Length between supports (base and top landing) of job-made ladders does not exceed 30 feet.	☐	☐	☐
28.7	Top of each ladder extends at least 36 inches above top landing.	☐	☐	☐
29. Scaffolding				
29.1	Guardrails, sides, and ends installed on all platforms that are 45 inches wide or less and built more than 4 feet aboveground or adjoining surfaces and on all platforms built more than 10 feet aboveground or adjoining surfaces.	☐	☐	☐
29.2	Guardrail dimensions are 2- by 4-inch rails installed 42 inches above floor, 1- by 6-inch intermediate rail, 4-inch-high toeboard, and 2- by 4-inch supports at 8-foot spacing. (OSHA 1926.451(b)(4))	☐	☐	☐
29.3	Platform planking extended at least 6 inches over supports. Planking overlapped 12 inches or anchored.	☐	☐	☐
29.4	Ladders provided for access.	☐	☐	☐
29.5	Overhead protection provided in hazardous areas.	☐	☐	☐
29.6	Platform surfaces kept clean so workers are not in danger of tripping.	☐	☐	☐
29.7	Design and construction of wooden scaffolds meet requirements. (OSHA 1926.451)	☐	☐	☐
29.8	Metal tube and coupler scaffolds meet requirements. Scaffolds erected as specified by manufacturers. Expected loading meets minimum safety factor. (OSHA 1926.451)	☐	☐	☐
29.9	Metal scaffolds installed plumb and level, and anchored to structure. Maximum scaffold dimensions are 30 feet horizontal by 26 feet vertical.	☐	☐	☐
30. Floor and qall openings and stairways				
30.1	Floor openings covered on all sides except at entrances protected by covers or guardrails. (OSHA 1910.23(a)(1))	☐	☐	☐
30.2	Guardrails built if wall openings are less than 3 feet above floors, and drops are more than 4 feet.	☐	☐	☐
30.3	Toeboards built if wall openings are more than 3 inches above floors.	☐	☐	☐
30.4	Guardrails built along open-sided floors that are 6 feet or more aboveground.	☐	☐	☐
30.5	Handrails built along stairways that have at least four risers.	☐	☐	☐
30.6	Handrails placed 30 to 34 inches above the top of each riser. Raised handrail built along open side of stairs and landings. (OSHA 1910.23(e)(2))	☐	☐	☐
30.7	Smooth surfaces of handrail material positioned on top and sides. Handrail mounted at least 3 inches from sidewalls.	☐	☐	☐
30.8	Stairs interrupted every 12 feet (vertical distance) with 30-inch landing.	☐	☐	☐
31. Conveyor				
31.1	Operators' stations equipped with start and stop controls. (OSHA 1926.555(a)(2))	☐	☐	☐
31.2	Warning signal included in conveyor equipment. Signals tested before conveyors are started. (OSHA 1926.555(a)(1))	☐	☐	☐
31.3	Access ladders, platforms, and walkways with guardrails and handrails provided.	☐	☐	☐

No.	Inspection item	Yes	No	NA
31. Conveyor—continued				
31.4	All moving parts properly guarded. (OSHA 1926.555(a)(4))	☐	☐	☐
31.5	Screen installed to protect workers.	☐	☐	☐
31.6	Conveyors locked out and tagged during repairs. (OSHA 1926.555(a)(7))	☐	☐	☐
32. Motor vehicles and mechanized equipment				
32.1	Lights or reflectorized barricades placed around equipment parked adjacent to highways or streets. (OSHA 1926.600(a)(1))	☐	☐	☐
32.2	Safety tire cages used when inflating tires on split or lock-type rims. (OSHA 1926.600(a)(2))	☐	☐	☐
32.3	Before repairs are started, controls set in neutral, brakes set, and motor shut off. (OSHA 1926.600(a)(3)(i))	☐	☐	☐
32.4	Blocking and cribbing provided to prevent movement of equipment during repairs. (OSHA 1926.600(a)(3)(ii))	☐	☐	☐
32.5	Safety precautions to be taken with all parked equipment include: setting brakes, chocking wheels, and fully lowered blades, buckets, and dump beds. (OSHA 1926.600(a)(3)(i))	☐	☐	☐
32.6	Special caution taken in changing and charging batteries to prevent acid contact with eyes and skin.	☐	☐	☐
32.7	Passengers transported only in cabs or vehicles. Mounting and dismounting from moving vehicles not allowed.	☐	☐	☐
33. Pile driving equipment				
33.1	Boilers, compressors, and piping systems maintained in good condition. Equipment has protective guards. (OSHA 1926.603(a)(1))	☐	☐	☐
33.2	Stop block positioned in leads to prevent hammer from striking head block. (OSHA 1926.603(a)(4))	☐	☐	☐
33.3	Safety block inserted in leads to support hammer when workers are below hammer. (OSHA 1926.603(a)(5))	☐	☐	☐
33.4	Cable guards installed across head block sheaves. (OSHA 1926.603(a)(6))	☐	☐	☐
33.5	Fixed leads equipped with rings for attaching safety belt lanyards. (OSHA 1926.603(a)(8))	☐	☐	☐
33.6	Work platforms and leads protected by guardrails.	☐	☐	☐
33.7	Safety chains (1/2-in-diameter) attached at steam and air hose connections and to hammers. (OSHA 1926.603(a)(10))	☐	☐	☐
33.8	Steam and air lines equipped with two controls—one has quick-action capability and is at operator's station. (OSHA 1926.603(a)(11))	☐	☐	☐
33.9	Guys, outriggers, and counter balances installed to stabilize equipment. (OSHA 1926.603(a)(12))	☐	☐	☐
33.10	Piles secured to hoisting lines for placement in leads.	☐	☐	☐
33.11	Employees kept clear of area when piles are hoisted. (OSHA 1926.603(c)(4))	☐	☐	☐
33.12	Pile driving operations stopped during cutoff of adjacent piles if within a distance equal to two times the length of the longest pile.	☐	☐	☐
33.13	Pit walls sloped or sheet piling placed, and braced before each pile is driven.	☐	☐	☐
33.14	Only authorized personnel allowed in work area during driving operations.	☐	☐	☐
34. Excavations, trenching, and shoring				
34.1	Walkways and runways kept clear of excavated material. (OSHA 1926.651(a))	☐	☐	☐

No.	Inspection item	Yes	No	NA
34. Excavations, trenching, and shoring—continued				
34.2	Walkway planks placed parallel to length of walk, closely spaced, fastened to prevent displacement, and cleaned if slick conditions will prevail. (OSHA 1926.651(c)(1)(ii))	☐	☐	☐
34.3	Reflectorized vests worn by flagmen and others exposed to traffic. (OSHA 1926.651(d))	☐	☐	☐
34.4	Personnel not permitted under loads being handled by power equipment. (OSHA 1926.651(e))	☐	☐	☐
34.5	Truck and other haul-unit operators kept clear of units during loading (exception allowed if cab is braced and shielded).	☐	☐	☐
34.6	Wells, pits, and shafts covered or barricaded to protect all personnel.	☐	☐	☐
34.7	Underground utilities located and staked before excavation. (OSHA 1926.651(b)(2))	☐	☐	☐
34.8	Utilities left in place are protected by barricade, shoring, or suspension. (OSHA 1926.651(b)(4))	☐	☐	☐
34.9	Excavations sloped to stable angles or shored and braced.	☐	☐	☐
34.10	Cribbing and shoring installed in accordance with design performed by licensed engineer. (OSHA 1926.652(b)(4)(i))	☐	☐	☐
34.11	Excavated material placed and other material stored at least 2 feet from excavation edges.	☐	☐	☐
34.12	When work is done below hazardous rock slopes, workers and equipment protected by scaling slopes as necessary to minimize danger, bolting rocks and affixing wire mesh after scaling, and placing timber or wire mesh barricades.	☐	☐	☐
34.13	Scalers equipped with safety belts or boatswain chairs.	☐	☐	☐
34.14	Scalers' lifelines tied to at least two secure objects.	☐	☐	☐
34.15	Workers not permitted to work one above the other in rock material.	☐	☐	☐
34.16	Rock removed from top downward on steep slopes. Access to slope is from top only.	☐	☐	☐
34.17	Sides of steep excavations shored and braced when heavy equipment operated close to excavation edges.	☐	☐	☐
34.18	Dust controlled to acceptable levels.	☐	☐	☐
34.19	Guardrails built along walkways over excavations.	☐	☐	☐
34.20	Workers in trenches 5 feet deep or more protected with shields or by sloping or shoring and bracing excavation banks. (OSHA 1926.652(a)(1))	☐	☐	☐
34.21	Trench bracing and shoring installed during excavation: cross braces or jacks placed horizontally, spaced vertically, and secured to prevent unintended movement.	☐	☐	☐
34.22	Trench supports removed from bottom upward. Ropes used to remove jacks in unstable soil.	☐	☐	☐
34.23	Ventilation provides adequate oxygen and applicable specified atmospheric conditions.	☐	☐	☐
34.24	Ladders or steps installed no more than 25 feet apart in trenches more than 4 feet deep.	☐	☐	☐
35. Concrete, concrete forms, and shoring				
35.1	Excavations sloped or shored so forms and concrete materials can be installed safely. (OSHA 1926.652(a))	☐	☐	☐
35.2	Work platforms provided or safety belts worn by workers when reinforcing steel is placed in walls, piers, and columns. (OSHA 1926.501(b)(5))	☐	☐	☐

No.	Inspection item	Yes	No	NA
35. Concrete, concrete forms, and shoring—continued				
35.3	Work not allowed above unprotected vertical-protruding reinforcing steel. (OSHA 1926.701(b))	☐	☐	☐
35.4	Vertical steel is guyed or supported to prevent collapse. (OSHA 1926.703(d)(1))	☐	☐	☐
35.5	Wire mesh rolls are secured at both ends to prevent recoiling.	☐	☐	☐
35.6	Access points at all work areas accessed for safety by contractor before concrete placing begins.	☐	☐	☐
35.7	Silos and bulk storage bins for concrete built with tapered bottoms and equipped with vibrators to start flow. (OSHA 1926.702(a)(1))	☐	☐	☐
35.8	Bull float handles made of nonconductive material. (OSHA 1926.702(h))	☐	☐	☐
35.9	Powered concrete trowels equipped with hand-release shutoff switches. (OSHA 1926.702(c))	☐	☐	☐
35.10	Handles on concrete buggies do not extend beyond wheels. (OSHA 1926.702(d))	☐	☐	☐
35.11	When pump-creting is used, hose lines and discharge pipe are supported and joints and connectors are protected with safety chains or by other positive methods.	☐	☐	☐
35.12	Cranes used to position concrete buckets. Crane cable equipped with safety hook. (OSHA 1910.179)	☐	☐	☐
35.13	Personnel prohibited from riding concrete buckets for any purpose.	☐	☐	☐
35.14	Placing and vibrating crews not allowed under suspended buckets.	☐	☐	☐
35.15	Wheels chocked and brakes set on concrete trucks when discharging on slopes.	☐	☐	☐
35.16	Protective eye and face equipment worn by workers placing pneumatically applied concrete.	☐	☐	☐
35.17	Forms and shoring material are free of splits, rots, cuts, or other defects.	☐	☐	☐
35.18	Forms installed that will support all concrete loads safely. (OSHA 1926.703(a)(1))	☐	☐	☐
35.19	Nails and other accessories removed from stripped forms before stockpiling. (OSHA 1926.25(a))	☐	☐	☐
35.20	Slings fastened securely to gang forms if forms moved by crane.	☐	☐	☐
35.21	Workers vacated from lower levels before forms are released and moved.	☐	☐	☐
35.22	Personnel not permitted to ride forms being raised or moved.	☐	☐	☐
35.23	Face helmets, goggles, or airline hoods worn by sand blasting crews. (OSHA 1910.94(a)(1)(iii)); 1926.57(f)(1)(ii); 1926.57(f)(2)(i))	☐	☐	☐
35.24	Eye protection worn by finishers doing chipping or grinding repairs. (OSHA 1926.28(a))	☐	☐	☐
35.25	Concrete heating units and accessories meet safety requirements.	☐	☐	☐
35.26	Heating units placed to provide safe clearance from enclosure frames and coverings.	☐	☐	☐
35.27	Concrete enclosures lighted and ventilated.	☐	☐	☐
36. Blasting and the use of explosives				
36.1	Only authorized personnel permitted to handle or use explosives.	☐	☐	☐
36.2	Blasting personnel required to furnish evidence of competency in handling and using explosives. (OSHA 1926.901(c))	☐	☐	☐
36.3	Smoking, matches, open flame, sparks, firearms, and other heat-producing devices prohibited near storage magazines and during transport and use of explosives. (OSHA 1926.904(c))	☐	☐	☐

No.	Inspection item	Yes	No	NA
36. Blasting and the use of explosives—continued				
36.4	All explosives stored in locked magazines when not being used. (27 CFR Part 55, Subpart K)	☐	☐	☐
36.5	Storage magazines ventilated. Magazines are fire resistant, weatherproof, and bullet resistant. (27 CFR Part 55, Subpart K)	☐	☐	☐
36.6	Contractors maintain inventory and use records of all explosives. (27 CFR Part 55, Subpart K)	☐	☐	☐
36.7	Appropriate authorities notified of loss or theft or of entry into magazines. (27 CFR Part 55.30, Subpart C)	☐	☐	☐
36.8	Explosives transported to jobsite in original containers. (OSHA 1926.903(q))	☐	☐	☐
36.9	Blasting caps not transported in same vehicle with other explosives. (OSHA 1926.903(p))	☐	☐	☐
36.10	Signs, flags, and barricades erected and other precautions taken to ensure employee and public safety. (OSHA 1926.909(c))	☐	☐	☐
36.11	Blasting operations restricted to daylight hours.	☐	☐	☐
36.12	All personnel removed from blasting areas during electrical storms.	☐	☐	☐
36.13	Warning signs, 4-inch red letters on white backgrounds, reading “BLASTING AREA–RADIO TRANSMITTING PROHIBITED,” posted on all roads within 1,000 feet of blasting areas.	☐	☐	☐
36.14	Radio transmitters prohibited within 100 feet of electric blasting caps.	☐	☐	☐
36.15	Empty explosive boxes and paper wrappings destroyed by burning.	☐	☐	☐
36.16	Utility companies and owners or operators of adjacent properties notified before blasting; necessary precautions taken to prevent property damage.	☐	☐	☐
36.17	All blasts fired electrically except in areas of extraneous electric currents. (OSHA 1926.906(e))	☐	☐	☐
37. Transporting explosives				
37.1	No other material, including blasting caps, transported with explosives. (OSHA 1926.903(p))	☐	☐	☐
37.2	Vehicles are in good condition, and floors are tight with no exposed spark-producing metal.	☐	☐	☐
37.3	Warning signs, 4-inch red letters on white backgrounds, reading “EXPLOSIVES,” posted on front, rear, and sides of vehicles. (OSHA 1926.902(h))	☐	☐	☐
37.4	Charged extinguisher with 10 ABC rating carried with each vehicle.	☐	☐	☐
37.5	Vehicles not repaired or serviced in shops while carrying explosives or caps.	☐	☐	☐
38. Loading and wiring				
38.1	Drill holes are sufficiently large to permit free insertion of cartridges of explosives. (OSHA 1926.905(b))	☐	☐	☐
38.2	Tamping sticks made of wood or other nonmetallic material. (OSHA 1926.905(c))	☐	☐	☐
38.3	Drilling or heavy equipment prohibited within 50 feet of loaded holes. (OSHA 1926.905(h))	☐	☐	☐
38.4	Explosives loaded only in holes to be fired in next round of blasting. (OSHA 1926.905(d))	☐	☐	☐
38.5	Blasting wires kept clear of energized electric conduits or wiring. (OSHA 1926.905(j))	☐	☐	☐
38.6	Blasting cap wires kept short-circuited until connected for firing. (OSHA 1926.906(a))	☐	☐	☐

No.	Inspection item	Yes	No	NA
38. Loading and wiring—continued				
38.7	Caps for single blast determined to be all of same style and manufacture. (OSHA 1926.906(c))	☐	☐	☐
38.8	Connecting and lead wires are well insulated and have adequate capacity. (OSHA 1926.906(f))	☐	☐	☐
38.9	Number of connected caps does not exceed rated capacity of blasting machines. (OSHA 1926.906(o))	☐	☐	☐
38.10	Blasting galvanometers used to test circuits to charged holes. (OSHA 1926.906(q))	☐	☐	☐
38.11	Adequate audible warning signals given before and after firing. (OSHA 1926.909(b))	☐	☐	☐
39. Inspection after firing				
39.1	Firing lines disconnected from blasting machines immediately after firing. (OSHA 1926.906(t))	☐	☐	☐
39.2	All wires traced and checked for misfires by the blasting foreman. (OSHA 1926.911(a))	☐	☐	☐
39.3	If misfires occur, all employees evacuated from blasting areas and kept away for 1 hour.	☐	☐	☐
40. Blasting agents				
40.1	Blasting agents handled and stored properly (OSHA 1910.109)	☐	☐	☐
40.2	Containers kept dry. Storage areas kept well ventilated.	☐	☐	☐
40.3	Workers instructed to evacuate all people from jobsite if there is fire.	☐	☐	☐
41. Field mixing of fuel-sensitized ammonium nitrate				
41.1	Mixing areas kept clean and free of spilled fuel oil and ammonium nitrate or other explosive materials.	☐	☐	☐
41.2	Ammonium nitrate stored away from fuel oils.	☐	☐	☐
41.3	High volatility fuels such as gasoline not used for mixing.	☐	☐	☐
41.4	Maximum of 8 percent fuel oil used in blasting agents.	☐	☐	☐
41.5	Smoking prohibited in mixing areas. Signs posted: “NO SMOKING.”	☐	☐	☐
41.6	Mixing equipment grounded and bonded.	☐	☐	☐
41.7	Vertical holes loaded by pouring the premixed agent into holes.	☐	☐	☐
41.8	Safety precautions observed for wiring and shooting (same precautions taken for conventional explosives).	☐	☐	☐
41.9	Maximum of 1 day’s production of field-mixed ammonium nitrate blasting agent permitted in or near mixing area.	☐	☐	☐

Comments: _____

NEH 645 CL 5.1 Construction Surveying Checklist

This checklist is intended to be a guide for an NRCS QA inspector in preparation for and in performance of the inspection of construction surveying for NRCS engineering projects. It may not address all items required of the QA inspector, and some parts of the checklist may not be applicable to a particular project.

Project Name: _____ Project #: _____

Location: _____ Date: _____

Work Period: _____ A.M./P.M. to _____ A.M./P.M.

QA Inspector: _____

QC Inspector: _____

Surveyor: _____

Items Surveyed (include contract item number where applicable): _____

_____

_____

_____

No.	Inspection item	Yes	No	NA
1. Equipment and materials				
1.1	Equipment and materials are adequate for staking the work.	☐	☐	☐
1.2	Equipment and materials are adequate for capturing and recording ground line topography if required by the specification.	☐	☐	☐
1.3	Electronic data collector is functioning properly and is accurately recording and storing survey data.	☐	☐	☐
1.4	Inspector's surveying equipment and materials are maintained in proper working condition and are adequate for performing staking, checking, and note keeping necessary to inspect the work.	☐	☐	☐
2. Quality of work				
2.1	Stakes are accurately placed and clearly marked to define the work for construction to the specified lines and grades.	☐	☐	☐
2.2	Survey detail is adequate to accurately represent the ground line or feature surveyed.	☐	☐	☐
3. Primary control				
3.1	Primary control is available and maintained during the performance of the work.	☐	☐	☐
3.2	The proper bench marks and markers are referenced.	☐	☐	☐
3.3	All benchmarks and reference markers established from primary control are accurate within the specified or otherwise acceptable degree of error.	☐	☐	☐

No.	Inspection item	Yes	No	NA
4. Staking and quantity surveys				
4.1	Submittals that must be submitted prior to surveying have been submitted prior to beginning construction surveying operations.	☐	☐	☐
4.2	The surveying plan seems reasonable and is revised, as needed, to align with the current construction schedule.	☐	☐	☐
4.3	The number and location of stakes is adequate to define the work.	☐	☐	☐
4.4	Stakes are legibly marked and the markings are complete and accurate.	☐	☐	☐
4.5	Stakes are being maintained and promptly replaced by the contractor when damaged.	☐	☐	☐
4.6	All quantity surveys necessary for computing final pay quantities are adequate to thoroughly and accurately define the specified pay limits.	☐	☐	☐
5. Checking, interim staking, and interim qualtity surveys				
5.1	QC personnel are checking to verify construction to the specified line and grade.	☐	☐	☐
5.2	Blue tops are set and maintained to the specified line and grade until no longer needed.	☐	☐	☐
5.3	Alignment and grade stakes for structures are set, marked, and maintained as required.	☐	☐	☐
5.4	Interim quantity surveys are adequate for estimating quantities.	☐	☐	☐
6. Engineering notes				
6.1	All notes, sketches, and other data are presented as specified.	☐	☐	☐
6.2	All engineering notes are transmitted to the COR/GR within the specified time frame.	☐	☐	☐
7. As-built surveys				
7.1	Are made where necessary to document changes.	☐	☐	☐
7.2	Document construction to the lines and grades shown on the drawings.	☐	☐	☐
7.3	Represent the as-built conditions including any changes from the original plans.	☐	☐	☐
7.4	Accurately capture and document the specified pay limits.	☐	☐	☐
8. As-built records				
8.1	A neat and legible field copy of as-built drawings is maintained.	☐	☐	☐
8.2	All changes have been included in the as-built records.	☐	☐	☐
8.3	All as-built records are submitted to the engineer.	☐	☐	☐
8.4	Contractor performed as-built drawings meet specification requirements.	☐	☐	☐

Comments: _____

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U.S. Department of Agriculture
Natural Resources Conservation Service

NEH 645 CL 5.2 Quantity Computations Checklist

This checklist is intended to be a guide for an NRCS QA inspector when performing or inspecting the performance of quantity computations for NRCS engineering projects. It may not address all items required of the QA inspector, and some parts of the checklist may not be applicable to a particular project.

Project Name: _____ Project #: _____

Location: _____ Date: _____

Work Period: _____ A.M./P.M. to _____ A.M./P.M.

QA Inspector: _____

QC Inspector: _____

Final computations performed by: ☐ Contractor ☐ Sponsor ☐ NRCS

Items computed (include contract item number where applicable): _____

_____

_____

_____

No.	Inspection item	Yes	No	NA
1. Format				
1.1	The heading contains sufficient information to: – fully identify the project and the computations – indicate the name of the person performing the computations and the date performed – indicate the name of the person checking the computations and the date checked	☐	☐	☐
1.2	Sketches, explanations, and references are adequate to explain the computation method.	☐	☐	☐
1.3	Computations are broken down into simple steps.	☐	☐	☐
1.4	Computations include the four basic parts: 1. Description, 2. Data origin, 3. Pay limits, and 4. Solution.	☐	☐	☐
1.5	State format is used where applicable.	☐	☐	☐
1.6	Computations are neat, legible, concise, and well organized.	☐	☐	☐
2. Units and precision				
2.1	All measurement, computation, and conversion units are shown.	☐	☐	☐
2.2	Computation precision is consistent with data precision.	☐	☐	☐
2.3	Computation precision is consistent with the accepted practice.	☐	☐	☐

No.	Inspection item	Yes	No	NA
3. Linear computations				
3.1	Linear measurements are made as specified (based on slope distance or horizontal distance).	☐	☐	☐
3.2	Linear computations are consistent with specified measurement and payment method.	☐	☐	☐
4. Area computations				
4.1	Area measurements are made as specified (based on slope distance or horizontal distance).	☐	☐	☐
4.2	The correct equation or mathematical process is applied to arrive at the answer.	☐	☐	☐
5. Volume computations				
5.1	The specified or otherwise correct equations or mathematical processes are applied to arrive at the answers.	☐	☐	☐
5.2	Data for computations are representative of the groundline.	☐	☐	☐
5.3	The frequency of surveyed sections complies with specifications.	☐	☐	☐
5.4	Curve corrections are made when applicable.	☐	☐	☐
6. Weight				
6.1	A copy of all delivery tickets for items to be paid on a weight basis are obtained.	☐	☐	☐
6.2	All delivery tickets are submitted to be filed in the contract “quantities” folder.	☐	☐	☐
6.3	Delivered and installed quantities for each day or reporting period along with cumulative delivered and installed quantities are documented in the job diary.	☐	☐	☐
7. Interim quantities				
7.1	Interim quantities are recorded in a legible and orderly fashion.	☐	☐	☐
7.2	Interim quantity records are kept until the contract has been finalized.	☐	☐	☐
8. Computations performed by the contractor				
8.1	When quantity computations are to be performed with computer software, survey activities do not begin until software identification, vendor’s name, version number, and other pertinent data has been provided to the engineer.	☐	☐	☐
8.2	All quantity computations are performed and presented in the specified manner.	☐	☐	☐
8.3	Computations are submitted within the specified time frame.	☐	☐	☐

Comments: _____

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U.S. Department of Agriculture
Natural Resources Conservation Service

NEH 645 CL 7.1 Foundation Preparation Checklist

The following checklist provides guidance for examining the quality of foundation preparation. The checklist does not address all of the conditions that may exist related to foundation preparation. The checklist should be used for guidance only as the inspector examines the work and should not be relied upon as a comprehensive list of items to check. Inspectors should also use their own experience and knowledge for guidance on what to examine and look for during inspections. Some items may not be listed. Some listed items may not apply to every project.

Project Name: _____ Project #: _____

Location: _____ Date: _____

Work Period: _____ A.M./P.M. to _____ A.M./P.M.

QA Inspector: _____

QC Inspector: _____

Work Inspected (include contract item number where applicable): _____

_____

_____

_____

No.	Inspection item	Yes	No	NA
1. Clearing and grubbing				
1.1	The limits for clearing and grubbing are clearly marked.	☐	☐	☐
1.2	Surveys are completed prior to clearing and grubbing when necessary for computing quantities.	☐	☐	☐
1.3	All materials are removed and disposed of as specified.	☐	☐	☐
1.4	The contractor's operation does not damage adjacent property.	☐	☐	☐
1.5	The contractor's operation does not damage trees that shall remain.	☐	☐	☐
1.6	Burning is performed according to local ordinances and job specifications.	☐	☐	☐
1.7	The timing and rate of clearing conforms to specifications.	☐	☐	☐
2. Structural removal				
2.1	Structural removal limits are clearly identified.	☐	☐	☐
2.2	All materials are removed and either salvaged or disposed of as specified.	☐	☐	☐
2.3	The removal operation does not damage adjacent property.	☐	☐	☐
2.4	Burning is performed according to local ordinances and job specifications.	☐	☐	☐
3. Stripping				
3.1	The areas to be stripped are staked per plans.	☐	☐	☐
3.2	Stripping is performed to the minimum specified limits.	☐	☐	☐

No.	Inspection item	Yes	No	NA
3. Stripping—continued				
3.3	All unsuitable materials are removed and disposed of as specified.	☐	☐	☐
3.4	Surveys are performed as needed for quantity computations.	☐	☐	☐
3.5	The responsible engineer is consulted if there are uncertainties about the suitability of stripped materials for construction.	☐	☐	☐
3.6	Stripping below the specified lower limits is quantified and paid for as foundation excavation.	☐	☐	☐
4. Scarifying				
4.1	All holes or depressions are filled.	☐	☐	☐
4.2	Materials used to fill holes are compacted as specified.	☐	☐	☐
4.3	The foundation is scarified to the specified extent.	☐	☐	☐
4.4	Large rocks brought to the surface are removed.	☐	☐	☐
5. Dispersive, collapsible, and soluable materials				
5.1	The foundation and surrounding areas are visually inspected for signs of dispersive, collapsible, or soluble materials.	☐	☐	☐
5.2	Tests to verify the existence of dispersive, collapsible, or soluble materials are conducted when applicable.	☐	☐	☐
5.3	The responsible engineer is contacted whenever the presence of dispersive, collapsible, or soluble materials is suspected.	☐	☐	☐
5.4	All dispersive, collapsible, and soluble materials are removed from the foundation to the depth and extent specified or as otherwise directed by the engineer.	☐	☐	☐
5.5	Surveys to quantify the amount of dispersive, collapsible, and soluble materials are completed.	☐	☐	☐
5.6	Documentation is obtained as necessary to compensate the contractor for added work caused by removal of dispersive, collapsible, and soluble materials.	☐	☐	☐
6. Foundation compaction and moisture control				
6.1	The moisture and density of the foundation meets or exceeds the specified requirements.	☐	☐	☐
6.2	Adequate numbers of moisture/density tests are taken to document that specification requirements are met.	☐	☐	☐
	The responsible engineer is consulted if it is necessary to deviate from the specification requirements.	☐	☐	☐
7. Preparing rock foundations				
7.1	All loose undesirable materials are removed and the foundation surface is cleaned as specified.	☐	☐	☐
7.2	All cracks, crevices, and overhangs are cleaned and concreted or grouted and there are no negative slopes or overhangs remaining on the foundation surface.	☐	☐	☐
7.3	All loose and weathered materials are removed from the foundation surface.	☐	☐	☐
7.4	Subsurface grouting is performed as specified.	☐	☐	☐
7.5	The responsible engineer is notified of discrepancies between design and field conditions.	☐	☐	☐
7.6	The geologist and the responsible engineer are consulted to determine the full extent of documentation needed to adequately document foundation preparation measures and procedures.	☐	☐	☐

No.	Inspection item	Yes	No	NA
8. Cutoff trench				
8.1	The cutoff trench is staked at the specified location and quantity surveys are attained to define the upper limits.	☐	☐	☐
8.2	The trench is excavated to the specified or modified limits.	☐	☐	☐
8.3	The trench extends to or into the specific layer of material shown on the drawings.	☐	☐	☐
8.4	Changes to the lower limits are documented and approved by the responsible engineer.	☐	☐	☐
8.5	When applicable, lower limits are surveyed for quantity computations.	☐	☐	☐
8.6	Foundation materials are at the specified moisture and density at the time of backfill placement.	☐	☐	☐
8.7	Only specified and suitable materials are placed in the cutoff trench.	☐	☐	☐
8.8	Materials are placed at the specified moisture and compacted to the specified density.	☐	☐	☐
9. Foundation drains				
9.1	Foundation drains are staked and drainfill quantity surveys attained.	☐	☐	☐
9.2	Foundation drains are constructed to the specified limits.	☐	☐	☐
9.3	Segregation of drainfill materials is prevented.	☐	☐	☐
9.4	Internal perforated pipes are undamaged, clear of obstructions, and placed at the proper location.	☐	☐	☐
9.5	Drainfill materials are compacted to meet specification requirements.	☐	☐	☐
10. Final foundation preparation				
10.1	All unsuitable materials have been removed.	☐	☐	☐
10.2	The cutoff trench is installed.	☐	☐	☐
10.3	Drainage features are installed.	☐	☐	☐
10.4	Just prior to placing earthfill, the moisture content and density of the foundation meet specification requirements.	☐	☐	☐
10.5	All subsurface grouting has been completed.	☐	☐	☐
10.6	All rock surfaces are cleaned and grouted.	☐	☐	☐
10.7	All loose and drummy rock has been removed from the surface	☐	☐	☐
10.8	All negative slopes have been corrected.	☐	☐	☐

Comments: _____

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NEH 645 CL 7.2 Removal of Water Checklist

The following checklist provides guidance for examining the quality of implementation of the removal of water plan. The checklist does not address all of the conditions that may exist related to removal of water. The checklist should be used for guidance only as the inspector examines the work, and should not be relied upon as a comprehensive list of items to check. Inspectors should also use their own experience and knowledge for guidance on what to examine and look for during inspections. Some items may not be listed. Some listed items may not apply to every project.

Project Name: _____ Project #: _____

Location: _____ Date: _____

Work Period: _____ A.M./P.M. to _____ A.M./P.M.

QA Inspector: _____

QC Inspector: _____

Work Inspected (include contract item number where applicable): _____

_____

_____

_____

No.	Inspection item	Yes	No	NA
1. General				
1.1	The accepted plan for removal of water is implemented.	☐	☐	☐
1.2	Required permits have been obtained prior to beginning work in or around streams or wetlands, including the U.S. Army Corps of Engineer's 404 Permit and EPA or State stormwater permit.	☐	☐	☐
1.3	Details of equipment installation and performance of plan are documented in the diary.	☐	☐	☐
1.4	Removal of water efforts are adequate to allow the performance of the work as specified.	☐	☐	☐
1.5	Contractor is made aware of inadequate removal of water efforts.	☐	☐	☐
1.6	Removal of water efforts do not adversely affect the stability of slopes or the foundation.	☐	☐	☐
1.7	Neither surface or ground water is being polluted by removal of water efforts.	☐	☐	☐
1.8	Precautions are taken to protect the environmental aspects of the stream or wetlands, including required pollution control measures.	☐	☐	☐
1.9	Contractor is made aware of concerns of instability and pollution and related discussions with contractor are well documented.	☐	☐	☐
1.10	Responsible engineer is consulted when contractor's removal of water efforts are inadequate or result in slope instability or pollution.	☐	☐	☐

No.	Inspection item	Yes	No	NA
1. General—continued				
1.11	Invoiced amounts for removal of water are consistent with documented performance of work.	☐	☐	☐
1.12	Quantity of pumped water is documented in the diary for each reporting period.	☐	☐	☐
1.13	When payment is based on quantity of water pumped, pump accuracy is verified by the contractor and is checked periodically or when accuracy is suspect.	☐	☐	☐
1.14	All temporary works for the removal of water are removed and disposed of in a manner that does not adversely impact the permanent structure or the environment.	☐	☐	☐
2. Surface water				
2.1	Dewatering and drainage control systems are correctly installed according to the removal of water plan.	☐	☐	☐
2.2	Dewatering and drainage control systems are maintained and functioning to allow work to be performed as specified.	☐	☐	☐
2.3	If water pumped from dewatering systems is muddy or contains fine sand, wells are sealed and wellpoints with an adequate filter system are installed.	☐	☐	☐
2.4	Backup power and standby pumps are immediately available.	☐	☐	☐
2.5	Diversion outlets empty in a nonerosive manner into the same drainage way that the water would have reached had it not been diverted.	☐	☐	☐
2.6	Dikes and mounds of soil in the borrow area are graded as the work progresses to blend in and avoid leaving shallow areas within the pool.	☐	☐	☐
2.7	When a dam is being constructed, the top of the dam is maintained as near level as possible to allow flow to uniformly spread across the full width of the dam should the uncompleted dam be overtopped.	☐	☐	☐
2.8	Cofferdams are maintained and not repeatedly emptied by breaching and allowing water to flow through the worksite.	☐	☐	☐
2.9	Compliance with requirements that diverted surface water must be returned to its original drainage way before leaving the site or owner's property.	☐	☐	☐
2.10	Borrow areas are maintained as the work progresses so that dikes are knocked down to avoid leaving shallow areas within the pool.	☐	☐	☐
2.11	Emergency outlets are located so that their function will not result in flow being concentrated over any part of the dam.	☐	☐	☐
2.12	Embankment is maintained approximately level during construction.	☐	☐	☐
2.13	All avenues for surface water to enter an internal drainage system are sealed as the work progresses and those that must remain unsealed to facilitate construction are sealed when it appears eminent that a runoff event could result in surface flow or inundation at the opening.	☐	☐	☐
3. Groundwater				
3.1	Dewatering and drainage control systems are correctly installed according to the removal of water plan.	☐	☐	☐
3.2	Dewatering and drainage control systems are maintained and functioning to allow work to be performed as specified.	☐	☐	☐
3.3	If water pumped from dewatering systems is muddy or contains fine sand, wells are sealed and wellpoints with an adequate filter system are installed.	☐	☐	☐
3.4	Backup power and standby pumps are immediately available.	☐	☐	☐
3.5	Concrete is not placed on a wet foundation.	☐	☐	☐
3.6	Standing or flowing water does not come in contact with concrete until it has achieved its initial set.	☐	☐	☐

No.	Inspection item	Yes	No	NA
4. Erosion, pollution control, and removal of temporary works				
4.1	Required permits have been obtained and, when required, copies are available on the jobsite prior to beginning work in or around streams or wetlands.	☐	☐	☐
4.2	Best management practices (BPMs) are installed and maintained as required by the Stormwater Pollution Prevention Plan (SWPPP).	☐	☐	☐
4.3	Precautions are taken to protect environmentally sensitive streams during stream diversion and associated construction activities.	☐	☐	☐
4.4	Water is diverted from slopes and slopes are protected to reduce erosion.	☐	☐	☐
4.5	Care is exercised when removing dewatering system filter components to minimize the loss of trapped sediment, debris, and other pollutants.	☐	☐	☐

Comments: _____

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Daily Diary (Excavation Example)

Report No. *34* Date *June 19, 2012*

Weather *Sunny* Min. Temp *58°* Max. Temp *75°*

Precipitation *0* Inches Storm Period A.M. P.M. A.M. P.M.

Shift No. *—* App. Time A.M. P.M. To A.M. P.M.

Work Period *7:30* A.M. P.M. *5:00* A.M. P.M.

Work Force

	Skilled	Laborer
Superintendent *C.J. Manning*		
Foreman *M.H. Brown*	*3*	*4*

Estimated Quantities of Pay Work Accomplished

Item No.	Item	Unit	Quantity
6	*Excavation, Rock, Aux Spillway*	*yd^3*	*200/650*
7	*Excavation, Aux Spillway*	*yd^3*	*1500/8500*
9	*Earthfill, common*	*yd^3*	*3000/20000*

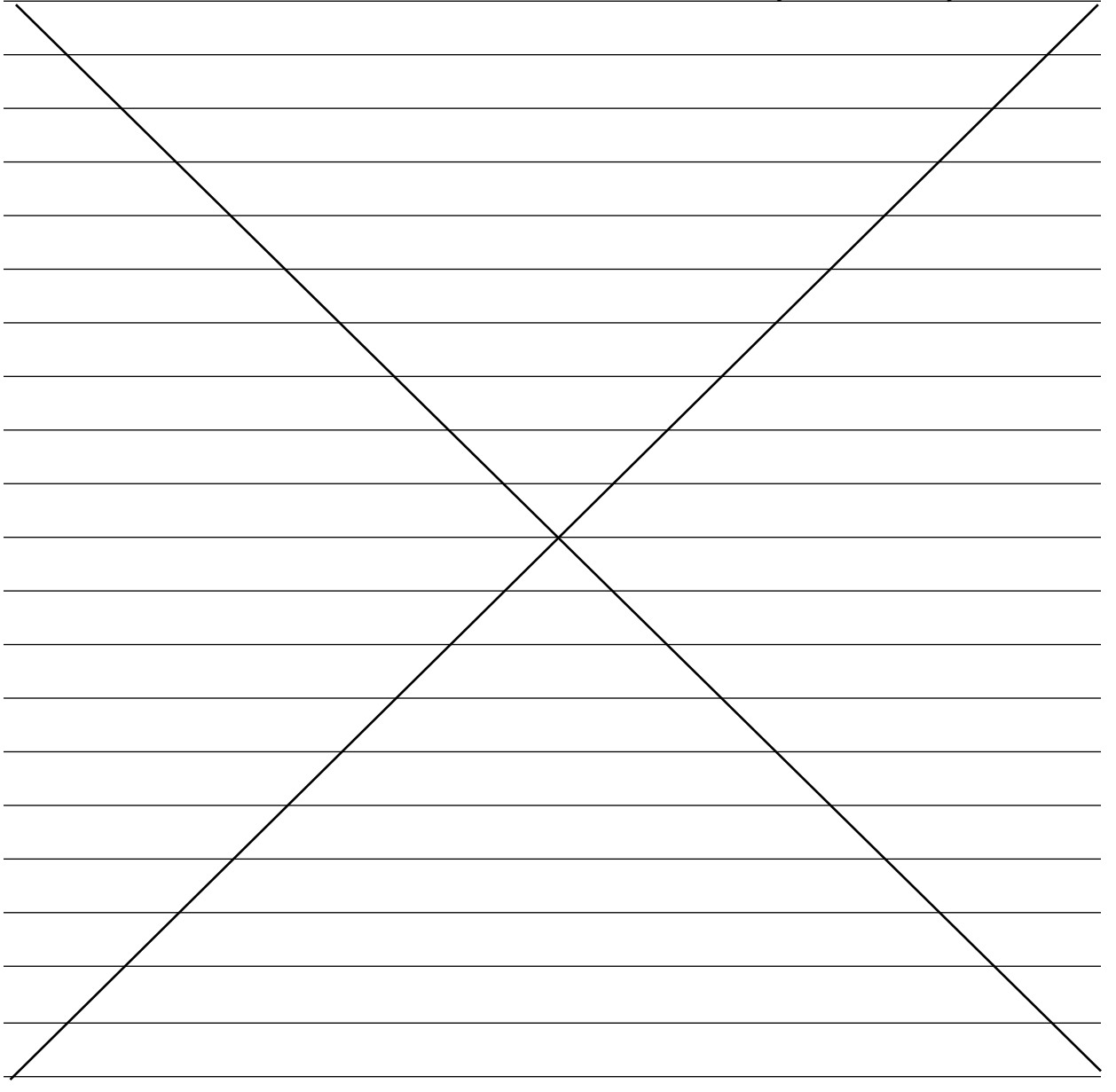
Narrative

Contractor and I arrived at 7:00 a.m. Contractor resumed aux spillway excavation at AS Sta. 3+40. Blaster onsite to finish loading holes and preparing for 10:00 blast. At 9:00 blaster finished loading holes. At 9:30 Contractor ceased excavation in AS. Blast performed at 10:00 (see WS 7.3 dated today). Contractor immediately resumed AS excavation, including removing blasted rock between AS Sta. 5+00 and 5+50 left of AS CL. Usable excavated SC material being transported from AS to dam at approx lift elevaton 713 and placed in Zone 2 upsteam of Zone 1. Rocky material being removed from AS and stockpiled upstream along planned left descending shoreline. CL material from borrow area approx 200 to 300 feet upstream of dam CL sta 6+50 to

Daily Diary (Excavation Example)—continued

10+50 being placed in dam Zone 1. 12:00 – 1:00 lunchbreak. Excavation and fill operations continued until 5:00. At 4:00, Contractor began shaping and smooting borrow area and building a diversion to divert water away from borrow pit in anticipation of rain. Contractor left at 5:30 p.m. I left site at 5:30 p.m.

J.D. Douglas



NEH 645 CL 13.1 RCC Construction Checklist

The following checklist provides guidance for examining the quality of RCC construction. The checklist does not address all of the conditions that may exist related to RCC construction. The checklist should be used for guidance only as the inspector examines the work, and should not be relied upon as a comprehensive list of items to check. Inspectors should also use their own experience and knowledge of RCC and conventional concrete for guidance on what to examine and look for during inspections. Some items may not be listed. Some listed items may not apply to every project.

Project Name: _____ Project #: _____

Location: _____ Date: _____

Field Inspector: _____

Work Inspected: _____

_____

_____

No.	Inspection item	Yes	No	NA
1. Materials				
1.1	Types of cement and pozzolan used in the RCC mix is in accordance with the job mix.	☐	☐	☐
1.2	Temperature of cement and pozzolan at time of delivery is at or below the specified maximum.	☐	☐	☐
1.3	Cement and pozzolan are maintained in an uncontaminated dry condition..	☐	☐	☐
1.4	Combined (coarse and fine) aggregate used in the mix is graded in accordance with the job mix.	☐	☐	☐
1.5	Quality of the mix water complies with specified requirements.	☐	☐	☐
1.6	Admixture is in accordance with the job mix.	☐	☐	☐
2. Mix design				
2.1	Mix proportions are in accordance with the job mix.	☐	☐	☐
2.2	Other than minor reductions in water content, the job mix does not change without the engineer's concurrence.	☐	☐	☐
3. Test section				
3.1	Contractor's test section plan has been submitted and concurred with by the engineer prior to beginning the test section.	☐	☐	☐
3.2	Test section is constructed at the approved location.	☐	☐	☐
3.3	Approved job mix is the only mix placed in the test section.	☐	☐	☐
3.4	Production roller and special compaction equipment used in the test section meet specified requirements and are the same planned for use during RCC production.	☐	☐	☐
3.5	Compaction equipment is operated at normal operating speeds.	☐	☐	☐

No.	Inspection item	Yes	No	NA
3. Test section—continued				
3.6	For soil foundations, a minimum of two 12-inch lifts are placed below the lift where the AMD is determined.	☐	☐	☐
3.7	TAFD is accurately determined for the field mix used in the test section.	☐	☐	☐
3.8	Prior to determining the AMD, all RCC is compacted to a density equal to or greater than 96 percent of the TAFD.	☐	☐	☐
3.9	AMD is determined as per the process specified in Spec 3.	☐	☐	☐
3.10	Any modifications to the job mix are concurred with by the engineer.	☐	☐	☐
3.11	After the AMD is determined, all RCC incorporated into the structure is compacted to the specified density.	☐	☐	☐
3.12	Air content and density of the mix are documented.	☐	☐	☐
3.13	Fifteen cylinders are made from the mix.	☐	☐	☐
3.14	Ten cores are made 13 days or more after the RCC is placed in the test section.			
3.15	Curing is demonstrated to conform to Spec 36.	☐	☐	☐
3.16	If the test section is not incorporated into the structure, it is disposed of as specified.	☐	☐	☐
3.17	All test section operations, including the pre- and post-test section briefings, are well documented.	☐	☐	☐
4. Batching and mixing				
4.1	Plant operator's experience is documented and the operator exhibits the capability to oversee the batching and mixing operation	☐	☐	☐
4.2	Batching equipment is in good condition, has adequate capacity, and hoppers discharge completely	☐	☐	☐
4.3	Drums are inspected and cleaned as needed.	☐	☐	☐
4.4	Specified minimum quantities of aggregates are maintained on site during production.	☐	☐	☐
4.5	Adequate quantities of all ingredients (aggregates, cement, pozzolan, water, and admixtures) are available on site to allow uninterrupted production.	☐	☐	☐
4.6	Only nonsegregated aggregates are introduced into the mixer.	☐	☐	☐
4.7	Aggregate moisture is monitored and adjustments made to the mix at least once each shift or as needed to comply with job mix moisture requirements.	☐	☐	☐
4.8	Drum mixers are not overcharged.	☐	☐	☐
4.9	Transit mixers are not used for mixing RCC.	☐	☐	☐
4.10	Admixtures are metered at the specified rate.	☐	☐	☐
4.11	Plant operator visually inspects the mix for uniformity on a continuous basis.	☐	☐	☐
4.12	Periodic visual inspections for mix uniformity are being made by quality control personnel.	☐	☐	☐
4.13	Mix appears uniform or uniformity testing is conducted to verify uniformity.	☐	☐	☐
4.14	Causes of uniformity are isolated and corrected.	☐	☐	☐
4.15	Mix uniformity is documented periodically and before and after uniformity problems are corrected.	☐	☐	☐
5. Conveying				
5.1	Consistency or workability of RCC is maintained during conveyance.	☐	☐	☐
5.2	Belt conveyors are of ample width.	☐	☐	☐

No.	Inspection item	Yes	No	NA
5. Conveying—continued				
5.3	RCC mixture is protected during conveyance from excessive drying or rain.	☐	☐	☐
5.4	Conveyor wipers and brushes are maintained in good working order.	☐	☐	☐
5.5	Drop chutes of sufficient length and diameter are provided where necessary to prevent segregation.	☐	☐	☐
5.6	Free fall is limited to 5 feet or less.	☐	☐	☐
5.7	Long, inclined chutes are not used.	☐	☐	☐
5.8	Hauling equipment does not contaminate or damage recently placed RCC surfaces.	☐	☐	☐
5.9	Conveyance time does not exceed the maximum specified time.	☐	☐	☐
5.10	Critical conveyor components are accessible for machine removal.	☐	☐	☐
6. Wet Weather				
6.1	There is no mud or standing water on the bonding surface at the time of placement.	☐	☐	☐
6.2	Placement ceases if changes in mix consistency indicate a significant increase in mix moisture.	☐	☐	☐
6.3	Unhardened RCC is protected from erosive high intensity rainfall.	☐	☐	☐
6.4	RCC is not placed in rain falling at a rate equal to or greater than 0.1 inch in 20 minutes.	☐	☐	☐
7. Cold Weather				
7.1	RCC is not placed when the air temperature drops below 35 °F or the RCC mix is less than 40 °F.	☐	☐	☐
7.2	When there is potential for cold weather, all materials, labor, and equipment needed for adequate protection are on hand and ready for use prior to beginning placement.	☐	☐	☐
7.3	RCC temperature is maintained at or above 35 °F for a protection period equal to the curing period plus 7 days.	☐	☐	☐
7.4	Air and RCC temperatures are monitored and documented.	☐	☐	☐
7.5	When required by the specifications, the RCC is insulated if the air temperature is 25 °F cooler than that of the RCC during the protection period.	☐	☐	☐
7.6	When specified, the RCC temperature does not drop more than 20 °F within the first 24 hours after insulation is removed.	☐	☐	☐
8. Hot Weather				
8.1	If misters are used for cooling, a fine mist is used to avoid adding too much moisture to the fine aggregate.	☐	☐	☐
8.2	Mix placement temperature is monitored and documented and RCC is placed at a temperature at or below the maximum specified placement temperature.	☐	☐	☐
8.3	All ice added for cooling is melted and distributed throughout the mix before being discharged from the tilting drum or compulsory mixer.	☐	☐	☐
8.4	Curing is begun immediately after compaction.	☐	☐	☐
9. Foundation preparation				
9.1	Foundation is excavated or filled to the specified lines and grades.	☐	☐	☐
9.2	Density of earthen foundation is uniform and meets specified requirements.	☐	☐	☐
9.3	For rock foundations, all grouting is complete and surface irregularities are filled as specified.	☐	☐	☐

No.	Inspection item	Yes	No	NA
9. Foundation preparation—continued				
9.4	Rock foundations are clean.	☐	☐	☐
9.5	Foundation temperature is greater than or equal to 35 °F.	☐	☐	☐
9.6	Foundation is moist but free of standing water.	☐	☐	☐
10. Forming				
10.1	Forms conform to the plan for obtaining vertical surfaces.	☐	☐	☐
10.2	Forms are set to the planned line and grade and are well anchored and braced.	☐	☐	☐
10.3	Form oil is uniformly applied but not allowed to contact any bonding surface.	☐	☐	☐
10.4	Care is taken in the removal and resetting of forms to avoid damage to the previously placed RCC.	☐	☐	☐
11. Spacing and spreading				
11.1	Foundation or lift joint preparation is complete as specified	☐	☐	☐
11.2	Forms are set to specified line and grade, well anchored, and oiled.	☐	☐	☐
11.3	Care is taken to prevent damage to previously placed RCC when setting forms or conducting other operational.	☐	☐	☐
11.4	Lifts are of a uniform thickness to produce the designed grade within allowable tolerances.	☐	☐	☐
11.5	Equipment does not contaminate or damage the lift surface.	☐	☐	☐
11.6	Mix is deposited away from forms.	☐	☐	☐
11.7	Mix is deposited in a manner to limit segregation.	☐	☐	☐
11.8	Mix is placed as near to its final location as possible.	☐	☐	☐
11.9	Mix is spread quickly and in a manner to limit segregation.	☐	☐	☐
11.10	Mix is placed in a configuration that limits edge joints.	☐	☐	☐
11.11	Segregated mix is remixed or wasted.	☐	☐	☐
11.12	Tests are conducted to verify and document specification compliance.	☐	☐	☐
12. Compaction				
12.1	Production roller and special compaction equipment meet the specified requirements.	☐	☐	☐
12.2	Production roller is used where possible.	☐	☐	☐
12.3	Special compaction rollers are only used where absolutely necessary.	☐	☐	☐
12.4	Lift thickness is controlled to prevent surface damage caused by over compacting.	☐	☐	☐
12.5	RCC is compacted to the specified density.	☐	☐	☐
12.6	Requirement for uniformity of density is met.	☐	☐	☐
12.7	Compaction is accomplished as soon as possible after the RCC is placed, and within the specified time limit.	☐	☐	☐
13. Joints				
13.1	All transverse edge joints are spaced a minimum of 20 feet apart.	☐	☐	☐
13.2	All edge joints are trimmed as specified.	☐	☐	☐
13.3	All joints are treated as specified.	☐	☐	☐
13.4	All joints are kept moist and clean.	☐	☐	☐

No.	Inspection item	Yes	No	NA
13. Joints—continued				
13.5	Specified neat cement grout or bonding mortar is used.	☐	☐	☐
13.6	Bonding materials are evenly distributed and spread to the specified thickness.	☐	☐	☐
13.7	Bonding materials are not disturbed after placement.	☐	☐	☐
13.8	Bonding materials are not exposed longer than specified.	☐	☐	☐
13.9	Bonding materials do not set up or dry out before being covered with RCC.	☐	☐	☐
14. Curing				
14.1	Prior to beginning RCC placement, curing equipment and materials are onsite and ready to be deployed.	☐	☐	☐
14.2	Curing begins immediately after compaction.	☐	☐	☐
14.3	Curing continues until the RCC has been maintained at or above 40 °F for 14 days.	☐	☐	☐
14.4	Curing of repairs begins immediately after repair completion.	☐	☐	☐
14.5	Repair curing continues until the repair has been maintained at or above 40 °F for 7 days.	☐	☐	☐
14.6	Application of curing water does not erode the surface.	☐	☐	☐
14.7	Coverings are secured to prevent the movement of air between the RCC and the covering.	☐	☐	☐
14.8	Only white or reflective coverings are used during hot weather.	☐	☐	☐
14.9	Curing compounds are not applied to bonding surfaces or areas to be repaired.	☐	☐	☐
14.10	Curing compounds conform to specification requirements.	☐	☐	☐
14.11	Surface is kept continuously moist until the curing compound is applied.	☐	☐	☐
14.12	All standing water is removed prior to applying the curing compound.	☐	☐	☐
14.13	Continuously agitating sprayers are used to apply curing compound.	☐	☐	☐
14.14	Manual hand pump sprayers are not used.	☐	☐	☐
14.15	Curing compound is reapplied every 7 days during the curing period.	☐	☐	☐
14.16	Where curing compound is used, the entire surface is uniformly covered at the specified rate.	☐	☐	☐
15. Protection				
15.1	RCC is protected against erosive rainfall.	☐	☐	☐
15.2	RCC is protected from cold weather damage.	☐	☐	☐
15.3	Vehicular traffic is prohibited if it causes damage to the RCC.	☐	☐	☐
15.4	Form removal is accomplished without damage to the RCC.	☐	☐	☐
15.5	Flows are diverted from the structure as needed to prevent damage.	☐	☐	☐

Comments: _____

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