Model Curriculum

Supervisor Piling

SECTOR: Construction
SUB-SECTOR: Real Estate and Infrastructure Construction
OCCUPATION: RIGGING
REF ID: CON/Q0710, V1.0
NSQF LEVEL: 6

Skill India

Certificate

CURRICULUM COMPLIANCE TO QUALIFICATION PACK – NATIONAL OCCUPATIONAL STANDARDS

is hereby issued by the

CONSTRUCTION SKILL DEVELOPMENT COUNCIL OF INDIA

for the

MODEL CURRICULUM

Complying to National Occupational Standards of
Job Role/ Qualification Pack: 'Supervisor - Piling' QP No. 'CON/ Q0710 NSQF Level 6'

Date of Issuance: January 31st, 2017

Valid up to: August 23rd , 2017

*Valid up to the next review date of the Qualification Pack

Authorised Signatory
(Construction Skill Development Council of India)

TABLE OF CONTENTS

Supervisor Piling

CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a "Supervisor Piling", in the "Construction" Sector/Industry and aims at building the following key competencies amongst the learner

Program Name	**Supervisor Piling**		
Qualification Pack Name & Reference ID	CON/Q0710, v1.0		
Version No.	1.0	**Version Update Date**	23-08-2017
Pre-requisites to Training	Preferably 12th standard with 12 years site experience in same occupation for non-trained worker/ 10 years site experience as a certified Chargehand Piling for trained worker.		
Training Outcomes	**After completing this programme, participants will be able to:** • **Carry out coordination to facilitate pile construction work : -** Inform concerned authorities about work status, material/ resource requirement & also Brief subordinate workers on work methods, safety norms and time lines • **Organise and deploy resources as per work requirement in pile construction:-** Deploy equipments, material and manpower as per requirement of piling works • **Supervise and monitor pile boring operation as per drawing/ specification: -** Ensure positioning of pile boring equipments/ assemblies as per work plan & also supervise pile boring operation • **Oversee fabrication of reinforcement cage and concreting work: -** Ensure fabrication and installation of reinforcement cages are as per specification & also ensure concreting of piles are as per plan • **Manage workplace for safe and healthy: -** Ensure healthy and safe working environment for subordinates & effective implementation of health, safety and environment policies and procedures. Identify and respond to risks / fire and emergencies associated with the work practices, workplace and ensure related organizational & statuary requirement as followed		

This course encompasses 05 out of 05 National Occupational Standards (NOS) of "Supervisor Piling" Qualification Pack issued by "Construction Skill Development Council of India".

Sr. No.	Module	Key Learning Outcomes	Equipment Required
1	**Introduction** **Theory Duration** (hh:mm) 08:00 **Practical Duration** (hh:mm) 00:00 **Corresponding NOS Code** Bridge Module	**Theory:** **Understand the concept of:** • Introduction to construction Sector and rigging occupation • Major responsibilities of Supervisor – piling. • Role description/functions and tasks performed by Supervisor – piling. • Expected personal attributes from the job role • Brief description about course content, mode of learning and duration of course • Future possible progression and career development provisions for Supervisor – piling.	**Classroom Requirement** 1. Classroom of 30 students capacity 2. Black/White board 3. Projector/LED Monitor 4. Computer 5. Trade specific charts and other teaching aids
2	**Carry out coordination to facilitate pile construction work** **Theory Duration** (hh:mm) 120:00 **Practical Duration** (hh:mm) 24:00 **OJT Duration** (hh:mm) 96:00 **Corresponding NOS Code** CON/N0732	**Theory:** **Understand the concept of:** • How to read GFC drawings. • How to extract technical specifications related to pile construction work. • The sequence of piling operation as per work schedule • The standard process & approved method statement for piling work • The resources required for piling works and also know about its specification based on construction drawing and piling operation • Identification of manpower requirement for respective activities involved in piling operation • The standard procedure for material handling and stacking • The requirement of Equipments, their nature as per scope of working piling • Do's & don'ts to be taken to secure construction materials, Equipments against natural calamity • Nature of activity & make arrangement of type of lighting required on the basis of nature of activity • The proper Installation of electrical outlets as per work requirement • The approved code of practice related construction method and materials used for piling	**Equipment required:** 1. Crawler crane 2. Bentonite mixing setup (comprising of mixing tank & pump) 3. Excavator 4. Tyre mounted crane 5. Dumpers 6. Transit mixer 7. Welding generator 8. Auger 9. Tremie pipe 10. Hopper 11. Compressor machine 12. Jack hammer **Safety instruments:** 13. Safety Helmets 14. Safety goggles 15. Hand gloves 16. Safety Shoes (Assorted size) 17. Ear Plug 18. Nose mask

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		• The type of hazards involve in the piling work. • The preventive measures to be taken for hazards in piling works • The safety policies related to safety at work place **<u>Demonstration/ Practical:</u>** • Assist concerned engineer to make/ modify work plan and sequencing of activities by providing required information • Demonstrate effective reporting procedure to concerned engineer for status of work and labour allocation • Inform and update the concerned authorities for mobilization of resources as per sequence of multiple piles under construction • Determine the requirement of electrical arrangement required for piling work. • Provide requirement of Equipments for assigned works along with duration • Determine right quantity for manpower, tools and materials required for work • Inform concerned authorities regarding ✓ equipment breakdown ✓ equipment mobilization ✓ work delay ✓ stoppage ✓ quality issues and any anticipated causes that might obstruct work progress • Demonstrate briefing to subordinates about standard hand signalling procedure to be adhered while working with loads such as material handling, pile boring, and reinforcement cage lowering by Equipments etc. • Analyse the types of hazards in workplace. • Take corrective measures for workplace hazards and report to concerned authorities for necessary actions • Demonstrate to subordinate about the use of tools, material handling, storing & stacking practices and sequence of activities	19. Board of Safety instructions

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		• Ensure the use of PPE & provide directions regarding PPE during piling work	
3	**Organize and deploy resources as per work requirement in pile construction** **Theory Duration** (hh:mm) 120:00 **Practical Duration** (hh:mm) 24:00 **OJT Duration** (hh:mm) 96:00 **Corresponding NOS Code** CON/N0733	**Theory:** **Understand the concept of:** • Job related safety precautions and deployment of safety policies at piling site • The specification/ capacity of construction Equipments based on the sequence of piling activities • The selection criteria of construction Equipments tools and other material transportation vehicles based on piling work • The concept of quantity calculation of consumable materials used in piling works as per standard norms • Method of providing the safe access route to the Equipments used for pavement construction • Know about the productivity of Equipments. • Ensure about the effective method of job allocation as per productivity • The concept of work plan and logistics plan & it's application • Method of preparing & checking Documentation related pavement construction such as ✓ filling up check lists ✓ permits ✓ preparation of reports ✓ material requisition ✓ indents etc • The documentation required to resource management such as ✓ preparation of indents, ✓ material and manpower calculation, ✓ preparation of daily labour reports • The nature of activity & type of lighting arrangement required for activity • How to maintain records of manpower and work measurements as per standard Practices • The respective manpower required for each activity of piling **Demonstration/ Practical:**	**Equipment required:** 1. Crawler crane 2. Bentonite mixing setup (comprising of mixing tank & pump) 3. Excavator 4. Tyre mounted crane 5. Dumpers 6. Transit mixer 7. Welding generator 8. Auger 9. Tremie pipe 10. Hopper 11. Compressor machine 12. Jack hammer **Safety instruments:** 13. Safety Helmets 14. Safety goggles 15. Hand gloves 16. Safety Shoes (Assorted size) 17. Ear Plug 18. Nose mask 19. Board of Safety instructions

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		• Carry out necessary calculations regarding quantity requirements of consumable materials used in piling work • Ensure the material requirement as per sequence and stage of activities and report to superior in advance • Coordinate with vehicle/ equipment operators to correct job allocation of the same and avoid idle conditions • Ensure vehicle movement paths/ ramps are clearly defined, properly levelled/ slopped, compacted, illuminated, provided with adequate signage and free from any potential hazards • Outline the requirement & deploy transportation vehicles and construction Equipments at specified work location. • Guide equipment operators for ✓ pile boring work ✓ excavated soil disposal ✓ earth filling ✓ grading ✓ compaction work • Ensure proper barrication and illumination to the borrow pits, trenches and other excavated spots. • Ensure vehicles and equipment deployed at site comply with statutory requirements • Able to achieving targets by free rotational use of vehicle/ equipment. • Inform concerned authority about the break down and unsafe condition observed in vehicle • Ensure the periodical checks for installation of traffic control signage, barriers. • Read and interpret drawing, work plan, logistic plan in order to oversee mobilization of resource used in piling work • Ensure mobilization of pile driving equipment and accessories at specified locations at appropriate time • Ensure shifting and placing of materials and auxiliary Equipments (bentonite powder bags, pumps and their accessories) to the correct locations in required quantity • coordinate with superior and respective authorities in order to arrange electrical outlets, lighting arrangements at specified locations as per requirement	

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		• Report to concerned authorities for ✓ fuel required for operation of equipment, ✓ food required for workforce as and when necessary and ✓ technical supports required for survey point ✓ malfunctioning of electrical units • Carry out finalization of work measurements and labour report, by coordinating with sub-contractors	
4	**Supervise and monitor pile boring operation as per drawing/ specification** **Theory Duration** (hh:mm) 120:00 **Practical Duration** (hh:mm) 24:00 **OJT** (hh:mm) 96:00 **Corresponding NOS Code** CON/N0734	**Theory**: **Understand the concept of:** • The concept of linear, areal and volumetric measurements their units and conversion of units • The pile boring Equipments and their use in pile construction work • The sequence of pile boring activity. • The specific checks involved during boring operation • Understand the standard procedure of erection and positioning of pile boring Equipments • The desired dimensions of the borehole based on diameter of the pile • Importance of necessity of survey points and their implications on pile boring activities • checks to be carried out while erecting boring Equipments in order to avoid hazard/ accidents • Nature of required base for positioning and erection of boring Equipments • The safety measures required while using heavy construction Equipments • Specification for fixing the rigging gear to the soil boring. • statutory compliance to be maintained by the Equipments • Methodology of Maintaining the necessary documentations as per organizational norms involved in pile boring activity • The specification related to boring of pile • How to fill up quality formats and their intervals as per quality norms **Demonstration/ Practical:**	**Equipment required:** 1. Compressor machine 2. Jack hammer **Safety instruments:** 3. Safety Helmets 4. Safety goggles 5. Hand gloves 6. Safety Shoes (Assorted size) 7. Ear Plug 8. Nose mask

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		• Read and interpret drawing, specification in order to confirm location/ grid of pile borehole • confirm reference survey points that are available as per work requirement and preserved securely • Carry out filling up of required protocol, permits and checklists as per organizational norms prior to start boring • Measure linear distance of rotary auger from given reference survey points to ensure accuracy of location of borehole • check and confirm erection and alignment of soil boring equipment is as per standard practice or manufacturer's guidelines • Monitor that the boring equipment is erected at a safe distance from surrounding structures, electrical lines, service lines or movements of vehicle • check, confirm and suggest specification of accessories and rigging gears to be fixed to the boring equipment as and when necessary • Ensure that the underground service lines, existing underground electrical cables should not be present at the boring location. • Ensure that the base of the boring equipment should have adequate capacity to withstand load. • Ensure that the boring equipment comply with statutory requirements such as fit certificate from recognized authority, undergone servicing at scheduled interval • Ensure safety barrication, signage are erected as per work plan or work requirement and verified by authorized personnel • Provide signal to equipment operator to align the rotary boring auger to specified boring location • Monitor boring operation up to the depth desired to lower the casing pipe. • Provide signal to crane operator to shift and lower casing pipe in to the borehole • The drawing & confirm the location of borehole by conducting necessary measurements. • Monitor further boring activity using rotary auger/ bucket up to desired depth as per drawing	

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		• Measure depth of borehole and confirm completion of boring activity • Carryout recording of readings, updates measurements, related to pile boring activity in prescribed quality format	
5	**Oversee fabrication of reinforcement cage and concreting work** **Theory Duration** (hh:mm) 116:00 **Practical Duration** (hh:mm) 24:00 **OJT** (hh:mm) 96:00 **Corresponding NOS Code** CON/N0735	**Theory:** **Understand the concept of:** • The concept of linear, areal and volumetric measurements their units and conversion of units • The concept of different pile boring equipment and their use in pile construction • The sequence of pile boring activity and checks involved during boring operation • The standard procedure of erection and positioning of pile boring equipment • The necessity of survey points and their implications on pile boring activities • The checks to be carried out while erecting boring equipment in order to avoid hazard/ accidents • Familiar with the nature of required base for positioning and erection of boring equipment • To read relevant GFC drawings and extract technical specifications related to pile construction • The safety measures required while using heavy construction equipment • Follow the specification for fixing the rigging gear to the soil boring. • The statutory compliance & should be maintained by the equipment • Maintain the necessary documentations as per organizational norms involved in pile boring activity • Familiar with the standard method of hand signalling used for material handling by equipment • The specification related to boring of pile and desired dimensions of the borehole based on diameter of the pile • How to fill up quality formats and their intervals as per quality norms **Demonstration/ Practical:** • Prepare & review bar bending schedule as per applicable drawing. • Develop hand sketches for preparation of bar bending schedule • Carry out measurements & able to ensure reinforcement cages visually	

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		• Ensure that the reinforcement works are as per drawing/ specification including ✓ diameter of reinforcement bars are as per drawing ✓ spacing of the reinforcement bars are within tolerance limit ✓ number of reinforcement bar is per drawing ✓ length of reinforcement cages are according to drawing and overlaps are staggered as per specification ✓ reinforcement bars are appropriately bent and bents are free from cracks, shrinks ✓ clear cover to the installed cages are provided is as per drawing (use of cover blocks at appropriate intervals) ✓ proper tying is provided to the reinforcement meshes and binding wires are of specific gauges ✓ bars are clean from cracks, dirt, mud, grease or any other unwanted materials according to specification • Supervise lowering of reinforcement cage into the borehole by show this operator and instructing subordinates • Supervise and monitor welding works in re-bar cages for extension of the same • Follow the drawing & conduct out necessary checks ensure top level of reinforcement cage. • Ensure sequence of works for multiple piles are as per plan and completion of works is as per timeline • Maintain the quality & complete reinforcement works as per specifications • Follow the instruction from concerned authority for carrying out necessary alteration/ repairing as per quality guidelines. • Carryout filling up required protocol, permits and checklists as per organizational / quality • Ensure flushing activity is over and the borehole has obtained required soil stabilisation • Follow quality plan & work method statement & Ensure adequate bentonite slurry circulation has been carried • Check batch slips at regular intervals & ensure specified grade of concrete is poured for pile concreting work	

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		• Check the quality/ workability of the concrete visually & report to concerned authority if the quality is poor. • Ensure correct sequencing of concreting for multiple piles as per agreed workplan • Ensure that the erection of tremie pipes/ hoppers is erected appropriately. • Ensure mud/muck should be cleared during concerting work. • Follow drawing & ensure that the completed concrete top is at a specified level • Supervise/check chipping of pile head in order to expose re-bars • Ensure that chipping is done up to specified cut off level.	
06	**Manage workplace for safe and healthy work environment** **Theory Duration** (hh:mm) 40:00 **Practical Duration** (hh:mm) 08:00 **OJT** (hh:mm) 32:00 **Corresponding NOS Code** CON/N9002	**Theory:** **Understand the concept of:** • Hazards at workplace and associated with piling work • Safe handling and stacking of materials used in Piling work • Proper housekeeping at work place • Safe work practices to be followed while carry outing Piling work • Safety PPEs to be used while carryout out Piling work • Safe handling of tools and tackles relevant to Piling work • Reporting procedures in case of safety hazards at site • Reporting procedure in case of emergency • Methodology of using Fire extinguishers based on the types of fire **Demonstration/ Practical:** • Demonstrate identification of hazards involved in Piling works • Demonstrate standards safety practices while carryout activities of Piling works • Demonstrate standard housekeeping procedures • Ensure/check/inspect proper handling and stacking of materials at workplace/stores • List out possible hazards associated with Piling work and in general in construction sites • Demonstrate correct uses of tools and tackles • Maintain entrances & exit from confined spaces , excavated pits and other location in concurrence with safety	

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		parameters or instruction form safety personals • Demonstrate proper reporting procedure to the concerned authority in emergency situations • Demonstrate the use Fire extinguishers based on the types of fire	
	Total Duration **Theory Duration 500:00** **Practical Duration 100:00**	**Classroom Requirement (for 30 students)** Black/White board, marker, Projector/LED Monitor, Computer, Trade specific charts and other teaching aids **Equipment required:** Crawler crane, Bentonite mixing setup (comprising of mixing tank & pump), Excavator, Tyre mounted crane, Dumpers, Transit mixer, Welding generator, Auger, Tremie pipe, Hopper, Compressor machine, Jack hammer **Safety instruments:** Safety Helmets, Safety goggles, Hand gloves, Safety Shoes (Assorted size), Ear Plug, Nose mask, Board of Safety instructions	

Grand Total Course Duration: **1000 Hours, 0 Minutes**
{Including Mandatory **400 hours of OJT (project site experience)}**

*(This syllabus/ curriculum has been approved by **Construction Skill Development Council of India)***

Trainer Prerequisites for Job role: "Supervisor Piling" mapped to Qualification Pack: "CON/Q0710, v1.0"

Sr. No.	Area	Details
1	**Description**	To deliver accredited training service, mapping to the curriculum detailed above, in accordance with the Qualification Pack "CON/Q0710".
2	**Personal Attributes**	Aptitude for conducting training, and pre/ post work to ensure competent, employable candidates at the end of the training. Strong communication skills, interpersonal skills, ability to work as part of a team; a passion for quality and for developing others; well-organised and focused, eager to learn and keep oneself updated with the latest in the mentioned field
3	**Minimum Educational Qualifications**	ITI/12th standard pass
4a	**Domain Certification**	Trainer/Assessor- 70% in each NOS of Qualification Pack "CON/Q0710" & 80% overall , Lead trainer/Lead Assessors- 70% in each NOS of Qualification Pack "CON/Q0710" & 90% overall
4b	**Platform Certification**	Trainer/Assessor-80% in each NOS of Qualification Pack "MEP/Q0102" or "MEP/Q0104", Lead trainer/ Lead Assessors- 90% in each NOS of Qualification Pack "MEP/Q0101" or "MEP/Q0103"and overall 90%
5	**Experience**	i. Technical Degree holder with minimum three years of Field experience and preferably two years of teaching experience or, ii. In case of a Diploma Holder five years of field experience and preferably two years of teaching experience or, iii. In case of ITI/12th pass minimum eight years of field experience and preferably two years of teaching Experience.

CRITERIA FOR ASSESSMENT OF TRAINEES

Job Role	Supervisor Piling
Qualification Pack	CON/Q0710
Sector Skill Council	Construction

Guidelines for Assessment

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
2. The assessment for the knowledge part will be based on knowledge bank of questions created by Assessment Bodies subject to approval by SSC
3. Individual assessment agencies will create unique question papers for knowledge/theory part for assessment of candidates as per assessment criteria given below
4. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training centre based on assessment criteria.
5. The passing percentage for each QP will be 70%. To pass the Qualification Pack, every trainee should score a minimum of 70% individually in each NOS.
6. The Assessor shall check the final outcome of the practices while evaluating the steps performed to achieve the final outcome.
7. The trainee shall be provided with a chance to repeat the test to correct his procedures in case of improper performance, with a deduction of marks for each iteration.
8. After the certain number of iteration as decided by SSC the trainee is marked as fail, scoring zero marks for the procedure for the practical activity.
9. In case of successfully passing only certain number of NOSs, the trainee is eligible to take subsequent assessment on the balance NOSs to pass the Qualification Pack within the specified timeframe set by SSC.
10. Minimum duration of Assessment of each QP shall be of 4hrs/trainee.

				Marks Allocation	
Assessment outcomes	Assessment Criteria for outcomes	**Total Mark**	**Out Of**	**Theory**	**Skills Practical**
CON/N0732: Carry out coordination to facilitate pile construction work	PC1. assist concerned engineer to make/ modify work plan and sequencing of activities by providing required information	**100**	6	3	3
	PC2. report to the concerned engineer about daily labour strength and labour allocation		6	3	3
	PC3. report concerned engineer about status of work with respect to planned target		6	3	3
	PC4. inform concerned authorities for mobilization of resources as per sequence of multiple piles under construction		6	3	3
	PC5. provide requirement of equipments for assigned works along with duration		7	3.5	3.5
	PC6. provide inputs to concerned engineer regarding requirements for manpower, tools, and materials as per work requirements		7	3.5	3.5
	PC7. place requirement of electrical arrangement to concerned authority		7	3.5	3.5
	PC8. provide information to concerned authorities regarding equipment breakdown/ mobilization, work delay/ stoppage, quality issues and any anticipated causes that might obstruct work progress		6	3	3
	PC9. analyze hazards in workplace and report to concerned authorities for necessary actions		7	3.5	3.5
	PC10. brief subordinate workers about scopes and timelines to be adhered for respective activities		7	3.5	3.5
	PC11. brief subordinate about use of tools, material handling/ storing practices and sequence of activities		7	3.5	3.5
	PC12. provide information about hazards and risks involved in working at proximity to vehicle/ heavy construction equipments, deep excavated work spots, marshy/ muddy work areas etc		7	3.5	3.5
	PC13. provide direction regarding PPEs to be used during piling operations		7	3.5	3.5
	PC14. brief about standard hand signaling procedure to be adhered while working with loads such as material handling, pile boring, reinforcement cage lowering by equipments etc		7	3.5	3.5
	PC15. provide direction for reporting procedure to be maintained during activity and under emergency situations		7	3.5	3.5
		Total	**100**	**50**	**50**

CON/N0733: Organise and deploy resources as per work requirement in pile construction	PC1. coordinate with vehicle/ equipment operators to correct job allocation of the same and avoid idle condition	100	6	3	3
	PC2. ensure vehicle movement paths/ ramps are clearly defined, properly leveled/ slopped, compacted, illuminated, provided with adequate signage and free from any potential hazards		6	3	3
	PC3. deploy transportation vehicles and construction equipments at specified work location as per work requirement		6	3	3
	PC4. instruct equipment operators for pile boring, excavated soil disposal, earth filling, grading and compaction work		6	3	3
	PC5. ensure borrow pits, trenches and other excavated spots are barricaded and illuminated properly		6	3	3
	PC6. ensure vehicles and equipments deployed at site comply with statutory requirements		5	2.5	2.5
	PC7. ensure efficient use of vehicle/ equipment by achieving targets and free rotational		6	3	3
	PC8. report break down and unsafe condition observed in vehicle to concerned authority		6	3	3
	PC9. ensure installation of traffic control signage, barriers and their periodical checks		6	3	3
	PC10. read and interpret drawing, work plan, logistic plan in order to oversee mobilization of resource as per sequence of piling		6	3	3
	PC11. ensure mobilization of pile driving equipments and accessories at specified locations at appropriate time		5	2.5	2.5
	PC12. ensure shifting and placing of materials and auxiliary equipments (bentonite powder bags, pumps and their accessories) to the correct locations in required quantity		6	3	3
	PC13. coordinate with superior and respective authorities in order to arrange electrical outlets, lighting arrangements at specified locations as per requirement		6	3	3
	PC14. report to concerned authorities for • fuel required for operation of equipment, • food required for workforce as and when necessary and • technical supports required for survey points • malfunctioning of electrical units		6	3	3
	PC15. carry out necessary calculations regarding quantity requirements of consumable materials considering sequence and stage of activities and report to superior in advance		6	3	3

	PC16. allocate manpower to specified piling locations as per work requirement considering state of completion		6	3	3
	PC17. coordinate with sub-contractors to finalize work measurements and labour report		6	3	3
		Total	**100**	**50**	**50**
CON/N0734: Supervise and monitor pile boring operation as per drawing/ specification	PC1. check and confirm erection and alignment of soil boring equipments is as per standard practice or manufacturer's guidelines	**100**	6	3	3
	PC2. ensure that the boring equipment is erected at a safe distance from surrounding structures, electrical lines, service lines or movements of vehicle		6	3	3
	PC3. confirm that the boring location is free from hazard such as underground service lines, existing underground electrical cables		6	3	3
	PC4. check and confirm that the base has adequate capacity to withstand load of the boring equipment		6	3	3
	PC5. check, confirm and suggest specification of accessories and rigging gears to be fixed to the boring equipments as and when necessary		6	3	3
	PC6. confirm reference survey points are available as per work requirement and preserved securely, prior to erect the boring equipments		5	2.5	2.5
	PC7. ensure that the boring equipments comply with statutory requirements such as fit certificate from recognized authority, undergone servicing at scheduled interval		6	3	3
	PC8. confirm that the equipment operator is licensed, considering the type of boring equipment deployed		6	3	3
	PC9. ensure safety barrication, signage are erected as per work plan or work requirement and verified by authorized personnel		6	3	3
	PC10. fill up required protocol, permits and checklists as per organizational norms prior to start boring		6	3	3
	PC11. read and interpret drawing, specification in order to confirm location/ grid of pile borehole		6	3	3
	PC12. provide signal to equipment operator to align the rotary boring auger to specified boring location		6	3	3
	PC13. measure linear distance of rotary auger from given reference survey points to ensure accuracy of location of borehole		6	3	3
	PC14. monitor boring operation up to the depth desired to lower the casing pipe according to the work plan		6	3	3
	PC15. provide signal to crane operator to shift and lower casing pipe in to the borehole		5	2.5	2.5
	PC16. confirm the location of borehole by conducting necessary measurements as per the drawing		6	3	3

	PC17. monitor further boring activity using rotary auger/ bucket up to desired depth as per drawing		6	3	3
		Total	**100**	**50**	**50**
CON/N0735: Oversee fabrication of reinforcement cage and concreting work	PC1. prepare/ review bar bending schedule as per applicable drawing	**100**	5	2.5	2.5
	PC2. develop hand sketches for preparation of bar bending schedule		5	2.5	2.5
	PC3. check reinforcement cages visually / by carrying out measurements and ensure that the reinforcement works are as per drawing/ specification • diameter of reinforcement bars are as per drawing • spacing of the reinforcement bars are within tolerance limit • number of reinforcement bar is per drawing • length of reinforcement cages are according to drawing and overlaps are staggered as per specification • reinforcement bars are appropriately bent and bents are free from cracks, shrinks • clear cover to the installed cages are provided is as per drawing (use of cover blocks at appropriate intervals) • proper tying is provided to the reinforcement meshes and binding wires are of specific gauges • bars are clean from cracks, dirt, mud, grease or any other unwanted materials according to specification		10	5	5
	PC4. supervise lowering of reinforcement cage into the borehole by providing hand signals to crane/ equipment operator and instructing subordinates		5	2.5	2.5
	PC5. supervise and monitor welding works in re-bar cages for extension of the same		5	2.5	2.5
	PC6. conduct out necessary checks ensure top level of reinforcement cage is as per drawing		5	2.5	2.5
	PC7. ensure sequence of works for multiple piles are as per plan and completion of works is as per timeline		5	2.5	2.5
	PC8. offer completed reinforcement works for further quality checks		5	2.5	2.5
	PC9. carry out necessary alteration/ repairing if fault found as per instruction from concerned authority/ quality guidelines		5	2.5	2.5
	PC10. fill up required protocol, permits and checklists as per organizational / quality norms prior and post inspection of reinforcement works		5	2.5	2.5
	PC11. ensure flushing activity is over and the borehole has obtained required soil stabilisation		5	2.5	2.5
	PC12. ensure adequate bentonite slurry circulation has been carried out as per quality plan/ work method statement		5	2.5	2.5

	PC13. ensure specified grade of concrete is poured for pile concreting work by checking batch slips at regular intervals		5	2.5	2.5
	PC14. check concrete visually and report to concerned authority if poor quality or lack in workability are observed		5	2.5	2.5
	PC15. ensure correct sequencing of concreting for multiple piles as per agreed work plan		5	2.5	2.5
	PC16. oversee erection of tremie pipes/ hoppers and ensure the assembly is erected appropriately		5	2.5	2.5
	PC17. ensure mud/ muck is cleared and disposed to specified location during concreting work		5	2.5	2.5
	PC18. ensure completed concrete top is at specified level as per drawing		5	2.5	2.5
	PC19. supervise chipping of pile head in order to expose re-bars and ensure chipping is done up to specified cut off level		5	2.5	2.5
		Total	**100**	**50**	**50**
CON/N9002: Manage workplace for safe and healthy work environment	PC1. ensure proper housekeeping at workplace		5	2.5	2.5
	PC2. implement safe handling , stacking methods at workplace / store		5	2.5	2.5
	PC3. insure that health and safety plan is followed by all subordinates		5	2.5	2.5
	PC4. identify any hazard in workplace and notify them to appropriate authority		5	2.5	2.5
	PC5. ensure that all safety and protection installation are correctly placed & adequate		5	2.5	2.5
	PC6. ensure safe access is available at work place for movement of workers & materials		5	2.5	2.5
	PC7. ensure safe use of tools and tackles by the workmen as per applicability		5	2.5	2.5
	PC8. ensure appropriate use of following Personal Protective Equipment (PPE) as per applicability: • Head Protection (Helmets) • Ear Protection • Fall Protection • Foot Protection • Face and Eye Protection, • Hand &Body Protection • Respiratory Protection	**100**	10	5	5

	PC9. maintain entrances & exit from confined spaces , excavated pits and other location in concurrence with safety parameters or instruction form safety personals.		5	2.5	2.5
	PC10. ensure organizational policies and procedures are followed for health , safety and welfare, in relation to:		10	5	5
	• methods of receiving or sourcing information				
	• dealing with accidents and emergencies associated with the work and environment				
	• reporting				
	• stooping work				
	• evacuation				
	• fire risks and safe exit procedures				
	PC11. follow procedures for accident recording and reporting as per organizational and statuary requirements		5	2.5	2.5
	PC12. ensure effective adherence to response to emergency procedures / protocols		7.5	3.75	3.75
	PC13. report any case of emergency / risks to the concern people at the construction site		7.5	3.75	3.75
	PC14. report any perceived risk hazards to the superiors / concerned EHS		7.5	3.75	3.75
	PC15. demonstrate the use of fire protection equipments for different type of fire hazard		7.5	3.75	3.75
	PC16. implement control measures to reduce risk & meet legal requirement as per organizational policies		5	2.5	2.5
		Total	**100**	**50**	**50**