Model Curriculum

Chargehand – Piling

SECTOR: Construction
SUB-SECTOR: Real Estate and Infrastructure Construction
OCCUPATION: Rigging
REF ID: CON/Q0707
NSQF LEVEL: 4

Skill India
कौशल भारत-कुशल भारत

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: 'Chargehand Piling' QP No. 'CON/ Q 0707 NSQF Level 4'

Date of Issuance: June 30th, 2017

Valid up to: August 14th, 2017

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

Authorised Signatory
(Construction Skill Development Council of India)

N·S·D·C National Skill Development Corporation
Transforming the skill landscape

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Chargehand – Piling

CURRICULUM / SYLLABUS

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

Program Name	**Chargehand – Piling**		
Qualification Pack Name & Reference ID. ID	CON/Q0707		
Version No.	1.0	**Version Update Date**	14-08-2017
Pre-requisites to Training	Preferably 8th standard with 9 years site experience in same occupation for Non Trained Worker/ 3 years site experience as a certified Rigging Piling		
Training Outcomes	**After completing this programme, participants will be able to:** • **Oversee preparatory works for conventional RCC pile boring operation: -** Check and ensure erection of piling tripods and related Equipments also oversee excavation of tanks/ pits and installation of pumps used for piling operation • **Carry out pile boring using winch machine:** - Operate winch machine and carry out boring by chisel • **Carry out arc welding to the reinforcement steel for extension of pile cage: -** Carry out preparatory works prior to welding of reinforcement steel bars/cages • **Monitor pile boring and concreting activity: -** Monitor soil boring activity, carry out necessary checks, lower reinforcement Steel Cage in to borehole using lifting Equipments, ensure proper flushing of borehole using bentonite slurry & monitor pile concreting activity • **Work effectively in a team to deliver desired results at the workplace: -** Interact, communicate & support effectively with co-workers, superiors and sub-ordinates within the team and across interfacing teams to ensure effective execution of assigned task. • **Plan and organize work to meet expected outcomes: -**Prioritize work activities & organize desired resources prior to commencement of work to achieve desired results. • **Work according to personal health, safety and environment protocol at construction site: - Importance** of Health & Safety aspects & safety measures to be followed while working.		

This course encompasses 7 out of 7 National Occupational Standards (NOS) of "Chargehand – 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)	**Theory:** • Introduction to the job roles • Major responsibilities of Chargehand – piling. • Role description/functions and tasks performed by Chargehand – 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 Chargehand – 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	**Oversee preparatory works for conventional RCC pile boring operation** **Theory Duration** (hh:mm) 16:00 **Practical Duration** (hh:mm) 40:00 **Corresponding NOS Code :-** CON/N0721	**Theory:** • Basic principles of measurement, geometry and arithmetic with its applications. • Unit conversions for Linear, areal and cubic measurements in terms of length and weight. • sketches / schematic working drawing relevant to rigging works • Sequence of tripod erection in piling operation work. • sequence and standard practice of storing of piling material components as per their functional use • Importance of rigging gears used at piling work and their safe working loads. • Methodology of using rigging gears in piling tripods and their maintenance during and post completion of work • checks to be carried out at different rigging gears to ascertain their usability • Importance of reference points provided by surveyor and their implication in pile construction work. • Different components of piling tripod & also know the standard method of erection of piling tripods. • Know about the brief detail of agreed work plan and logistic plan • Standard procedure of excavation and checks to be carried out to ensure the acceptability.	**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:** 1. Safety Helmets 2. Safety goggles 3. Hand gloves 4. Safety Shoes (Assorted size) 5. Ear Plug 6. Nose mask 7. Board of Safety instructions

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		• capacity and types of pups used for piling works • Basic checks carried out for pumps detect faults/ cause of malfunctioning and their repairing • Standard method of setting up pumps and its accessories as per schedule. • The specification of pumps for fluid discharge required for piling operation • Safety norms & follow the electrical connection required for pumps and electrical safety while working. **Practical:** • Check working condition of rigging gears, tools, components and materials required to erect piling tripod. • Ensure the proper stacking at specified locations & shifting of rigging gears, components. • Carryout measurements from reference points to confirm the centre point of borehole. • Carryout assembling and erection of piling tripods at the specified location • Check the installation of rigging gears to the tripod & then locking to be done. • Follow the work plan & shift the winch to the specified location & place it. • conduct checks on wire rope attached to the winch and tripod for its safe working condition and lubrication • check locking of boring chisel to the pulling cable and repair if any deviation observed • Conduct excavation of tanks/ pits at specified locations as per agreed work plan. • Check and ensure desired functioning of pumps used for piling operation • Install pumps at specified locations as per work plan • Oversee laying and connection of hose and ensure its water tightness • Ensure the electrification of pumps from specified electrical outlets	

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		• carry out trial run of pumps and ensure uninterrupted discharge at specified Location • Ensure proper erection of barrication, safety signage surrounding the excavated pit.	
3	**Carry out pile boring using winch machine** **Theory Duration** (hh:mm) (46:00) **Practical Duration** (hh:mm) (114:00) **Corresponding NOS Code :-** CON/N0722	**Theory:** • Basic principles of measurement, geometry and arithmetic with its applications. • Unit conversions for Linear, areal and cubic measurements in terms of length and weight. • sketches / schematic working drawing relevant to rigging works • Mechanical & electrical specification of winch machine • safe working load of winch machine • standard procedure of operating winch machine while carrying out boring • Periodical requirement of maintenance to winch machine and associated rigging gears • Working mechanism of pulley, drum, brakes and motor under operation • Lifting and lowering speed to be kept while driving auger for boring • Able to checks & determine proper functioning of accessories and safety devices installed to the winch • Able to provide Counter load, base etc. to the winch for the stability of winch • sequencing of release and lifting load • Factors affecting load lifting such as illumination, weather condition, signalling, etc. and their ideal condition to be maintained while operating winch • Specification of pile Desired depth of boring as per **Practical:** • Able to use proper PPEs, applicable at the construction sites • check the safe condition of electrical connection lines and report to superior if found otherwise • check drum, rope, limit switch and locking of winch with its base	**Equipment required:** 1. Crawler crane 2. Bentonite mixing setup (comprising of mixing tank & pump) 3. Excavator 4. Chisel and bailor 5. Transit mixer 6. Welding generator 7. Auger 8. Tremie pipe 9. Hopper 10. Compressor machine 11. Jack hammer **Safety instruments:** 1. Safety Helmets 2. Safety goggles 3. Hand gloves 4. Safety Shoes (Assorted size) 5. Ear Plug 6. Nose mask 7. Board of Safety instructions

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		• use anchor winch with counter weights if required and ensure that no skidding of the equipment • Demonstrate controlling speed of lifting and lowering load while operating winch • Maintain clear line of vision to the load lifted and ensure safety of workers • Carry out initial boring up to desired depth as per instruction of supervisor • Ensure appropriate placing and orientation of temporary guide casing in the pile borehole • check and carry out lubrication and basic maintenance to the winch at regular interval or as and when necessary • Ensure proper barrication is provided surrounding the winch, pulling cable and boring location	
4	**Carry out arc welding to the reinforcement steel for extension of pile cage** **Theory Duration** (hh:mm) (40:00) **Practical Duration** (hh:mm) (112:00) **Corresponding NOS Code :-** CON/N0723	**Theory**: • Basic principles of measurement, geometry and arithmetic with its applications. • Unit conversions for Linear, areal and cubic measurements in terms of length and weight. • the sketches / schematic working drawing relevant to rigging works • Sequence of tripod erection in piling operation work. • sequence and standard practice of storing of piling material components as per their functional use • Importance of rigging gears used at piling work and their safe working loads. • selection and use of rigging gears in piling tripods and their maintenance during and post completion of work • checks to be carried out at different rigging gears to ascertain their usability • Importance of reference points provided by surveyor and their implication in pile construction work. • Different components of piling tripod & also know the standard method of erection of piling tripods.	**Equipment required** • water circulating system (if required) • Trolley for cylinder • Clamps • Tapes • Electrode holders • Gas regulators • Welding Transformer with all accessories • Welding Transformer (or) Inverter based welding machine with all accessories **Safety instruments:** 1. Safety Helmets 2. Safety goggles 3. Hand gloves 4. Safety Shoes (Assorted size) 5. Ear Plug 6. Nose mask

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		• brief detail of agreed work plan and logistic plan • Standard procedure of excavation and checks to be carried out to ensure the acceptability. • Capacity and types of pumps used for piling works • Basic checks carried out for pumps detect faults/ cause of malfunctioning and their repairing • Standard method of setting up pumps and its accessories as per schedule. • Specification of pumps for fluid discharge required for piling operation • Safety norms & follow the electrical connection required for pumps and electrical safety while working. **Practical** • Identify any hazardous conditions in the work place relevant to welding work • check that electrical cables from the machine are insulated and terminated properly at the electrical outlets • Arrange setup of welding machine as per requirement & connect work clamps in correct polarity • check that the base metal is properly clamped and secured against movement as applicable • Maintain the cleaning of the joint to remove any dust, rust or any foreign particles from the joint • Connect welding machine to the specified electrical outlet and power it on as per work requirement. • Adjust the current and electrode feed rate to suite the welding requirements • Maintain proper electrode extension length to avoid defects • Select a suitable body position for welding the steel bar joints/ overlaps • Hold reinforcement steel cages together at right places in order to start welding process • Carry out fillet welding in steel bars for necessary length.	

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		• check and ensure smoothness of fillet weld all through the length of weld • Provide finish to the weld as per work requirement and applicable quality plan • provide rectification or repairing if fault detected in welding as per standard practice • Power off welding machine and isolate from electrical outlets • Store & stack welding machine and its accessories safely and secure them against any external damaging effects.	
5	**Monitor pile boring and concreting activity** **Theory Duration** (hh:mm) (48:00) **Practical Duration** (hh:mm) (112:00) **Corresponding NOS Code :-** CON/N0724	**Theory:** • Principles of measurement, geometry and arithmetic with its applications. • Know about the unit conversions for Linear, areal and cubic measurements in terms of length and weight Basic sketches / schematic working drawing relevant to rigging works • Sketches / schematic working drawing relevant to rigging works • Reference points provided by surveyor and their implication in pile construction. • Function of casing pipe in pile boring activity • Knowledge about diameter of the casing pipe depending upon that of pile • Sequential steps involved in boring of piles • Methodology of measurements from given reference points for proper alignment and orientation of casing pipe. • Treatment to bentonite powder and desired outcome • Physical properties of bentonite powder and its use in piling works • procedure, sequence and desired physical state of bentonite powder during application • PH value and viscosity and their tests related to bentonite slurry • checks to be undertaken to the pumps, hoses and their accessories in order to ensure smooth circulation of bentonite slurry	

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		• Know about how to pump and discharge pressure of bentonite slurry in to the borehole for flushing • Know about the checks to be done for stabilization and cleaning of borehole and completion of flushing activity • The required slump of concrete to be used for concrete as per agreed work plan • Tests which are to be undertaken for bentonite slurry and their implications in soil stabilization/ piling work • Basic of bar bending schedule & reading of construction drawings. • Method of Joining & checking of tremie pipes to ensure water tightness • Quality measures to be taken if concreting process gets interrupted • Dos and don'ts to achieve desired slump and workability of concrete • Know about the technique of pile concreting work such as ✓ Vertical oscillation of tremie pipes ✓ Concrete feeding hopper during concreting work • and its importance, rate of concrete pouring, final level of RCC to be kept above cut off level **Practical:** • Carry out necessary linear measurements from the reference points to ascertain the exact location of the guide casing pipe. • Establish reference points at four locations in order to relocate the co-ordinate of pile centre provided by the surveyor. • Instruct subordinates for suitable adjustments in casing pipe for maintaining proper alignment prior to start of boring • Monitor shifting and stacking of bentonite powder bags at specified location • Check and ensure implementation of the safety norms by subordinates at the work location. • Monitor and ensure bentonite slurry preparation is as per specification	

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		• Ensure the smooth circulation of bentonite slurry from the tank to the borehole. • Maintain quality of test samples for viscosity and pH value test of bentonite slurry. • confirm that the boring is done up to the required depth and stable soil condition is achieved in the borehole • select and use proper tools for cutting bulb of required diameter in the bottom of borehole • Carry out under reaming at the base of borehole if applicable, using specified tool of appropriate diameter according to pile diameter • Check reinforcement steel cages for physical condition such as ✓ Diameter ✓ Spacing ✓ Bends ✓ Cover blocks as per instructions or relevant specifications • Report/ coordinate with respective authorities if deviation observed in reinforcement steel works • Monitor shifting of reinforcement cages by subordinates using lifting Equipments • Carry out lowering of reinforcement cages up to desired depth in to borehole and its proper locking • heck the assembly of tremie pipes for proper locking, depth level inside the borehole and water tightness in order to ensure smooth flushing activity • Ensure water tightness of hoses, pipes and pumps used for flushing activity • Monitor inflow and outflow of bentonite slurry during activity • Ensure proper cleaning of muck, sludge which comes out from borehole during flushing • Check concrete visually for its desired slump and workability during pile concreting work	

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		• Ensure continuity in concreting works by coordinating with respective departments • Ensure tremie pipe is sufficiently inserted in the green concrete during concreting activity • Carryout concreting up to specified height above the cut off level • Ensure cleaning of all material and components used for flushing and concreting work and stack them appropriately at specified location	
6	**Work effectively in a team to deliver desired results at the workplace** **Theory Duration** (hh:mm) (08:00) **Practical Duration** (hh:mm) (16:00) **Corresponding NOS Code :-** CON/N8001	**Theory:** • Types of communication • Effective communication and its importance • Team work and its importance • Risk of failure in team work. • Know about how to read & understand concrete piling work methods & attitude towards instruction by seniors and consulting with seniors as and when required. . • Behavioural aspects on working with co-workers **Practical:** • Demonstrate effective handling of the problems and clear reporting to senior with clarity. • Demonstrate effective way of passing information to subordinates and coworker • Demonstrate effective and correct way of handing over work to interfacing team. • Demonstrate synchronized way of working in a team.	
7	**Plan and organize work to meet expected outcomes** **Theory Duration** (hh:mm) (06:00) **Practical Duration** (hh:mm) (10:00)	**Theory:** • Basic concept of productivity, sequence of working and implementation of safety and organizational norms while working • Optimization of resources • Method of planning activities within defined scope of work • storing and stacking methods of tools/ materials/ components used for domain specific works	

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	Corresponding NOS Code :- CON/N8002	• Requisition of resources, reporting for requirement of resources orally and in written to concerned authority • Importance of housekeeping **Practical:** • List and arrange required resources prior t select and employ correct tools, tackles ar desired work • Select and employ correct tools, tackles, components and equipment for completion of desired piling work • Plan housekeeping activities prior to and post completion of work list and arrange required resources prior to commencement of Chargehand piling work • organize work output, materials used, tools and tackles deployed • engage allocated manpower in an appropriate manner	
8	**Work according to personal health, safety and environment protocol at construction site** **Theory Duration** (hh:mm) (08:00) **Practical Duration** (hh:mm) (16:00) **Corresponding NOS Code :-** CON/N9001	**Theory:** • Types of hazards involved in site in piling work • Emergency safety control measures and actions to be taken under emergency situation • Safe working practices in piling work • Identification of unsafe act and unsafe condition concept of :- ✓ First Aid process ✓ Use of fire extinguisher ✓ Classification of fires and fire extinguisher • Reporting procedure/process to the concerned authority in emergency situations • Safe and standard procedure of handling, storing and stacking material • safe disposal of waste, type of waste and their disposal • Basic ergonomic principles while handling materials. **Practical:** • Selection of PPEs and use them appropriately as per handling, storing,	**Safety instruments:** 1. Safety Helmets 2. Safety goggles 3. Hand gloves 4. Safety Shoes (Assorted size) 5. Ear Plug 6. Nose mask 7. Board of Safety instructions

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		stacking and shifting of material, tools and Equipments • Install and apply properly all safety equipment as instructed & all follow safety protocol and practices as laid down by site EHS department • Report any hazards, risks or breaches in site safety to the appropriate authority. • Demonstrate use of fire extinguisher and standard practice of storing & stacking firefighting equipment's/ materials at work locations • Apply ergonomic principles wherever required	
	Total Duration **Theory Duration 180:00 Hrs.** **Practical Duration 420:00 Hrs.**	**Classroom Requirement (for 30 students)** Black/White board, marker, Projector/LED Monitor, Computer, Trade specific charts and other teaching aids **Equipment required:** Piling rig, tripod ,winch machine, piling bailor, chisel bailor Bentonite mixing setup (comprising of mixing tank & pump), Excavator, machine Dumpers, Transit mixer, Welding generator, Auger, Tremie pipe and accessories, 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: **600 Hours, 0 Minutes**

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

Trainer Prerequisites for Job role: "Chargehand Piling" mapped to Qualification Pack: "CON/Q0707, 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/Q0707".
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
4a	**Domain Certification**	Trainer/Assessor-80% in each NOS of Qualification Pack "MEP/Q0102" or "MEP/Q0104" and Lead trainer/Lead Assessors- 90% in each NOS of Qualification Pack "MEP/Q0101" or "MEP/Q0103"
4b	**Platform Certification**	Trainer/Assessor-50% in each NOS of Qualification Pack "MEP/Q0101" or "MEP/Q0103"& 80% overall, Lead trainer/ Lead Assessors- 50% 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	Chargehand - Piling
Qualification Pack	CON/Q0707
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 center 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 NOS's, the trainee is eligible to take subsequent assessment on the balance NOS's 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/N0721: Oversee preparatory works for conventional RCC pile boring operation	PC1. check and ensure safe working condition of rigging gears, tools, components and materials required to erect piling tripod	**100**	7	2	5
	PC2. oversee shifting of rigging gears, components and ensure their proper stacking at specified locations		3	1	2
	PC3. confirm centre point of boring location by carrying out necessary measurements from reference points		7	2	5
	PC4. oversee assembling and erection of piling tripods at the specified location and recheck the measurements to confirm its exact location		7	2	5
	PC5. check rigging gears installed to the tripod for their adequate locking		7	2	5
	PC6. shift and place winch to the specified location as per agreed work plan		7	2	5
	PC7. conduct checks on wire rope attached to the winch and tripod for its safe working condition and lubrication		7	2	5
	PC8. check locking of boring chisel to the pulling cable and repair if any deviation observed		7	2	5
	PC9. confirm the layout of excavation for storage tank/pit as per agreed work plan		3	1	2
	PC10. conduct excavation of tanks/ pits at specified locations as per agreed work plan or instructions		3	1	2
	PC11. ensure excavated pit dimension and slope are as per work plan		3	1	2
	PC12. ensure proper slope is provided in excavation		3	1	2
	PC13. check and ensure desired functioning of pumps used for piling operation		7	2	5
	PC14. conduct installation of pumps at specified locations as per instruction or agreed work plan		3	1	2
	PC15. oversee laying and connection of hose and ensure its water tightness		3	1	2
	PC16. confirm electrification of pumps from specified electrical outlets		7	2	5
	PC17. carry out trial run of pumps and ensure uninterrupted discharge at specified location		7	2	5
	PC18. ensure erection of barrication, safety signage surrounding the excavated pit		3	1	2
	PC19. use PPEs applicable to the construction sites and ensure implementation of safety practices by subordinates at workplace		7	2	5

		Total	**100**	**30**	**70**
CON/N0722: Carry out pile boring using winch machine	PC1. check electrical connection lines provided for their safe condition and report to superior if found otherwise	**100**	7	2	5
	PC2. check drum, rope, limit switch and locking of winch with its base prior to start lifting		10	3	7
	PC3. anchor winch with counter weights if required and ensure that no skidding of the equipment		10	3	7
	PC4. lift load using winch and release the same as per signal provided from the concerned personnel		10	3	7
	PC5. control speed of lifting and lowering load while operating winch safely as per standard practice		7	2	5
	PC6. carry out initial boring up to specified depth		10	3	7
	PC7. ensure appropriate placing and orientation of temporary guide casing in the pile borehole		7	2	5
	PC8. carry out boring to desired depth as per instruction of the superior		7	2	5
	PC9. maintain clear line of vision to the load lifted and ensure safety of workers		7	2	5
	PC10. check and carry out lubrication and basic maintenance to the winch at regular interval or as and when necessary		7	2	5
	PC11. ensure proper illumination during operation of winch at night		3	1	2
	PC12. report timely to concerned authority for required support in case of any adverse situation during operation		3	1	2
	PC13. ensure proper barrication is provided surrounding the winch, pulling cable and boring location		7	2	5
	PC14. use proper PPEs, applicable at the construction sites		7	2	5
		Total	**100**	**30**	**70**
CON/N0723: Carry out arc welding to the reinforcement steel for extension of pile cage	PC1. identify any hazardous conditions in the work place relevant to welding work and report to concerned personnel if hazard observed	**100**	3	1	2
	PC2. check that electrical cables from the machine are insulated and terminated properly at the electrical outlets		3	1	2
	PC3. use appropriate PPEs and wear specified clothing while carrying out welding		3	1	2
	PC4. avoid presence of moisture in vicinity of the working area and work piece		3	1	2
	PC5. identify and use the fire protection tools and equipments based upon the type of fire		3	1	2
	PC6. identify the location for welding		3	1	2

	PC7. setup the welding machine as per requirement		3	1	2
	PC8. connect work clamps in correct polarity		3	1	2
	PC9. ensure that cables do not cause interference in welding		3	1	2
	PC10. check the welding electrodes for its accordance with specification prior to begin welding		3	1	2
	PC11. check that base metal is properly clamped and secured against movement as applicable		3	1	2
	PC12. clean the joint to remove any dust, rust or any foreign particles from the joint		3	1	2
	PC13. remove any oil, paints or rust from the joint and its vicinity		3	1	2
	PC14. check that all connections are tight and secure prior to start welding		3	1	2
	PC15. connect welding machine to the specified electrical outlet and power it on as per work requirement		3	1	2
	PC16. adjust the current and electrode feed rate to suite the welding requirements		3	1	2
	PC17. strike the arc correctly without causing defects		3	1	2
	PC18. maintain proper electrode extension length to avoid defects		3	1	2
	PC19. hold reinforcement steel cages together at right places in order to start welding process		3	1	2
	PC20. select suitable body position for welding the steel bar joints/ overlaps		3	1	2
	PC21. carry out fillet welding in steel bars for necessary length only, ensuring no damage is caused to the bars		10	3	7
	PC22. check and ensure smoothness of fillet weld all through the length of weld		7	2	5
	PC23. finish the welding as per work requirement and applicable quality plan		3	1	2
	PC24. carry out rectification and repairing if fault detected in welding as per standard practice		7	2	5
	PC25. power off welding machine and isolate from electrical outlets		3	1	2
	PC26. store welding machine and its accessories safely and secure them against any external damaging effects		3	1	2
		Total	**100**	**30**	**70**
CON/N0724: Monitor pile boring and concreting activity	PC1. establish reference points at four locations (making two lines perpendicular to each other) by wooden pegs or other suitable means in order to relocate the co-ordinate of pile centre provided by the surveyor as and when necessary	**100**	3	1	2

	PC2. carry out necessary linear measurements from the reference points to ascertain the exact location of the guide casing pipe		3	1	2
	PC3. instruct subordinates for suitable adjustments in casing pipe for proper alignment prior to start of boring		3	1	2
	PC4. oversee shifting and stacking of bentonite powder bags at specified location		3	1	2
	PC5. monitor and ensure bentonite slurry preparation is as per specification		3	1	2
	PC6. ensure smooth circulation of bentonite slurry from the tank to the borehole as per requirement		3	1	2
	PC7. ensure that the test samples for viscosity and pH value test of bentonite is delivered to quality laboratory		3	1	2
	PC8. confirm that the boring is done up to the required depth and stable soil condition is achieved in the borehole		3	1	2
	PC9. carry out under reaming at the base of borehole if applicable, using specified tool of appropriate diameter according to pile diameter		3	1	2
	PC10. select and use proper tools for cutting bulb of required diameter in the bottom of borehole		3	1	2
	PC11. check and ensure implementation of the applicable safety norms by subordinates at the work location		3	1	2
	PC12. report to seniors clearly and concisely regarding any deviation and hazards observed during boring activity		7	2	5
	PC13. check reinforcement steel cages for physical condition, diameter, spacing, bends, cover blocks as per instructions or relevant specifications		7	2	5
	PC14. report/ coordinate with respective authorities if deviation observed in reinforcement steel works		3	1	2
	PC15. anchor reinforcement cages using appropriate rigging gears in order to shift them to piling location		3	1	2
	PC16. monitor shifting of reinforcement cages by subordinates using lifting equipments		3	1	2
	PC17. carry out lowering of reinforcement cages up to desired depth in to borehole		3	1	2
	PC18. check proper locking of cages inside the borehole, clear cover to the reinforcement bars prior to report for further inspections		3	1	2
	PC19. check the assembly of tremie pipes for proper locking, depth level inside the borehole and water tightness in order to ensure smooth flushing activity		3	1	2
	PC20. check bentonite slurry visually for its homogeneity and workability prior to application		7	2	5
	PC21. check and ensure water tightness of hoses, pipes and pumps used for flushing activity		3	1	2

	PC22. monitor inflow and outflow of bentonite slurry during activity		2	0.5	1
	PC23. ensure cleaning of muck, sludge which comes out from borehole during flushing		3	1	2
	PC24. report to superior on completion of flushing activity and on observing any deviation for further actions		2	0.5	1
	PC25. check concrete visually for its desired slump and workability during pile concreting work		3	1	2
	PC26. ensure continuity in concreting works by coordinating with respective departments		2	0.5	1
	PC27. ensure tremie pipe is sufficiently inserted in the green concrete during concreting activity		3	1	2
	PC28. continue concreting up to specified height above the cut off level		3	1	2
	PC29. ensure cleaning of all material and components used for flushing and concreting work and stack them appropriately at specified location		2	0.5	1
		Total	**100**	**30**	**70**
CON/N8001: Work effectively in a team to deliver desired results at the workplace	PC1. pass on work related information/ requirement clearly to the team members	**100**	7	2	5
	PC2. inform co-workers and superiors about any kind of deviations from work		7	2	5
	PC3. address the problems effectively and report if required to immediate supervisor appropriately		10	3	7
	PC4. receive instructions clearly from superiors and respond effectively on same		7	2	5
	PC5. communicate to team members/subordinates for appropriate work technique and method		10	3	7
	PC6. seek clarification and advice as per requirement and applicability		7	2	5
	PC7. hand over the required material, tools tackles, equipment and work fronts timely to interfacing teams		27	8	19
	PC8. work together with co-workers in a synchronized manner		27	8	19
		Total	**100**	**30**	**70**
CON/N8002: Plan and organize work to meet expected outcomes	PC1. understand clearly the targets and timelines set by superiors	**100**	7	2	5
	PC2. plan activities as per schedule and sequence		7	2	5
	PC3. provide guidance to the subordinates to obtain desired outcome		10	3	7
	PC4. plan housekeeping activities prior to and post completion of work		7	2	5
	PC5. list and arrange required resources prior to commencement of work		10	3	7
	PC6. select and employ correct tools, tackles and equipment for completion of desired work		10	3	7
	PC7. complete the work with allocated resources		10	3	7

	PC8. engage allocated manpower in an appropriate manner		10	3	7
	PC9. use resources in an optimum manner to avoid any unnecessary wastage		10	3	7
	PC10. employ tools, tackles and equipment with care to avoid damage to the same		7	2	5
	PC11. organize work output, materials used, tools and tackles deployed,		7	2	5
	PC12. processes adopted to be in line with the specified standards and instructions		7	2	5
		Total	**100**	**30**	**70**
CON/N9001: Work according to personal health, safety and environment protocol at construction site	PC1. identify and report any hazards, risks or breaches in site safety to the appropriate authority	**100**	7	2	5
	PC2. follow emergency and evacuation procedures in case of accidents, fires, natural calamities		7	2	5
	PC3. follow recommended safe practices in handling construction materials, including chemical and hazardous material whenever applicable		10	3	7
	PC4. participate in safety awareness programs like Tool Box Talks, safety demonstrations, mock drills, conducted at site		7	2	5
	PC5. identify near miss , unsafe condition and unsafe act		7	2	5
	PC6. use appropriate Personal Protective Equipment (PPE) as per work requirements including: • Head Protection (Helmets) • Ear protection • Fall Protection • Foot Protection • Face and Eye Protection • Hand and Body Protection • Respiratory Protection (if required)		10	3	7
	PC7. handle all required tools, tackles , materials & equipment safely		7	2	5
	PC8. follow safe disposal of waste, harmful and hazardous materials as per EHS guidelines		7	2	5
	PC9. install and apply properly all safety equipment as instructed		13	4	9
	PC10. follow safety protocol and practices as laid down by site EHS department		13	4	9
	PC11. collect and deposit construction waste into identified containers before disposal, separate containers that may be needed for disposal of toxic or hazardous wastes		7	2	5
	PC12. apply ergonomic principles wherever required		7	2	5
		Total	**100**	**30**	**70**