Working Methodology Statement

BMCPL_WMS_002 - Excavation works

1. Scope & Objectives

- This covers Earthwork activity including removal of backfilled layer of murum and excavation in all types of strata of soil & rocks up to required levels.
- Objective is to get the work done in systematic and safe manner to avoid unnecessary resource consumption.

2. References

- Project documents, viz. Quality plan, EHS plan and Technical Specification of the project.
- IS codes to be referred:

  IS: 3764 – Safety code for excavation work.

3. Control Measures

- Setting out the control lines
- After completion of excavation of 1 particular layer of strata, the strata shall be approved by PMC by means of site inspection or photographic evidence.
- Levels of Hard Rock and final excavation level shall be recorded jointly with PMC.

4. Work Location/Access Requirements

- Check and initiation of procedure to remove underground & overhead utilities present if any, which can obstruct excavation work, viz. electrical power cables, water pipe line or any other service line in consultation with the PMC.
- Check for the availability of space for vehicle movement and planning the same.
- Excavated material shall be stacked in the place specified by PMC.
- A proper temporary access ramp shall be made for the movement of earthmoving equipment and vehicles as per the drawing approved by PMC.

5. Work Methodology

- Study of soil investigation reports & specification from client.
- All underground cables are taken care of with respective authorities before planning the excavated work.
- Calculation of machinery according to the output requirement of work and working space availability. All the compliance shall be met for machineries before deploying them for work.
- All the safety checks shall be confirmed before start of the work.
- To mark pit sizes as well lineout for desired area should be checked for correctness. As per structural in charge & PMC inspection have done & suggested that excavation depth will be below 500 mm when resistance observed for excavation.
- Maintaining all levels record in joint inspection of client and contractor representatives before start of the excavation work and at the end of each milestone.
- Excavation will be done with the help of excavator JCB/ Pocklane.
- Excavated material will be dumped in dumper/ Tipper and shifted to desired location through the vehicle route and then it will be dumped at the required location.
- Black cotton soil will be shifted to one side and murrum will be dumped to other side also big & small boulder will be segregated from excavated area and will be shift for soling purpose.
- Excavated material; if useful, as per instructions by respective authority can be used for filling purpose.
- Temporary stacking will be done at desired location as directed by PMC.

- If depth of excavation found above two meters then ladder will provide for access with hard barricading to all side and if any area lose soil found then for edge protection safety net will be fix to avoid collapse of soil.
- A site engineer/supervisor and a safety executive/steward are required to continuously monitor the activities.

6. Inspection Procedure

- Comparison and record between anticipated strata and actual excavated strata is approved & records maintained.
- Safety checks related to steps and slopes as required are maintained as and when work progresses.

7. Documentation Required

- Legal compliances related to the Royalty, Machinery to be used for excavation work
- Joint Measurement Records (JMR) between Client/PMC and Contractor for the levels at regular work intervals
- All safety checklists required during the work progress.

8. Health and Safety Hazard Assessment

- Erection of caution sign boards adequate illumination & protective barricades.
- Excavation area would be barricaded 1-meter away from the edge of excavation pit. Tube & coupler type hard barricades shall be used for the barricading.
- The slope of excavation should be such that the material above shall not collapse. Steps shall be provided mandatorily in backfilled area and weathered rock area.
- No materials would be stacked at edge of the excavation pit
- Proper access would be made for workers, either by providing ladders or cutting steps on the wall of the pit or by any appropriate means.
- Proper illumination shall be provided for working at night.

- The Dump Truck that shifts the excavated material shall move only after lowering all materials.
- Access in the ramp is only one way. Traffic shall so be managed in ramp area.

9. P & M use for Excavation, loading and Unloading:

Poclain, Backhoe loader, Excavator breaker assembly and Dumper/tipper etc.

Prepared By
BMCPL

Approved By

Working Methodology Statement

BMCPL_WMS_003-Anti Termite Treatment

1. **Scope & Objectives**
   - This is the most critical activity to prevent termites to enter the building.
   - This also includes prevention of growth of unwanted shrubs.
2. **References**
   - Project documents, viz. Quality plan, EHS plan and Technical Specification of the project.
   - As per approved current revision of drawings as per project specification.
3. **Control Measures**
   - Plinth area coverage has to be maintained.
   - Right proportion of chlorpyriphos to be used as per approved vendor's specification.
4. **Work Location/Access Requirements**
   - Check and initiation of procedure to remove unwanted material.
   - Anti-termite treatment to be carried out on well compacted ground.
5. **Work Methodology**
   - Check the Excavated area Whether it is ready or not i.e the area should be free from loose soil.
   - Mark area before starting of the activity.
   - Arrangement to be made for mixing of material having a capacity of 200 ltrs.
   - Approved brand/make/vendor's Anti Termite Chlorpyriphos to be Mix in 200 ltr. drum containing water.
   - Ensure the person preparing Chlorpyriphos mixture must wear mandatory PPE including nose mask.

- 0.5 % of 200 ltr qty of water Anti termite Chlorpyriphos Will be added i.e for 200 ltr of water 5 ltr of Anti termite Chlorpyriphos Will be Added.
- A Utensil called Hand Sprayer (Zhari) will be used for to spray the chlorpyriphos .
- Step 1 = Consumption for Footing – 7.5 ltr per Sq. i.e. PCC area
- For Vertical face up to Height 300 mm a chlorpyriphos will be spread.
- Step 2 = At plinth level consumption will be 5 ltrs per Sq.m
- Step 3 = 7.5 ltr per Sq. at Periphery of Building.
- Chlorpyriphos to be poured and consumption to be ensured as per Vendor's specification/IS code

6. Inspection Procedure

- Check for suitable area coverage as method in work methodology section.
- Safety checks related to chlorpyriphos s material and use of PPE's.

7. Documentation Required

- Joint Measurement Records (JMR) between PMC and Contractor for the treated area if require
- checklists required during the work progress.
- MSDS of Chlorpyriphos used for Anti termite

8. Health and Safety Hazard Assessment

- During pouring of Chlorpyriphos Competent person should be available near to worksite.
- Proper lighting shall be provided for working at night.
- Wearing of PPE's as applicable for the method and by EHS Team of BMCPL.

Prepared By

BMCPL

Approved By

Working Methodology Statement

BMCPL-WMS-004 – PCC works

1. Scope & Objectives

- This covers PCC activity after the cleaning of excavated pit.
- Objective is to get the work done in systematic and safe manner to avoid unnecessary resource consumption.

2. References

- Project documents, viz. Quality plan, EHS plan and Technical Specification of the project.
- As per approved current revision of drawings

  As per project specification.

3. Control Measures

- PCC top level should be measured and documented for record and it should match the bottom of above structure.
- Mix of PCC confirmed as per design and pouring should be done.

4. Work Location/Access Requirements

- Check and initiation of procedure to remove unwanted material and overhead utilities present if any, which can obstruct PCC work, viz. electrical power cables, water pipe line or any other service line in consultation with the Client and PMC.
- Check for the availability of space for vehicle movement and plan the same.

5. Work Methodology

- Study of drawings.
- All underground cables are taken care of with respective authorities before planning the PCC work.
- To mark pit sizes as well lineout for desired area should be checked for correctness.

- Mark centerline for footing and mark size of PCC in plain leveling authorized work space.
- Check drawing current revision and take approval from consultant before starting the activity.
- Make Leveling pad to get the required thickness at marked location.
- Make arrangement for PCC like labor, mixer machine, tools & tackles, keep pit in dewatered condition (If Required)
- Send the concrete requirement to the batching plant with required documentation
- Check grade of concrete as per drawing.
- Make arrangement to receive/unload concrete on concrete pad/tray/direct dumping at the location with the help of inclined drop platform.
- Receive required quantity of raw material at batching plant, the material shall be tested and approved frequency as per quality plan submitted.
- Take approval from consultant to start the PCC activity with Pour Card.
- Level the surface to correct horizontal place taking surface for level pad.
- Remove wooden battens/MS Channel after final set to carry out curing.
- Record PCC top level and release for further activities.
- Give clearance to start the next activity in next day.
- Conformation of all safety checks before start of the work.
- A site engineer/supervisor and a safety executive/stewart are required to continuously monitor the activities.

6. Inspection Procedure

- Inspection for cleanliness for pit and required thickness of PCC.
- Safety checks related to shoring and slopes as required are maintained as and when work progresses.

7. Documentation Required

- Joint Measurement Records (JMR) between PMC and Contractor for the levels at regular work intervals for hard rock top.
- Concrete Pour Card.
- All safety checklists required during the work progress.

8. Health and Safety Hazard Assessment

- Erection of caution sign boards adequate lightening & protective barricades.
- Excavation area would be barricaded 1-meter away from the edge of excavation pit. Tube & coupler type hard barricades shall be used for the barricading.
- Where excavations are made in backfilled area, slopes shall be maintained at edges. Use of safety nets to arrest the collapse of soil.
- No materials would be stacked at edge of the excavation pit
- Proper access would be made for workers, either by providing ladders or cutting steps on the wall of the pit or by any appropriate means.
- Proper lighting shall be provided for working at night.
- The Dump Transit mixture that shifts the concrete shall move in a planned manner and at a desired speed.

Prepared By

BMCPL

Checked By

Working Methodology Statement
BMCPL_WMS_006- Reinforcement Work

1. SCOPE AND OBJECTIVES

The purpose of this statement is to define the procedure of work for carrying reinforcement work. The statement covers execution method, QHSE requirements of the work, the test procedure and method of records. General requirements for stacking, cutting, bending and fixing reinforcement at site are included in the statement.

2. REFERENCES

1. Tender Specifications
2. IS codes –
   a. IS:1786 – Material Testing
   b. IS:1566 – Fabric Reinforcement
   c. IS:2502 – Bar Bending Schedule
   d. IS:2751 – Welding of Reinforcement

3. CONTROL MEASURES

1. All incoming material shall be inspected and checked by QA/QC department. Batch wise MTC shall be submitted to client.
2. Flame cut and hot bending is absolutely forbidden.

4. WORK LOCATION / ACCESS REQUIREMENTS

1. Proper scaffolding should be provided for fixing of reinforcement at heights Safe access and working platform should also be given.
2. For footings safe ladder access should be provided. Height of the ladder should be sufficient so that 1 m ladder is extended above the ground level.
3. For columns and retaining wall scaffolding in Cup lock system with safe working platform of walkway jallies should be provided.
4. In slabs and beams proper access to floors above ground level will be provided with scaffolding and ladders.

5. WORK METHODOLOGY / PROCEDURE

Storage:

The reinforcement shall be stored in pre-designated area. There should be clearance of about 150mm from ground. The storage should be delivery wise, diameter wise and lengthwise. The steel should not be in contact with oil, water grease.

Cutting and Bending:

1. All reinforcement bars shall be made straight before bending. Bars to be cold-bend, either mechanically or by hand, but to correct radius using proper tools, machine and platform and confirming to IS 2502-1999.
2. Bars shall be bent gradually with slow pressure and by cold method only.
3. No reinforcement shall be bent after placing at site without permission of engineer in charge.
4. Bending of vertical bars should be avoided. However, in any case vertical bars shall not have abrupt bending.
5. Bending Machines inspected by safety and PMV team shall be used at site. Trained operators only shall use the machine with appropriate working area margins.
6. Do not rebind bars without approval. In case of rebinding, care shall be taken that the rating of bend is not less than 6 x bar dia for high strength bars.

Fixing:

1. All reinforcement shall when fix in position and at the time of concreting be clean and free from mud, oil, mortar droppings, loose rust, paint, oil, grease, mill scale or other deleterious matter.
2. All steel reinforcement shall be accurately placed in position as shown on the drawing tied with 18-gauge annealed steel wire and firmly held during the placing and setting of concrete.
3. The vertical distance required between successive layers of bars shall be maintained by providing space bars, inserted at such intervals that main bars do not perceptibly sag between adjacent space bars.

6. INSPECTION PROCEDURE

1. The reinforcement laid should be properly checked for diameter, number and spacing before concreting.
2. Bars having cracks or splits on the bends shall be rejected. Bars incorrectly bent once shall not be used without the approval of the Engineer.
3. Proper cover shall be provided to reinforcement before concreting.

7. RESOURCES AVAILABILITY -MATERIAL/PLANT &EQUIPMENT

1. Steel reinforcement shall be high yield strength deformed bars/TMT bars of grade Fe-500D confirming to IS: 1786.
2. The reinforcement works shall be carried out by specialized contractor with experience in cutting, bending and fixing of reinforcement bars.
3. The cutting shall be done Bar Shearing Machine and bending shall be done by bar bending machines of required diameter.

8. DOCUMENTS REQUIRED/ATTACHED

1. Checklist for Reinforcement

9. SAFETY AND HEALTH HAZARD ASSESSEMENT

1. Proper scaffolding and safe access with Cup lock system and walkway platform is to be provided for working at height.
2. Care should be taken while transporting and cutting of reinforcement. Shoulder protection pad shall be used in case of manual shifting of materials.
3. While lifting the steel to height especially for roof casting, proper rigging method shall be adopted. Before starting this activity, the method shall be reviewed by the Site engineer & EHS - Manager/officer.
4. Reinforcement works shall not be done under energized overhead electric lines.
5. The workers shall use cotton or leather hand gloves for handling the steel.
6. All ends of vertical steel may cause injury must be adequately covered with gunny bag / or other suitable means.

10. P & M Equipment's

Steel Cutting Machine & steel bending Machine.

Prepared by

BMCPL

Approved By

Working Methodology Statement

Project: Henkel Anand Ganesha Phase II Project

WMS- 30 – SCAFFOLDING INSTALLATION

1. **Scope & Objectives**
   - The purpose of this procedure is to ensure scaffolding is adequate for the work to be performed and properly erected. It covers selecting, installation of all types of scaffolds. It applies to workers, supervisors, scaffold and Facilities.

2. **References**
   - Project documents, viz. Quality plan, EHS plan and Technical Specification of the project.
   - As per project specification.

3. **Work Location/Access Requirements**
   - The arrangement of the installation of scaffolds shall be made properly.
   - The ground or structure on which a scaffold is to be erected must be adequate.
   - To carry and distribute the loads imposed at each standard (vertical member) and of the whole loaded scaffold.
   - The standards (vertical members) must always be placed on a base jack or base plate.

4. **Work Methodology**
   - We have to select a secure foundation on which to build and set our scaffold.
   - If we plan on moving our scaffolding to work on various spots, include casters in our scaffolding setup. We have to remember to lock the casters when we get it into place.
   - Assemble the scaffolding frame
   - We have to make sure the scaffold is stable. Move the scaffold into our desired position, and make sure it is level and secure.
   - Place the planks. Lift the planks through the scaffold bars and into place. Hardware should be included to fasten the planks into place.
   - Inspect the scaffolding to ensure safety. Thoroughly examine the scaffolding setup to make sure all pieces are secure. Re-inspect the scaffold system every time we leave the site and return to it to make sure it is still safe.

5. **Documentation Required**
   - Checklist for scaffolding work.

6. **Health and Safety Hazard Assessment**
   - Erection of caution sign boards adequate lightening in night time & protective barricades if required.
   - Pipe & coupler type hard barricades shall be used for the barricading.
   - No materials would be stacked at one location for longer duration. It shall be shifted as early as possible.
   - Proper access would be made for workers, either by providing ladders or cutting steps
   - The breaking activity shall be done in the planned manner as directed by the supervising engineer and as per guidelines given in JSA
   - Scaffold shall use proper PPE during application of height. Nose mask shall be provided to workers working in that area.

Prepared by	**Approved By**
BMCPL	**KCPL**

Working Methodology Statement

BMCPL_WMS_ 007 – Shuttering works

1. SCOPE AND OBJECTIVES

1. The purpose of this statement is to define the procedure of work for carrying. The statement covers execution method, QHSE requirements of the work, the test procedure and method of records. General requirements for making, transporting and fixing at site are included in the statement.

2. REFERENCES

1. Technical Specifications
2. Drawings for Formwork Scheme approved by BMCPL shuttering Department

3. CONTROL MEASURES

1. Formwork shall be carried out as per detailed design approved by shuttering department of BMCPL. Details of formwork design approved shall be submitted to the Engineer for the record.
2. The Contractor shall obtain the Engineer's approval for dimensional accuracies of the work and for the general arrangement of propping and bracing.
3. The formwork material shall be in good condition and fit for use.

4. WORK LOCATION / ACCESS REQUIREMENTS

1. Proper scaffolding should be provided for fixing of shuttering at heights. Safe access and working platform should also be given.
2. For footings safe ladder access should be provided. Height of the ladder should be sufficient so that 1 m ladder is extended above the ground level.
3. For columns and retaining wall scaffolding in Cup lock system with safe working platform of walkway jallies should be provided.
4. In slabs and beams proper access to floors above ground level will be provided with scaffolding and ladders.

5. WORK METHODOLOGY / PROCEDURE

Formwork Scheme

1. The formwork shall conform to the shapes, lines and dimensions for all the elements as shown on the drawing. The formwork shall be designed and constructed so that the concrete can be properly placed and thoroughly compacted to obtain the required shape, position and level subject to specified tolerances.

Erection of Formwork

1. All shutter planks and plates shall be adequately backed to the satisfaction of the Engineer by a sufficient number and size of walers or framework to ensure rigidity during concreting and to prevent deflection under deadweight of concrete and superimposed live load of workmen, materials and plant, and to withstand vibration and wind. No joints in props shall be allowed.
2. Vertical Cup locks shall be supported on base plates so that the load is transferred properly with stability.
3. Care shall be taken that all formwork is set plumb and true to line and level or camber or batter where required and as specified by the Engineer.
4. Approved Shuttering oil would be applied on all the faces of formwork that shall come in contact with the concrete.
5. Supports shall be firm and maintained in position by nails, cross bracing, tie rods, locking bolts, nuts, etc. It shall be rigid and stiff so as to retain its shape during and after concreting.
6. Formwork shall be arranged as to permit removal of forms without jarring the concrete Wedges, clamps and bolts shall be used wherever practicable instead of nails.
7. Formwork for beams and slabs shall be so erected that the shuttering on the side of the beams and soffits of slabs can be removed without disturbing the beam bottoms.
8. Immediately before concreting is commenced, the formwork shall be carefully examined to ensure the following:
    a) Removal of all dirt, shavings, sawdust and other refuse by brushing and washing.
    b) The tightness of joints between panels of sheathing and between these and any hardened core.
    c) The correct location of tie bars, bracing and spacers, and especially connections of bracing.
    d) That all wedges are secured and firm in position.
9. Formwork shall be continuously watched during the process of concreting. If during concreting any weakness develops and formwork shows any distress the work shall be stopped and remedial action taken.

Removal of Formwork

Unless otherwise permitted in writing by the Engineer, the minimum period of keeping formwork in position after concreting the members in normal circumstances and where ordinary Portland is used shall conform to the Indian Standard Specifications and shall be as follows:

1. Walls, columns and vertical faces of all structural

members b) Slabs (props left under)

c) Beam soffits (props left under)

d) Removal of props under slabs: i. Spanning up to 4.5 m ii. Spanning over 4.5 m

e) Removal of props under beams and arches i. Spanning up to 6 m ii. Spanning over 6 m

24 hours

3 days

7 days

7 days

14 days

6. INSPECTION PROCEDURE

1. All materials, workmanship and finished construction shall be subject to the continuous inspection and approval of Engineer of consultant

14 days

21 days

2. Materials rejected shall be replaced by BMCPL immediately at his own cost.

7. RESOURCES AVAILABILITY -MATERIAL/PLANT &EQUIPMENT

Ply cutter machine, Tipper and crane etc.

Manpower

1. Subcontractors having experience of shuttering work in Cup lock system, Aluminium Beams and Geoplast panels shall only be deployed at work.

Equipment's

1. Material shifting shall be done by Tractors with trolleys.

8. DOCUMENTS REQUIRED/ATTACHED

1. Checklist for Shuttering works
2. MSDS for shuttering Oil
3. Shuttering Scheme Drawings

9. SAFETY AND HEALTH HAZARD ASSESSEMENT

1. Before starting the concrete works the site engineer, formwork engineer or foreman shall, check the reliability of the formwork done and give their approval for concreting.
2. Provision shall be made for watching formwork while concreting and any other platform needed for movement of workers.
3. The material should be lowered by mechanical means only. Throwing of material from height shall strictly be prohibited.
4. Safe scaffolding shall be tagged with green label to give clearance for use of the same.

10. DISTRIBUTION

The statement shall be submitted to Quality Head of CONSULTANT for approval. The copy of approved statement is to be given to

1. Execution In charge of BMCPL
2. QA QC Head of BMCPL
3. Safety Head of BMCPL
4. Project Head of Client

Working Methodology Statement

BMCPL_WMS_008 - Concrete works for Plinth Beam

1. Scope & Objectives

- Concreting is a one of the most important activities for plinth beam. To ensure the required Characteristic strength and to meet the specific work requirements this activity should be taken care of. Scope of the activity includes right from the selection and finalization the concrete mix/Source to the placing and curing of the casted structural member.

2. References

- Project documents, viz. Quality plan, EHS plan, LEED and Technical Specification of the project.

- As per approved current revision of drawings

As per project specification.

3. Control Measures

- Mix to be adopted for the concrete of relevant grade recommended would be designed and submitted for approval to Consultant. Slump should be made available at site to check the workability as and when asked for Concreting would be planned in such a sequence that cold joint could be avoided. Time elapsed between dispatches of concrete form RMC plant and pouring of the concrete on site shall be checked according to retention period (generally not more than 3 hrs.) & same shall be taken care of for the quality of concrete.

- RMC should be confirmed for quality before put for the use & shall be consumed within stipulated period.

4. Work Location/Access Requirements

- The arrangement of pouring concrete to reach final position shall be made either by inclined drop platform or pump with extended pipes and detachable arrangement. Mud mat/previous concrete shall be thoroughly wet before placing concrete. safe and convenient access to the concreting area should be provided for the concreting labors.

- Bonding agent to be applied before start of concreting between any new and old surface.

- Check for the availability of space for vehicle movement and plan the same.

5. Work Methodology

- All the preceding activities to the concreting are completed and got checked before start of the concreting, viz. reinforcement, shuttering.

- All RMC/Concrete quantity to be ordered prior to the pouring of the concrete. Before pouring of concrete, adequacy, rigidity for shuttering shall be insured.

- Vibrators shall be in good condition and sufficient in number to be deployed depending upon the quantity of concrete to be cast.

- Plinth beam dowels to be left in pedestals for providing provision for next activity. Lap should be as per drawing/specification/IS Code.

- Cover blocks shall be provided to rebar's to ensure required cover. Construction joints to be provided as described in drawing.

- Plinth beam dowels to be brought into actual position by help of mechanical means (If required)

- Construction joints shall be prepared properly by thorough chipping so that proper bonding can be developed between preceding and succeeding layer of concrete.

- Vibration shall be done keeping the needles in vertical position except in situations where it is not possible so as not to drag concrete from one location to other to prevent the segregation.

- Curing would be done at least for 7 days. To keep the concrete moist for specified curing period, wet gunny bags or Hessian cloth would be used to warp the concrete surface.

- De-shuttering should be done after the concrete gains its minimum strength to self-support the member.

6. Inspection Procedure

- Sample cube with recommended frequency would to taken for crushing strength test. - To keep the concrete moist for specified curing period, wet gunny bags or Hessian cloth would be used to warp the concrete surface/Curing compound to be applied.

- Set concrete in no case shall be used at site even adding with cement slurry/admixture with required dosages.

- In case concrete unloaded at site is found with less workability, it shall be sent back to batching plant for correction.

7. Documentation Required

- Respective checklists, required prior to the start of the concreting activity, are filled up in consultation with right authorities and documented.

- Workability to be checked in accordance to the working condition and results are assessed for the allowable limits.

- Cubes for testing purpose are prepared at the source and results are documented at right intervals.

- Pour cards should be filled up on time in consideration with relevant authorities prior to the start of the activity and documented.

8. Health and Safety Hazard Assessment

- Erection of caution sign boards adequate lightening & protective barricades.

- Excavation area would be barricaded 1-meter away from the edge of excavation pit.

- The slope of excavation would not be steeper than the angle of repose of the particular soil. When this cannot be achieved because of limited place or if it is uneconomical to provide such a slope then shoring should support the earth.

- No materials would be stacked at edge of the excavation pit

- Proper access would be made for workers, either by providing ladders or cutting steps on the wall of the pit or by any appropriate means.

- Proper lighting shall be provided for working at night.

- The Dump Transit mixture that shifts the concrete shall move in a planned manner and at a desired speed.

9. P & M Equipment's

Boom placer, Transit mixer & vibrator.

Prepared by **Approved By**

BMCPL

Working Methodology Statement
BMCPL_WMS_009 - Backfilling

1. **Scope & Objectives**

   - This covers Earthwork activity including backfilling of excavated area.
   - Objective is to get the work done in systematic and safe manner to avoid unnecessary resource consumption.

2. **References**

   - Project documents, EHS plan and Technical Specification of the project.
   - IS codes to be referred:

     IS: 3764 – Safety code for excavation work.

3. **Control Measures**

   - Setting out the control lines & recording OGL
   - Good quality material to be used for backfilling as available on site

4. **Work Location/Access Requirements**

   - Check and initiation of procedure to remove underground & overhead utilities present if any, which can obstruct excavation work, viz. electrical power cables, water pipe line or any other service line in consultation with the Client and PMC.
   - Check for the availability of space for vehicle movement and planning the same.

5. **Work Methodology**

   - Study of soil investigation reports & specification from PMC.
   - All underground cables are taken care of with respective authorities before planning the backfilling work.
   - Remove all scaffolding material for free movement of vehicle.
   - Identification of source of material and making it available on site.
   - All the material to be dumped at least 1 m away from pit.
   - Dozing to be done with dozer/back loader as per requirement

- The first layer of backfilling to be carried out till specified depth mentioned in specs. Compactor to be operated.
- Marking of 300 mm to be done on pedestal on each pedestal with grid location.
- The backfilling material to be filled up to 300mm layer, then pouring of water to be done on top of it.
- Plate compactor to be operated on backfilled watered surface. It will be settle up to 50mm and the actual layer of backfilling would be 250 mm.
- Same process to be adopted till pedestal top.
- With the help of vibro roller will be compacted with compaction test.
- In between intermediate layer we will do random compaction test.
  Consolidation methodology as proposed earlier to be repeated for all layers of backfilling.
- Random testing to be done for checking compaction if required.
- A site engineer/supervisor and a safety executive/Stewart are required to continuously monitor the activities.

6. Inspection Procedure

- All the tests should be conducted in joint observation between PMC representatives.
- Register to be maintained for consolidation where testing is not done with proper assurance of compaction.
- Test reports and test observations should be noted and documented for submission.

7. Documentation Required

- All the test results shall be noted and documented in test reports format.
- All safety checklists required during the work progress.

8. Health and Safety Hazard Assessment

- Erection of caution sign boards adequate lightening & protective barricades.
- Barricading of excavated area to be removed before the machinery operation.
- Proper access would be made for workers, either by providing ladders or cutting steps on the wall of the pit or by any appropriate means. (If required)
- Proper lighting shall be provided for working at night.

- The Dump Truck that shifts the excavated material shall move only after lowering the hull to original position; after completion of dumping the material.

9. P & M Equipment's

Vibro roller, Dumper/ Tipper, Excavator and Plate compactor.

Prepared by

BMCPL

Approved By

Working Methodology Statement

BMCPL_WMS_010 - Anchor Bolts fixing

1. **Scope & Objectives**
   - This method statement shows and explains the procedure must be followed to install the anchor bolts for steel columns to achieve the requirements of the project.

2. **References**
   - Approved Anchor Bolts as per Drawing
   - Approved Material Submittal for Anchor Bolt

3. **Material**
   - Anchor bolt
   - Nut
   - Washer

4. **Equipment and Tools**
   - Total station
   - Level Machine
   - Plywood base plates
   - Spanners
   - Water level
   - Line dory/ Nylon chord
   - Masking tape
   - PPE such as safety tools such as safety ladders, warning tapes, safety sign boards …etc

5. **Work Methodology**
   - Use approved drawings for work preparation.
   - Use approved materials as per approved drawings such as anchor bolts length, diameter, number, and location.
   - To fix the anchor bolts prepare a temporary wooden plate contains holes relevant to the diameter, location and number of anchor bolts as per approved drawings.
   - Fix the bolts in the temporary wooden plate accurately.

- Prepare the axis in the top of the neck columns in order to fix the anchor bolts.
- After survey works, start fixing the temporary wooden plate with the anchor bolts in the top of the neck columns.
- Insert the bottom part of the anchor bolts inside the neck columns as per approved drawings.
- After fixing the temporary wooden plates align, level and fix properly the anchor bolts as per approved drawings.
- The surveyor has to check the alignment and the level of the anchor bolts after fixing.
- The Engineer shall check the anchor bolts after fixing.
- After Engineer approval cover the anchor bolts with masking tape protection before concreting.

6. Documentation Required

- Respective checklists, required prior to the start of the anchor bolt fixing activity, are filled up in consultation with right authorities and documented.

7. Health and Safety Hazard Assessment

- All works shall comply with the safety instruction/procedure as set out in the approved project HSE plan and all safety recommendations of local authorities shall be followed.
- All works should comply with safety procedure/instruction as set out in project safety plan.
- Basic PPE to be worn by all staff.

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Working Methodology Statement

BMCPL_WMS_011 – Block Works

1. Scope & Objectives

- Block work is one of the most important activities in finishing work. To ensure the required Characteristic strength of the block and to meet the specific work requirements this activity should be taken care of.
- Scope of the activity includes right from the selection and finalization the vendor and its material.

2. References

- Project documents, viz. Quality plan, EHS plan, LEED and Technical specification of the project.
- As per approved current revision of drawing as per project specification.

3. Control Measures

- Mix for mortar to be adopted for the block of relevant grade recommended would be designed and submitted for approval to consultant.
- Random Block strength test to be conducted to cross- check the project requirement of block for strength.
- Adequate wetting of the block to be carried out before placing.
- Stacking of block to be done closed required place and in proper manner.
- Block Stacking height to be restricted to 10 blocks.

4. Work Location / Access Requirements

- The arrangement of block to reach final position shall be made either by accessible platform with detachable arrangement.
- Safe and convenient access to the working area should be provided for the labors.
- Check for the availability of space for vehicle/ Man movement and plan the same.

5. Work Methodology

- Ensure the adequate number of block from approved Agency available at location. Otherwise shift the same.
- Refer the approved drawing for wall layout, opening, size of walls etc.

- Erect scaffold as required. Ensure to tie scaffold at required interval properly. Scaffold shall base on firm ground.
- Provide adequate walking plates, guard pipes.
- Inspect concrete surface. If require trim the same to line level, base concrete where masonry is to rested shall be clear of any laitance.
- Prepare arrangements for mortar making like mortar trays, water passages, farma etc.
- Check for adequacy of skilled / unskilled workers for desired output.
- Hack the concrete surface receiving masonry.
- Wet the block so that, it gets just wetted at surface.
- Prepare mortar of adequate quantity which can be used for one to two hour in given proportion.
- Spread the mortar thinly on receiving surface and check for proper level.
- Put first row of block for entire panel length and ensure level.
- Start block work ensuring joint thickness not more than 8 mm. use stretcher bond generally. Break the bond at half-length suitably.
- Fix the MS bend to RCC work as bonding with masonry to RCC structure as per specification.
- Rake the joints to the depth of up to 10 mm from the both the sides.
- Reject any block whose corners are damaged beyond Acceptance.
- Clear the debris near work area.
- Start curing after 24 hrs. and ensure adequate curing.
- Mark casting dates.

6. Inspection Procedure

- Sample mortar cubes to be casted initially and random if required.
- Cc block strength to check as per frequency set.

7. Documentation Required

- Respective checklists, required prior to the start of the block work activity, are filled up in consultation with right authorities and documented.
- Workability of mortar to be checked in accordance to the working condition and result are assessed for the allowable limits.

8. Health and Safety Hazard Assessment

- Erection of caution sign boards adequate lightning & protective barricades.
- Proper access would be made for worker, either by providing ladders or cutting steps on the wall of the pit or by any appropriate means.
- Proper lighting shall be provide for working at night.

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Working Methodology Statement

BMCPL_WMS_012 - Rubble Soling

1. Scope & Objectives

- Rubble soling is one of the most important activities in flooring works. To ensure the required finish for next activity as per specifications. - Scope of the activity includes right from the selection and finalization the vendor and its material.

2. References

- Project documents, viz. Quality plan, EHS plan, LEED and Technical Specification of the project.

- As per approved current revision of drawings

As per project specification.

3. Control Measures

- Size of the rubble is most important. None of its side should have dimension less than 150mm.

4. Work Location/Access Requirements

- The arrangement of material to reach final position shall be made either by accessible platform with detachable arrangement. - Safe and convenient access to the working area should be provided for the labors.

- Check for the availability of space for man movement and stacking the material.

5. Work Methodology

- Rubble shall be strong, hard and durable quality. They shall have at least one side equal to the thickness of rubble packing.

- Stones shall be carefully hand packed with longest side of each stone placed vertical with the smaller face of the two ends of the top.

- All interstices between the stones shall be filled in solid with well driven stone chips and surface shall be made uniform with the help of sand.

- It should be thoroughly consolidated and sprinkled with water.

- Depth of packing shall be taken as consolidated depth.

6. Inspection Procedure

- Size of the rubble shall be thoroughly inspected. - All the interstices shall be filled properly. - Level to be checked after consolidated depth is achieved.

7. Documentation Required

- Respective checklists, required prior to the start of the activity, are filled up. 8. Health and Safety Hazard Assessment

- Erection of caution sign boards adequate lightening & protective barricades.

- Proper access would be made for workers, either by steps on the floor or by any appropriate means.

- Proper lighting shall be provided for working at night.

8. P & M Equipment's

Dumper/ Tractor

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Working Methodology Statement

BMCPL_WMS_013 - Cutting of concrete

1. Scope & Objectives

- Concrete is a one of the most critical activities of the work.
- Scope of the activity includes right from the selection of method of cutting to process of how to do it.

2. References

- Project documents, viz. Quality plan, EHS plan and Technical Specification of the project.
- As per project specification

3. Control Measures

- Trained work force trained SHE Steward & foreman.

4. Work Location/Access Requirements

- AIL Shop RM & FG area shutter dock level (Phase- I)
- The arrangement of dismantling of concrete shall be made properly.
- Safe and convenient access to the concreted area should be provided for the machine to cut the concrete.

5. Work Methodology

1. Cutting of concrete area to be identified.
2. Barricade the area where work to be done.
3. Remove all loose concrete debris from the area.
4. Identify the depth and width of the grade slab to be cut. (Electrically operated machine)
5. Start the work with cutting machine for concrete cutting works.
6. Clean all the loose material first.
7. Apply the cutter of the machine to the top most part of the grade slab and going downwards up to 200 mm gradually.

6. Inspection Procedure

To ensure the cutting work of side girts to be completed as per work required.

7. Documentation Required

- JMR is required for the quantum of the concrete to be cut-down.

8. Health and Safety Hazard Assessment

- Medical checkup of all work forces.
- Induction Training.
- Tool box talk.
- Preparation of JSA.
- PTW.
- Inspection of tools & tackles.

9. P & M Equipment's: -

Cutting machine Qty 1 nos.

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Working Methodology Statement

BMCPL_WMS_014 - Concrete work

1. SCOPE AND OBJECTIVES

The purpose of this statement is to define the procedure of work for carrying concreting works. The statement covers execution method, QHSE requirements of the work, the test procedure and method of records. General requirements for mixing, transporting, placing, compacting and curing at site are included in the statement.

2. REFERENCES

1. Tender Specifications
2. IS codes – IS:456, IS:516, IS1199 IS3558

3. CONTROL MEASURES

1. All incoming material shall be inspected and checked by QA/QC department.

2. Minimum compressive strength of 15 cm cubes at 7 days and 28 days after mixing, conducted in accordance with IS: 516 for specified grades.

3. Details of design mix concrete approved shall be submitted to the consultants for record along with the results of sieve analysis and such other tests on cement, aggregates and water etc.

4. At least one slump test shall be made for every compressive strength test carried out.

5. Normally not more than 30 minutes shall lapse between mixing and consolidation in position.

6. Extreme care should be taken to ensure that all surfaces are kept in a moist condition and no local area shall be allowed to dry out intermittently.

4. WORK LOCATION / ACCESS REQUIREMENTS

1. Proper scaffolding should be provided for placing of concrete at heights. Safe access and working platform should also be given.

2. In footings ladder access should be provided. The ladder should be placed at proper angle.

3. In columns and RCC walls scaffolding with safe working platform should be provided for higher lifts.

4. In slabs and beams proper access to floors through temporary staircase is to be provided.

5. WORK METHODOLOGY / PROCEDURE

A. BATCHING AND MIXING

1. Batching shall be done as per the mix design of suggested Laboratory after approval of PMC. If required sample cube would be cast and would be tested for 07 days, 14 days and 28 days crushing strength for approval of mix design.

2. All ingredients of concrete shall be batched as per approved design mix in RMC plant (Outside the site premises).

3. Thorough mixing of the concrete shall be done confirming a uniform mixture with uniform color and no signs of segregation.

4. Admixtures shall be used to the specified dosage as per approved mix design. (if applicable)

B. TRANSPORTATION

1. Concrete shall be conveyed from the place of mixing to the place of final deposit as rapidly as practicable by methods, which will prevent segregation or loss of any of the ingredients. If segregation does occur during transport, the concrete shall be remixed before being placed.
2. Concrete shall be transported by transit mixers of capacity of 6 cum.

C. PLACING

1. Placing of concrete in footings shall be done by using chutes of transit mixer.

2. Concrete pump shall be used for concreting for members where proper access to transit mixer is not available.

3. Placing of concrete from a height more than 1.5m shall be strictly avoided.

D. COMPACTION

1. The depth of pouring of concrete at an instance shall not be more than depth of vibrator needle.

2. Compaction shall be carried out by emersion vibrator.

E. CURING

1. As soon as the concrete is hardened sufficiently, it shall be cured by maintaining the concrete in a damp condition by application of wet sacking or other approved moisture retaining covering for the

specified period after placing the concrete. In floors curing should be carried out by ponding and covering with polythene sheets / hessian cloth to reduce evaporation losses.

F. CONSTRUCTION JOINTS

1. Construction joints in exposed concrete work shall be made only where shown on the drawings or directed by the Engineer and shall be in accordance with the details shown or approved by the Engineer of PMC.

6. INSPECTION PROCEDURE

1. During the progress of construction compression tests shall be made to determine whether the concrete being produced complies with the strength requirements specified by testing of standard cubes. The test will be made in accordance with Indian Standard 516 latest edition for the specified grade.
2. At least one slump test shall be made for every compressive strength test carried out.
3. Cube Register shall be maintained as per approved format.

7. RESOURCES AVAILABILITY -MATERIAL/PLANT &EQUIPMENT

A. MATERIAL

1. Cement:

Cement shall be OPC for concrete works and PPC for plastering works conforming to IS 455 – 1995. Only one brand of each type of cement shall be used for concrete in any individual structure. Cement shall be obtained only from the approved agents of approved manufacturers. It shall be brought at site fresh and shall be kept in sufficient quantity to allow each consignment being tested if called for.

Contractor shall produce certificate for its test from the manufacturers only once for each of such consignment received at site. Quick setting or rapid hardening cement and waterproofing mixture if required shall be of the brand approved by the Engineer. Cement reclaimed from cleaning bags or

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leaking containers shall not be used. Cement shall be used in the sequence of receipt of shipments unless otherwise directed.

The Engineer may reject any cement as a result of failing in any tests, notwithstanding the manufacturer's certificate. He may also reject cement which has deteriorated owing to inadequate protection from moisture or due to intrusion of foreign matter or other causes. Any cement which is considered defective by the Engineer shall not be used and shall be promptly removed from the site of the work by the Contractor at his own expense.

2. Aggregates:

1. Fine and coarse aggregates shall conform to IS 383-1963. If required, the aggregates shall be washed and screened. Sampling and testing shall be as per IS: 2386.
2. Each size of aggregate shall be stored on a separate platform and shall avoid mixing and contamination with foreign material. Segregated aggregates shall be rejected.

3. Water:

A. Suitability of water for civil works shall be examined by the contractor by laboratory test. Only clean, fresh water free from salt, oil, acid, alkali and vegetable matter shall be used. As a rule, it may be taken that water that is good for drinking purpose, can be safely used for construction. Concrete mixed with water proposed to be used for civil works should not have a compressive strength, lower than 90% of the strength of concrete mixed with distilled water.

B. MATERIAL/PLANT AND EQUIPMENTS

a. Automated Batching plant shall be used for batching and mixing concreting.
b. Mechanical immersion vibrators of various needle diameters shall be used.
c. Static Concrete Pump shall be used for placing of concrete.

8. DOCUMENTS REQUIRED/ATTACHED

1. Concrete Pour Card
2. Format for Inspection request
3. Checklists for concreting

9. SAFETY AND HEALTH HAZARD ASSESSEMENT

1. The access from the point where concrete is supplied to the area to be concreted would be properly made and free from obstructions.
2. Before starting the concrete works the site engineer, formwork engineer or foreman shall, check the reliability of the formwork done and give his approval for concreting.
3. While carrying out floor/ slab-concreting planks shall be placed on the steel for safe movement of the employees and workers.

Working Methodology Statement

BMCPL_WMS_ 015 – Material loading, unloading & shifting by Farana

1. Scope & Objectives

- The safe loading, unloading & shifting of Materials at specified location.
- Scope of the activity includes right from the unloading the Materials from vehicle and to keep at specified allotted location.

2. References

- As per project specifications.

3. Control Measures

- Third party Inspection of all lifting tool, tackles and crane to be used.
- Trained / competent crane operator to be displayed.
- Trained work force, trained & validated rigger, foreman & signal man.

4. Work Location/Access Requirements

The suitability of the ground for the vehicle and load stability (for example whether the ground is flat and firm). Vehicle choker/stopper on the both ends of the wheel is must irrespective of gear and parking break.

Any obstructions in the unloading area for underground and above ground utilities (including parked cars, overhead cables and pipes).

The vehicle itself should be checked to make sure that it can access the unloading area safely, Predefined area for the stacking of material.

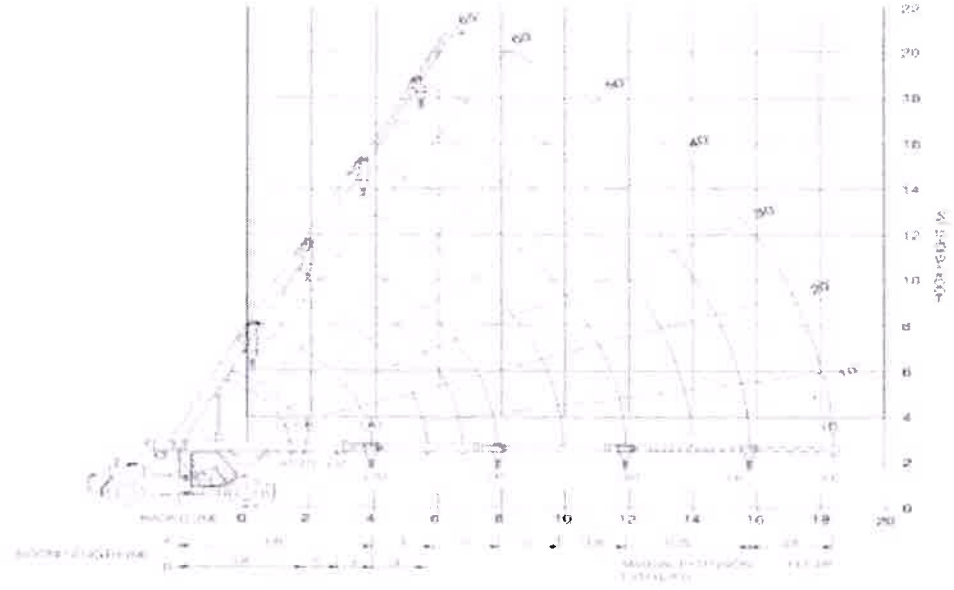
5. Work Methodology

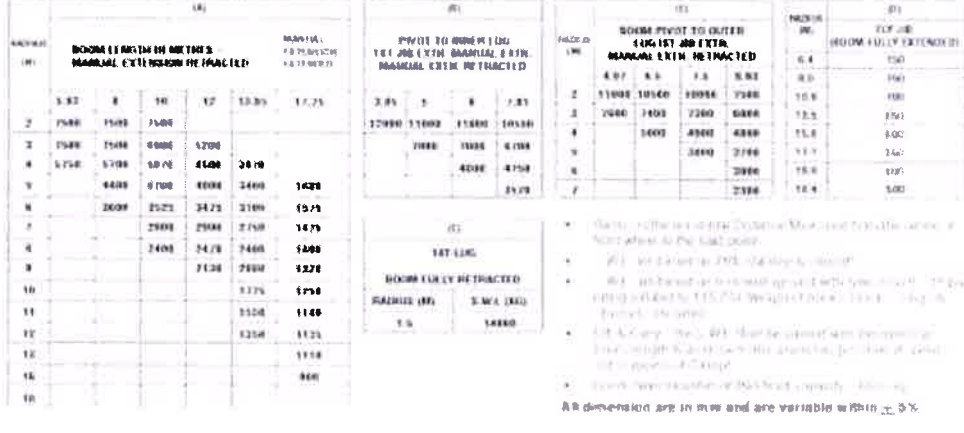
1. Ensure the vehicle brakes and wheel choker have been applied before unloading begins. Traffic control and area barricading at the working area.
2. Weight of Materials 2000 kg.
3. All material will be stacked as per stacking rules. Stacking height will not be more than 1.5 M.
4. For the lifting Materials trained Rigger will fix the slings of 5T capacity to porta cabin lifting eye with the help of D shackle with 5T capacity.
5. The slings have to be properly fixed at each end of Materials lifting eye-holes and 15 M.T crane hook. Use of guide rope to control the load with respect to crane positioning.
6. After having signal from signal Foreman, the Materials should be slightly lifted by single crane for checking balancing of the sling. Lifting load as per Crane Load Chart.
7. If balancing of lifted load found ok then crane will lift the Materials up to required height.

Working Methodology Statement

8. Keeping the material under control at all times and do not allow it to roll off the vehicle.
9. Reinforcement will be shifted to predefined location with minimum travel distance.
10. The reinforcement should be lower down to the ground crane where the exact location defined and confirm the final settlement of the same by placing wooden slipper below the load point.
11. The rigger will remove slings and D shackle from hooks of Materials and from Crane by Lower down the Cranes boom.
12. The entire decision of unloading should only be made by experienced staffs who are competent to make such a decision.

6.Crane Load Chart:





Working Methodology Statement

A. P& M USED FOR UNLOADING:

I.Farana (15MT) – 1 no.

Description of Farana	
Capacity	**14MT**
Main Boom	**10M**
Boom Type	**Telescoping Boom**
Rope Diameter	**12MM**

Slings with 5T Capacity Qty. 4 Nos.
D shackle with 5T capacity Qty. 6 Nos.
Guide Rope.

7. Inspection Procedure

To ensure the loading & unloading of reinforcement to be completed as per work methodology as mentioned above.

8. Documentation Required

- Material inward receipt on returnable basis.

9. Health and Safety Hazard Assessment

- Medical checkup of all work force.
- Induction Training.
- Tool box talk.
- Preparation of JSA.
- PTW.
- Inspection of Cranes, tools & tackles.

Prepared By
BMCPL

Approved By

Working Methodology Statement
BMCPL_WMS_ 016 - Site Sheet Barricading Work

1.0 SCOPE OF THE WORKS

This method statement has been prepared for Barricading work at side to isolate the Construction area from the existing factory.

1.1Work Permit System

All workers under goes proper induction training and having the valid gate pass.
Tool box talk should be conducted before start of the work by Concern Engg. and S.H.E.
Hot work permit will be filled as per requirement and take a clearance from client S.H.E. for work activity.
Permit will be closed after completion of activity and clearance by Site Engineer.

2.0 SEQUENCE AND METHOD

1. Work permit will be taken for Barricading activity with approved job safety analysis.
2. Putting all necessary sign boards around the work area.
3. Putting the fire extinguisher at work site.
4. Structural steel material like MS square pipe of size 50 x 50 mm will be shifted at require location manually.
5. Manual excavation will take for foundation murrum 400x400x550 and for black cotton 450x450x750
6. Electrical connection to be done by electrician.
7. Marking of the post will be done.
8. Manual excavation will take for the erecting poles by using tools as crow bar, pickets etc.
9. Than 3-meter vertical post will be fix with manually.
10. Then ensure top level by water level
11. Manual concrete will take by hand mixing for grouting in required area and material should be arrange from outside.
12. Between every 2 vertical columns 2 horizontal members will be bolted.
13. At every alternate column an inclined support will be fixed.
14. In case of unmatching of holes during alignment of structure a welding machine will be used to make slots.
15. After completion of frame precoated sheets will be shifted manually.
16. These sheets will be fixed with the help of self-tapping screw drill machine.
17. It should be noted that a gap of 100 mm should be maintained between adjacent sheets.
18. Also, from ground level a gap of 100 mm to be maintained.

3.0 Required Documents:

- CHECK LIST
- WMS
- JSA
- WORK PERMIT

- TBT

4.0 PPEs TO BE USED

- Safety helmets
- Safety shoes
- Reflective Jacket
- Safety Goggle
- Hand Gloves
- Face shield

4.1 EQUIPMENTS TO BE USED

- Drilling machine
- Welding machine
- Other Tools & Tackles

5.0 EMERGENCY PROCEDURES

In case of any accidents on site the person will be given first aid on site, Vehicle on site will take the person to the nearest hospital and treatment administered.

6.0 MONITORING WORKS

This section includes recording the progress on site and be sure that the task is accomplished in the correct way.

Overall responsibilities lie with the project manager and Execution will be done by a supervisor.

7.0 P & M Equipment's

Dumper, Excavator JCB & Miller etc.

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BMCPL

Working Methodology Statement

BMCPL_WMS_017-Welding works for fabrication works.

1.SCOPE OF THE WORKS

This method statement has been prepared for welding work on ground & height work.

2. References

- As per project specifications.

3. Control Measures

- Inspection of welding machine & drill machine requires
- Trained / competent welder requires for perform activity.

4. SEQUENCE AND METHOD

1. Work permit will be taken for welding activity with approved job safety analysis.
2. Putting all necessary sign boards around the work area.
3. Putting the fire extinguisher at work site.
4. Welding machine is placed near by the welding position.
5. Area is prepared for welding and the joint to be welded is placed on ground/ height
6. There shall be continuous supervision.
7. Using proper electric power cable for welding machine.
8. Using ELCB board for electricity purpose
9. Proper Earthing for welding machine
10. Then welding work will be under continuous supervision.
11. When work gets over remove all connections and remove welding machine, fire extinguisher one by one and put it in their place.
12. The same process will be followed for other jointing of structural members.

5. Required Documents:

- CHECK LIST
- JSA
- WORK PERMIT
- TBT

6. PPEs TO BE USED

Personal protection equipment & materials:

- Safety helmets
- Safety shoes
- Black Goggle (Welding)
- Leather Hand Gloves
- Face shield with Helmet

7. EQUIPMENTS TO BE USED

- Welding machine
- Drill machine Tools & Tackles

8. Health and Safety Hazard Assessment

- Medical checkup of all work force.
- Induction Training.
- Tool box talk.
- Preparation of JSA.
- PTW.
- Inspection of Cranes, tools & tackles.

9. EMERGENCY PROCEDURES

In case of any accidents on site the person will be given first aid on site, Vehicle on site will take the person to the nearest hospital and treatment administered.

10. Work Permit System: -

All workers under goes proper induction training and having the valid gate pass.
Tool box talk should be conducted before start the work by Concern Engg. and S.H.E.
Hot work permit will be filled as per requirement and take a clearance from client S.H.E. for work activity.
Permit will be closed after completion of activity and clearance by Site Engineer.

11. MONITORING WORKS

This section includes recording the progress on site and be sure that the task is accomplished in the correct way.
This item will be monitored by the project manager.

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BMCPL

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Working Methodology Statement

BMCPL_WMS_018 - Painting Internal & External

1. Scope & Objectives

- Painting is one of the most important & final activity in finishing works. To ensure the required finish for next activity as per specifications. - Scope of the activity includes right from the selection and finalization the vendor and its material.

2. References

- Project documents, viz. Quality plan, EHS plan, LEED and Technical Specification

of the project.

- As per approved current revision of drawings for the location / Specs / BOQ.

3. Control Measures

- Paint to be stored in dry and safe place. - Suitable base to be made for paint storage.

4. Work Location/Access Requirements

- The arrangement of material to reach final position shall be made either by accessible platform with detachable arrangement. - Safe and convenient access to the working area should be provided for the labors.

- Check for the availability of space for vehicle/Man movement and plan the same.

5. Work Methodology

- Ensure that Sample of finish is made and approved. If Necessary

- Refer the drawings for wall layout, openings, etc.

- Check that all preceding activities like masonry, window frames, Door Frames etc.

is Completed in all respect for the face painting to be received.

- Check that flooring / skirting joint levels established for plaster.

- Inspect concrete surface. If require trim the same to line level.

- Concrete and masonry joints to be made proper. Fungal growth, salty Deposits

and Laitance shall be scrubbed off.

- Check for adequacy of skilled / unskilled workers for desired output.

- Cover the window frames, moldings etc with plastic so that painting splashes do not damage the finish.

- Surface to be free from any dust.

- Putty work to be carried out as per the specification

- Primer to be applied with the help of roller/brush.

- Wall to be wet before applying primer.

- As per the specification and approved shade, painting works to be carried out.

- The paint box to be stirred properly before use.

- Paint to be diluted as per the manufacturing specification with the help of required diluter.

- Diluter to be mixed properly with paint by manual means.

- Brush to be dipped properly into the paint.

6. Inspection Procedure

- Paint finish to be checked for the consistency. 7. Documentation Required

- Manufacturers test reports and material safety data sheet. 8. Health and Safety Hazard Assessment

- Erection of caution sign boards adequate lightening & protective barricades.

- Proper lighting shall be provided for working at night.

- Check scaffolds on firm and flat surface. Cross ties are provided adequately.

- Provision walking plates, guard rail and toe guard etc to be made.

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BMCPL

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Working Methodology Statement

BMCPL_WMS_ 019- Plumbing works

1. **Scope & Objectives**
   - This is the methodology for plumbing work with HDPE Pipe laying
2. **References**
   - Project documents, viz, SHE plan and Indian Standard codes 1255-1983.
   - Plumbing layout submitted to client and hand sketches prepared as asked by PMC and Client.
3. **Control Measures**
   - Proper distribution of water supply within the site by pipes with inspection of underground utilities.
   - Mandatory Identification of Pipe routes within the premises.
4. **Work Location/Access Requirements**
   - Proper access shall be provided for the labors to lay the pipes in 0.450 m to 0.500 m deep trench
   - Provide proper access for laying pipes in site area.
5. **Work Methodology**
   - Excavation has taken with the help of excavator (JCB)/ manually of size 0.450 to 0.500 m trench
   - Excavated soil will be shifted to one meter away from trench
   - Then manually HDPE pipes shifted to the designated location with all materials.
   - Then HDPE pipe laying manually in required location for plumbing work
   - Plumbing joints will be taking by applying joint solution by manually.
   - Then pipe level should be maintained as per requirement of OGL.
   - After laying of all HDPE pipe lines in trench then backfilling will be done with the help of excavator (JCB)/ Manually.
   - Curing points will be kept as per required locations.
   - Proper excavation shall be done along the approved cable laying route as discussed with client & PMC

6. Inspection Procedure

- Check the depth of the excavation. It should be minimum 0.450m.
- Damaged pipes shall not be used.

7. Documentation Required

- Approved layout from the client and PMC.
- Work permit for the activity
- JSA for this activity.

8. Health and Safety Hazard Assessment

- Erection of caution sign boards and adequate protective barricades all the time.
- Proper illumination shall be provided for working at night.
- Wearing of PPE's as applicable for the method and by SHE Team of BMCPL
- JSA shall be available at the site during the execution.

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