

JSA (Job Safety Analysis) Sheet



Revision: R-0

Activity Name: - Porta cabin loading, unloading & Shifting by Farana

Ref- BMCPL_JSA_001

Location: -

Date:

Sr.No.	Sub-Activity Name	Type of Hazard	Risk(s) Involved	Risk Control measures	Responsibility
1	Manpower Mobilization	Untrained worker, lack of skill awareness	Personal injury	1) Only skilled & safety inducted worker shall be deputed at the work place. 2) Given Tool Box Talk to all workers. 3) Ensure Work permit during loading & unloading of Porta cabin	Engineer/Supervisor
2	Attaching tool tackles and Unloading by Farana	Fall of person & material from height due to failure of tools tackles and wire rope slings for lifting the material. Hit by material.	1) Injury to the persons working below and surrounding areas. 2) Permanent disable or fatality due to fall of material, Fatal, Injury, Property damage	1) Area barricading Ensure only certified Farana and tools tackles should use for loading and unloading of Porta cabin. 2) Lifting tools & tackles should be inspected before use. 3) Ensure Operator have valid License. Ensure guide rope shall use while lifting / loading of Porta cabin with continuous supervision. 4) Area shall be made clear for any obstruction to the material. 5) Porta cabin shall be tied with rope at each end. 6) Ensure path should be clear from any obstruction. 7) Trained Flagman should be provided for signaling. 8) Reaching at height with the help of ladder. 9) Use of PPE 100% for all workers	Engineer/Supervisor
3	Shifting and positioning of porta cabin.	Fall of material from height due to failure of tools tackles. Hit to nearby people. Crush of limbs under load.	1) Injury to the persons working below and surrounding areas. 2) Permanent disable or fatality due to fall of material, Fatal, Injury, Property damage	1) Area Barricading Ensure Only Certified Farana and tools tackles should use for loading and unloading of Porta cabin. 2) Lifting tools & tackles should be inspected before use. 3) Ensure Operator have valid License. Ensure guide rope shall use while lifting / loading of Porta cabin. Work with continuous supervision. 4) Area shall be made clear for any obstruction to the material. 5) Porta cabin shall be tied with rope at each end. 6) Ensure path should be clear from any obstruction. 7) Trained Flagman should be provided for signaling. 8) Proper supervision and coordination in between crew members.	Engineer/Supervisor
4	Releasing of farana	Fall of material, Fall of person from height.	Personal injury,	1) Trained rigger should work for the removing tools tackles. 2) Working on ladder with ladder safety norms. 3) Lowering of tools tackles safely.	Engineer/Supervisor

Note: -

1. Prior to commence any activity Tool Box Talk should be given to employees by job supervisors.
2. Work should be commenced after obtaining valid appropriate permit only.
3. All the permits will be INVALID during emergency

Prepared By:

Name:
BMCPL

Reviewed By:

Name:

Approved By:

Name:



JSA (Job Safety Analysis) Sheet

Revision: R-0

Activity Name: - Excavation

Ref- BMCPL_JSA_002

Location: -				Date:	Responsibility
Sr.No.	Sub-Activity Name	Type Of Hazard	Risk(s) Involved	Risk Control measures	
1	Manpower Mobilization	Untrained worker, lack of skill awareness	Personal injury	1)Only skilled& safety inducted worker shall be deputed at the work place. 2)Given Tool Box Talk to all workers. 3)Ensure Work permit taken for the Excavation.	SHE Officer Supervisor
2	Positioning of JCB/Poclaim at site	Road Accident, Fall of material.	Fatal, Injury, Property damage	1)Shifting work to be carried out only by vehicle route. Ensure Driver have valid licence.And work with continuous supervision. also requires valid vehicle documents. 2)Area shall be made clear for any obstruction to the material. 3)Ensure path should be clear from any obstruction 4) Required Inspection of construction vehicle	Engineer/Supervisor
3	Excavation at defined area	Hit by the machine, Electrical line	Personal Injury, Shock.	1)Trained operator will do the excavation. 2) Area will be cleared before excavation start. 3)Signal man will be provided for signaling. 4) Work under supervision. 5) Provide barricading to defined area.	SHE Officer Site Engineer
4	Material shifting by dumper	Road Accident, Fall of material.	Fatal, Injury, Property damage	1)Shifting work to be carried out only by vehicle route. Ensure Driver have valid licence. And work with continuous supervision. 2)Area shall be made clear for any obstruction to the material. 3)Ensure path should be clear from any obstruction	Engineer/Supervisor
5	Material storage at defined area	Road Accident, Fall of material.	Fatal, Injury, Property damage	1)Trained operator will do the excavation. 2) Access should be clear means free from obstructions. 3)Signal man will be provided for signaling. 4) Work under supervision	Engineer/Supervisor
6	Area barricading.	Fall of person, slip, trip,Sharp Edge.	1)Injury to the persons 2)Cut injury.	1)Trained person will work for barricading 2) Area will be checked before barricading work start. 3)All PPE will be provided for the workers 4) Work under supervision 5) Hard barricading requires for depth more than 2 meters	SHE Officer Site Engineer

5	In case of Emergency	Horseplay, Confusion	Personal injury, Property Damage	1)Emergency Communication systems should be followed. Emergency escape route will be cleared. 2)In case of Emergency Meet at Assembly Point.	SHE Manager/ Officer
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JSA (Job Safety Analysis)

Revision: R-0

Activity Name:- Anti termite

Ref- BMCPL_JSA_003

Location:-

Date:-

S.No.	Sub-Activity Name	Type Of Hazard	Risk(s) Involved	Risk Control measures	Responsibility
1	Manpower Mobilization	Untrained worker, lack of skill awareness	Personal injury	Only SHE inducted worker shall be deputed at the work place.	SHE Incharge
				Tool Box Talk shall be conducted prior start of work to all workers.	Site Engineer
				Ensure General permit.	Site Engineer
				Ensure job specific PPE	Site Engineer
2	Storage of Anti Termite Treatment Chemical	Flammable & toxic, Spillage	Fire & Ill health	Separate & Identified storage location for chemicals. Material shall be stores on Floor in container. Secondary contaminates shall be provided. Availability of Fire extinguisher shall be ensure. Caution boards & MSDS shall be displayed. Material shall be issued in day time only. Fire Extinguisher will be kept at the location.	Site Engineer
3	Transporting of Anti Termite Treatment Chemical	Spillage & unauthorized person	Skin irritation	Containers shall transport from store to work location using material handling trolley / Vehicle. Ensure Thoroughly wash the hand and other body part exposed to chemical before intaking the food/ after completion of work.	Site Engineer
4	Handling & Preparation of chemical at work location	Spillage, Splash, toxicity	Eye & Skin irritation	Secondary contaminant shall be ensured before preparation of anti-terminate solution. Wooden Stick & 200 ltr drum shall be used for mixing purpose. Eye wash bottle shall be readily available at the location. Nose Mask & Rubber gloves shall be ensured. Fire extinguisher shall be ensured at work location.	Site Engineer
5	Application of Anti Termite Chemical	Spillage , Splash, environmental issues.	Eye & Skin irritation	Work area shall be barricaded. MSDS shall be displayed & contained shall be known to all concerned. Eye wash bottle shall be readily available at the location. Nose Mask & rubber hand gloves shall be ensured. Thoroughly wash the hand and other body part exposed to chemical before intaking the food/ after completion of work. Splitting of chemical in a haphazard way to be prevented at site.Sprinkler Can shall be used.	Site Engineer
6	Disposal of Empty Containers	Miss use for other works	Fire & Ill health	Empty drums shall be taged & stored in identified area. Empty drums shall be taken out of the site and disposed off as directed. After disposal washing should be safely.	Site Engineer
				Night work permit to be taken from concern engg.and SHE dept.	Site Engineer

7	Work during dark hours	Darkness, fall of person, fall of machinery	Personal injury, damage to property	Ensure proper illumination during dark hours.(100 lux)	Site Engineer
				Electrical cable should lead min 3 m height. No exposed electrical wire.	Site Engineer
				Route shall be illuminated.	Site Engineer
8	In case of Emergency	Confusion	Personal injury,property Damage	Access, Emergency path way ,Assembly Point shall be clean,clear and communicated to all..	Site Engineer
				Emergency communication and Emergency contact nos. shall be communicated & displayed.	SHE Incharge

Note:-

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JSA (Job Safety Analysis) Sheet

Revision: R-0

Activity Name :- PCC

Ref- BMCPL JSA_004

Location :-

Date:-

S.No.	Sub-Activity Name	Type Of Hazard	Risk(s) Involved	Risk Control measures	Responsibility
1	Manpower Mobilization	Untrained worker,lack of skill awareness	Personal injury	Work Permit should be taken before start the work Only inducted worker shall be deputed at the work place.	Site Engineer
2	Work inside excavated pit and assess egress	Fall of loose soil in pit	Personal injury	Tool Box talk on Activities to be carried out on daily basis, hazards associated with the activities. Precautions to be taken.	Site Engineer
		Slip and trip due to uneven surface,access		Loose soil and material stacking is 2 mtr away from the working pit. Pit to be hard barricaded, cautionary boards shall be displayed. Proper steps or slop should be maintain.	Site Engineer
		Matrial handling	Personal injury	Access and Egress should be cleared from abtacles, free from the unwanted materal. Ladder should be inspected properly.	Site Engineer
		a.Fall hazard b.Injury due to sharp edges of the stones.	Personal injury	Ensure all hand tools should be proper and inspected on prior to use. All workmans must be undergo proper material handling training. Ensure cotton hand gloves and other required PPE s should be used while handling of stones.	Site Engineer
		Improper access.	Fall of person, personal injury.	Use of PPE(Helmet,Gloves, reflective jacket,Safety Shoes & goggles. Ladder should be inspected properly.	Site Engineer
		Slip and fall in pit, Excavated material like soil, boulder laid on pit edge.	Personal injury, fall of material	Only approved ladder to be used. Ladder to be rested against the firm base Remove material form edge & safety net will be used where lose material will present.	Site Engineer
3	Shuttering and Deshuttering	Contact with sharp edges, protruding nails, fall and slip of material, material handling	Cut Injury, personal injury	Only skill carpenters deployed for the work. Tool box talk on daily basis conducted before start the work. Material should be stacked properly, access must be clear . Cotton hand gloves used by the workers. Other required PPE's used during the work. All hand tools must be inspected.	Site Engineer
4	Vehicle movement	Uneven surface	Damage to vehicle	Remove soil, boulder from the edge of excavated pit. Excavated material to be placed at 1mtr distance from the pit	Site Engineer
		Vehicle fall down inside the pit	Personal injury, Property damage	Proper route shall be identified and maintained.	Site Engineer
				Vehicle should stop min 2 m from excavated pit edge.	Site Engineer
				Define route for entry and exit from work place.	Site Engineer
				Hard Barricade should be provide for pits	Site Engineer
		Using stopper for stopping of the vehicle. Vehicle should be directed by trained person. Provision of chute resting on ledger with proper tying arrangement.	Site Engineer		

5	Concreting pouring by transit mixer	Fall of person or vehicle into the pit, exposure of skin to cement	Personal injury, damage to property	Work Permit should be taken before start the work	Site Engineer
				Ensure Banksman should be provided at workplace to signal ing the vehicle.	Site Engineer
				Hard Barricade should be available to rest and fix the chute while concrete pouring.	Site Engineer
				Ensure that the workers maintain safe distance while pouring of concreting and is secured properly.	Site Engineer
				Ensure use of relevant PPE's before start of the work.	Site Engineer
				Direct concreting shall be done using a chute, in case it is not possible,concreate to poured in tray and same shall be carried by workers.	Site Engineer
				No person to be available in pit during unloading.	Site Engineer
				Use of wooden or metal stoppers at the rear wheels.	Site Engineer
				In case of person stand inside the hard barrication then he should wear full body safety harness and anchored to ledger.	Site Engineer
				Use of wooden or metal stoppers at the rear wheels.	Site Engineer
6	Use of the vibrator level the concrete in the pit	a. Slip and trip of person b. Slip of Vibrator. b. Electrical Shock c. Splash of the concrete in eyes	Personnel Injury ,Property damaged.	Area to be concreted shall be barricaded against unauthorized entry. Ensure only inspected vibrator should be used at work place.Ensure only authorised and skilled person should operate vibrator . Ensure use of required PPEs should be used at work place.Electrical connections should be done by only electrician. Vibrator to be operated by standing inside the pit or standing outside the pit.	Site Engineer
7	Removal of stones from the pit for cleaning and dressing work	Darkness, fall of person, fall of machinery & material	Personal injury, damage to property	Use of ELCB, blower to be inspected for electrical connections. Use of PPE (Safety Shoes,helmet, Reflective jacket, safety goggle & safety shoes) Safety net should be used wherever lose material found	Site Engineer
8	Work during dark hours	Darkness, fall of person, fall of machinery	Personal injury, damage to property	Night work permit to be taken from concern engg.and safety dept.	Site Engineer
				Ensure proper illumination during dark hours.	Site Engineer
				Electrical cable should lead min 2 m height. No exposed electrical wire.Earthing.	Site Engineer
				Route shall be illuminated.	Site Engineer
9	In case of Emergency	Confusion	Personal injury, property Damage	Access, Emergency path way, Assembly Point shall be clean,clear and communicated to all..	Site Engineer
				Emergency communication and Emergency contact nos. shall be communicated.	SHE Incharge
<p>Note:- 1. Prior to commence any activity Tool Box Talk should be given to employees by job supervisors. 2. Work should be commence after obtaining valid appropriate permit only. 3. All the permits will be INVALID during emergency</p> <p>Prepared By: Name: BMCPL</p> <p>Reviewed By: Name:</p> <p>Approved By: Name:</p>					

JSA (Job Safety Analysis) Sheet

Revision: R-0

Activity Name:- Reinforcement work with binding

Ref- BMCPL_JSA_005

Location:-

Date: -

S.No.	Sub-Activity Name	Type Of Hazard	Risk(s) Involved	Risk Control measures	Responsibility
1	Manpower Mobilization	Untrained worker,lack of skill awareness	Personal injury	Only inducted worker shall be deputed at the work place.	SHE Incharge
				Given Tool Box Talk to all workers. Ensure Work permit during loading & unloading of materials.	Site Engineer
2	Unloading Reinforcement near pit	Fall hazard Cut Injury due to sharp edges.	Personal injury	Designated location for the storage of the reinforcement rods. Use of safety shoes,gloves,helmet , goggle , cut resistant hand gloves and reflection jacket.	Site Engineer
3	Entering inside the pit	Fall hazard	Personal injury	Only approved standard ladder to be used. Placing ladder on the stiff firm base surface. Resting ladder against the stiff surface. Top of the ladder to project atleast 1 mtr outside the pit While ascending and descending on the ladder always maintain three point contact	Site Engineer
4	Shifting reinforcement in the pit	Head injury Fall of material Wire piercing in the finger	Personal injury	Only Trained people deployed for work .Evaluate the weight & distance to be travelled prior shifting the pumps. Use of vehicle for shifting if distance is long. Use Appropriate manpower with required PPE. Use of PPE such as safety shoes, helmet PVC hand gloves, goggle and shoulder pad.	Site Engineer
5	Erecting the reinforcement in the pit	Sharp object, Fall of person , Fall of material	Cut,slip Injury, impact Penetration Fall of person, material	Use of PPE such as safety shoes, helmet PVC hand gloves, safety goggle and shoulder pad. Work shall be carried out by competent person under proper supervision of foremen / incharge. Use of certified scaffolds for tying reinforcement at the site.	Site Engineer
6	Reinforcement Binding	Sharp object, Fall of person , Fall of material	cut, slip	Use cut resistance hand gloves	Site Engineer
				Work shall be carried out by competent person under proper supervision of foremen / incharge.	Site Engineer
			fall of person, material	Use of proper scaffolds for tying reinforcement at the site.	Site Engineer
				Provide proper platform on Scaffolds.	Site Engineer
				Ensure workmen should have shoulder pad.	Site Engineer
				Ensure access should be clear for unwanted and slippery materials.	Site Engineer
				Ensure long steel should be shifted by sufficient no. of workmen	Site Engineer
				Working area should be barricaded to prevent unauthorized entry.	Site Engineer
Ensure steel should be shifted through shifting platform from ground to working platform . Use FBSH above 1.5 Mtr Height	Site Engineer				
Ensure reinforcement should be stack 1.5 mtr away from the working area.	Site Engineer				
				Night work permit to be taken from concern engg.and safety dept.	Site Engineer

7	Work during dark hours	Darkness, fall of person, fall of machinery	Personal injury, damage to property	Ensure proper illumination during dark hours.	Site Engineer
				Electrical cable should lead min 2 m height. No exposed electrical wire. Earthing.	Site Engineer
				Route shall be illuminated.	Site Engineer
8	In case of Emergency	Confusion	Personal injury, property Damage	Access, Emergency path way ,Assembly Point shall be clean, clear and communicated to all.	Site Engineer
				Emergency communication and Emergency contact nos. shall be communicated.	SHE Incharge

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BMCPL

Reviewed By:

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JSA (Job Safety Analysis) Sheet

Revision: R-0

Activity Name:- Scaffolding erection .

Ref- BMCPL_JSA_006

Location:-				Date :	Responsibility
Sr.No.	Sub-Activity Name	Type Of Hazard	Risk(s) Involved	Risk Control measures	
1	Manpower Mobilization	Untrained worker, lack of skill awareness	Personal injury	1)Onlyskilled& safety inducted worker shall be deputed at the work place. 2)Given Tool Box Talk to all workers. 3)Ensure Work permit should be taken before starting of work	SHE OfficerSupervisor
2	Material Shifting	Cut, Sharp Edge. Fall of material., Hit by material,	Personal Injury, Property damage	1)Shifting work to be carried out only by trained worker. 2)Area shall be made clear for any obstruction to the material storage. 3)Ensure path should be clear from any obstruction 4)All mandatory PPEs should be wore 5)Barricading should be done.	Supervisor
3	Erection on firm ground.	Fall of material during Lifting Sharp Edge, Topling of the scaffolding.	Personal Injury,	1)Trained experienced workers will erect the scaffolding. 2)Area will be barricaded before strating of work. 3) Ensuring firm ground support will be there to withstand the load of the scaffolding. 4) Looking for the other utilities during erection work. 5)For horizontal level of the scafflodng jacks must be adjusted. 6) For lifting material of scaffolding PP rope will be used. 7) looking for the other utilies befor erection work. 8) Before completion of the scaffolding erection safety tag will be attached.	Site Engineer
4	Attaching the platform and ladder& its support on the horizontal member	Fall of material during lifting Sharp Edge, Topling of the scaffolding.	Personal Injury, Property damage.	1)Trained experienced worker will erect the scaffolding. 2)Area will be barricaded before strating of work. 3) Ensuring firm ground support will ne ther to withstand the load of the scaffolding. 4) For lifting material of scaffolding PP rope will be used. 5) Rigid support will be provided at ground for supporting stabilizer at ground. 6) Soft hammer will be used for the fitting purpose.	Site Engineer
5	Attaching ledger for supporting scaffolding.	Fall of material during attach aching Sharp Edge, Topling of the scaffolding., Fall of person	Personal Injury, Property damage.	1)Trained experienced worker will erect the scaffolding. 2)Area will be barricaded before strating of work. 3) Ensuring firm ground support will ne ther to withstand the load of the scaffolding. 4)sole plate and Base plate will be placed on the ground. 5) For lifting material of scaffolding PP rope will be used. 6)Fixng support will be given to the stabilizer on ground.	Site Engineer
6	Erection of scaffold above 2 Meters.	Fall of material during attachaching Sharp Edge,Topling of the scaffolding.	Personal Injury, Property damage.	1)Trained experienced worker will erect the scaffolding. 2)Area will be barricaded before strating of work. 3) Ensuring firm ground support will ne ther to withstand the load of the scaffolding. 4) Strict supervision will be provided. 5)For lifting material of scaffolding PP rope will be used. 6) Rigid Supports will be given to the whole structure.	Site Engineer

7	Attaching Top & mid rail and toe board on top platform at height	Fall of material during attaching Sharp Edge, Toppling of the scaffolding., Fall of person	Personal Injury, Fatal Property damage.	1) Trained experienced worker will erect the scaffolding. 2) Area will be barricaded before starting of work. 3) Ensuring firm ground support will be there to withstand the load of the scaffolding. 4) Sole plate and Base plate will be placed on the ground. 5) For lifting material of scaffolding PP rope will be used. 6) After completion of the scaffolding erection safety tag will be attached.	Site Engineer
8	In case of Emergency	Horseplay, Confusion	Personal injury, Property Damage	1) Emergency Communication systems should be followed. 2) In case of Emergency Meet at Assembly Point. 3) Emergency Escape route will be kept clear.	SHE Manager/ Officer

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Prepared By:
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BMCPL

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JSA (Job Safety Analysis) Sheet

Revision: R-1

Activity Name: - Shuttering making work at carpentry yard

Ref- BMCPL-JSA-007

Location: -

Date: -

S.No.	Sub-Activity Name	Type of Hazard	Risk(s) Involved	Risk Control measures	Responsibility
1	Manpower Mobilization	Untrained worker, lack of skill awareness	Personal injury	Only inducted worker shall be deputed at the work place.	SHE Incharge
				Given Tool Box Talk to all workers.	Site Engineer
				Ensure Work permit	Site Engineer
2	Shuttering making work	Unauthorized Operation	Injury to workmen	Authorized operators are allowed to Operate the wood working M/c.	Site Engineer
		Unguarded rotating parts	Entanglement & Amputation	All rotating parts are guarded. Emergency Stop buttons requires. Working area is demarcated and kept free of material at all times. Strict supervision must be ensured while working on M/c.	Site Engineer
		Improper Approach	Slip, trip & fall	Approach to the work area is kept clean.	Site Engineer
		Poor Housekeeping	Trip, Fall & Injury	Regular Housekeeping is maintained. Space around machine is free from obstruction. A cordoned area is demarcated to dump the wood shavings, dust & Pieces.	Site Engineer
			Fire	Saw dust is not accumulated near by the machine. Regular cleaning for saw dust is maintained. Fire Extinguishers should be provided near to the M/c. Adequate Water should sprinkle. Smoking is strictly prohibited.	Site Engineer
Electricity	Electrocution	Cables are routed through conduits and through RCCB. Earthing for DB & metallic equipment. Frequent checking of RCCB. Authorized electrician are deployed for maintenance & rectification works	Site Engineer		

3	Maintenance	Injury to personnel	Serious Injury	Electrical supply of M/c should be shut off before starting the maintenance work.	Site Engineer
4	Health	Saw Dust	Breathing Problem	Saw dust are regularly collected & dumped in saw dust dumping yard	Site Engineer
		Over hours of working.	Fatigue	Work hours of each workman to be controlled to maximum 08 hours only	Admin officer / Site Engineer
5	Work during dark hours	Darkness, fall of person, fall of machinery	Personal injury, damage to property	Night work permit to be taken from concern engg.and SHE dept.	Site Engineer
				Ensure proper illumination during dark hours.	Site Engineer
				Electrical cable should lead min 2 m height. No exposed electrical wire. Earthing.	Site Engineer
				Route shall be illuminated.	Site Engineer
6	In case of Emergency	Confusion	Personal injury, property Damage	Access, Emergency path way, Assembly Point shall be clean, clear and communicated to all.	Site Engineer
				Emergency communication and Emergency contact nos. shall be communicated.	SHE Incharge

Note: -

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JSA (Job Safety Analysis) Sheet

Revision: R-0

Activity Name: - Concrete works for plinth beam

Ref- BMCPL_JSA_008

Location:-

Date: -

S.No.	Sub-Activity Name	Type of Hazard	Risk(s) Involved	Risk Control measures	Responsibility
1	Manpower Mobilization	Untrained worker, lack of skill awareness	Personal injury	Only inducted worker shall be deputed at the work place.	SHE Incharge
				Given Tool Box Talk to all workers. Ensure work permit is taken and signed by concerned Engg. & Safety Officer	Site Engineer
2	Plinth beam dowels	Slip, trip hazard	Personal injury, eye injury	Provide rebar cap for protection. Provide barricades or caution tape for identification.	Site Engineer
3	Drilling operation	Cutting of drill bit, flying chips	Personal injury	Drill bit mounted shall inspected before use. Provide tag after inspection. Need to be proper housekeeping after work. Use of proper PPE.	Site Engineer
4	Chipping	Flying chips, burr generated	eye injury	Ensure mandatory PPE as safety goggle/face shield & hand gloves etc. Ensure machine is stop before cleaning . Inspect machine before use.	Site Engineer
5	Vibrator	Electrical shock	Personnel injury, Fatal accident	Inspect electrical equipment before use as electrical cable. Supply shall be ensured through 30 mA rated ELCB /RCCB. Use of good insulation electrical cable. Electrical cable should be routed properly	Site Engineer
6	Concrete Mixing by machine/ Manually	Unauthorized Operation	Injury to the operator & work crew	Only authorized operator operates the mixer machine. Authorized operator identity to be provided. Lock & Key System to be implemented.	Site Engineer
		Unguarded Rotary parts	Entanglement & Amputation	All the rotating parts (of Mixer machine) are covered / guarded. Workmen with loose attire not engaged.	Site Engineer
		Loading Hopper Movement	Hit Injury, Entanglant	Barricading around the skip bucket is available.	Site Engineer
		Slippery Surface / Projecting Materials	Slips & Trips / Hit Injury	Loading crew are entrusted to clean the approach every day.After every rain, crew will clear the mud, water stagnation & slippery surface.	Site Engineer
		Improper Electrical connections	Electrocution	For Electrically Powered Mixer Machine Use of Industrial type Plug top for the machine Routing thro RCCB /ELCB . Energized by Double insulated cable. Cable route should be above 2 mt height Provision of Main earth & Body earthing. Regular Electrical Inspection. clearance after every rain & after every installation. Connection made by only electrician	Site Engineer

		Contact with chemicals	Alkali burn & Eye Injury	Use of Rubber Hand gloves, gumboots & Goggles / Face shield during concreting work. Washing of hands before eating & drinking and at the end of work. MSDS should be displayed at site.	Site Engineer
7A	Concrete pouring by transit mixer & Chute	Improper Access	Personal injury	Work should carried out under close supervision.	Site Engineer
				Ensuring worker for maintaining safe distance while pouring of concreting inside the pit.	Site Engineer
				Safe access should be provided	Site Engineer
				Proper Chute shall be used for concreting pouring. No one shall be allowed to stand below the chute	Site Engineer
				Workers inside the pit shall be trained for receiving concrete.	Site Engineer
		Unsecured /less width / gap in platforms	Fall material	Provision of access either by Ladder / Scaffold tower with platform / ramp / stair tower / stair case / steps. Maintaining the steps / ramp free of loose gravel, sand etc.	Site Engineer
		Un guarded platform	Fall person	Handrail provision as per SOP for the work platform at height works.	Site Engineer
Improper Electrical connections	Electrocution	Use of Industrial type Plug top for the machine Routing thro RCCB / ELCB Energized by Double insulated cable No Cable joints Nearer to the machine. Provision of Main earth & Body earthing.	Site Engineer		
Haphazard Routing of vibrator cable.	Slips & Trips	Vibrator cable routed away from the access & approach.	Site Engineer		
No use of fall arrest device for height work	Fall of person	Use of full body harness during height work. Use of lifeline to anchor the full body harness	Site Engineer		
7B	Boom placer vehicle movement & Self supporting	Vehicle fall down /Uneven surface/failure of balance	Personal injury, Property damage, over turning of vehicle	Ensure all valid documents of vehicle & driver.	SHE Incharge
				Define route for entry and exit from work place.	Site Engineer
				Vehicle should be driven by valid licensed driver only.	SHE Incharge
				Self supporting shall be done on rigid surface only.	Site Engineer
				Outriggers must be opened to its fullest.	Operator
	Concrete Pouring by Boom Placer	Fall of material/Concrete	Personal injury	Ensure banks man while pouring concrete at specific location.	Site Engineer
				Checking of boom swing movement.	Site Engineer
				Checking of boom swing clearance.	Site Engineer
				Ensure first positioning for water / slurry passing.	Site Engineer
				Ensure final pouring positioning.	Site Engineer
				Ensure hose pipe downward direction while cleaning.	Site Engineer
				Only skilled and trained worker shall be deputed at the work place.	Site Engineer
				Hard barrication to periphery to prevent fall from edges	Site Engineer
Ensure full body safety harness anchor by each workmen.	Site Engineer				
Ensure recommended PPE should be used by worker such as safety shoes, helmet, hand gloves goggles ,gumboot & dust mask.	Individual worker				

				Acces should be clear and free from obstruction.Scaffold shall be erected on even surface by providing base plate, side support and ledgers .Steps should be fully covered.	Site Engineer
8	Health	Contact with chemicals	Alkali burn & Eye Injury	Use of Rubber Hand gloves, gumboots & Goggles during concreting work. Washing of hands before eating & drinking and at the end of work	Individual worker
		Excessive working Hours	Fatigue	Not allowed to work for more than a shift. Job Rotation	Admin Officer
		Vibration from needle Vibrator	Numb Fingers	Regular maintenance of Vibrator. Job Rotation to reduce exposure. Proper Aduate PPEs	Site Engineer
		Noise	Fatigue	Not allowed to work for more than a shift. Job Rotation. Ear plug shall be provided	Admin Officer
9	Environment	Idle Running of all M/c	Energy consumption	Switch off power or engine to avoid idle running.	Site Engineer
		Exhaust emission	Air Pollution	Regular maintenance by the site Engr & PUC for vehicle	Site Engineer
		Oil & Fuel spill	Land pollution	Use of funnel to fill the diesel / lubricating oil etc. Contain the spillage by spill tray	Site Engineer
		Discarded parts	Land & water Pollution	Discarded parts collected at P&M Workshop and disposed to the landfill area. Not throwing directly on the land & streams.	Site Engineer
		Concrete Wastage	Natural Resource depletion	Avoid concrete wastage by meticulously planning & cross checking with the requirement.	Planning Engineer
10	Work during dark hours	Darkness, fall of person, fall of machinery	Personal injury, damage to property	Night work permit to be taken from concern engg.and SHE dept.	Site Engineer
				Ensure proper illumination during dark hours.	Site Engineer
				Electrical cable should lead min 2 m height. No exposed electrical wire.Earthing.	Site Engineer
				Route shall be illuminated.	Site Engineer
11	In case of Emergency	Confusion, Horseplay	Personal injury,property Damage	Access, Emergency path way ,Assembly Point shall be clean,clear and communicated to all..	Site Engineer
				Emergency communication and Emergency contact nos. shall be communicated.	SHE Incharge

Note:-

1. Prior to commence any activity Tool Box Talk should be given to employees by job supervisors.
2. Work should be commence after obtaining valid appropriate permit only.
3. All the permits will be INVALID during emergency

Prepared By:
Name:
BMCPL

Reviewed By:
Name:

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Name:



JSA (Job Safety Analysis) Sheet

Revision: R-0

Activity Name: - Backfilling works

Ref- BMCPL_JSA_009

Location: -

Date: -

S.No.	Sub-Activity Name	Type Of Hazard	Risk(s) Involved	Risk Control measures	Responsibility
1	Manpower Mobilization	Untrained worker, lack of skill awareness	Personal injury	Only SHE inducted worker shall be deputed at the work place. Valid work permit shall be obtained prior start of work Safe access shall be provided.	SHE Incharge
				No person to be available in pit during backfilling activity. a. Ensuring all the labour for use safety helmet, reflective jacket, safety shoes PPEs. b. Conducting Tool Box Talk	Site Engineer
2	Loading and unloading by dumper	Fall / slip dumper / collision	Personal injury, property damage	Evaluating the capacity of loading the dumper. Provision to signal man at unloading process. Only certified driver operate the dumper. Use wheel choker at edge for vehicle.	Site Engineer
		Struck by Equipment / Topple of bucket	Personal injury, property damage	Workers shall not allowed to stand in loading & unloading area. This activity shall be performed under close supervision and dedicated signalman.	Site Engineer
3	Compaction	Fall / slip dumper / collision Struck by Equipment Electrocution	Personal injury, property damage	Only certified operator will operate compactor. Inspection requires for compactor or roller. Proper electrical connection requires from DB with ELCB provided in DB. Safety guard should be provided for moving parts.	Site Engineer
4	Health	Dust	Breathing problems,	Regular water sprinkling on the excavation area & access road is ensured.	Site Engineer
5	Environment	Idle Running	Energy consumption	Switch off power or engine to avoid idle running.	Site Engineer
		Exhaust emission	Air Pollution	Pollution check as per legal requirement Weekly maintenance by the Engr	Engineer
		Oil & Fuel spill	Land pollution	Use of funnel to fill the diesel / lubricating oil etc. Contain the spillage by spill tray.	Site Engineer
		Dust	Air Pollution	Water sprinkling system is implemented	Site Engineer

6	In case of Emergency	Confusion	Personal injury,property Damage	Access, Emergency path way ,Assembly Point shall be clean,clear and communicated to all..	Site Engineer
				Emergency communication and Emergency contact nos. shall be communicated & displayed.	SHE Incharge
<p>Note:-</p> <ol style="list-style-type: none"> 1. Prior to commence any activity Tool Box Talk should be given to employees by job supervisors. 2. Work should be commence after obtaining valid appropriate permit only. 3. All the permits will be INVALID during emergency 					
Prepared By: Name: BMCPL		Reviewed By: Name:		Approved By: Name:	



JSA (Job Safety Analysis) Sheet

Revision: R-0

Activity Name:-

Ref- BMCPL_JSA_010

Location:- Site area, Phase - II

Date:-

Responsibility

S.No.	Sub-Activity Name	Type Of Hazard	Risk(s) Involved	Risk Control measures	Responsibility
1	Manpower Mobilization	Untrained worker,lack of skill awareness	Personal injury	Only SHE inducted workers shall be deputed at the work place.	SHE Incharge & Structural Incharge
				Given Tool Box Talk to all workers.	Structural Engineer
				Ensure Work permit	Site Engineer
2	Material Mobilization	Uninspected Defective Material mobilization	Personal injury , Property Damage	Inspected and Safety Taged power tools shall be deployed. Power tools daily inspection by electrician ,safety steward or Engineer.	Site Engineer
3	Shifting of material by manually	Slip & Fall of instrument ,Sharpe edges,	Personnel Injury, Property damage	Access and egress should be safe for person movement.	Site Engineer
			Cut injury	Required PPE's like cotton hand gloves etc use by workers. Supervision for monitoring the work.	Site Engineer
		Sharp edge, material handling , slip and trip hazards	Cut injury , Property damage,	Only train person deployed for the hadling of power tools or hand tools, Use of PPE's work place area should be even and safe access provided upto the work place.	Site Engineer
			Slip , Trip, uneven surface, Not using PPE	Personal injury	Only trained person deployed for the task.
		Ensure person standing on plane surface with sufficient visibility & light.			Site Engineer
		Ensure use of PPE.Safety Shoes,helmet , reflective jacket and cotton handgloves.			Site Engineer
		Ensure FBSH while checking giving points on columns/slabs & other such height work.	Site Engineer		
Ensure use of inspected and certified ladder.	Site Engineer				
4	Access to Work location - Use of Access Ladder & work platform	Fall of men , material, Damaged ladder, Insufficient platform	Personal injury , property damage	Inspected and Safety Taged Ladder of approved type shall be deployed.Ladder shall be fixed at an angle of 75 degress. Ladder shall be clamped at bottom and top to prevent tilting /fall. It shall extend 1 mtr above landing. Workplatform gratings (Minimum two) shall tied . Two lifeline (25 mm Rope or 1/2 inch wire rope) shall used and tied to strong structure by c clamps and bull dog grip.(Use Minimum 3 c clamps)	Site Engineer
		Loose cable , cable with improper joints	Overheating & burning of welding cables, fire hazard	Cable is checked for its tightness by the welder before starting the job.Returns cable shall ground strong structural member by using luggs and nutbolting. Length of Holder cable shall be as per Manufacturer Norms or As per Relavent National Standard . Holder cable shall not have joints.	Site Engineer

5	Fixing of plate with binding	Machine overheating, electricity	Machine burnout, electrocution	Depending upon Welding rod size and Rated current capacity welding machines shall be deployed considering 80% capacity against rated one. Machine shall possess voltage stabilizers. Incoming supply shall be through automatic capacitor bank to control supply frequency & 30 ma rated ELCB /RCCB. Machine Insulation and transformer winding shall be checked by authorized electrician (Merger Test).	Site Engineer
		Worn out / defective welding holders	Electrocution to the welder	Standard Insulated Welding holders shall be taken into use.Daily check by Welder for damages.Replaced immediately when found damaged. Provision of Main earth & Body earthing.	Welder / Electrician
		Failure to use PPEs	Fall hazard	Daily TBT & Continous supervision.Use cut resistance hand gloves.	Structural Engineer & SHE Officer
		Fall of Material & Men from height	Hit Injury , Burns ,Personal injury , property damage	Work shall be carried out by competent person under proper supervision of foremen / incharge. Use of proper scaffolds for tying reinforcement at the site.	Structural Engineer
		Unsafe work postures	Muscle pain , fatigue	Adeqaute workplatform shall be provided in scaffold so that welder is in comfortable positions . Welder shall take adequate rest interval . Welder shall not lean outside , stand on boom lift railing for welding purpose.	Structural Engineer
6	Environment	Generation of toxic gases, fumes etc	Air Pollution	Welding to be done as per the need of the site in well ventilated place	Structural Engineer
		Throwing of welding butts at site	Land Pollution	Welding butts are stored in small box and returned to store dept	Structural Engineer
7	Work during dark hours	Darkness, fall of person, fall of machinery	Personal injury, damage to property	Night work permit to be taken from concern engg.and SHE dept. only for defined areas - mention grids , levels in permit.	Structural Engineer
				Ensure proper illumination during dark hours. (100 to 110 lux)	Structural Engineer
				Electrical cable should lead min 2 m height. No exposed electrical wire.Earthing.	Structural Engineer
				Route shall be illuminated. (25 to 35 lux)	Structural Engineer
8	In case of Emergency	Confusion	Personal injury,property Damage	Access, Emergency path way ,Assembly Point shall be clean,clear and communicated to all.	Structural Engineer
				Emergency communication and Emergency contact nos. shall be communicated and displayed	SHE Incharge

Note:-

1. Prior to commence any activity Tool Box Talk should be given to employees by job supervisors.
2. Work should be commence after obtaining valid appropriate permit only.
3. All the permits will be INVALID during emergency

Prepared By:

Name:
BMCPL

Reviewed By:

Name:

Approved By:

Name:



JSA (Job Safety Analysis) Sheet

Revision: R-0

Activity Name :- Block/ Brick & plastering works

Ref- BMCPL_JSA_012

Location :-

Date:-

S.No.	Sub-Activity Name	Type Of Hazard	Risk(s) Involved	Risk Control measures	Responsibility
1	Manpower Mobilization	Untrained worker, lack of skill awareness	Personal injury	Only inducted worker shall be deputed at the work place.	SHE Incharge
				Given Tool Box Talk to all workers. Ensure Work Permit.	Site Engineer
2	Stacking the block/ Bricks	Chances of collapse of stacked block	Injury	Ground should be properly levelled and rolled. Stack height should be restricted up to 1.5mtr height. Strict supervision should be ensured during stacking the block/ bricks	Stores Officer
3	Shifting of materials manually to ground & height level	Improper material handling Unsafe work platform, Improper storage, collapse of scaffold due to load	Injury & strain	Access should be clear and free from material. Load should be lifted as per capacity.	Site Engineer
			Fall of men & materials	Platform stability is checked before put on use. Hard barricading is provided with toe boards.	Site Engineer
4	Preparing the mortar	Cement mortar, cement dust	Skin dermatitis	Usage of rubber hand gloves and gumboot Usage of nose mask & safety goggles. Waste debris will be stored in debris yard. MSDS will be displayed regarding cement or any other chemical for binding works.	Individual worker
5	Block/ Brick work on ground/ height	Unguarded floor edge, Fall from height	Personal injury	Usage of safety harness with static lifeline. Blocks/ Bricks are kept 1m away from the edges of the building. Area beneath height work is cordoned. Proper scaffolding required for height work. Scaffolding inspection will be done before use.	Site Engineer
6	Health	Dust	Breathing problems,	Regular water sprinkling on the excavation area & access road is ensured. Dust mask is provided to all workers engaged nearby the dumping area.	Site Engineer
7	Environment	Bricks & Mortar wastage	Waste of resources	Reducing the wastage of cement mortars. Collection of waste should be taken at site. Separate waste yard will be provided for collection of debris & waste. Collection of cement bags or mortar bags should be implemented.	Site Engineer
		Dust	Air Pollution	Water sprinkling system is implemented	Site Engineer
8	Work during dark hours	Darkness, fall of person, fall of machinery	Personal injury, damage to property	Night work permit to be taken from concern engg. and safety dept.	Site Engineer
				Ensure proper illumination during dark hours.	Site Engineer
				Electrical cable should lead min 2 m height. No exposed electrical wire. Earthing.	Site Engineer
				Route shall be illuminated.	Site Engineer

9	In case of Emergency	Confusion	Personal injury,property Damage	Access, Emergency path way ,Assembly Point shall be clean,clear and communicated to all..	Site Engineer
				Emergency communication and Emergency contact nos. shall be communicated.	SHE Incharge

Note:-

1. Prior to commence any activity Tool Box Talk should be given to employees by job supervisors.
2. Work should be commence after obtaining valid appropriate permit only.
3. All the permits will be INVALID during emergency

Prepared By:

Name:
BMCPL

Reviewed By:

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JSA (Job Safety Analysis) Sheet

Revision: R-0

Activity Name :- Soling work

Ref- BMCPL_JSA_012

Location :- Site area, Phase - II			Date:-	Responsibility	
S.No.	Sub-Activity Name	Type Of Hazard	Risk(s) Involved	Risk Control measures	
1	Manpower Mobilization	Untrained worker	Personal injury	Only inducted worker shall be deputed at the work place.	SHE Incharge
2	Loading & unloading	Fall/Slip of excavator & dumper	Fatal Accident	Ensure valid work permit. Evaluating the capacity of the dumper	Site Engineer
				Provision of banks man for guiding the process and stopper for vehicle.	Site Engineer
				Ensuring the level ground for unloading dumper at dumping area.	Site Engineer
		Slip of excavated material	Personal injury	Ensuring safe working height for stacking of the material.(1.5 mtrs)	Site Engineer
3	Placing of stone	Slip, trip & fall of material	Personal injury	Mandatory PPE should be used. Access should be clear and free from obstruction. Area should be barricaded. Provide traning for manual material handling.	Site Engineer
4	Working on placed stone	Slip, trip & fall of person	Personal injury	Supervision should be strictly requies in work place. Use wooden/ MS planks for movements.	Site Engineer
5	Material transports	Road accident	Personal injury, loss of properly	Identifying the route of the vehicle.	Site Engineer
				Checking the competency of the vehicle driver	Site Engineer
				Checking of authorization papers of driver & vehicle.	SHE Incharge
				Confirming fitness of the vehicle- viz. breaks, tale lamps, reverse horns.	Site Engineer
6	Work during dark hours	Darkness, fall of person, fall of machinery	Personal injury, damage to property	Night work permit to be taken from concern engg.and SHE dept.	Site Engineer
				Ensure proper illumination during dark hours.	Site Engineer
				Electrical cable should lead min 2 m height. No exposed electrical wire.Earthing.	Site Engineer
				Route shall be illuminated.	Site Engineer
7	In case of Emergency	Confusion	Personal injury, property Damage	Access, Emergency path way ,Assembly Point shall be clean,clear and communicated to all.	Site Engineer
				Emergency communication and Emergency contact nos. shall be communicated.	SHE Incharge

Note:-

1. Prior to commence any activity Tool Box Talk should be given to employees by job supervisors.
2. Work should be commence after obtaining valid appropriate permit only.
3. All the permits will be INVALID during emergency

Prepared By:

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BMCPL

Reviewed By:

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Approved By:

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JSA (Job Safety Analysis) Sheet

Revision: R-0

Activity Name :- Diamond saw cutting, breaking, chipping of concrete, rebaring & concrete casting.

Ref- BMCPL_JSA_013

Location :-

Date:-

Responsibility

S.No.	Sub-Activity Name	Type Of Hazard	Risk(s) Involved	Risk Control measures	Responsibility
1	Manpower Mobilization	Untrained worker, lack of skill awareness	Personal injury	Only SHE inducted & experienced operators shall be deputed at the work place.	SHE Incharge
				Given Tool Box Talk to all workers.	Site Engineer
				Ensure Work permit for the same activity.	Site Engineer
2	Barricading area	Slip trip & fall of material	Personal injury	Inspected material used for barricading work. Safe access should be provided in work place. Strict supervision should be provided at work location.	Site Engineer
3	Concrete cutting by grooving operation	Improper access.	Hit Injury, Slip trip	Good housekeeping is maintained. Access is free from unwanted materials.	Site Engineer
		Unauthorized operation	Injury to operator & Work crew	Only authorized person to operate the cutting M/c. Power shall be disconnected when machine not in use. Identity of the authorized operator to be displayed near M/c's.	Site Engineer & SHE Incharge
		Unguarded rotary & cutting blade	Entanglement & Amputation	All rotating parts provided with suitable guards. Workmen with loose attire not to be involved. Machines operated area should be barricaded. Inspection & tagging for the power tools.	Site Engineer
		Electricity	Electrocution, fire spark	Routing through RCCB to be ensured. Cables of sufficient capacity with double insulation & Industrial plug tops & sockets to be used. Provision of Main & Body earthing. Damage to cables to be prevented by proper lying of cable 2 m height. Regular electrical inspection. Regular RCCB inspection. All connection should be done by electrician	Site Engineer

4	Breaking of RCC by chipping M/C	Unsafe work area	Fall of person	Ensure that breaking activity person stand on clean & safe area.	Site Engineer
				Only inspected chipping M/C industrial pin top should be used.	Site Engineer
		Improper Approach	Fall of person	Ensure that chipping M/C needle. body condition should be ok.	Site Engineer
				Ensure that required that hand tools i.e. chiesel,hammer should be in good condition.	Site Engineer
		Faulty equipment	Personal injury	All required hand tools should be welded free.	Site Engineer
				Provide leather hand gloves, Ear plug, nose mask, goggle during RCC breaking work.	Site Engineer
		Loose fitting/ Damage hose	Personal injury	Ensure that hose pipe should be properly fitted with clamp.	Site Engineer
				provide Ear plug to all workers.	Site Engineer
		Excessive Noise	Noise Induced Hearing Loss, Psychological illness.	Regular maintenance is carried out. Workmen provided with Ear Plug	Site Engineer
				Ear plugs or ear muff will be use to avoid excessive noise. Implementation of regular job interval for relief.	Admin Officer
Dust generation	Lungs related problem	Water will spread on chipping areas.	Site Engineer		
5	Rebar inserting by drilling opeartion.	Sharp object, contact with chemical, electrical	Cut injury, skin/ eye Injury, electrocution	Mandatary PPE should be use for this activity. MSDS should be displayed at site. Waste material should be collect and shift to material waste yard. Regular electrical inspection. Cables of sufficient capacity with double insulation & Industrial plug tops & sockets to be used.	Site Engineer
				use, transportation of chemical	skin injury, eye irritation
6	Shuttering activity	cut, pinch point	Personal injury	Proper housekeeping/stacking of material in an isolated area. Loose nail should be removed from site. Training should be provide for manual material handling.	Site Engineer
7	Concrete casting	Contact with chemicals	Alkali burn & Eye Injury	Use of Rubber Hand gloves, gumboots & Goggles , nose mask etc. during concreting work. Washing of hands before eating & drinking and at the end of work. MSDS should be displayed at site. Work should carried out under close supervision.	Site Engineer
				Haphazard Routing of vibrator cable.	Slips & Trips

8	Health	Prolonged working hours	Fatigue	Operators are not allowed to work beyond 08 hrs either sufficient rest interval shall be provided in between	Site Engineer
9	Environment	Dust	Land pollution	Dust will generate at cutting time then provide mandatory PPE as Helmet, jacket, shoes, safety goggle, dust mask & ear plug etc. Waste debris will be shift to debris yard.	Site Engineer
10	Work during dark hours	Darkness, fall of person, fall of machinery	Personal injury, damage to property	Night work permit to be taken from concern engg.and SHE dept.	Site Engineer
				Ensure proper illumination during dark hours.	Site Engineer
				Electrical cable should lead min 2 m height. No exposed electrical wire. Proper earthing should be provided.	Site Engineer
				Area & route shall be illuminated.	Site Engineer
11	In case of Emergency	Confusion	Personal injury,property Damage	Access, Emergency path way ,Assembly Point shall be clean,clear and communicated to all.	Site Engineer
				Emergency communication and Emergency contact nos. shall be communicated.	SHE Incharge

Note:-

1. Prior to commence any activity Tool Box Talk should be given to employees by job supervisors.
2. Work should be commence after obtaining valid appropriate permit only.
3. All the permits will be INVALID during emergency

Prepared By:

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JSA (Job Safety Analysis) Sheet

Revision: R-0

Activity Name :- Concrete works up to plinth level

Ref- BMCPL_JSA_014

Location :-

Date:-

S.No.	Sub-Activity Name	Type Of Hazard	Risk(s) Involved	Risk Control measures	Responsibility
1	Manpower Mobilization	Untrained worker, lack of skill awareness	Personal injury	Only inducted worker shall be deputed at the work place.	SHE Incharge
				Given Tool Box Talk to all workers. Ensure work permit is taken and signed by concerned Engg. & Safety Officer	Site Engineer
2	Concrete Mixing by machine/ Manually	Unauthorized Operation	Injury to the operator & work crew	Only authorized operator operates the mixer machine. Authorized operator identity to be provided. Lock & Key System to be implemented.	Site Engineer
		Unguarded Rotary parts	Entanglement & Amputation	All the rotating parts (of Mixer machine) are covered / guarded. Workmen with loose attire not engaged.	Site Engineer
		Loading Hopper Movement	Hit Injury, Entanglant	Barricading around the skip bucket is available.	Site Engineer
		Slippery Surface / Projecting Materials	Slips & Trips / Hit Injury	Loading crew are entrusted to clean the approach every day. After every rain, crew will clear the mud, water stagnation & slippery surface.	Site Engineer
		Improper Electrical connections	Electrocution	For Electrically Powered Mixer Machine Use of Industrial type Plug top for the machine Routing thro RCCB /ELCB . Energized by Double insulated cable. Cable route should be above 2 mt height Provision of Main earth & Body earthing. Regular Electrical Inspection. clearance after every rain & after every installation. Connection made by only electrician	Site Engineer
Contact with chemicals	Alkali burn & Eye Injury	Use of Rubber Hand gloves, gumboots & Goggles / Face shield during concreting work. Washing of hands before eating & drinking and at the end of work. MSDS should be displayed at site.	Site Engineer		
3	Concrete pouring by	Improper Access	Personal injury	Work should carried out under close supervision.	Site Engineer
				Ensuring worker for maintaining safe distance while pouring of concreting inside the pit.	Site Engineer
				Safe access should be provided	Site Engineer
				Proper Chute shall be used for concreting pouring. No one shall be allowed to stand below the chute	Site Engineer
				Workers inside the pit shall be trained for receiving concrete.	Site Engineer
Unsecured /less width / gap in platforms	Fall material	Provision of access either by Ladder / Scaffold tower with platform / ramp / stair tower / stair case / steps. Maintaining the steps / ramp free of loose gravel, sand etc.	Site Engineer		

	transit mixer & Chute	Un guarded platform	Fall person	Handrail provision as per SOP for the work platform at height works.	Site Engineer
		Improper Electrical connections	Electrocution	Use of Industrial type Plug top for the machine Routing thro RCCB / ELCB Energized by Double insulated cable No Cable joints Nearer to the machine. Provision of Main earth & Body earthing.	Site Engineer
		Haphazard Routing of vibrator cable.	Slips & Trips	Vibrator cable routed away from the access & approach.	Site Engineer
		No use of fall arrest device for height work	Fall of person	Use of full body harness during height work. Use of lifeline to anchor the full body harness	Site Engineer
3A	Concrete pouring by transit mixer & Static Pump	Fall of pipe line, Unsecured clamp	Personal injury	If concreting is proposed by pumping then all the pipes are checked at the bends & joints against rigidity. Concrete pipes are tied at the scaffolding to avoid fall during strokes.	Site Engineer Site Engineer
		Concrete splash	Personal injury	No Person shall be allowed to seat on pipeline or to stand in front of mouth of pipeline. Mesh shall be provided to the hoper of pump.	Site Engineer
		Fall of pipe line/ rebound of pipe due to air pressure while cleaning, Choke up of pump	Personal injury	At the time of Ball Passing Activity all the labours are removed from the area & end of the pipe is provided with ball case or catcher to catch the ball. Concrete pipes shall not be facing against confined space to avoid rebound during ball pass (pump cleaning activity) & end pipe must be in straight.	Site Engineer Site Engineer
		Vehicle fall down /Uneven surface/failure of balance	Personal injury, Property damage, over turning of vehicle	Ensure all valid documents of vehicle & driver.	SHE Incharge
				Define route for entry and exit from work place.	Site Engineer
3 B	Boom placer vehicle movement & Self supporting	Vehicle fall down /Uneven surface/failure of balance	Personal injury, Property damage, over turning of vehicle	Vehicle should be driven by valid licensed driver only.	SHE Incharge
				Self supporting shall be done on rigid surface only.	Site Engineer
	Concrete Pouring by Boom Placer	Fall of material/Concrete	Personal injury	Outriggers must be opened to its fullest.	Operator
				Ensure banks man while pouring concrete at specific location.	Site Engineer
				Checking of boom swing movement.	Site Engineer
				Checking of boom swing clearance.	Site Engineer
				Ensure first positioning for water / slurry passing.	Site Engineer
				Ensure final pouring positioning.	Site Engineer
				Ensure hose pipe downward direction while cleaning.	Site Engineer
				Only skilled and trained worker shall be deputed at the work place.	Site Engineer
				Hard barrication to periphery to prevent fall from edges	Site Engineer
				Ensure full body safety harness anchor by each workmen.	Site Engineer
				Ensure recommended PPE should be used by worker such as safety shoes, helmet, hand gloves goggles ,gumboot & dust mask.	Individual worker
Acces should be clear and free from obstruction.Scaffold shall be erected on even surface by providing base plate, side support and ledgers .Steps should be fully covered.	Site Engineer				

3C	Filling & Lifting the Concrete Bucket - Concrete by Bucket	Uncontrolled movement of the bucket	Hit Injury	Establishment System of Signaling. Provision of Tag line to control the oscillations. System of providing Illumination of at least 100 Lux in practice.	Site Engineer
		Failure of Lifting equipment & Gears	Fall of bucket	Crane hook with hook latch. Over load & over hoist limit switches in the crane is functioning. Daily inspection by the Operator. Weekly Maintenance by PNM Engr Monthly P&M safety inspection by the HSE / Site Engr. Third party inspection for bucket & connecting rod.	Site Engineer
		Bucket overloading	Bucket Fall	Designed capacity bucket use in practice	Site Engineer
		Filling the concrete in the bucket excessively	Concrete Spill	No overfilling of Bucket at receiving end. Adequate signaling at the end of the concrete filling.	Site Engineer
		Gate not closing fully	Concrete fall	Closing the gate fully. Performing maintenance to keep the bucket in fit.	Site Engineer
		Mis-communication, Gate opening of bucket.	Hit Injury	Engagement of The signal man - trained & competent. Wearing reflective jacket with flag & whistle for communication. Use of mobile is prohibited. Dual signal man will be posted where direct visibility is obstructed	Site Engineer
4	Health	Contact with chemicals	Alkali burn & Eye Injury	Use of Rubber Hand gloves, gumboots & Goggles during concreting work. Washing of hands before eating & drinking and at the end of work	Individual worker
		Excessive working Hours	Fatigue	Not allowed to work for more than a shift. Job Rotation	Admin Officer
		Vibration from needle Vibrator	Numb Fingers	Regular maintenance of Vibrator. Job Rotation to reduce exposure. Proper Adequate PPEs	Site Engineer
		Noise	Fatigue	Not allowed to work for more than a shift. Job Rotation. Ear plug shall be provided	Admin Officer
5	Environment	Idle Running of all M/c	Energy consumption	Switch off power or engine to avoid idle running.	Site Engineer
		Exhaust emission	Air Pollution	Regular maintenance by the site Engr & PUC for vehicle	Site Engineer
		Oil & Fuel spill	Land pollution	Use of funnel to fill the diesel / lubricating oil etc. Contain the spillage by spill tray	Site Engineer
		Discarded parts	Land & water Pollution	Discarded parts collected at P&M Workshop and disposed to the landfill area. Not throwing directly on the land & streams.	Site Engineer
		Concrete Wastage	Natural Resource depletion	Avoid concrete wastage by meticulously planning & cross checking with the requirement.	Planning Engineer
6	Work during dark hours	Darkness, fall of person, fall of machinery	Personal injury, damage to property	Night work permit to be taken from concern engg.and SHE dept.	Site Engineer
				Ensure proper illumination during dark hours.	Site Engineer
				Electrical cable should lead min 2 m height. No exposed electrical wire.Earthing.	Site Engineer

				Route shall be illuminated.	Site Engineer
7	In case of Emergency	Confusion, Horseplay	Personal injury,property Damage	Access, Emergency path way ,Assembly Point shall be clean,clear and communicated to all..	Site Engineer
				Emergency communication and Emergency contact nos. shall be communicated.	SHE Incharge

Note:-

1. Prior to commence any activity Tool Box Talk should be given to employees by job supervisors.
2. Work should be commence after obtaining valid appropriate permit only.
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Prepared By:
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JSA (Job Safety Analysis) Sheet

Revision: R-1

Activity Name:- Reinforcement loading, Unloading & Shifting by 2 Farana

Ref- BMCPL_JSA_15

Location: -				Date:	Responsibility
Sr.No.	Sub-Activity	Type Of Hazard	Risk(s) Involved	Risk Control measures	
1	Manpower Mobilization	Untrained worker,lack of skill awareness	Personal injury	1)Only skilled& safety inducted worker shall be deputed at the work place. 2)Given Tool Box Talk to all workers. 3)Ensure Work permit during loading & unloading of Steel 4) Trained rigger should work for the removing tools tackles.	SHE Officer/Supervisor
2	Attching tool tackles and Unloading by Farana	Fall of person & material from height due to failure of tools tacklesand wire rope slings for lifting the material. Hit by material.	1)Injury to the persons working below and surrounding areas. 2)Permanent disable or fatality due to fall of material,Fatal, Injury, Property damage	1) Area barrications Ensure only certified Farana and tools tackles should use for loading and unloading of materials. 2)Lifting tools & tackles should be inspected before use. 3) Ensure Operator have valid Licence. Ensure guide rope shall use while lifting / loading of materials with continuous supervision. 4)Area shall be made clear for any obstruction to the material. 5)materials shall be tied with rope at each end. 6)Ensure path should be clear from any obstruction. 7)Trained Flagman should be provided for signaling. 8)Reaching at height with the help of ladder. 9) SLI should be working condition.	Engineer/Supervisor
3	Using two Farana for lifting at the both end.	Fall of material from height due to failure of tools tacklesand wire rope slings for lifting the material. Hit by material.	1)Injury to the persons working below and surrounding areas. 2)Permanent disable or fatality due to fall of material,Fatal, Injury, Property damage	1) Area barrications, Ensure only certified Farana and tools tackles should use for loading and unloading of steel. 2)Lifting tools & tackles should be inspected before use. 3) Ensure Operator have valid Licence. 4) lifting should be simultaneously to both side by two farana 5)steel shall be tied with rope at each end. 6)Ensure path should be clear from any obstruction. 7)Trained Flagman should be provided for signaling. 8)Ensure guide rope shall use while lifting of steel with continuous with strict supervision.	Engineer/Supervisor
4	Lowering load by two farana as tandom lifting	Fall of material from height due to failure of tools tackles. Hit to nearby people. Crush of limbs under load.	1)Injury to the persons working below and surrounding areas. 2)Permanent disable or fatality due to fall of material,Fatal, Injury, Property damage	1)Area Barricading Ensure only Certified Farana and tools tackles should use for loading and unloading of steel. 2)Lifting tools & tackles should be inspected before use. 3) Ensure tagline should be used to load both side. 4)Area shall be made clear for any obstruction to the material. 5)steel shall be tied with rope at each end. 6)Ensure path should be clear from any obstruction. 7)Trained Flagman should be provided for signaling. 8) Proper supervision and co ordination in between crew members.	Engineer/Supervisor
5	Access area	Uneven ground surface	Slip of material	1) Area should be flat where work is to be carried out. 2) Trained Flagman should be provided for signaling.	Engineer/Supervisor
6	Releasing of farana	Fall of material, Fall of person from height.	Personal injury,	1) Trained rigger should work for the removing tools tackles. 2)Working on ladder with ladder safety norms. 3)Lowering of tools tackles safely. 4) use ladder to release tools &tackles.	Engineer/Supervisor

Note:-

1. Prior to commence any activity Tool Box Talk should be given to employees by job supervisors.
2. Work should be commence after obtaining valid appropriate permit only.
3. All the permits will be INVALID during emergency

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JSA (Job Safety Analysis) Sheet

Revision: R-0

Activity Name :- Site sheet Barricading Work

Ref- BMCPL_JSA_016

Location :-				Date :	Responsibility
Sr.No.	Sub-Activity Name	Type Of Hazard	Risk(s) Involved	Risk Control measures	
1	Manpower Mobilization	Untrained worker,lack of skill awareness	Personal injury	1)Only skilled & safety inducted worker shall be deputed at the work place. 2)Tool Box Talk will be given to all workers before starting of work. 3)Ensure Work permit during work start of structure Material erection	SHE Manager/ Officer
2	Excavation activity by Manually	Untrained worker,lack of skill awareness, underground utilities	Personal injury & Electrical shock	1)Only skilled & safety inducted worker shall be deputed at the work place. 2)Tool Box Talk will be given to all workers before starting of work. 3)Ensure Work permit during work start of structure Material erection. 4) Before excavation underground utilities should be checked and verify.	Site Engineer
3	Manually material shifting for barrication preparation at predefined location	1)Fall of material during material shifting 2)Slip Trip Fall Cut	1)Injury to the persons 2)Property Damage	1) All PPE will be provided to all workers 2) Trained worker will be used 3) Area will be cleared before material shifting. 4)Sheeting material should be tied by the rope while stored. 5)Soft barricading stored mater	Site Engineer
4	Prepration for the structure with the help of Grinding cutting machine at ground	1) Cut 2) Flying particle during grinding 3)Electrical shock	1)Injury to the persons 2)Property Damage 3)Electrical burn 4)Fire	1) All PPE will be provided to all workers 2) Trained worker will be used 3) Area will be cleared before material shifting 4)Machine will be checked and inspected. 5) Fire fighting equipments will be placed in working area 6)provide designated area for grinding work. 7) working area should be barricaded	Site Engineer
5	preparation for barricading with help of Welding machine with maximum height of 2 meter.	1) Fall of material from height. 2) Slip trip Fall. 3)Electrical Shock. 4) Fire	1)injury to persons 2) Property Damage 3) Fire 4)Fatal	1) All PPE will be provided to all workers 2) Trained welder will be used 3) Area will be cleared before material shifting 4) Machine will be checked and inspected before use 5) Fire fighting equipments will be placed in working area 6) Standing Platform will be of sound Material. 7) Working under supervision	Site Engineer SHE Officer

6	Fixing of the structure support with foundation by grouting	1) Fall of material from height. 2) Slip trip Fall. 3)Electrical Shock. 4)Fall from Height. 5) Fire 6) Skin	1)injury to persons 2) Property Damage 3) Fire 4)Fatal	1) WORK REALTED PPE REQUIRED 2) Trained welder will be used 3) Area will be cleared before material shifting 4)Machine will be checed and inspected before use 5) Fire fighting equipments will be placed in working area 6)Standing Platform will be of sound Material. 7) Working under supervision 8)Electrical connection through IP65 DB 9) All PPE will be provided to all workers	Site Engineer
7	Fixing of the wall sheeting with standing height of 1.5 M using Screwing Machine.	1) Fall of material from height. 2) Slip trip Fall. 3)Electrical Shock. 4)CUT INJURY	1)injury to persons 2) Property Damage 3) Fire 4)Fatal	1) All PPE will be provided to all workers 2) Trained welder will be used 3) Area will be cleared before material shifting 4)Machine will be checed and inspected before use 5) Fire fighting equipments will be placed in working area 6)Standing Platform will be of sound Material. 7) Working under supervision	Site Engineer
8	Housekeeping at area	1) Dust Inhaletion 2)Cut	1)injury to persons	1) All PPE will be used.	Supervisor
9	In case of Emergency	Horseplay, Confusion	Personal injury, Property Damage	1)Emergency Communication systems should be followed. 2)In case of Emergency Meet at Assembly Point.	SHE Manager/ Officer

- Note:-**
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JSA (Job Safety Analysis) Sheet

Revision: R-0

Activity Name :- Welding Works at ground level.

Ref- BMCPL_JSA_017

Location :-				Date:-	Responsibility
S.No.	Sub-Activity Name	Type Of Hazard	Risk(s) Involved	Risk Control measures	
1	Manpower Mobilization	Untrained worker,lack of skill awareness	Personal injury	1)Only skilled& safety inducted worker shall be deputed at the work place. 2)Given Tool Box Talk to all workers. 3)Ensure Work permit during loading & unloading of Porta cabin	Engineer/Supervisor
2	Welding	Loose cable	Overheating & burning of welding cables, fire hazard	1)Cable is checked for its tightness by the welder / helper before starting the job. 2) Fire extinguisher will kept near working areas.	Engineer/Supervisor
		Improper earthing to the parts to be welded.	Electrocaution,burnin g of welding cables, fire hazard	1)Return earth is given through the welding lead only and no rebar to be used for return path.	Engineer/Supervisor
		Machine overheating, electricity	Machine burnout, electrocution	1)Double earthing is provided. 2)All electrical connection is routed through RCCB.	Engineer/Supervisor
		Worn out / defective welding holders	Electrocution to the welder	1)Welding holders is replaced when found damaged. Provision of Main earth & Body earthing.	Engineer/Supervisor
		Failure to use PPEs	Electrocution to the welder	1)SHE Induction is given to workers, supervisors. 2)Experienced and trained welder is allowed for the welding job. 3) Fire watcher will be available on site.	Safety steward
		Keeping the welding machine open to sky	Electrocution to the workmen during the rainy season.	1)Shed is provided for the electrical machines	Engineer/Supervisor
		Cables lying on access	Tripping hazard	1)Cable routing is done away from the pathway.	Engineer/Supervisor
		Welding fumes generation	Health Hazard	1)Welding is done in open or well ventilated place. It is so carried out along the wind direction. In confined space, arrangement of checking the level of oxygen is done. 2) No confined space working allowed.	Engineer/Supervisor
		Sparks falling on combustible materials	Fire hazard	1)Combustible materials are removed and area should be cleared for combustible materials. 2) Fire retarder materials is used to contain sparks and use of fire blanket.	Engineer/Supervisor

3	Housekeeping at area	1) Dust Inhaletion 2)Cut	1)injury to persons	1)All PPE will be used.	Engineer/Supervisor
4	In case of Emergency	Horseplay, Confusion	Personal injury, Property Damage	1)Emergency Communication systems should be followed.Emergency escape route will be cleared. 2)In case of Emergency Meet at Assembly Point.	SHE Manager/ Officer

Note:-

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