

SOP FOR CIVIL CONSTRUCTION WORK

(Performance Criteria - Perfection in job with no injury to persons or damage to property)

DEPARTMENT: Project	DOC NO:
AREA/LOCATION:	Effective Date: 05.04.2021
JOB TITLE (If agency is involved):- Civil Work at TPWODL	Revision date: 05.04.2022

Sl no	Sub-activities (Sequence of work)	Hazards	Safety Precautions	Person Responsible	Condition of required Tools/Tackles (OK / Not OK)	Reference to document / criteria and remarks
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1-PRE STSRT SAFETY REVIEW

A	Before starting of job	General Unawareness of Safety rule, job hazards, poor work knowledge, not use of safety appliances may cause injury/ accident	1) Daily Safe working procedure & work permit will be approved from all concerned department. 2) Brief description regarding hazards/safety measure will be given to all workmen. 3) Area will be properly barricaded with warning tapes/safety nets wherever required. 4) Jobs will be carried out under the supervision of a qualified person. 5) Approach to DB, Panels, switches will be kept always clear. 6) First Aid Box will be kept at site office. 7) Employees will be made acquainted with the use of safety appliance. Specific safety briefing will be given before start of each shift. 8) Co-ordination will be maintained with other agencies. 9) Sufficient nos. of Fire fighting equipments(Fire Extinguisher, sand buckets etc.) will be provided at different locations. 10) Area should be cleaned before starting the job & after the job completion. 11) After the completion of job safety pledge & safety talk will be given. 12) Before starting the job all the tools and tackles should be checked properly with operation checklist. 13) Competent operator should be deployed for machine operation. 14) Six directional hazard must be thoroughly checked and required precautions must be taken before the start of the job. 15) Ensure all persons working with valid gate pass. 16) Job specific training to be given to all workmen and having job card. 17) Project Safety checklist to be filled & submit to concern engineer before start the job.	Job Supervisor/ Site Engineer	NA	
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2-SAFE ACCESS & EGRESS

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A	Access to the work location.	1) Slip, trip, fall. 2) Falls from height caused by inadequate or unsafe access to places of work or unsafe working platforms. 3) Contact with moving vehicles caused by non separation of people and vehicles. 4) Struck by moving plant or machinery; inadequate visibility, height, clearance, width for moving and manoeuvring plant and machinery. 5) Struck by falling objects; lifting, lowering, slewing, slinging of loads in confined space. 6) Hazards of working in confined spaces caused by poor access.	1) Safe access to be provided with proper slope. 2) Access shall be cleared from any obstacles. 3) Space route for vehicle movement should be provided. 4) Minimum 2 mtr clearance should be maintained from running vehicle. 5) Good & Sound quality ladder should be provided. 6) Ladder should be tied properly at height 7) One person should hold the ladder at ground level while person using for access & working. 8) Safe clearance distance should maintain from rotating parts.	Job Supervisor/ Site Engineer	OK	
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3-MATERIAL HANDLING(PLY, Battern, Brick,cement packet,Scaffolding pipe,Rebar, etc.)

A	Material Handling & Transportation with vehicle	1) Fall of materials 2) Hit with person & vehicle 3) vehicle toppling 4) Free movement of vehicle when not in use.	1) During loading & unloading proper co-ordination between workmen to be ensured. 2) All materials should be stacking as per TPWODL standard 5 feet height on floor. 3) Safe and solid access for vehicle to be ensured. 4) Do not over load vehicle. 5) Use wheel chock while vehicle parked. 6) Park On level floor vehicle & use hand break while loading and unloading. 7) Obey traffic signal & check vehicle condition before use. 8) Vehicle operation checklist to be filled before operation. 9) Deploy flag man for vehicle movement.	Job Supervisor/ Site Engineer	OK	
B	Shifting of materials to work location manually	1) Physical injury. 2) Fall of materials. 3) Slip, trip & fall of person	1) Working area will be properly barricaded. 2) Workman will not go beyond the barricaded area. 3) Stacking of materials in sagrigated form. 4) Access should be clear from abstraction. 5) Proper grip to hold the materials use suitable hand gloves.		OK	
		1) Ergonomics Hazards	1) Avoid excessive load to lift. 2) Proper body posture to be maintain during lifting. 3) Take help of others if lifting materials is heavy. 4) Use hand gloves for proper grip. 5) Make your back bone straight while lifting.		OK	
C	Mechanical materials shifting with hydra/crane	1) Vehicle accident 2) Toppling of vehicle 3) Fall of materials & structure	1) Keep work area housekeeping & obstracle materials should be removed from work location. 2) Safe access & aggress should be provided. 3) Competent driver should engaged for vehhicle operation. 4) Do not overload vehicle. 5) Deploy flag man for vehicle movement.		OK	
		3) Hindrance of approach 4) Failure of mechanical vehicle	1) The path to the terminal of the transport material will be identified and it is to be insured that there is no hindrance/blockades. 2) The driver should be aware of the path. 3) The supervisor should know the specific spot for unloading the materials 4) During loading & unloading proper co-ordination between workmen to be ensured. 5) All materials should be stacking as per TPWODL standard. 6) Keep work area housekeeping & obstracle materials should be removed from work location. 7) Safe access & aggress should be provided. 8) In case hydra check valid TPI certificate. 9) Deploy flag man for vehicle movement.		OK	

4-Material Handling and Storage for Marble, Granite, and Stone Slabs

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A	Material Handling & Transportation manualy	1) Slip, Trip & fall 2) Hindrance of approach 3) Ergonomics Hazards 4) Physical injury(hand, leg.) 5) Fall of materials	1) Avoid excessive load to lift. 2) Proper body posture to be maintain during lifting. 3) Take help of others, if lifting materials is heavy weight. 4) Keep work area housekeeping & obstracle materials should be removed from work location. 5) Safe access & aggress should be provided. 6) The path to the terminal of the transport material will be identified and it is to be insured that there is no hindrance/blockades. 7) The supervisor should know the specific spot for unloading the materials 8) During loading & unloading proper co-ordination between workmen to be ensured. 9) All materials should be stacking as per TPWODL standard not more than 5 feet. 10) Keep work area housekeeping & obstracle materials should be removed from work location. 11) Hand gloves should be worn by the workmen. 12) Competent & Experienced workmen should be deployed for this special unloading job. 13) By Accessing the load of the materials , required nos of workers must be deployed. 14) Donot encourage Horseplay while handling the material. 15) Provide proper packing to prevent the accident fall of granite piece while place on ground.	Job Supervisor/ Site Engineer	OK	
5-Unloading of materials from vehicle like trailor, Truck & Tractor(Sand, Stone, Soil Etc.)						
A	Material unloading from Vehicle automatically.	1) Vehicle toppling hazards. 2) Falling or jumping down of materials from vehicle during unloading. 3) Colliding against object. 4) Falling of objects due to mechanical failure of vehicle. 5) Man hit with vehicle. 6) Material hit with others 7) material hit with structure.. 8) Fall of material due to Over loading 9) fall of person while working on vehicle or unloading. 10) Front side vehicle upright due to heavy load on back side bucket.	1) Ensure that the vehicle is to be released after getting instruction from the signal man only. 2) The safe distance between vehicle & man should be maintained. 3) Use Proper signal for vehicle reversal. 4) No body should be allowed to stand near running vehicle. 5) Adequate wheel chock provided to prevent free movement. 6 Determine lifting material load. 7) Competency of worker, signalman & vehicle operator will be ensured. 8) Proper communication & cordination between operator & workmen. 9) Ensure pproper illumination during evening & night. 10) Ensure near-by operation equipments are safe from damage due to mobilization. 11) All materials & equipments must be placed in designated areas. 12) Area shall be barricade with the warning signs. 13) Unauthorized person are not allowed within the operational area. 14) Before use check all unloading parts are working properly. 15) No one should enter in unloading area. 16) Vehicle operation checklist to be filled properly. 17) checking the condition of automaic tailboard.	Job Supervisor/ Site Engineer	OK	

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6-ROOF ,BEAM & CELLING SHUTTERING WORK

A	Celling,Roof & beam shuttering job	1)physical injury. 2)Failure of shuttering 3)Protruded Re-bars 4)Slip of materials 5)Fall From height(Person & materials)	1)Proper PPES should be worn by work men. 2)Sound & good quality shuttering shold be provided. 3)Bambo & Wooden pipes for shuttering not allowed. 4)Trained person should be deployed for shuttering work. 5)fall protection system should be available to prevent fall. 6)Secure loose object & remove loose materials from height. 7)Good quality hammer should be use. 8) Re-bar cap / protuding rod bending will be provided	Job Supervisor/ Site Engineer	OK	
B	Bar to bar jointing work	1)physical injury. 2)Failure of shuttering 3)Protruded Re-bars 4)Slip of materials 5)Fall From height(Person & materials)	1)Proper PPES should be worn by work men. 2)Sound & good quality shuttering shold be provided. 3)Bambo & Wooden pipes for shuttering not allowed. 4)Trained person should be deployed for shuttering work. 5)fall protection system should be available to prevent fall. 6)Secure loose object & remove loose materials from height. 7)Good quality hammer should be use. 8) Re-bar cap / protuding rod bending will be provided			

7-CONCRETE WORK

A	Manual concreting	physical injury. Skin irritation Cement dust inhalation	1) Rubber gloves and gum boot should be used. 2)good quality of hand tools should be used. 3)Nose mask to be used during cement work. 4)Use good quality tools tackles for work.	Job Supervisor/ Site Engineer	OK	
		Failure of shuttering	1) Materials used for shuttering to be checked properly before use. 2) All shuttering support to be thoroughly checked. 3)Proper support & joint to be provided .		OK	
		Protruded Re-bars	1) Re-bar cap / protuding rod bending will be provided 2) Cut piece rebars to be removed from working area		OK	
		Fall of Person from the height	1) For vertical movement, fall arresting arrangement to be provided. All persons shall use the same. 2) Life line(not less than 1inch PP rope) should be provided & used for horizontal movement at elevation. 3) Full body harness safety belt with double lanyard will be used for work above 1.8 mtr height. 4)Workers designated as "fit for height work " are allowed to execute these jobs. 5)Hard barrication to be provided at height around the open roof top.		OK	
B	concreting with concrete mixture	Exposure to mixer machine	1) Fan guard to be provided on the mixture machine. 2) Electrical Power to be taken properly for the mixture machine and Vibrator	Job Supervisor/ Site Engineer	OK	
		Electrical Hazards	1)Electrical supply should be routed through ELCB/RCCB. 2)Body earthing of mixture machine to be provided. 3)Competent operator to be engaged.			
		Entrapment hazards due to rotarting parts and wheel.	1) cover all rotarting parts of machine. 2)keep safe distance from rotarting parts. 3)Avoid loose clothing near rotarting parts. 4)Female worker not allowed to work near rotarting parts. 5)Not person are allowed to work with saree /Dhoti.		OK	

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C	Concreting with Miller and Pump	Collapse of scaffolding	1) Scaffolding to be certified by the TPWODL designated authority and proper tagging to be done. 2) For fixing of concrete pump pipe Use separate scaffolding. 3) Barricate the working area.		OK	
		Fall of Person from the height Fall of materials	1) For vertical movement, fall arresting arrangement to be provided. All persons shall use the same. 2) Life line(not less than 12mm) should be provided & used for horizontal movement at elevation. 3) Full body harness safety belt with double lanyard will be used for work above 1.8 mtr height. 4.) Workers designated as "fit for height work " are allowed to execute these jobs. 5) No one is allowed to stand in front of the pipe delivering concrete or while passing the ball. 6) All pipe joints to be checked properly fixed.		OK	
		While Miller Pouring /feeding concrete to Concrete pump 1. Hit to a person/Equipment/Vehicle. 2. Rolled down of vehicle	1) Competent supervisor and pump operator to be engaged. 2). No person should stand between pump and machine to fix the miller suit. 3). Metallic stopper available with vehicles to be used to protect accidental rolling 4)-Flag man should use for guidance 5)-Proper coordination between supervisors pump operator to be maintained.		OK	
D	Use of Electrical Vibrator	Electrical shock	1. Vibrator must be placed at dry place and must be covered with the plastics. 2. ELCB must be used as the machine is used in wet conditions. 3. Use Safety checklist before use.		OK	

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8-EXCAVATION WORK

A	Manual Excavation	1.Damage of under ground services 2. Electrocution 3.Fall of Vehicle / Person in exacted pit 4.Fall of Vehicle / Person in exacted pit 5)Physical Injury	1) Clearance to be taken from Utility,IT & Electrical Department 2) Physical inspection before starting of job 3) Warning sign/Cautionary notice to be placed near the excavated area 4) Warning light to be provided near excavated pit in night time 5) Handle of excavating tools should made up of wood/insulation materials. 6) In case of presence of electric cables standard electrical rubber gloves must be used. 7)Positive isolation to be taken when required. 8)Keep loose soil from a safe distance from excavated pit not leass than 1.5 Mtr.	Job Supervisor/ Site Engineer	OK	
B	Mechanical excavation	1.Damage of under ground services 2. Electrocution 3.Fall of Vehicle / Person in exacted pit 4.Toppling of vehicle.	1) Sufficient working space & proper slope to be maintained 2) Safety net to be provided on the vertical excavated surface 3) Warning sign/Cautionary notice to be placed near the excavated area 4) Warning light to be provided near excavated pit in night time 5)Fitness certified vichile should be used. 6)competent driver should be deployed. 7)proper shoring should be maintained as per typr of soil. 8) Clearance to be taken from Utility & Electrical Department 9) Excavation plan must be prepare in case of depth exceeding 3m. to ensure the stability of the surrounding structures and slope. 10) Presence Helper of machine or Supervisor on site is compulsory while machine is in rurring condition. 11)Keep loose soil from a safe distance from excavated pit not leass than 1.5 Mtr. 12)Provide hard barrication with GI sheet.		OK	

9-REINFORCEMENT

A	REINFORCEMENT (Cutting,Bending)	Electrical Shock	1. Place electrical optd. Cutting or bending machine in a elevated and dryplace. 2. Quartarly inspection of all power operated tools and colour codings as per TPWODL standard. 3. Use ELCB for 3phase cutting and bending machine.	Job Supervisor/ Site Engineer	OK	
		1. Hit by reinforcement rod while cutting	1. Competent work men to be deployed for cutting of reinforcement with electrical cutter 2. Electrical cutting machine blade guard must be used while machine is operational. 3. Use of proper PPE's like Safety helmet, Safety shoes, Face Shield, hand gloves etc.	Job Supervisor/ Site Engineer	OK	
		2. Fall of person while moving over reinforcement cage	Wooden planks/GI sheets provided on the pathway over the reinforcement cage.		OK	

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10-BRICK JOINT & WALL PLASTERING WORK

A	Stacking of bricks	Collapse of stack, Physical injury.	1) All the materials shall be stacked at designated place. 2) Height of stacked materials shall be maintained as per safety norms not more than 5 feet & users convenience. 3) Stacking shall be done as per the shape, size & weight of the materials	Job Supervisor/ Site Engineer	OK	
B	Shifting of bricks from unloading place to work place	Fall of person Fall of materials Slip, Trip, Fall	1) Path should be free from any others obstruction. 2) Surface should be even. 3) Housekeeping to be maintained. 4) Safety PPEs to be used for material shifting.		OK	
C	Making of scaffolding staging	Slip from scaffolding Collaps of staging	1) Steel scaffolding to be provided with safe platform & hand rail. 2) Competent supervisor to certify before work. 3) Fullbody harness with anchorage point to be provided. 4) Only skilled with "fir for height work" designated workmen to be engaged.		OK	
D	Brick & Plastering on wall	Slip of materials/Tools	1) A drop zone to be established. 2) Use of rubber hand gloves for avoiding of skin hazards. 3) To provide Toe guard for preventing from materials 4) Loose materials shall not be allowed to remain on the gangways 5) Maxm. Brickwork height allowed to execute in a day is 1400mm.		OK	
E	Mixing of cement mortar	Exposure of cement dust Skin irritation	1) Use of nose mask and gumboot while working. 2) Use of rubber hand gloves for avoiding of skin hazards.		OK	
F	Working at height	Fall of man/material	1. To brief of tool box talk on daily basis before starting the job. 2. Access to be provided for ascending and descending through the ladder (min. gap 500mm with the staging), platform at every 2.1m of staging, toeguard, full body safety harness are to be anchored in two separate anchoring points. , In case of bad weather i.e rain work must be stopped		OK	

11-FALSE CEILING WORK

A	During False ceiling work	Approch, Slip, Trip & fall	1) Proper approach ladder will be provided near by area.	Job Supervisor/ Site Engineer	OK	
		Fall of Person	1) Usage of PPE's like helmet, Full body harness, Safety shoes, Safety goggles. 2) Use of fall arrestor & lifeline while work at height more than 1.8Mt from existing ground level. 3) Trained workmen with physically fit will be engaged in work. 4) Horizontal lifeline will be provided during horizontal movement.		OK	
		Fall of Material	1) Area barrication 2) Physical inspection of all tools, tackles & lifting of ceiling materials. 3) Proper illumination. 4) Physical inspection of anchor fastner. 5) safety goggles will be use to protect fall of stone dust during fixing of anchor fastner on ceiling.		OK	

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12-WORK AT HEIGHT

A	Working at Height	1) Fall of material from height	1) During loading & unloading proper co-ordination between workmen to be ensured. 2) All materials will be stacking in a systematic manner with barrication tape so as to prevent accident. 3) Secure loose object at height.	Job Supervisor/ Site Engineer	OK	
		2) Collaps Scaffolding	1) Scaffolding pipe will be of MS tubular section of 40mm dia medium pipe. 2). Pipe & all accessories will be stacked in a systematic manner with barrication tape so as to avoid any incident. 3) Material will be shifted by trained worker with PPE's like safety shoe, helmet, hand glooves. 4) The scaffolding will be made on a level ground. 5) The bracing will be at 900mm C/c distance of width 1.1m and swivelling coupler will be used at joint. 6) All the accessories will be checked thoroughly before use. 7) The plat form will be of hard material like squar bar or MS rod welded mesh. 8) The ladder will be of good conditioned Al./MS. make & tightened with wire/ jute thread at top with scaffolding. 9) The scaffolding will be provided with MS pipe stay at 3m c/c for preventing tilting.		OK	
		3) Fall of person from height	1) For vertical movement, fall arresting arrangement will be provided. All persons shall use the same & will be ensured by job supervisor. 2) Life line(1/2 inch wire rope with 3nos C-clamp) will be provided & used for horizontal movement at elevation. 3) Full body harness safety belt with double lanyard will be used for work above 1.8 mtr height. 4) Trained & medically fit person will be allowed to work at height. 5) Fit for height work person to be allowed to work at height.		OK	

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13-PAINTING JOB(Putty & Color)

A	Painting	1) Exposure to paint fumes/ suffocation & nouseia 2) Non-standard hanging cage may cause injury. 3) Eye Injury	1) Paint storage room will be provided separate 2) All painter will use nose mask & goggles. 3) Proper approach & scaffolding will be provided for painter working at height. Ladder should be of standard make and one person should use this at a time. 4) 5) All painter will be use essential PPE's. 6) Paints/Paint drums shall be kept away from flamable materials & heat source. 7) Area below the height work location shall be barricaded / cordoned.	Job Supervisor/ Site Engineer	OK	
		4) improper supervision may cause injury	1) Trained & experience supervisor provided at site. 2) Flagmen engaged for better co-ordination		OK	
		5) Inhelling of toxic gas.	1) Use proper PPEs for work. 2) Work in a ventilated place.		OK	
		1) Fall of painting materials from height	1) During loading & unloading proper co-ordination between workmen to be ensured. 2) All materials will be stacked as per standard.		OK	
		Putty mixing Starrier 1. Eye injury due to exposure of putty. 2. Entangleman hazard. 3. Electric shock & Electrocution.	1) Job package shall be ensured & all the precautions related to activity will be conveyed to working group at the time of prejob briefing. 2) Use eye protection. 7) Housekeeping shall be done before and after completion of activity. 8) All electrical connection shall be taken from single R.C.C.B. 9) Competent grinder shall only be Deployed.		OK	
		2) Fall of person from height	1) Full body harness safety belt with double lanyard will be used for work above 1.8 mtr height. 2) Trained worker to be deployed. 3) For horizontal movement on EOT the person should anchor the lan yard with hand rail. 4) Scaffolding shall be secured with permanenet working platform 5) Scaffolding shall be certified by competent person /incharge. 6) Worker working on the scaffolding must anchor FBH with rigid structure all the time while working at height.		OK	

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14-CONCRETE BREAKING/ BRICK WORK DISMANTLING

A	Concrete Breaking with earth moving equipments	1.Damage of under ground services 2. Electrocution 3.Physical Injury 4.Fall of Vehicle / Person in dismantle area. 5-Toppling of vehicle.	1) Clearance to be taken from Utility & Electrical Department 2) Physical inspection before starting of job 3)Caution board To be displayed. 4)Equipment fitness certificate to be checked 5)Competent driver & helper should be used for this job. 6) Swing area of the machine must be clear. 7) Stability of the surrounding structures must be ensure	Job Supervisor/ Site Engineer	OK	
		Cave-in	1) Sufficient working space & proper slope to be maintained 2) Safety net to be provided on the vertical excavated surface		OK	
B	Concrete Breaking with HILTI Mchine	physical injury.	1) Clearance to be taken from Utility & Electrical Department & stability of rurrunding structures mus be ensure. 2)Use proper safety PPEs for this job.(S. Shoes, Gloves, Ear Plug/Muff, Nose mask & Clear safety Goggles). 3)Hold the power tools properly. 4)check the sorrounding condition before work. 5)Before use power toos check fitness certificate available or not.		OK	
		Electrical shock	1)Use proper safety PPEs for this job. 2)Check the electrical cable and equipments not defective. 3)power supply should be routed through RCCB. 4) Extension board must be sound condition. 5) MCB must be fitted with the extension boards. 6) Quartarly inspection of all power operated tools and colour codings as per TPWODL standard.		OK	
C	Concrete Breaking with pneumatic hand breaker	physical injury.	1) Clearance to be taken from Utility & Electrical Department & stability of rurrunding structures mus be ensure. 1)Use proper safety PPEs for this job. 2)Hold the power tools properly. 3)check the sorrounding condition before work. 4) Checking the tightness of all the pneumatic fittings to avoide loosen during operation.		OK	
	Connection of compressed air pipe	physical injury.	1)Use proper safety PPEs for this job. 2)Hold the power tools properly. 3)check the sorrounding condition before work. 4)Check the joint connection properly. 5)Use clamp for better joint of air pipe line. 6) Hose pipes must be laied over elevated stand/Height for better visibility and to avoid tripping of co workers.		OK	

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	Operation of compress air line	Body injury hand & leg injury Fatality	1)Use proper safety PPEs for this job. 2)Hold the power tools properly. 3)check the surrounding condition before work. 4)Check the joint connection properly. 5)Use clamp for better joint of air pipe line. 6) Hose pipes must be laied over elevated stand/Height for better visibility and to avoid tripping of co workers. 7)Avoid horseplay at site.		OK	
D	Brick Dismantling with HILTI Mchine	Body injury hand & leg injury	1)Use proper safety PPEs for this job. 2)Hold the power tools properly. 3)check the surrounding condition before work. Barricade the area. 4) Access road must be free from debris. 5) Debris stacking must be done in designated area. 6) Compressor breaker is not allowed to dismantel the brick wall.		OK	
E	Brick Dismantling Manually	Body injury hand & leg injury	1)Use proper safety PPEs for this job. 2) Hold hammer & chisel carefully to avoide hitting with hammer.		OK	
15-BACK FILLING & LEVELING						
A	Vehicle Inspection	Fall of vehicle / person in excavated pit	1. Vehicles to be used for backfilling(Dumper/Tractor-Trolley/JCB) to be checked for proper condition of brake atleast once a day before start of activity. 2. Before start the activities operation checklist to be filled properly. 3.Flagman to be deployed for vehicle mevement.	Job Supervisor/ Site Engineer	OK	
B	Loading of materials	1. Hit to a person/Equipment/Vehicle. 2.Rolled down of vehicle	1. No person should stand under the swing area and on the dallah of the dumper. 2. Metallic stopper available with vehicles to be used to protect accidental rolling 3. Physical barriers like slippers or wood log or concrete block to be used to prevent vehicles rolling down a steep slope 4-Flag man should use for guidance 5-Supervision required.		OK	
C	Transportation of material with vehicle	Hit to a person/Vehicle	1. The vehicle should follow the traffic rule. 2. The vehicle must be in good condition. 3. License holder operator can operate the vehicle 4. No undulation of road. 5. No overtaking at site. 6. All overhead barriers are to be isolated/ removed 7. Overloading is not allowed 8. Flag man or supervisor will ensure the smooth operation of tailboard.		OK	
D	Backfilling/ Unloading of material at site	Toppled/Tilting of vehicle	1. Safe access shall be provided for unloading the sand/soil.		OK	
		Collapse of soil/pits	1. Use stopper at the time of unloading.			
		Hit to a person /vehicle	4-Flag man should use for guidance			
E	Levelling by machine	Hit to a person and Structure Toppling of vehicle	1. All the work must be done under strict supervision. 2. Inspection of electrical cable if any . 3.Certified vehicle & competent person should engaged. 4. Back horn of the vehicle is compulsory.		OK	

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16-USE OF GRINDING MACHINE(SS Railing,Tiles Grinding,wooden & ply materials Etc.)

A	Grinding work.	1. Eye & body injury due to exposure of abrasive particle jet. 2. Disintegration of abrasive wheel. 3. Entanglement hazard. 4. Fire & Explosion. 5. Electric shock & Electrocutation. 6. Exposure to Noise.	1) Job package shall be ensured & all the precautions related to activity will be conveyed to working group at the time of prejob briefing. 2) Machine guard shall be ensured for rotating part prior to start of activity. 3) Abrasive wheel's R.P.M .Date of expiry to be checked before mounting at switched off condition. 4) Internal cracks to be checked by ring test. 5) Area shall be free from combustible materials. 6) Fire extinguisher, sand bucket & Fire warden will be ensured. 7) Housekeeping shall be done before and after completion of activity. 8) All electrical connection shall be taken from single R.C.C.B. 9) Competent grinder shall only be Deployed. 10) Wear ear muf/ ear plug,goggles. 11)Use operation checklist for before start the job.	Job Supervisor/ Site Engineer	OK	
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17-WELDING WORK

A	Welding operation.	1) Emission of fume & gases. 2) Exposure to radiation, light & heat. 3) Electrical shock and electrocution. 4) Fire & Explosion.	1) Fitness certificate of each welding machine must be collected from electrical & safety dept before working. 3) Checklist to be filled before starting of work. 4) Physical inspection of cables, welding machine and all accessories. 5) All electrical connection must be taken from R.C.C.B/ELCB. 6) Experienced & skilled welder & helper to be deployed. 7) Remove all the combustible material from the working area. 8) Ensure fire extinguisher, sand bucket & fire warden. 9)Check VRD is working. 10)Body earthing of welding machine should be available. 11)fire watcher to be deployed at site for hot work. 12)Use ceramic fire blanket of 1400 degree centigrade to absorb spatter.	Job Supervisor/ Site Engineer	OK	
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18-GAS CUTTING WORK

A	Gas cutting operation.	1) Fire and Explosion. 2) Leakage of gas. 3)Explosion of gas cylinder	1) Fillup of pre job checklist. 2) Use of Gas regulator. 3)Store the cylinder at cold and dry place. 4) Use double NRV on both end of hose. 5) Use soap solution for leakage of gas. 6) Physical inspection of Hoses, Trough, Trolley and all accessories. 7) Gas hose pipes must be laid on a elevated stand. 8)Proper safety PPEs like face shield,body apron,hand sleeve & leg sleeve to be worn. 9)Keep cylinder in up right position and tied with chain to prevent fall. 10)Use valve cap to prevent damage of valve. 11)Store in a cool & dry place. 12)Do not use in direct sun light. 13)Use cylinder trolley to cylinder movement.	Job Supervisor/ Site Engineer	OK	
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19-TEMPORARY POWER SUPPLY FOR CONSTRUCTION JOB

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A	supply for Lighting work	1)Electrical shock. 2)Flash over 3)Fatality	1) Job package shall be ensured & all the precautions related to activity will be conveyed to working group at the time of prejob briefing. 2) All electrical connection shall be taken from single R.C.C.B. 3) Competent electrician should be deployed Electrical PPEs should be used . 4)Proper Cable routing required at site. 5) Avoid all electrical equipments from rain water. 6)Keep working area clean and dry. 7)Good quality copper cable should be used & with current carrying capacity. 8) Industrial DB with industrial shocket to be used for power tools. 9)Avoid aluminium cable from site. 10)Cable joint should be avoid from site.	Job Supervisor/ Site Engineer	OK	
B	supply for power tool	1)Electrical shock. 2)Flash over 3)Fatality 4)Chance of cable damaged	1) Job package shall be ensured & all the precautions related to activity will be conveyed to working group at the time of prejob briefing. 2) All electrical connection shall be taken from single R.C.C.B. 3) Competent electrician should be deployed Electrical PPEs should be used . 4)Proper Cable routing required at site. 5) Avoid all electrical equipments from rain water. 6)Keep working area clean and dry. 7)Good quality copper cable should be used & with current carrying capacity. 8) Industrial DB with industrial shocket to be used for power tools. 9)Avoid aluminium cable from site. 10)Cable joint should be avoid from site. 11) Cable joint should not be in 3 Mtr from operators hand.			
20-DEWATERING PUMP OPERATION						
A	De-watering process	1)Electrical shock. 2)Rotarting parts of machine 3)Fatality 4)Chance of cable damaged	1) Job package shall be ensured & all the precautions related to activity will be conveyed to working group at the time of prejob briefing. 2)Body Earthing of pump should be given from earthing point. 3)Rotarting parts shoud be guarded. 4)Proper Cable routing required at site. 5)Good quality copper cable should be used & with current carrying capacity. 6) Industrial DB with industrial shocket to be used for power tools. 7)Avoid aluminium cable from site. 8)Cable joint should be avoid from site. 9)Do not use summersable pump in water pit for cureing purpose. 10)Electrical suppy to be taken from ELCB/RCCB.			

SOP FOR CIVIL CONSTRUCTION WORK

21-POWER TOOLS OPERATION(ply cutter,bar cutting machine,Drilling machine,Etc.)

A	power tools operation.	1. Eye & body injury due to exposure of abrassive particle jet. 2. Disintegration of abrassive wheel. 3. Entangleman hazard. 4. Fire & Explosion. 5. Electric shock & Electrocutation. 6. Exposure to Noise.	1) Job package shall be ensured & all the precautions related to activity will be conveyed to working group at the time of prejob briefing. 2) Machine guard shall be ensured for rotating part prior to start of activity. 3) Abrassive wheel's R.P.M .Date of expiry to be checked before mounting at switched off condition. 4) Internal cracks to be checked by ring test. 5) Area shall be free from combustable matetials. 6) Fire extinguisher, sand bucket & Fire warden will be ensured. 7) Housekeeping shall be done before and after completion of activity. 8) All electrical connection shall be taken from single R.C.C.B. 9) Competent grinder shall only be Deployed. 10) Wear ear muff/ ear plug.	Job Supervisor/ Site Engineer	OK	
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22-BAR BENDING OPERATION

A	Bar bending work	1. Eye & body injury due to sharp edge of bar. 2. Hand & leg ingury. 3. Entrapment Hazards with rotarting parts. 4. Electric shock & Electrocutation. .	1) Job package shall be ensured & all the precautions related to activity will be conveyed to working group at the time of prejob briefing. 2) Machine guard shall be ensured for rotating part prior to start of activity. 3) Housekeeping shall be done before and after completion of activity. 4) All electrical connection shall be taken from single R.C.C.B. 5) Competent workmen should be deployed. 6) Wear hand gloves	Job Supervisor/ Site Engineer	OK	
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SOP FOR CIVIL CONSTRUCTION WORK

23-CHIPPING & CONCRETE HOLE

A	Chipping on concrete wall	1) Chisel may Break. 2) Head of the hammer may fly off. 3) Hand tools might slip. 4) Flying of Sharp fragments. 5) Poor housekeeping. 6) Poor visibility during working at night.	1) Home made material removed form site. 2) Deploy only skilled person for the job. 3) Tie the hand tools with Safety belt/structure. 4) Cordon off the working area. 5) Housekeeping shall be done before and after completion of activity. 6) Proper illumination shall be ensured for night work activity.	Job Supervisor/ Site Engineer	OK	
B	concrete Hole with concrete drill machine	1)Physical injury 2) Might slip of power tools. 3) Flying of Sharp fragments. 4) Poor housekeeping. 5) Poor visibility during working at night. 6)Eye injury & dust hazards.	1) proper holding of power tools with hand gloves. 2) Deploy only skilled person for the job. 3)Use nose & eye protection. 4) Cordon off the working area. 5) Housekeeping shall be done before and after completion of activity. 6) Proper illumination shall be ensured for night work activity.		OK	

SOP FOR CIVIL CONSTRUCTION WORK

24-ERECTION ,WORKING & DISMANTLING OF SCAFFOLDING

A	Setting Up Scaffolding	1)Struck by falling scaffolding 2)Improper set-up	1) A scaffold competent person shall supervise the erection, alteration, moving, or dismantling of scaffolding. 2) Before scaffolding is designed or erected, the work area shall be analyzed to identify existing hazards (overhead lines, elevated temperatures, structural stability, soil condition, etc.) that could affect personnel as they erect, alter, move, or dismantle, or work on Scaffolding.	Job Supervisor/ Site Engineer	OK	
B	Climbing Up the scaffolding	1.Struck by falling scaffolding 2.Fall Injury self 3.Fall injury others	1. Each employee who performs work while on a scaffold (scaffold user) shall be trained by a scaffold competent person qualified to recognize the hazards associated with the type of scaffold being used. 2. Inspect scaffolding on a regular basis Only use scaffolding for its intended Purpose. 3.Provide a safe means of access Properly plank /deck working surfaces 4.Fall protection is required if working Above 6 feet. 5.Maintain three points of contact while on climbing 6. Do not allow others to be standing Around the scaffolding when not needed.		OK	

SOP FOR CIVIL CONSTRUCTION WORK

C	Working while on the scaffolding	1.Fall Injury self 2.Fall injury others	1.A scaffold competent person shall Inspect scaffolding in accordance with The requirements of job. 2. Before each work shift, when the scaffold is to be used, and before work resumes after the scaffold has been Altered or moved. The inspection shall be documented on a Scaffold 3. Inspection Tag That is attached to the scaffolding. 4.Fall protection is required if working Above 6 feet. 5.Look before you walk 6.Maintain three points of contact while on climbing 7.Do not allow others to be standing Around the scaffolding when not needed.	Engineer	OK	
D	Dismantling Of scafflodging.	1) Fall of person	1) For assending to roof a good condition ladder will be used and at a time not more than one person should not allowed to climb on ladder. 1) For vertical movement, fall arresting arrangement to be provided. All persons shall use the same. 2) Life line(not less than 1 inch PP rope) should be provided & used for horizontal movement at elevation. 3) Full body harness safety belt with double lanyard will be used for work above 1.8 mtr height. 4) Trained scaffolder will be allowed to work at site. 6) Mobile must not allowed with any worker working at height.	Job Supervisor/ Site Engineer	OK	
		2) Fall of material	1) During Dismantal proper co-ordination between workmen to be ensured. 2) All materials should be stacking as per standard. 3)Barricate the area before dismantal.	Job Supervisor/ Site Engineer	OK	

SOP FOR CIVIL CONSTRUCTION WORK

25-CONFINED SPACE

A	Working inside confined space.	1) Unsafe oxygen levels. 2) Flammable and explosive atmosphere 3) Substances hazard to health 4) Engulfment 5) Electrical hazard 6) Physical hazard 7) Psychological hazard (Stress and claustrophobia)	1) Oxygen level inside the confined space 19.5% to 23.5% 2) Arrangement of proper ventilation and Exhaust. 3) Job specific PEE,s 4) Time period maintain in confined area not more than 15 min. 5) Provide 24 Volt DC lamps inside the working area. 6) Proper illumination. 7) Required medical test report of all person 8) Attendant provided on the job entrance area. 9)Competent supervisor to engaged for job.	Job Supervisor/ Site Engineer	OK	
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26-HOISTE & LiFT MACHINE OPERATION

A	Hoist Machine operation	1) Failure of Hiost machine caused by overloading. 2) Physical Injury with hoist machine,Hit with man. 3) Incorrect use of equipments. 4) Electrocution. 5)Fall of materials from bucket. 6)Mechanical failure & defect equipments	1) Ensure Machine and associated cables and slings have adequate pulling capacity. 2) Safe working load should be clearly visible on Hoist bucket. 3) Maintain distance from both rope and winch machine. 4) Operator must be competent person & Trained. 5) ELCB/RCCB provided to start the machine. 6) all joint of cable should be insulated. 7)Valid TPI certificate required from competent person. 8)Area should be hard barricade. 9)Electrical Over hoist limit switch must available on machine top. 10)Preoperation checklist to be filled before start the operation.	Job Supervisor/ Site Engineer	OK	
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SOP FOR CIVIL CONSTRUCTION WORK

27-WORKING DURING NIGHT PERIOD

A	Working during night hours	1) Slip, Trip & fall due to low illumination. 2) major physical injury.	1) Sufficient illumination should be maintained in work area not less than 54Lux. 2) Housekeeping should be maintained to prevent slip trip. 3) Avoid work at height after 06:00PM if working after 06:00PM approval from Department head required. 4) Night work permit to be taken from department.	Job Supervisor/ Site Engineer	OK	
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28-GENERAL LIFTING WORK

A	Lifting work & Rigging of materials with hydra	1) Fall of materials 2) Hit with object. 3) Failure of lifting tools/tackles. 4) Toppling of vehicle 5) Suspended load	1) Proper good and sound tools use for lifting. 2) All tools should be tested and SWL should be punched on each tool; TPI certificate should be available. 3) Competent driver lifting & rigger should deploy. 4) TPI certificate for HYDRA/CRANE should be available. 5) Hard barricade should be around the equipment area. 6) Maintain safe distance minimum 2 mtr from suspended load. 7) During hydra marching on road and movement flag man should be deployed.	Job Supervisor/ Site Engineer	OK	
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29-HYDRA OPERATION

A	Hydra Operation	1) Toppling of Hydra 2) Hit with object & person. 3) Mechanical failure. 4) Road accident 5) Incompetent operator	1) Before make in operation make sure ground surface should be leveled. 2) Before operation physical inspection of Hydra required with preoperation checklist. 3) Competent driver, lifting & rigger should deploy. 4) TPI certificate for HYDRA/CRANE should be available. 5) Hard barricade should be around the equipment area. 6) Maintain safe distance minimum 2 mtr from suspended load. 7) During hydra marching on road and movement flag man should be deployed. 8) Drink & driving not allowed. 9) During operation do not use mobile phone.	Job Supervisor/ Site Engineer	OK	
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30-WORKING DURING HOT SUMMER

A	Working during hot summer time	1) Sweat Exhaust from body. 2) Faint & Fall 3) Indirect hazards- Fall from height & others 4) Tiredness 5) Fever	i. Adequate shading arrangement must be made at the work places to protect the workers from scorching heat. ii. No work should be executed during the peak hours from 12:00 P.M to 03:30 PM in TPWODL work execution area. iii. There should be adequate, safe potable drinking water for the workers and other personnel. iv. There should be first-aid box containing essential medicines, ORS, Glucose etc. at the work site for the workers. v. Safety Health & Environment (SHE) Parameters will be observed at construction sites.	Job Supervisor/ Site Engineer	OK	
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31-Plumbing Work

		fall from height Fall of materials	1) PPE and scaffolding to be fixed as per the guideline mentioned in SL no-13			
		pipe shifting	1) Pipe to be shifted through trolley, vehicle or by manually. 2) Do not shift pipes via 2 wheeler or cycle.			

SOP FOR CIVIL CONSTRUCTION WORK

A	PLUMBING	Piping work	1) For cutting of pipe first place the pipe on a flat surface, use Jigs or fixtures as per requirement. In case of using any type of power tool follow the SOP for operation of power tool. 2) During clamping/ hammering Use handgloves. 3) Use Pipe vice portable type while doing die, fixing fittings 4) Shut off the valve(Distributon/ main) to discontinue the water flow while executing any plumbing work.	Job Supervisor/ Site Engineer	OK	
32-Aluminium work						
A	Aluminium work	Glass handling	1. CARRY GLASS to your side with two hands. 2. NEVER CARRY glass under your arm or above your head. 3. ALWAYS USE two team members to move large sheets of glass. 4. USE PROPER hand and body position such that you are not in the “line of fire” in the event of breakage. 5. REPLACE worn safety equipment prior to performing the job. 6. DO NOT stand or walk on broken glass. 7. NEVER break glass into smaller pieces with your foot or hand. 8. DO NOT hold on to broken glass or try to stop falling glass; move out of the way to a safe location. 9. DO NOT reach or catch glass by the corner of the lite. 10. ALWAYS be aware of your surroundings and other team members. 11. INSPECT containers and glass before unpacking, which is essential to reducing potential hazards. 12. ENSURE that no team members are in the area of glass movement.	Job Supervisor	OK	
		cutting of aluminium	SOP for power operating tools to be followed.			
		cutting machine				
		drill machine				
33-Tile fixing work						
A	TILES & MARBLE FIXING	Cut injury Slippery floor Fall of material	1) Use PPE 2) Tile/ Marble cutting shall be carried out on a flat surface. 3) For operation of tile cutting machine & angular grinder follow the SOP No.... 4) Do not run over the slippery surface. 5) House keeping to be made to avoid tripping. 6)In case tile fixing work at height follow the SOP NO.....	Job supervisor/ Site Engg	OK	
34-PVC tank (Syntax) or Domestic water tank fixing and cleaning						

SOP FOR CIVIL CONSTRUCTION WORK

A	FIXING & CLEANING OF SYNTAX TANK	Fall of material and person Hit with structure	1. Take height pass permit before starting of job. 2. USE PPE. 3. Drain the water from tank 4. Ensure positive isolation before dismantling any pipe. 5. Use rope while lowering the tanks. 6. Be extra careful while shifting the tanks via staircase. 7. Place a iron pipe inside tank top entrance and this pipe to be connected with rope and pull manually from height.	Job supervisor/ Site Engg	OK	
35-Carpentry Work						
A	CARPENTRY WORK	Cut injury Slippery floor Fall of material Physical Injury Electrical Shock Eye injury	1. Use proper PPE & eye protection during nail work. 1. Before starting any wood working machine in carpentry shop, it should be ensured that all the safety guards are in proper places and secured well. 2. one should not stand in a line with the plane of 3. One should not use defective or damaged carpentry tools and machines while carrying out work in carpentry shop. 4. No carpentry tools should be thrown for saving time in handling. 5. Nails, screws should be properly kept in a box for proper house keeping, the rotating blade and always keep your fingers away from the reach of blade. 6. Never Use Blunt Blades & Bits	Job supervisor/ Site Engg	OK	
36-Barbed wire fixing						
A	BARBED WIRE OR REINFORCE NET FIXING	Cut injury Slippery floor Fall of material Physical Injury	1. Use PPE as directed. 2. Do not execute any fencing work over newly grouted post. 2. Barbed wires should be handled by trained personals. 3. For working at height follow the standards	Job supervisor/ Site Engg	OK	
37-Brick, Paver Block and Kerb stone fixing						
A	PAVER BLOCK, KERB STONE FIXING, BRICK SOLING	Cut injury Slippery floor Fall of material Physical Injury Slip, Trip & fall of person Electrical shock Rotating parts.	1. Barricade the area 2. In case of work near operational road deploy dedicated supervisor for ensuring the safe movement of vehicles. 3. While cutting the pavers follow the SOP for operation of power tool. 4. Unloading of pavers/ bricks shall be done as per TPWODL standard. 5. Ensure the house keeping. 6. All electrical connection should be insulated & routed through ELCB/RCCB. 7. Use hand gloves for materials shifting & unloading.	Job supervisor/ Site Engg	OK	
38-HUME PIPE LAYING						
A	MANUAL SHIFTING OF HUME PIPE	Cut injury Fall of material Physical Injury Slip, Trip & fall of person	1. Barricade the area 2. In case of work near operational road deploy dedicated supervisor for ensuring the safe movement of vehicles. 3. Use hand gloves for materials shifting & unloading. 4. Make a rail arrangement for easy movement 5. Don't take on shoulder. 6. While laying no one allowed to stay inside drain area. 7. Slowly place the pipe with rope by gradually decreasing. 8. Proper coordination between workmen should ensure.			

SOP FOR CIVIL CONSTRUCTION WORK

B	SHIFTING HUME PIPE UPTO 330 MM BY HYDRA/JCB	1.Fall of materials from vehicle hook. 2.Material hit with nearby 3.vehicle,Structure & equipments. 4.Unbalance of pipe during shifting. 5.Cut injury 6.Fall of material on person. 7.Physical Injury 8.Slip,Trip & fall of person	1.Floor should be leveled for vehicle movement. 2.Clear the vehicle mevent area. 3.Safe access for materials movenet to creat. 4.Use Sling/Cargo cling for shifting of hume pipe. 5.Do not use PP rope for hume pipe shifting. 6.Person not allowed to stay front of vehicle. 7.Use guide rope to prevent suspension of hume pipe. 8.Flag man to be deploy for vehicle movement. 9.Do not sit on load while shifting.	Job supervisor/ Site Engg	OK	
B	LAYING INSIDE TRENCH	1.Fall of materials from vehicle hook. 2.Material hit with nearby 3.vehicle,Structure & equipments. 4.Unbalance of pipe during shifting. 5.Cut injury 6.Fall of material on person. 7.Physical Injury 8.Slip,Trip & fall of person	1.Floor should be leveled for vehicle movement. 2.Clear the vehicle mevent area. 3.Safe access for materials movenet to creat. 4.Use Sling/Cargo cling for shifting of hume pipe. 5.Do not use PP rope for hume pipe shifting. 6.Person not allowed to stay front of vehicle. 7.Use guide rope to prevent suspension of hume pipe. 8.Flag man to be deploy for vehicle movement. 9.Do not sit on load while shifting. 10.While laying on drain no person are allowed to stay inside pit.			
39-BLUE SCOPE SHEET FIXING/REPAIR						
A	Sheeting at height	Inadequate Approach	1) Proper approach ladder will be provided near by area with double lynard full body harness with vertical lifeline & fall arreator.	Job supervisor/ Site Engg	OK	
		Fall of Person	1) Usage of PPE's like helmet, Full body harness, Safety shoes 2) Usgae of fall arrester & lifeline 3) Trained workmen with fitness certificate 4) Horizontal lifeline will be provided during sheeting work. 5) Crawler board will be provided during the frazile roof sheeting. 6) Cage surrounded with net will be provided for vertical sheeting. 7) Retractable type fall arrester will be used in vertical sheeting.			
		Fall of Material	1) Area barrication 2) Physical inspection of lifting tools & tackels 3) Proper illumination 4) Physical inspection of lifting equipments			
40-FABRICATION & ERECTION JOB						
A	Fabrication of structural steel work	1) Physical injury because of uneven ground 2) Improper handling of Materials manually may cause injury. 3) Tripping hazard (Improper laying of welding cables,gas hoses)	1) Trained person will be deputed on job. 2) Proper use of PPE's like safety shoes, helmet, hand gloves will be used. 3) Working area will be leveled before starting of job. 4) Fabricated materials will be stacked properly at site & all welding cables should be routed with proper condition.		OK	
B	Fabrication Assembly work	1) Fall of materials	1) All working platforms will be ensured of adequate strength with stable handrail & toeguard. 2) Loose materials will not be kept at height to avoid its falling. 3) Area under work-place will be barricaded properly. 4) Work at more than one elevations at the same segment has to be restricted. Proper co-ordination between supervisors stationed at different level will be ensured.	Job supervisor		

SOP FOR CIVIL CONSTRUCTION WORK

C	Grinding Works	1) Electrocution	1) All grinding m/c will be connected through ELCB. 2) Body earthing of all metal body grinding M/C will be provided. 3) No person will be allowed to carry grinding m/c without using the power chord. 4) Power cables will be routed properly. 5) Main power to the grinding m/c will be disconnected keeping out the plug top from the switchboard when it is not in use. 6) Switchboard will be kept nearby the m/c with separate isolation switch. 7) All inflammables materials (i.e. paint, paper, oil,LPG Cylinder) will be removed from the grinding area.	Job Supervisor/ Site Engg		
		2) Breakage of wheel	1) Grinding wheels, which are properly labeled & marked should be only used. Instructions for use written on the wheel should be strictly followed. 2) All grinding wheels will be checked for internal cracks before starting the grinding works. 3) Wheel guard will be provided to all the grinding m/c. 4) Appropriate grinding wheels will be used based on the grinding m/c suitability.	Job Supervisor/ Site Engg	OK	
		3) Physical injury (Eye injury, burns etc.)	1) All relevant PPE'S like safety goggles, safety shoes, face shield will be used to avoid any contact with Hot surface. 2) Only trained person will do the grinding job. 3) Switch off the machine and allows the wheel to stop completely before placing it on the floor. 4) Work pieces must be firmly secured before grinding commences.	Supervisor		
D	Magnetic Drill m/c operation.	1) Breakage of Drill bit	1) All the drill bits will be checked physically for any cracks before starting the m/c. 2) Rated speed drilling bits to be used for rated spindle capacity of m/c.			
		2) Hit by Drilling Burrs	1) All the burrs scraps generated will be promptly cleared from the work area to the scrap bin. 2) Only brush watering will be admitted to cool the rotating drill bit. 3) All relevant PPE'S like leather hand glooves, safety goggles will be used.	Supervisor	OK	
		3) Electrocution	1) All M/c will be connected through ELCB & well earthing of the same will be ensured. 2) No drill M/c will be used in wet condition. 3) Power connection chord will be properly routed at site.	Supervisor		
		4) Physical injury (Hand injury, Body injury,eye injury etc.)	1) Drillers will be allowed to wear suitable hand gloves(skin fit/cut resistance) hand gloves during drilling operation. 2) Driller will not allowed to place workmen's hand nearer to rotating spindle. Always it is ensured that brush to be used for cleaning purpose of drill bit/plate hole. 3) Use proper PPE , Iron chips generated out of drilling will be kept at demarked area and will be collected periodically. 4) Experienced & trained operator should engaged for drilling operation.	Supervisor		
		1) Physical injury like amputation, fractures	1) Guarding of all rotating parts of the machine will be ensured. 2) Maintain safe distance during bending	Supervisor		

SOP FOR CIVIL CONSTRUCTION WORK

E	Plate Bending	3) Electrocutation	1) All Bending M/c will be connected through ELCB & well earthing of the same will be ensured. 2) Power connection chord will be properly routed.	Supervisor	OK	
41-GAS CUTTING						
A	General Inspection	Proximity hazard	1. LPG Cylinders with valid test date will be used. 2. Cylinders will be checked as per the colour coding. Colour coding of gas cylinders must be as per the BIS code IS-4379 for industrial cylinders. 3. Cylinders without neck guard will not be used. 4. Experienced gas cutter will be deployed.	Supervisor	OK	
B	Shifting of gas cylinders from store to the work place	Falling / toppling of cylinders	1. Oxygen / LPG cylinders will be transported by gas cylinder trolley to the work place. Cylinders will not be dragged, rolled or dropped. 2. Gas cylinders will be kept in upright position on gas cylinder trolley & will be secured by chain.	Supervisor		
C	Fitting of hoses, regulators & pressure gauges	Leakage of inflammable gas	1. Gas hoses with intermediate joints will be avoided & all hose joints to be clamped with jubilee clamps. 2. Regulators & pressure gauges will be fitted firmly & regularly checked for leakage. Required spanner/key will be kept always with the gas cylinder. 3. No oil or similar lubricant will be used on the valves or other fittings of the gas cylinder.	Supervisor	ok	
D	Gas cutting of the desired job	1. Fire & explosion	1. LPG cylinders & Oxygen cylinders will be kept separately. 2. Gas cylinders will be kept away from heat & fire. It will be kept away from falling spatters. 3. Flash Back arrestors will be used. Standard gas cutting torch with NM technology (three pipe) will be used. 4. Fire extinguishers & sand buckets will be kept at site. 5. Access for Fire extinguishers, sand bucket and water bucket to be maintained free at site. 6. All inflammable materials will be removed from the gas cutting area. 7. Generated scrap (inflammable materials) removal will be done on continuous basis and area housekeeping to be maintained. 8. Electrical cables & equipments in the vicinity of the gas cutting area will be covered with ceramic cloth & temporary sheets to avoid any fire incident. 9. Spatter arrester will be used to restrict spread of hot spatters. 10. Gas hoses will be kept away from flame & hot spatter.	Supervisor	ok	

SOP FOR CIVIL CONSTRUCTION WORK

E		2. Physical injury (Eye injury, burns etc.)	1. Relevant PPEs like Safety shoe, safety helmet, leather apron, hand gloves, leg guard, hand shieve, goggles, etc. will be used to avoid direct contact with flame or hot metal. 2. Relevant eye protection PPE's to be used during performing the cutting jobs.	Job Supervisor/ Site Engineer	ok	
42-Welding Work						
A	Connection of welding holder & arrangement	Electrocution	1. Welding holder, return path, earthing will be connected in power off mode. 2. Lugs will be used for connections. 3. All Cable joints will be insulated properly. 4. All DB's to be earthed with earth pit & resistance value of earth pits to be displayed 5. No connections will be left loose. 6. All welding machines will be connected through tripping device like ELCB / RCCB of 30mA sensitivity. 7. Welding Holder with proper insulation will be used. 8. Body earthing will be provided with the welding machine & junction box. 9. Double earthing will be provided with welding machines.	Job Supervisor/ Site Engineer	ok	
B	Welding of the job	1. Electrocution	1. Welding cable, electrical cable should be routed separately. 2. Welding work will not be executed in wet conditions & during rain. 3. PPEs like Safety shoes, hand gloves will be used in dry condition only. 4. Power on/off arrangement will be provided locally. 5. Welding machines with VRD will be used. 6. Welding electrodes will not be replaced with bare hand.	Job Supervisor/ Site Engineer	ok	
C		2. Fire	1. Welding cables will be routed separately. 2. All inflammable materials will be removed from the gas cutting area. 3. Fire extinguishers & sand bucket will be kept at site. 4. Spatter arrester will be used to restrict spread of hot spatters. 5. Welding debris / stubs will be kept in designated box & disposed later as per the procedure. 6. Electrical cables in the vicinity of the welding area will be covered with ceramic cloth & temporary sheets to avoid any fire incident. 7. Welding cables will be kept away from flame & hot spatter.	Job Supervisor/ Site Engineer	OK	
D		3. Eye injury, burn injury due to spark / welding spatters	1. Relevant PPEs like Safety shoe, safety helmet, leather apron, hand gloves, leg guard, hand shieve, goggles, etc. will be used to avoid direct contact with flame or hot metal.	Job Supervisor/ Site Engineer	OK	
E		4. Inhalation of Toxic gases	1. Proper ventilation will be provided.	Job Supervisor/ Site Engineer	OK	
43-Sanitization Work						

SOP FOR CIVIL CONSTRUCTION WORK

A	Making of trenches and covering	Tripping hazard	1) Use of PPE as per job requirement and standard. 2) Physical inspection before starting of job 3) Proper tools to be used. Ensure the condition of the tools. 4) Excavated area shall be barricaded when worker are leaving the sites or till the completion of backfilling.	Supervisor	ok	
B	Cleaning of septic tank	Fall hazard Confined space	1) Permit shall be taken before starting of work. 2) Do not enter to the septic tank with out any information/Confined work permit/presence of supervisor or Proper PPE. 3) Manhole shall be covered after completion of work or before leaving the sites.	Supervisor	ok	
C	Cleaning of sewerage line	Fall hazard Harmful gases Skin irritation	1) Permit shall be taken before starting of work. 2) Do not enter to the septic tank with out any information/Confined work permit/presence of supervisor or Proper PPE. 3) Manhole shall be covered after completion of work or before leaving the sites. 4) Use Safety PPEs.	Supervisor	ok	
D	Cleaning and brooming of road and footpath	Dust hazard Road accident	1) Use PPE. 2) Barricade the area of brooming. Move the barricade along the road or as per the movement of worker. 3) If required road closer can be taken. 4) Condition of tools shall be checked before starting of Job.	Supervisor	ok	
E	Cleaning of Drain and shifting of garbages/dry leafs	Fall hazard Road safety	1.) Use proper PPE 2) Drain extracted garbages shall be dump as per direction and shall be shifted to dump yard immediately. 3) While loading the garbages or leafs tractor shall be parked inside the barrication. 4) Driver should not roam arround while loading is being carried out. 5) Use of mobile while driving or at work site by the labours is strictly prohibited.	Supervisor	ok	
F	Cleaning of setteling tank	1) Fall hazard 2) Suffocation due to bad smell	1) Use of PPE. 2.) Ensure the anchorage of FBH while working at height or cleaning is carried out by standing over wall. 3) Ensure the availability of supervisor.	Supervisor	ok	
G	Chokage clearance	1) Fall hazard 2) Suffocation due to bad smell	1) Proper tools and PPE to be used. 2) Manhole shall be covered before leaving the sites. 3) Area shall be cleaned after work is over.	Supervisor	ok	
H	Chemical sprinkling & Fogging machine operation	Skin diseases Sickness	1) Use Proper PPE as directed as chemicals are toxic in nature. 2.) chemicals to be stored in a separate room with lock and key. 2) Do not engage any sick worker. 3) Ensure the chemical dosing workers are not in empty stomach. 4) Do not apply chemicals on the bushes, lawn etc with out information as this may cause death to the animals. 5) During use of chemical wear full sleeve clothshes	Job Supervisor/ Site Engineer	ok	

SOP FOR CIVIL CONSTRUCTION WORK

I	Grass Cutting	Cut injury Tripping hazard Biological Hazards(Snake,Inset bite)	1) Use PPE 2) Only trained persons to be engaged for the work. 2) Use protective leg sleeve. 3) Incase of blade mounted cutter, fitness of the machine must be checked before use. 5) Maintain the safe distance between body and machine body. 6) Ground condition must be anticipated before walking on it to eliminate tripping hazard. 7)Before deweeding check area condition or any harmful animals.	Job Supervisor/ Site Engineer	ok	
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