

ANNEXURE-V GOOD PRACTICES

A. Health and Safety

The Health, Safety and Environment (HSE) management system is an effective means of ensuring that proper attention is paid to the health and safety of individuals working in the project site as well as the protection of the environment from the environmental impacts associated with proposed construction activities. This system should be adequately documented within a HSE Manual and should be effective in implementing the aims and objectives of the HSE Policy.

The system should cover the following:

- Incorporate measures to demonstrate that all workers/labourers are medically fit and competent to perform their tasks safely;
- Ensure that all personnel are conversant with the working conditions at the worksite, the rules and standards related to the working environment and the HSE hazards and risks associated with the work programme.
- Provide means whereby hazards have been identified, assessed and eliminated where possible, or are being controlled / mitigated through formal planning methods and procedures.
- Allow for periodic review triggered by site or system changes that may affect the HSE risk of the work programme.
- Ensure that all contractors understand the principles and requirements of the system.
- Require contractors to have an equivalent HSE standard.
- Contain a written HSE plan

Contractor and MDPU/Line Departments management should make all personnel fully aware that they are empowered, and expected, to bring all health, safety and environmental risks which they believe not to be under adequate control to the immediate notice of their Supervisor so that prompt action may be taken to prevent injuries or other losses and provide a safe and healthy workplace.

1. Safety practices during construction phase

The Contractor is required to comply with all the precautions as far as possible for safety of the workers. The contractor shall comply with all regulation regarding, working platforms, excavations, trenches and safe means of entry and egress.

In order to guarantee construction safety, efficient lighting and safety signs shall be installed on temporary roads during construction and adequate traffic regulations shall be adopted and implemented for temporary roads.

The following aspects to be implemented:

- Provision of personal protective equipment to the labourers.
- The contractor shall provide, if required, erect and maintain necessary (temporary) living accommodation and ancillary facilities during the progress of work for labour to standards and scales approved by the Engineer- in-charge.
- Contractor shall follow all relevant provisions of the Factories Act, 1948 and the Building & other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 for construction & maintenance of labour camp.
- Construction camps shall not be proposed within 1000 m or sufficiently away from nearest habitation to avoid conflicts and stress over the infrastructure facilities, with the local community. The location, layout and basic facility provision of each labour camp shall be submitted to Engineer prior to their construction.
- Sanitation facility should be provided in the labour camp. Uncontaminated water shall be supplied to the construction workers at labour camps.
- The contractor shall arrange for a readily available first aid unit including an adequate supply of sterilized dressing materials and appliances as per the Factories Rules in every work zone, availability of suitable transport at all times to take injured or sick person(s) to the nearest hospital
- Always maintain a fully equipped first aid box in the construction camp.

The important safety sign boards to be displayed at construction site are as follows:





2. Fire protection in labour camp

It should be planned that all facilities to be constructed shall be fully equipped with the fire protection equipments as per IS standards. The analysis of fire hazard in the construction of labour camps, colonies and other facilities alongwith management measures is summarized in the following table:

Analysis of fire hazards in the construction of labour camps and other facilities

Stage	Potential hazard	Remedial Measures
Construction Camp/colony	<ul style="list-style-type: none"> • Fire prevention and fire fighting not considered in design • Inadequate fire protection measures during construction 	<p>WRD/Line Departments</p> <ul style="list-style-type: none"> • The Line Departments shall provide the fire protection system as per IS Standards for Fire code. • Proper housekeeping should also be ensured and maintained during these facilities to protect them from any fire related incidents. <p>Contractors</p> <ul style="list-style-type: none"> • Clear terms of reference should be given to contractor at tendering stage for incorporating fire code as per IS Standard. • Fire fighting equipments should be placed at common places

During construction, there should be an environmental officer who may be nominated by WRD/Line Departments and shall be responsible to take care of the adequacy of Fire Safety measures set up in all facilities created either by WRD/Line Departments or any of its Contractors.

B. Sustainable Construction Practices

During the construction phase, to avoid and minimize the negative impacts from the proposed activities, WRD/Line Departments are advised to prepare strict guidelines as follows:

- Strict restrictions shall be imposed on the workers at project sites to ensure that they do not harvest any species/produce from the vegetation in the area forests and cause any danger or harm to the animals and birds in the wild.
- Fuel wood to the labourers shall be provided by the project proponents so that there is no pressure for cutting of trees to meet fuelwood requirements.
- Interference of human population should be kept to a minimum in the adjacent forest areas and it should be ensured that the contractors do not set up labour colonies/camps in the vicinity of forests and wilderness areas.
- Only well maintained/new equipment that produce lesser noise should be installed at the work sites.
- Best way to control the noise is at source. Certain equipment that needs to be placed permanently at one place like generators, etc. would be housed in enclosed structures to cut off the noise.
- The heavy equipment like rotating or impacting machines will be mounted on anti-vibration mountings.
- Wherever combustion engines are required they will be fitted with silencers.
- The traffic (trucks, etc.) used by the project works will be managed to produce a smooth flow instead of a noise producing stop and start flow. Necessary training/orientation will be provided to the traffic operators/drivers. Sounding of loud horns, etc. in the forested areas should be banned.
- Project authorities will use water sprinklers on the road to avoid the dust from construction activities.

1. Traffic management during construction phase

Detailed Traffic Control Plans shall be prepared for traffic diversion. The traffic control plans shall contain details of temporary diversions, traffic arrangement after cessation of every day's work and safety measures for transport of hazardous material.

The Contractor should ensure that the diversion is always maintained in working condition, particularly during the monsoons to avoid disruption to traffic flow. Local community should be informed of the changes to traffic routes, conditions and pedestrian access arrangements. The temporary traffic diversions should be kept free of dust by frequent application of water.

2. Control of Emissions

Minor air quality impacts will be caused by emissions from construction vehicles, equipment and DG sets, and emissions from transportation traffic. Frequent truck trips will be required during the construction period for removal of excavated material and delivery of select concrete and other equipment and materials. The following measures are recommended to control air pollution:

- The contractor shall be responsible for maintaining properly functioning construction equipments to minimize exhaust.
- Construction equipment and vehicles will be turned off when not used for extended periods of time.
- Unnecessary idling of construction vehicles to be prohibited.
- Effective traffic management to be undertaken to avoid significant delays in and around the project area.
- Road damage caused by sub-project activities will be promptly attended to with proper road repair and maintenance work.

3. Dust Control

The WRD/Line Departments will work closely with representatives from the community living in the vicinity of project area to identify areas of concern and to mitigate dust-related impacts effectively (e.g., through direct meetings, utilization of construction management and inspection program, and/or through the complaint response program). To minimize issues related to the generation of dust during the construction phase of the project, the following measures should be implemented:

- When practical, excavated spoils will be removed as the contractor proceeds along the length of the activity.
- When necessary, stockpiling of excavated material will be covered or staged offsite location with muck being delivered as needed during the course of construction.
- Excessive soil on paved areas will be sprayed (wet) and/or swept and unpaved areas will be sprayed and/or mulched. The use of petroleum products or similar products for such activities will be strictly prohibited.
- Contractor shall be required to cover stockpiled soils and trucks hauling soil, sand, and other loose materials.
- Contractor shall ensure that there is effective traffic management at site. The number of trucks/vehicles to move at various construction sites to be fixed.
- The construction area and vicinity (access roads, and working areas) shall be swept with water sweepers on a daily basis or as necessary to ensure there is no visible dust.

4. Noise control from construction equipment

The contractor should be required to maintain properly functioning equipment which shall cover the following aspects:

- The construction equipment shall be required to be fitted with noise suppression devices and properly maintained mufflers.
- Staging of construction equipment and unnecessary idling of equipment within noise sensitive areas to be avoided whenever possible.

5. Identification of borrow pits and quarry area

- The Borrow pits for earth should be selected away from residential area, sensitive location, and local roads. Before selection of borrow area, the contractor should take written consent from the environmental officer of WRD/Line Departments. Selection of sand, stone and other quarry materials should be from only government approved sites.
- Borrow areas shall be atleast 500m from schools and village access roads
- Planning of haul roads for accessing borrow materials shall be undertaken during this stage. The haul roads shall be routed to avoid agricultural areas. In case agricultural land is disturbed, the contractor shall rehabilitate as approved by the WRD/Line Departments and pay compensation for loss of cultivation to the users as per terms and conditions.
- Operation and Rehabilitation of borrow area as per the Madras Detailed Standard Specification and Environmental Code of Practices
- Arrangement for locating the source of supply of material for embankment and sub-grade as well as compliance to environmental requirements, as applicable shall be the sole responsibility of the contractor. The environmental personnel attached to environmental cell shall be required to inspect every borrow area location prior to approval.
- Such measures shall include, but not limited to, frequent sprinkling of water, repairing of the road, road safety provisions and ensuring covering of loaded vehicles by waterproof tarpaulin; consultation with public and special precautions are required when measures are implemented near schools, health centers and settlement areas.
- All borrow areas whether in private, community or government land shall be restored either to the original condition or as approved by WRD/Line Departments.

C. Disposal of Construction Wastes

The disposal of construction wastes shall be in accordance with the Construction and Demolition Waste Management Rules, 2016 by MoEF&CC. While planning or executing excavation the contractor shall take all adequate precautions against soil erosion, water pollution etc and take appropriate drainage measures to keep the site free of water, through use of mulches, grasses, slope drains and other devices. The contractor shall take adequate protective measures to see that excavation operations do not affect or damage adjoining structures, agricultural areas and water bodies.

The recommended measures are as below:

- Ensure unobstructed natural drainage through proper drainage channels/ structures.
- Dispose surplus excavated earth at identified sites and ensure minimum hindrance to locals.
- All excavations will be done in such a manner that the suitable materials available from excavation are satisfactorily utilized as decided upon beforehand. The excavations shall conform to the lines, grades, side slopes and levels as per the drawings.

D. Use of Agro-Chemicals

Good Practices for usage of agro-chemicals can help control and decrease negative impacts on the environment. The recommended practices are as follows:

- Stormwater that falls on the work area should be contained for proper disposal
- The work area should be lined with an impermeable material such as concrete
- Application equipment should be checked to ensure that it operates satisfactorily without leaking or spilling and is calibrated for the necessary application rates.
- To check the protective clothing and other safety equipment including breathing apparatus, if required, is complete, is of the correct quality and is in good condition.
- To check the weather conditions are satisfactory, particularly to avoid excessive wind speeds and consequent spray drift.
- To ensure the safe disposal of empty containers, tank washings and surplus pesticides.
- To avoid blow-back from granule or powdered materials when transferring container contents into the application unit. A slow, steady release causes least disturbance of air and reduces the risk of particles becoming airborne and being inhaled.

- To handle containers carefully to prevent gurgling or spillage during pouring into an applicator. Pour correctly from large containers with the spout uppermost so as to allow air to flow into the container at the same rate as the contents flow out.