

**Annexure 10.2: Modifications to MoSRT&H (Specification for Road and Bridge Works, Fourth
Revision, Feb 2008) Clause 111, Measures for Safeguarding Environment**

The concessionaire / contractor shall abide by the regulation and other stipulations made by the MoEF and PCB at the time of according Environmental Clearance of the Project for implementing purpose.

Sub-Clause 111.1 General

Delete the second sentence of the first paragraph. Add the following after the first paragraph:

"The Environmental Management Plan (EMP) has been prepared to provide the concessionaire / contractor with measures to be taken to manage environmental matters during the Contract period. The enhancement measures are given in the drawings annexed with the EIA report. The issuance of the Environmental Management Plan does not relieve the concessionaire / contractor of the responsibility to ensure total compliance with current laws, rules and regulations in force governing pollution and environmental protection applicable to the State of Andhra Pradesh or where the Works are situated. This total compliance is required during the construction phase for construction related activities. The concessionaire / contractor must carry out the requirements of the EMP and as listed under Sub-Clause 111.15.

In all situations where the concessionaire / contractor is required to obtain approval or a license, from Statutory Authorities or Landowners independent of the Employer, for any activity associated with the Works to be executed under the contract, evidence of the approval or license must be provided to the Engineer for his consent prior to commencement of any operation associated with the work which necessitated this approval or license.

All costs associated with environmental protection during the 'construction phase (for construction related activities only) including obtaining the necessary approvals and licenses, shall be deemed to be included in the rates for items of work included in the Bill of Quantities. The items mentioned in Bill No. 1(b), which have been covered in MoSRT&H specifications or Technical Specifications will not be paid separately.

The concessionaire / contractor shall preserve existing trees, plants, and other vegetation that are to remain, within or adjacent to the Works and shall take all precautions necessary to prevent damage or injury thereto. Any accidental clearance shall be replanted to the satisfaction of the Engineer and at the cost of the concessionaire / contractor.

On completion of the Works, all areas disturbed by the concessionaire / contractor's construction activities (such as areas of compounds, material storage, access and haul roads) shall have been restored to their original condition, and agreed as having been restored by the relevant property owner or as may be acceptable to the Engineer. Restoration of an area shall include clearing excess material, scarifying the surface, top soiling, seeding and planting. The cost of this work shall be deemed to be included in the rates generally.

The concessionaire / contractor's on-site establishment shall include a nominated environmental representative, available at any time, who will be responsible for all environmental matters associated with the Works. The nominated person shall have a working knowledge of National and State current laws, rules and regulations in force that relate to the protection of the environment with respect to the Works to be undertaken as part of this Contract.

If requested by the Engineer, the concessionaire / contractor shall on two weeks notice, nominate and make available site staff of foreman level and above for training in the environmental aspects of road construction. The staff to be included in the training shall be chosen by the Engineer. The costs of providing personnel for the environmental training are deemed to be included in the rates generally."

Sub-Clause 111.2 Borrow Pits for Embankment Construction

Add the following after the first sentence:

"Where borrow material (including sub grade and sub-base) is required to complete the Works, details of the location and extraction methods of the borrow sites shall be submitted by the concessionaire / contractor to the Engineer for his consent. The submission to the Engineer shall include the required approvals, licences, terms and conditions for extracting the material from the relevant Statutory Authorities, and landowners, responsible for the area in which the proposed borrow area is to be located. The edges of borrow sites shall be no closer than 3 metres from any fence line or boundary. Adequate clearance shall be provided for the construction catch drains. Borrow sites shall have adequate drainage outlets unless the relevant landowner has agreed that the borrow area is to create a permanent tank or dam.

Cut batter slopes shall not be steeper than 3 to 1 and shall be left by the concessionaire / contractor in a tidy and safe condition to the satisfaction of the landowner and the Engineer.

Written clearance from the landowner/village head shall be obtained before leaving a site from which borrow material has been extracted. Copies of such clearances shall be provided to the Engineer prior to issuance of the Taking over Certificate.

Site preparation for borrow areas shall be in accordance with Section 201, Clearing and Grubbing, of this specification. Topsoil is to be stripped and stockpiled in accordance with Sub-Clause 301.3.2. Where it is required to replace the topsoil as part of the reinstatement of borrow areas, the topsoil will be replaced and seeded in accordance with Sub Clause 308.3.

Borrow areas shall be top soiled and seeded immediately after the area is no longer required for borrow in accordance with the requirements of the specification.

Access roads and tracks to borrow areas shall be maintained during use and left in good condition after closing down the borrow areas.

The guidelines Borrow Areas Management are given in Annexure 8.6 of this report. The cost of maintaining and reinstating / redevelopment of borrow areas in accordance with the requirements of this Clause shall be deemed to be included in the rates for the borrow material."

Sub-Clause 111.3 Quarry Operations

Add the following after the first paragraph:

"Where the concessionaire / contractor intends to operate his own quarries, whether it be for obtaining naturally occurring materials or manufacturing product, it will be the responsibility of the concessionaire / contractor to obtain the necessary approvals and licenses from the relevant Authorities and subsequent operations will be in accordance with the requirements of these Authorities.

The costs associated with setting-up and maintaining a quarrying operation is deemed to be included in the rates for the supply of material."

Sub-Clause 111.8

Add the following after the first sentence:

"At the direction of the Engineer, the concessionaire / contractor shall provide for laying of dust palliative on, or watering of the works and of roads, and other areas immediately adjacent to the Works. The materials and methods used for dust control will be subject to approval of the Engineer."

Sub-Clause 111.11

Delete and replace with the following:

"Any structural damage caused to public or private property attributable to the concessionaire / contractor's construction equipment or method of working, shall be made good without delay and to the acceptance of the affected party at no any extra cost."

Sub-Clause 111.12

Delete and replace with the following:

"Compliance with the sub-clause 111.11 will not relieve the concessionaire / contractor of any responsibility for complying with the requirements of any Public or Statutory Authority in respect to use of their property or services. The costs of compliance with Clause 111 shall be deemed to be included in the rates for items included in the Bill of Quantities."

Sub-Clause 111.13

Add new Sub-Clause:

"The concessionaire / contractor's attention is drawn to the Discharge Standard promulgated under the Environment Protection Act, 1986, and the concessionaire / contractor's responsibility to adhere to these limits. All waste arising from the project is to be disposed of in a manner which is acceptable to the State Pollution Control Board; and the Engineer."

Sub-Clause 111.14

Add new Sub-Clause:

"The concessionaire / contractor shall plan and execute the work so as to minimize the possibility of pollution of areas adjoining the construction work sites or any area utilized by the concessionaire / contractor for the project, from contaminants such as petroleum products, trade waste, garbage and other noxious substances. Impervious bunds shall be constructed around all fuel, oil and liquid material storage areas large enough to contain at least 120% of the total storage volume.

Drainage of these bunded areas shall be provided with lockable gate valves. The gate valves shall remain closed and locked at all times except during the controlled removal of storm water from the bunded area. The valves shall be manned at all times when they are unlocked or open."

Sub-Clause 111.15

Add new Sub-Clause:

"The concessionaire / contractor must carry out the following as part of the Works. The cost of carrying out these works must be contained in idle rates submitted by the concessionaire / contractor in the bills of quantities.

Sub-Clause 111.15.1 Flora and Fauna Management

Action during construction

Potential impact	Action	Timing
Unnecessary clearance of trees and vegetation	<p>Provide a clearing programme for Engineer's approval. The clearing programme will include: Schedule of activities, Assignment of responsibilities, Training of concessionaire / contractor's personnel, Field maps or survey drawings at a scale of not less than 1:2000 delineating areas to be cleared.</p> <p>Identify and mark road construction boundaries on site with the engineer and advise construction workers</p> <p>Delineate limits of access tracks, stockpiles and borrow pits, so as to minimize the impacts on vegetation.</p> <p>Transplant trees in cleared area where practical.</p>	<p>Prior to the start of construction</p> <p>For duration of construction activities.</p> <p>Prior to the start of Construction</p> <p>Prior to the start of construction</p>
Accidental clearance	<p>Review design for each road section and construction camp.</p> <p>Should excessive clearing inadvertently occur, replace topsoil replant with appropriate local species, undertake any other practical reinstatement, and fence to limit further incursion</p>	<p>For duration of construction activities.</p> <p>Without delay</p>

Sub-Clause 111.15.2 Water resources, Drainage, Flood control and Sediment control

Action during construction

Potential impact	Action	Timing
	Haulage of material to embankments or other areas of fill shall proceed only when sufficient spreading and compaction plant is operating at the place of deposition	At all times

Sub-Clause 111.15.3 Waste Management

Action during construction

Potential impact	Action	Timing
Accidental	<p>Clean up any accidental spillages of Pollutants Spillages</p> <p>Ensure the required dispersants and persons trained in the use of the materials are available on site to clean up any accidental spillages.</p> <p>Ensure that the wastes generated from the clean up of spillages are disposed of in an approved way.</p> <p>Clean and maintain all silt traps.</p>	<p>Immediately occurrence</p> <p>At all times</p> <p>Immediately occurrence</p> <p>Regularly (frequently during wet season)</p>
Environmental nuisance and visual intrusion	<p>All employees shall be obliged to maintain a clean work and an inspection made at the end of each work day to</p> <p>Ensure that the work site is left tidy and rubbish-free.</p>	

Sub-Clause 111.15.4 Air Quality Management

Action during construction

Potential impact	Action	Timing
Air Pollution	<p>Cleared vegetation, timber and other combustible material shall not be burned.</p> <p>Dispose of waste materials other than by burning</p>	At all times

Sub-Clause 111.15.5 Noise Control

Action during construction

Potential impact	Action	Timing
Increased ambient noise levels	All work shall be carried out without unreasonable noise and disturbance.	At all times
Increased ambient noise levels	Limit construction and equipment operation near dwellings and sensitive areas such as schools and hospitals to the hours that the Contract specifies.	Duration of construction

Sub-Clause 111.16 Pollution from Hot Mix Plants and Hatching Plants

Add new Sub-Clause:

"Siting and operation of Hot Mix and Batching Plants shall be undertaken in accordance with all current rules and regulations for protection of the environment. The concessionaire / contractor will be responsible for obtaining relevant approval from the Authorities responsible for administering the environmental rules and regulations."

Sub-Clause 111.17 Substances Hazardous to Health

Add new Sub-Clause:

"The use of toxic chemical shall be subject to the approval of the relevant Authorities and in strictly in accordance with the manufacturer's instructions. The Engineer will be given at least six (6) working days notice of the proposed use of any herbicide or toxic chemical.

A register of all herbicides and other toxic chemicals delivered to the site shall be kept and maintained up to date by the concessionaire / contractor. The register shall include the trade name, physical properties and characteristics, chemical ingredients, health and safety information, safe handling and storage procedures, and emergency and first aid procedures for the product."