

SUBSECTION 15: ENVIRONMENTAL AND SOCIAL REQUIREMENTS

ENVIRONMENTAL MONITORING PLAN

To monitor the extent of environmental impact of the proposed project, the contractor has to periodically monitor the ambient environmental quality along the proposed project area. The monitoring requirement for the different environmental components is presented in table below

Environmental Monitoring Plan

| Air Quality Monitoring | |
|---------------------------------|--|
| Project stage | Pre Construction , Construction & operation period (as agreed) |
| Parameter | SPM, RPM, SO ₂ , NO _x , CO and Pb |
| Sampling Method | Use method specified by CPCB for analysis |
| Standards | Air (Prevention and Control of Pollution) Rules, CPCB, 1994 |
| Frequency | Once before start of work & once every season of the year during construction period & upto 18 months (operation Period) |
| Duration | Continuous 24 hours / or for 1 full working day |
| Location | Sensitive locations along the pipe laying work, pumping / lifting station locations, STP site. |
| Measures | Wherever air pollution parameters increase above specified standards, additional measures as decided by the engineer shall be adopted |
| Implementation | Contractor through approved monitoring agencies |
| Supervision | Implementing agency |
| Water quality Monitoring | |
| Project stage | Pre Construction & Construction |
| Parameter | • pH, BOD, COD, DO, TDS, Pb, Oil & Grease and Detergents for Surface water. • Water pH, TDS, Total hardness, Sulphate, Fluorides, Chloride, Fe, Pb for groundwater. |
| Sampling Method | Grab sample collected from source and analysis as per Standard Methods for Examination of water and Waste water |
| Standards | Indian standards for Inland Surface Water (IS; 2296, 1982) and for Drinking water (IS; 10500, 1991) |
| Frequency | Twice a year (pre monsoon and post monsoon seasons) during the construction period |
| Duration | Grab sampling |
| Location | • Locations to represent residential, agricultural, surfacewater quality and vicinity of the construction site. |
| Measures | At locations of increased in water pollution, all inflow channels shall be checked for pollution loads and channel delivering higher pollution loads and channel delivering higher pollution load shall be terminated from disposal into the water source and other methods of disposal shall be adopted |
| Implementation | Contractor through approved monitoring agencies |
| Supervision | Implementing agency |

| Noise Level Monitoring | |
|--------------------------------|--|
| Project stage | Pre Construction , Construction & operation period (as agreed) |
| Parameter | Noise level on dB (A) scale noise levels on dB (A) scale |
| Special guidance | <ul style="list-style-type: none"> • Free field at 1 m from the equipments whose noiselevel are being determined. • Equivalent noise levels using an integrated noise levelmeter kept at a distance of 15m from edge of pavement |
| Standards | MoEF Noise Rulers, 2000 |
| Frequency | Once every seasons (except monsoon) for each year of construction |
| Duration | Reading to be taken at 15 seconds interval for 15 minutes every hour and then averaged |
| Location | <ul style="list-style-type: none"> • Wherever the contractor decides to locate theequipment yard. • At sensitive location such as school, hospitals etc |
| Measures | Incase of noise levels causing disturbance to the sensitive receptors, management measures as suggested in the EMP shall be carried out. |
| Implementation | Contractor through approved monitoring agencies |
| Supervision | Implementing agency |
| Soil Quality Monitoring | |
| Project stage | Pre Construction & Construction |
| Parameter | Monitoring of Pb, SAR and Oil & Grease |
| Sampling Method | <ul style="list-style-type: none"> • Sample of soil collected to be acidified and analysedusing absorption spectrophotometer |
| Standards | Threshold for each contaminated set by IRIS database of USEPA until national standards are promulgated |
| Frequency | <ul style="list-style-type: none"> • During the pre monsoon post monsoon seasons eachyear for the entire construction period |
| Duration | Grab sampling |
| Location | <ul style="list-style-type: none"> • At productive agriculture lands abutting traffic detours,pumping / lifting station locations and STP site. |
| Measures | At location of increased in pollution levels, source shall be identified and shall be diverted from future disposal |
| Implementation | Contractor through approved monitoring agencies |
| Supervision | Implementing agency |

XI:-ENVIROMENT MANAGEMENT PLAN

| Sl.n o | Potential Negative Impacts | Mitigation Measures | Time frame | Responsible agencies |
|-------------------------------|--|--|--|---|
| PRE-CONSTRUCTION STAGE | | | | |
| 1 | Clearances | All clearance required for Environmental aspects during construction shall be ensured and made available before start of work. | Before construction | Corporation /PIA /Concerned Departments &agency /Contractor |
| 2 | Tree Cutting | i) Try to save the trees by changing the alignment ii) Provide adequate protection to the trees to be retained with tree guards (e.g. Masonry tree guards, Low level RCC tree guards, Circular Iron Tree Guard with Bars) as required. ii) Identify the number of trees that will be affected with girth size & species type along the sewer mains, pumping / lifting station sites and sewerage treatment plant site. The details to be indicated in a strip map plan. iii) Trees shall be removed from the construction sites before commencement of construction with prior permission from the concerned department. iv) Undertake afforestation in nearby areas. v) Compensatory plantation by way of Re-plantation of at least twice the number of trees cut should be carried out in the project area. | Pre-construction & construction phase | Contractor /PIA |
| 3 | Utility Relocation | i) Identify the common utilities to be affected such as: telephone cables, electric cables, electric poles, water pipelines, public water taps, etc ii) Affected utilities shall be relocated with prior approval of the concerned agencies before construction starts. | Pre-construction & construction phase | PIA /Concerned departments |
| 4 | Baseline parameters | Adequate measures shall be taken and checked to control the Baseline parameters of Air, Water and Noise pollution. Base line parameters shall be recorded and ensured conformance till the completion of the project. | Pre-construction, construction and post-construction phase | Prospective contractor /PIA |
| 5 | Planning of temporary Traffic arrangements | i) Temporary diversion will be provided with the approval of the engineer. Detailed traffic control plans will be prepared and submitted to the engineers for approval, one week prior to commencement of works. ii) The traffic control plans shall contain details of temporary diversion, details of arrangements for construction under traffic, details of traffic arrangement after cessation of work each day, SIGNAGES, safety measures for transport of hazardous materials and arrangement of flagmen. | Pre-construction & construction phase | Prospective contractor /PIA |
| 6 | Disposal of treated waste water. | i) The treated water quality shall comply with the standards of MPCB to let out into the stream / nullah /open land /irrigation purposes, and necessary permission to be obtained from the concerned department. ii) Ensure efficient working condition of treatment plant. | Pre-construction & construction phase | PIA |
| 7 | Storage of materials | The contractor shall identify the site for temporary use of land for construction sites /storage of construction materials, etc. | Pre-construction & construction phase | Prospective contractor /PIA |
| 8 | Construction of labour camps | Contractor shall follow all relevant provisions of the Factories Act, 1948 and the Building and the other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 for construction and maintenance of labour camp. The location, layout and basic facility provision of each labour camp will be submitted to Engineer prior to their construction. The construction will commence only upon the written approval of the Engineer. The contractor shall maintain necessary living accommodation and ancillary facilities in functional and hygienic manner and as approved by the Engineer. All temporary accommodation must be constructed and maintained in such a fashion that uncontaminated water is available for drinking, cooking and washing. The sewage system for the camp must be planned. Adequate health care is to be provided for the work force. The layout of the construction camp and details of the facilities provided should be prepared and shall be approved by the engineer. | During the construction | Prospective contractor |

| Sl.no | Activities | Management Measures | Time frame | Responsible agencies |
|-----------|--|---|---------------------------------------|------------------------------|
| | CONSTRUCTION STAGE | | | |
| 1. | Construction of Sewer Mains | | | |
| 1.1 | Shifting of common utilities | Ensure community consensus and minimum impact to common utilities like telephone cable, electric cables, electric poles, water taps and etc., Proper clearance to be obtained from the concerned authorities and sent to the PIA before commencement of works. | Pre-construction & construction phase | Concerned departments /PIA |
| 1.2 | Compensatory plantation of trees | Compensatory plantation of atleast twice the number of trees felled should be done in line with competent authority guidelines. | Pre-construction and Construction | Prospective contractor / PIA |
| 1.3 | Disposal of construction debris and excavated materials. | The contractor shall identify the sites for debris disposal and should be finalized prior to start of the earthworks; taking into account the following (a) The dumping does not impact natural drainage courses (b) no endangered / rare flora is impacted by such dumping | Pre-construction and Construction | Prospective contractor / PIA |

| Sl.no | Activities | Management Measures | Time frame | Responsible agencies |
|-------|------------------------------------|---|------------|----------------------|
| | CONSTRUCTION STAGE | | | |
| 1. | Construction of Sewer Mains | | | |
| | | <p>(c) Settlement area located at least 1.0 km away from the site.</p> <p>(d) Should be located in non residential areas located in the down wind side</p> <p>(e) located at least 100m from the designated forest land.</p> <p>(f) avoid disposal on productive land.</p> <p>(g) should be located with the consensus of the local community , in consultation with the engineer and shall be approved by the highways department Minimize the construction debris by balancing the cut and fill requirements.</p> | | |

| Sl.no | Activities | Management Measures | Time frame | Responsible agencies |
|-----------|---|--|---------------------|------------------------|
| | CONSTRUCTION STAGE | | | |
| 1. | Construction of Sewer Mains | | | |
| 1.4 | Planning for Temporary Traffic Diversions | <p>Before taking up of construction activity, a Traffic Control Plan shall be devised and implemented to the satisfaction of the Engineer. Construction shall be taken phase –wise so that sections are available for traffic. Temporary diversion will be provided with the approval of the engineer. The Detailed traffic control plans prepared and submitted to the engineers for approval one week prior to commencement of works shall contain details of temporary diversion, details of arrangements for construction under traffic, details of traffic arrangement after cessation of work each day, SIGNAGES, safety measures for transport of hazardous materials and arrangement of flagmen. The arrangement for the temporary diversion of the road shall ensure to minimize the environmental impacts, like loss of vegetation, productive lands etc., prior to the finalization of diversion and detours. Special consideration will be given to the preparation of the traffic control plan for safety of pedestrians and workers at night. The contractor will ensure that the diversion / detour is always maintained in running condition, particularly during the monsoon to avoid disruption to traffic flow. He shall inform local community of changes to traffic routes, conditions and pedestrians access arrangements. This plan will be periodically reviewed with respect to site conditions. The temporary traffic detour will be kept free of dust by frequent application of water.</p> | | PIA / Contractor |
| 1.5 | Protection of top soil | The top soil to be protected and compacted after completion of work, where the pipelines run, including open lands and agricultural lands. | During construction | Prospective contractor |
| 1.6 | Laying of sewer system | Adequate precautions should be taken while laying the sewer lines to avoid the possibility of cross connection with water supply lines. | During construction | Prospective contractor |

| Sl.no | Activities | Management Measures | Time frame | Responsible agencies |
|-----------|---------------------------------------|--|-----------------------------------|------------------------------|
| | CONSTRUCTION STAGE | | | |
| 1. | Construction of Sewer Mains | | | |
| 1.7 | Flooding in the low lying areas | Low lying areas in the project site can get flooded during monsoon period, to prevent the situation proper drainage arrangements has to be planned. | During construction | Prospective contractor / PIA |
| 1.8 | Temporary flooding due to excavation. | Proper drainage arrangements to be made, to avoid the overflowing of existing drains due to excavation during the laying of sewer mains. | During construction | Prospective contractor / PIA |
| 1.9 | Temporary water supply interruptions | i) Establish coordination with the concerned department to avoid or minimize the interruption of regular supply of drinking water to the residents. ii) Proper alternative arrangements to be planned when interruption of drinking water supply to the near by residents. | Pre-construction and Construction | Prospective contractor / PIA |
| 1.10 | Using of modern machineries | Using of modern machineries such as JCBs, backhoes etc, shall be used to minimize the construction period, it will reduce the construction period impacts to the near by residents. | During construction | Prospective contractor |

| Sl.no | Activities | Management Measures | Time frame | Responsible agencies |
|-----------|------------------------------------|---|--|------------------------------|
| | CONSTRUCTION STAGE | | | |
| 1. | Construction of Sewer Mains | | | |
| 1.11 | Traffic diversion | <p>i) Temporary traffic arrangements to be planned during construction. This plan shall be periodically reviewed with respect to site condition.</p> <p>ii) Detail traffic control plans will be prepared and submitted to the engineers / police department for approval, before commencement of works. The traffic control plans shall contains details of temporary diversion, details of road closings, details of arrangements for construction under traffic and details of traffic arrangement after cessation of wok each day. iii) Special consideration will be given to the preparation of the traffic control plan for safety of pedestrians and the sensitive receptors like schools and hospitals. iv) This plan will be periodically reviewed with respect to site conditions.</p> | During pre-construction and construction | Prospective contractor / PIA |
| 1.12 | Prevention of accidents | Prevention of accidents involving human beings, animals or vehicles falling or accidents due to open trenches/manholes during construction period. This needs to be ensured with proper barricading, signage boards and lighting etc. | During construction | Prospective contractor |
| 1.13 | Barricading site | The construction site should be barricaded at all time in a day with adequate marking, flags, reflectors etc. for safety of general traffic movement and pedestrians. | During construction | Prospective contractor |

| Sl.no | Activities | Management Measures | Time frame | Responsible agencies |
|-----------|---|---|---------------------|------------------------------|
| | CONSTRUCTION STAGE | | | |
| 1. | Construction of Sewer Mains | | | |
| 1.14 | Dust Pollution near settlements | i) All earth work will be protected in manner acceptable to the engineer to minimize generation of dust. Area under construction shall be covered & equipped with dust collector. ii) Construction material shall be covered or stored in such a manner so as to avoid being affected by wind direction. iii) Unpaved haul roads near / passing through residential and commercial areas to be watered thrice a day. iv) Trucks carrying construction material to be adequately covered to avoid the dust pollution and to avoid the material spillage. | During construction | Prospective contractor |
| 1.15 | Protection of residential / sensitive receptors. | i) Noisy construction operations in residential and sensitive areas should be done only between 7.30 am and 6.00 pm. ii) Preventive maintenance of construction equipment and vehicles to meet emission standards and to keep them with low noise. iii) Provision of enclosing generators and concrete mixers at site. iv) Sound barriers in inhabited areas shall be installed during the construction phase. v) Adequate barricading / other measures to protect dust pollution near sensitive receptors like schools and hospital etc to be ensured. | During construction | Prospective contractor / PIA |
| 1.16 | Vehicular noise pollution at residential / sensitive receptors. | i) Idling of temporary trucks or other equipment should not be permitted during periods of loading / unloading or when they are not in active use. The practice must be ensured especially near residential / commercial / sensitive areas. ii) Stationary construction equipment will be kept at least 500m away from sensitive receptors. iii) All possible and practical measures to control noise emissions during drilling shall be employed. The PIA may direct to take adequate controls measures depending on site conditions. | During construction | Prospective contractor / PIA |

| Sl.no | Activities | Management Measures | Time frame | Responsible agencies |
|-----------|--|--|-----------------------------------|------------------------------|
| | CONSTRUCTION STAGE | | | |
| 1. | Construction of Sewer Mains | | | |
| 1.17 | Noise from vehicles, plants and equipments | iv) Servicing of all construction vehicles and machinery will be done regularly and during routine servicing operations, the effectiveness of exhaust silencers will be checked and if found defective will be replaced. v) Maintenance of vehicles, equipment and machinery shall be regular and up to the satisfaction of the Engineer to keep noise levels at the minimum. | During construction | Prospective contractor / PIA |
| 1.18 | Storage of construction materials | Site for storage of pipes and construction materials to be identified, without affecting the traffic and other common utilities. | During construction | Prospective contractor |
| 1.19 | Labour camp & facilities | Setting up of labour camps needs to be done as per the procedures. Adequate potable water facilities, sanitation and drainage etc., in conformity with the Indian labour laws shall be ensured. The contractor shall also guarantee the following: i) The location, layout and basic facility provision of each labour camp will be submitted to Engineer prior to their construction. ii) The construction will commence only upon the written approval of the Engineer. iii) The Contractor shall construct and maintain all labour accommodation in such a fashion that uncontaminated water is available for drinking, cooking and washing. iv) Supply of sufficient quantity of potable water (as per IS) in every workplace/labor camp site at suitable and easily accessible places and regular maintenance of such facilities. v) The sewage system for the camp are designed, built and operated in such a fashion that no health hazards occurs and no pollution to the air, ground water or adjacent water courses take place. Ensure adequate water supply is to be provided in all toilets and urinals. | Pre-construction and construction | Perspective contractor / PIA |

| Sl.no | Activities | Management Measures | Time frame | Responsible agencies |
|-----------|--|--|---------------------------------|------------------------|
| | CONSTRUCTION STAGE | | | |
| 1. | Construction of Sewer Mains | | | |
| 1.20 | Waste Disposal | i) The contractor shall provide garbage bins in the camps and ensure that these are regularly emptied and disposed off in a hygienic manner as per the Comprehensive Solid Waste Management Plan approved by the Engineer. ii) Unless otherwise arranged by local sanitary authority, arrangements for disposal of night soils (human excreta) suitably approved by the local medical health or municipal authorities or as directed by Engineer will have to be provided by the contractor. | During Construction | Prospective contractor |
| 1.21 | Clearing of construction camps and restoration | i) Contractor to prepare site restoration plans, the plan is to be implemented by the contractor prior to demobilization. ii) On completion of the works, all temporary structures will be cleared away, all rubbish cleared, excreta or other disposal pits or trenches filled in and effectively sealed off and the site left clean and tidy, at the contractor's expenses, to the entire satisfaction of the engineer. | After completion of the project | Prospective contractor |

| Sl.no | Activities | Management Measures | Time frame | Responsible agencies |
|-----------|------------------------------------|---|---|------------------------------|
| | CONSTRUCTION STAGE | | | |
| 1. | Construction of Sewer Mains | | | |
| 1.22 | Pollution from Fuel and Lubricants | <p>i) The contractor shall ensure that all construction vehicle parking location, fuel/lubricants storage sites, vehicle, machinery and equipment maintenance and refueling sites shall be located away from rivers and irrigation canal/ponds. ii) Contractor shall ensure that all vehicle/machinery and equipment operation, maintenance and refueling will be carried out in such a fashion that spillage of fuels and lubricants does not contaminate the ground. iii) Contractor shall arrange for collection, storing and disposal of oily wastes to the pre-identified disposal sites (list to be submitted to Engineer) and approved by the Engineer. All spills and collected petroleum products will be disposed off in accordance with MoEF and state PCB guidelines. iv) Engineer will certify that all arrangements comply with the guidelines of PCB/ MoEF or any other relevant laws.</p> | construction and operation | PIA /Prospective contractor |
| 1.23 | Pollution from Construction Wastes | <p>The Contractor shall take all precautionary measures to prevent the wastewater generated during construction (e.g. during the testing of pipeline) from entering into streams, water bodies or the irrigation system. All waste arising from the project is to be disposed off in the manner that is acceptable by the Engineer. The engineer shall certify that all liquid wastes disposed off from the sites meet the discharge standard.</p> | During Construction and post-construction | Prospective contractor / PIA |

| Sl.no | Activities | Management Measures | Time frame | Responsible agencies |
|-----------|------------------------------------|--|---------------------|------------------------|
| | CONSTRUCTION STAGE | | | |
| 1. | Construction of Sewer Mains | | | |
| 1.24 | Risk from Electrical Equipment(s) | The Contractor shall take all required precautions to prevent danger from electrical equipment and ensure that -i) No material will be so stacked or placed as to cause danger or inconvenience to any person or the public. ii) All necessary fencing and lights will be provided to protect the public in construction zones. All machines to be used in the construction will conform to the relevant Indian Standards (IS) codes, will be free from patent defect, will be kept in good working order, will be regularly inspected and properly maintained as per IS provision and to the satisfaction of the Engineer. | During construction | Prospective contractor |
| 1.25 | Safety Aspects | i) Adequate precautions shall be taken to prevent the accidents and from the machineries. All machines used shall conform to the relevant Indian standards Code and shall be regularly inspected by the PIA. ii) Where loose soil is met with, shoring and strutting shall be provided to avoid collapse of soil. iii) Protective footwear and protective goggles to all workers employed on mixing of materials like cement, concrete etc. iii) Welder's protective eye-shields shall be provided to workers who are engaged in welding works. iv) Earplugs shall be provided to workers exposed to loud noise, and workers working in crushing, compaction, or concrete mixing operation. v) The contractor shall supply all necessary safety appliances such as safety goggles, helmets, safety belts, ear plugs, mask etc to workers and staffs. The contractor will comply with all the precautions as required for ensuring the safety of the workmen as per the International Labor Organization (ILO) Convention No. 62 as far as those are applicable to this contract. The contractor will make sure that during the construction work all relevant provisions of the Factories Act, 1948 and the Building and other Construction Workers (regulation of Employment and Conditions of Services) Act, 1996 are adhered to. The contractor shall not employ any person below the age of 14 years for any work and no woman will be employed on the work of | During construction | Prospective contractor |

| Sl.no | Activities | Management Measures | Time frame | Responsible agencies |
|-------|---|--|---------------------|------------------------|
| | CONSTRUCTION STAGE | | | |
| 1. | Construction of Sewer Mains | | | |
| | | painting with products containing lead in any form. | | |
| 1.26 | First Aid | The contractor shall arrange for: i) 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 ii) Availability of suitable transport at all times to take injured or sick person(s) to the nearest hospital | During construction | Prospective contractor |
| 2. | Construction of Pumping / Lifting stations | | | |

| Sl.no | Activities | Management Measures | Time frame | Responsible agencies |
|-----------|--|---|-----------------------------------|------------------------------|
| | CONSTRUCTION STAGE | | | |
| 1. | Construction of Sewer Mains | | | |
| 2.1 | Tree cutting | i) Try to save the trees by changing the alignment and provide adequate protection to the trees with tree guards as required. Such as Masonry tree guards, Low level RCC tree guards, Circular Iron Tree Guard with Bars, etc ii) Compensatory plantation of atleast twice the number trees felled should be done in line with competent authority guidelines | Pre-construction and Construction | PIA / Prospective contractor |
| 2.2 | Storage of construction materials | Site for storage of construction materials to be identified, without affecting the near by the residents, traffic and other common utilities. | During construction | Prospective contractor |
| 2.3 | Barricading site | The construction site should be barricaded at all time in a day with adequate marking, flags, reflectors etc. for safety of pedestrians | During construction | Prospective contractor |
| 2.4 | Protection of residential / sensitive receptors. | i) Noisy construction operations in residential and sensitive areas should be done in between 7.30 am and 6.00 pm. ii) Preventive maintenance of construction equipment and vehicles to meet emission standards and to keep them with low noise. | During construction | Prospective contractor |
| | | iii) Idling of delivery of vehicles will not be allowed at construction site. iv) Provision of enclosing generators and concrete mixers at site. v) Sound barriers in inhabited areas shall be installed during the construction phase. vi) Adequate barricading / other measures to protect dust pollution near sensitive receptors like schools and hospital etc to be ensured. | | |

| Sl.no | Activities | Management Measures | Time frame | Responsible agencies |
|-----------|---|---|-----------------------------------|---|
| | CONSTRUCTION STAGE | | | |
| 1. | Construction of Sewer Mains | | | |
| 2.5 | Disposal of silt / sludge | A suitable site should be identified for safe disposal of silt / sludge generated at the pumping / lifting station sites, which should be away from the water bodies, residential & sensitive areas, agricultural areas and etc., and got approved by the Engineer. | During construction and operation | PIA / Prospective contractor /Corporation |
| 2.6 | Noise level | i) Noise screening by trees plantation scheme proposed as noise barriers. ii) Adequacy of measures shall be checked to control noise pollution. iii) Using of less noise generating machineries like submersible pumps at PS / LS sites to reduce the noise level. iv) Increase the height of compound wall of the PS/LS site. v) Collection well to be kept closed during the construction and operation period to avoid the accidents. | During construction | Prospective contractor |
| 3.0 | Environmental enhancement and special issues | Implementing Agency | Location | |
| 3.1 | Flora and Chance found Fauna | The contractor will take reasonable precaution to prevent his workmen or any other persons from removing and damaging any flora (plant/vegetation) and fauna (animal) including fishing in any water body and hunting of any animal. If any wild animal is found near the construction site at any point of time, the contractor will immediately upon discovery thereof acquaint the Engineer and carry out the Engineer's instructions for dealing with the same. The Engineer will report to the near by forest office (range office or divisional office) and will take appropriate steps/ measures, if required in consultation with the forest officials. | Project area | Prospective contractor |

| Sl.no | Activities | Management Measures | Time frame | Responsible agencies |
|-----------|--|---|--------------|------------------------|
| | CONSTRUCTION STAGE | | | |
| 1. | Construction of Sewer Mains | | | |
| 3.2 | Chance Found Archaeological Property | All fossils, coins, articles of value of antiquity, structures and other remains or things of geological or archaeological interest discovered on the site shall be the property of the Government and shall be dealt with as per provisions of the relevant legislation. The contractor will take reasonable precautions to prevent his workmen or any other persons from removing and damaging any such article or thing. He will, immediately upon discovery thereof and before removal acquaint the Engineer of such discovery and carry out the SC's instructions for dealing with the same, waiting which all work shall be stopped. The Engineer will seek direction from the Archaeological Survey of India (ASI) before instructing the Contractor to recommence the work in the site. | Project area | Prospective contractor |
| 3.3 | Monito-ring of environ-ment parameters | The contractor shall undertake seasonal monitoring of air, water, noise and soil quality through an approved monitoring agency. The parameter to be monitored, frequency and duration of monitoring plan shall be prepared | Project area | Prospective contractor |
| 3.4 | Sensitive Areas | The sensitive areas like Schools, hospitals to be provided with suitable noise barriers and safety measures, prior to the start of work in order to minimize the dust and noise impacts due to vehicle movement during construction and their effectiveness to be checked during operation phase . | Project area | Prospective contractor |

| Sl.no | Activities | Management Measures | Time frame | Responsible agencies |
|-----------|---|--|--------------------|------------------------|
| | CONSTRUCTION STAGE | | | |
| 1. | Construction of Sewer Mains | | | |
| 3.5 | Clearing of construction of camps and restoration | Contractor to prepare site restoration plans for approval by the engineer. The plan is to be implemented by the contractor prior to demobilization. On completion of the works, all temporary structures will be cleared away, all rubbish cleared, excreta or other disposal pits or trenches filled in and effectively sealed off and the site left clean and tidy, at the contractor's expenses, to the entire satisfaction of the engineer. | Corridor of Impact | Prospective contractor |
| 3.6 | Tree Protection, Tree Planting, | <ul style="list-style-type: none"> •Giving due protection to the trees that fall in the shoulders /corridor of impact shall be the prime focus during Construction/post construction • Masonry tree guards, Low level RCC tree guards, Circular Iron Tree Guard with Bars, use of plate compactors near trees may also be considered where necessary Re-plantation of at least twice the number of trees cut should be carried out along the project road. Since the major portion of the project road may pass through open lands, planting of trees along the entire stretch of the road is recommended as an enhancement measure. Growth and survival of trees planted shall be ensured and monitoring done at least for a period of 3 years .Survival status shall be reported on monthly basis to Engineer incharge. | Corridor of Impact | Prospective |