5. DETAILED SCOPE OF WORK FOR MAINTENANCE OF N.H.4 AND CONNECTORS

5.1 General

5.1.1 Operation and Maintenance of National Highway:
The Contractor shall operate and maintain the Project / Projects Facility and if required, modify, repair or otherwise make improvements to the Project / project Facility to comply with Specifications and Standards, and other requirements, Good Industry Practice, Applicable Laws and Applicable Permits and manufacturer's guidelines and instruction with respect to Toll Plaza. More specifically, the Contractor shall be responsible for:

5.1.1.1 Ensuring smooth and uninterrupted flow of traffic during normal operating conditions;

5.1.1.2 Charging, collecting and appropriating toll in accordance with the contract;

5.1.1.3 Minimizing disruption to traffic in the event of accidents or other incidents affecting safety and use of the Project/Project Facility by providing a rapid and effective response and for this purpose maintaining liaison with emergency services;

5.1.1.4 Undertaking routine maintenance including prompt repairs of potholes, cracks, joints, drains, lane marking, lighting and signage.

5.1.1.5 Undertaking maintenance works in accordance with Maintenance Manual and the Maintenance Programme;

Contractor

Competent Officer
5.1.1.6 Preventing with the assistance of concerned laws enforcement agencies where necessary, to any unauthorized entry to and exit from the Project.

5.1.1.7 Preventing with the assistance of the concerned law enforcement agencies where necessary, any encroachments on the Project / project site and preserving the right of way of the Project.

5.1.1.8 Adherence to the Safety Standards.

All above activities shall be performed by Contractor in co-ordination with the regional officer of MORT&H in Mumbai and MSRDC.

The Contractor shall submit a manual for the regular and preventive maintenance (the "Maintenance Manual") and shall ensure and procure that at all times during the Operation Period, the Project is maintained in a manner that it complies with the specifications and Standards.

5.1.1.9 The Contractor shall comply with the Operation and Maintenance Requirements set out in this Schedule. In doing so, the Contractor shall ensure that the Project Facilities are maintained to the standards and specifications as set out in the Design Requirements and shall also meet the other requirements, if any, set out in the Contract.

5.1.1.10 During the Implementation Period, the Contractor shall take appropriate measures to operate and maintain the existing 2 lane highway and ensure that the same remains open for uninterrupted, smooth and safe traffic flow at all times.
5.1.1.11 In the design, planning and implementation of all works and functions associated with the operation and maintenance of the Project Facilities, the Contractor shall take all such actions and do all such things (including without limitation; organising itself, adopting measures and standards, executing procedures including inspection procedures, highway patrols, and engaging contractors, their agents and employees) in such manner, as will:

5.1.1.12 Ensure the safety of personnel deployed on and users of the Project Facilities or part thereof;

5.1.1.13 Keep the Project Facilities from undue deterioration and wear;

5.1.1.14 Permit unimpaired performance of statutory duties and functions of any party in relation to the Project;

5.1.1.15 During the Contract period, the Contractor shall ensure that:

5.1.1.16 The Project Facilities are kept free from undue deterioration and undue wear;

5.1.1.17 Applicable and adequate safety measures are taken;

5.1.1.18 Minimum delay is caused to users of the Project Facilities;

5.1.1.19 Adverse effects on the environment and to the owners and occupiers of property and/or land in the vicinity of the Project Facilities, due to any of its actions, is minimised;

For [Signature]
Contractor

For [Signature]
Director

For [Signature]
Competent Officer
Any situation which has arisen or likely to arise on account of any other emergency is responded to as quickly as possible and its adverse effects controlled/minimised;

5.1.1.21 disturbance or damage or destruction to property of third party by operations of the Project Facilities is controlled/minimised;

5.1.1.22 Members of the public are treated with due courtesy and consideration by its employees/agents;

5.1.1.23 Users are provided with adequate information and forewarned of any event or any other matter affecting the Project Facilities to enable them to control/minimise any adverse consequences by such event or matter;

5.1.1.24 A complaint register to record grievances of any member of the public in relation to the operations and maintenance of the Project Facilities is duly maintained;

5.1.1.25 Traffic data and data relating to the operation and maintenance of the Project Facilities are collected;

5.1.1.26 All materials used in the maintenance, repair and replacement of any of the Project Facilities shall meet the Design Requirements/standards prescribed.

5.1.1.27 The personnel assigned by the Contractor have the requisite qualifications and experience and are given the training necessary to enable the Contractor meet the O and M Requirements.
5.1.2 Operation and Maintenance Manual and Operation and Maintenance Plans

5.1.2.1 Prior to the commencement of any construction activity, the Contractor, in consultation with the Independent Engineer, shall finalise the O and M Plan - Implementation Period.

5.1.2.2 Prior to making application for the Completion certificate for the Project, the Contractor shall finalise in consultation with the Independent Engineer:

(i) The O&M Manual
(ii) The O&M Plan for the first year of operations.

5.1.2.3 Six weeks prior to the anniversary of COD each year, the Contractor shall prepare an annual OandM Plan for the next year of operations.

5.1.3 Maintenance Requirements

5.1.3.1 Road Works

5.1.3.1.1 Maintenance Standards
During Implementation Period, the Contractor shall maintain the existing 2 lane highway in traffic worthy conditions as per the Intervention levels 1 and 2 provided in Table -1;

For Local Road Units - Pvt. Ltd.
Contractor

Director

Competent Officer
<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Service Factor</th>
<th>Level 1</th>
<th>Level 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Potholes / km (max)</td>
<td>Nil</td>
<td>5 nos, of size &lt; 5 sq.m Nil</td>
</tr>
<tr>
<td></td>
<td>i) upto 75 mm deep</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ii) more than 75 mm deep</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Percent Cracking</td>
<td>Nil</td>
<td>No Unsealed cracks &gt; 6mm wide on 95% Project Highway.</td>
</tr>
<tr>
<td>3.</td>
<td>Rut Depth not exceeding 10mm</td>
<td>Length not more than 10% of the Project Highway</td>
<td>Length upto 20% of Project Highway</td>
</tr>
<tr>
<td>4.</td>
<td>User Information</td>
<td>All road signs, Km post and road marking in good condition.</td>
<td>All road signs, Km post and road marking in good condition.</td>
</tr>
<tr>
<td>5.</td>
<td>Percentage Defective bridge Deck area and bump at approach</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>6.</td>
<td>Drainage (including shoulders)</td>
<td>No visible water pool within the ROW</td>
<td>No visible water pool within the ROW</td>
</tr>
<tr>
<td>7.</td>
<td>Characteristic Deflection as per IRC: 81-1997</td>
<td>Upto 0.50 mm</td>
<td>Upto 0.80 mm</td>
</tr>
</tbody>
</table>
During Operations Period, all the road works and pavements contained in the Project Facilities (including those in the ancillary facilities) shall be maintained in traffic-worthy condition as per the intervention levels 1 and 2 as provided in the Table - 2 through the various maintenance activities set out later.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Interventions</th>
<th>Level 1 (Desirable)</th>
<th>Level 2 (Acceptable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Roughness by Bump Integrator (max. permissibility)</td>
<td>2000 mm/Km (Allowable Tolerance: +5%)</td>
<td>3000 mm/Km</td>
</tr>
<tr>
<td>2.</td>
<td>Potholes / km (max)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i) Less than 75 mm deep</td>
<td>Nil</td>
<td>2 nos. of size &lt; 5 sq.m</td>
<td></td>
</tr>
<tr>
<td>ii) more than 75 mm deep</td>
<td>Nil</td>
<td>Nil</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Percent Cracking</td>
<td>Nil</td>
<td>No Unsealed cracks &gt; 6mm wide on 95% Project Highway</td>
</tr>
<tr>
<td>4.</td>
<td>Rut Depth not exceeding 10mm</td>
<td>Length not more than 5% of Project Highway</td>
<td>Up to 10% of length of Project Highway</td>
</tr>
<tr>
<td>5.</td>
<td>User Information</td>
<td>All road signs, Km post and road</td>
<td>All road signs, Km post and</td>
</tr>
<tr>
<td></td>
<td>Percentage Defective bridge Deck area and bump at approach</td>
<td>marking in good condition in 3 language formula</td>
<td>road marking in good condition in 3 language formula</td>
</tr>
<tr>
<td>---</td>
<td>----------------------------------------------------------</td>
<td>-----------------------------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>6.</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
</tr>
</tbody>
</table>

| 7. | Camber                                                   |                                              |                                              |
|    | i) Mainline                                              | (± or -) 0.05% variation from the Camber as per Design Requirements | (± or -) 0.15% variation from the Camber as per Design Requirements |
|    | ii) Service Road                                         | (± or -) 0.10% variation from the Camber as per Design Requirements | (± or -) 0.20% variation from the Camber as per Design Requirements |

| 8. | Drainage (including shoulders)                          | No visible water pool within the Project Highway | No visible water pool within the Project Highway |

| 9. | Characteristic Deflection as per IRC: 81-1997           | Upto 0.50 mm                                     | Upto 0.80 mm                                     |
5.1.3.1.3 The road roughness value shall be measured at least twice in a year by a properly calibrated Bump Integrator device before the monsoon and soon after the monsoon. It shall be measured longitudinally or transversely along the line picking up worst surface characteristics, which include the rut areas and depressions etc. The Contractor shall ensure that at no point during the Operations Period the roughness in the road surface shall fall below than the prescribed acceptable roughness values given in Table - 2.

5.1.3.1.4 The structural condition of the flexible pavement of the Project Highway shall be assessed every year by taking Benkelman Beam Deflections and working out characteristic deflections of homogeneous sections of the Project Highway as per IRC-81-1997. In the case of cement concrete pavement, joints shall be thoroughly inspected every year and the loss of sealing compounds made good.

5.1.3.1.5 Bridges and Other Structures: The Contractor shall maintain and carry out required repairs of the various elements of the structures in accordance with IRC-SP-35: 1990.

5.1.4 Maintenance Activities

5.1.4.1 Routine Maintenance

In order to ensure smooth and uninterrupted flow of traffic during normal operating conditions, for all 24 hours of a day, routine maintenance of the Project Facilities shall include but not be limited to:

5.1.4.1.1 prompt repairs of potholes, concrete joints, drains, line marking, lighting and signage; patching, re-grading of granular shoulders to designed
standard, making good the deficiency of material on the shoulder, drain cleaning, repairing of signs, road marking, carrying out repairs to pavement crack by sealing in case of rigid pavement if required.

5.1.4.1.2 replacement of equipment/consumables, horticultural maintenance and repairs to equipment, pavements, bridges, structures and other civil works which are part of the Project/Project Facilities;

5.1.4.1.3 maintenance of the approach roads to and underpasses, overpasses and drainages within the Project Site in accordance with Good Industry Practice.

5.1.4.1.4 keeping the Project Site/Project Facilities in a clean, tidy and orderly condition free of litter and debris and taking all practical measures to prevent damage to the Project Facilities or any other property on or near the Project Site. Removing and disposing of in accordance with all Applicable Laws and Applicable Permits, all rubbish, debris, etc. including any and all equipment, supplies, materials and wastes brought or produced by the Contractor/Contractor on the Project Site.

5.1.4.1.5 undertaking maintenance works in accordance with the O&M Plan and O&M Manual;

5.1.4.1.6 preventing, with the assistance of concerned law enforcement agencies where necessary, any unauthorised entry to and exit from and any encroachments including any encroachments on the ROW/Project Site;
5.1.4.1.7 taking all reasonable measures for the safety of all the workmen; material, supplies and equipment brought to the Project Site. Explosives, if any, shall be stored, transported and disposed of by the Contractor in accordance with Applicable Laws/Applicable Permits.

5.1.4.1.8 For routine maintenance works, the Contractor shall generally follow the operational and performance criteria specified in the respective IRC/IAORT&H standards and specifications for each of the performance indicators covered under pavement condition survey, roughness and BBD deflections. Where such criteria are not specified in the standards, the Contractor, for the purpose of routine maintenance shall set forth such criteria as to conform to good international standards and Good Industry Practice for sound pavement maintenance practices in consultation with the Independent Engineer.

5.1.4.1.9 The Contractor shall regularly carry out the necessary preventive maintenance activities for the Project Facilities to ensure adherence to the Design Requirements/specifications throughout the Contract period.

5.1.4.1.10 Asset Management Deliverables And Tolerance Criteria: The Contractor shall strictly follow and adhere to the Asset Management Project Deliverables and Tolerance Criteria.

5.1.4.2 Periodic Maintenance - Flexible Pavement

5.1.4.2.1 The following renewal treatment to bituminous surfaces including thermoplastic painting and other road markings will be provided by the contractor when the Roughness index is more than 2000 or after every four years which ever occurs earlier.
Renewal coat of 40 mm thick asphaltic concrete bituminous layer on carriageway including paved shoulders for 4 lane sections with necessary camber corrections in BM 3.5%.

Renewal coat of 25 mm thick Bituminous concrete bituminous layer on carriageway including paved shoulders for 2 lane sections with necessary camber corrections in BM 3.5%.

The Bitumen for renewal shall be 30/40 grade, preferably with CRMB or Polymer modified Bitumen.

5.1.4.2.2 The paved shoulders shall also be treated in similar manner as applicable to the mainline traffic lanes.

5.1.4.2.3 The periodic renewal shall result in improvement of the riding quality, meeting road roughness value as at the time of COD.

5.1.4.2.4 The earthen shoulders shall be restored to the design cross section. This will involve application of additional granular material of same characteristics to bring it back to the required cross section.

5.1.4.2.5 The rip-rap (stone pitching) shall be repaired wherever required.

5.1.4.3 Periodic Maintenance – Rigid Pavement

5.1.4.3.1 This activity shall be carried out at the end of 10th year from COD. Road markings and other road side features shall be restored to meet the relevant standards to the satisfaction of the Independent Engineer.
5.1.4.3.2 The periodic maintenance activities shall also include (i) removal of surface defects such as polishing of stones, loss of coarse aggregates potholes, scaling, ravelling etc. using portland-cement mixes; bituminous mixes or resin mixes etc., (ii) removal of cracks and (iii) removal of deficiencies in joints.

5.1.4.4 Emergency Maintenance

5.1.4.4.1 The Emergency Response Protocol ("ERP") shall be developed by the Contractor in consultation with the local police, hospital/ambulance services, fire departments and other authorities/support personnel and the Independent Engineer. This shall be a part of the O&M Manual developed by the Contractor.

5.1.4.4.2 The ERP shall set out steps to be taken and measures to be adopted by the Contractor in responding to dealing with Emergency including those situations related to vehicle accidents involving personal injuries or fatalities, property damage and force majeure as follows:

5.1.4.4.3 In the event of an Emergency, the Contractor shall immediately carry out an inspection of the area affected by the Emergency. Where Emergency has necessitated closure of the Project Facilities or part thereof, the Contractor shall promptly carry out any repair works necessary to restore the Project Facilities to safe condition and in any event shall carry out such works before the affected area of the Project Facilities is re-opened to traffic.

5.1.4.4.4 The Contractor shall ensure that sufficient staff, plant, equipment and materials, including without limitation medical assistance are available to respond to Emergency within reasonable period at all times during the Contract period.

For For Ltd.

Contractor

-125- Competent Officer
5.1.4.4.5 The Contractor shall employ appropriate personnel as 'Duty Officers' and shall ensure that a Duty Officer is on duty at all times to respond to Emergency. A schedule of the telephone numbers of the Duty Officers shall be provided to MSRDC, Independent Engineer and the police so that contact can be made with a Duty Officer at any time. The Contractor shall ensure that Duty Officers are empowered to mobilise the necessary staff, plant, equipment and materials in response to information or instruction from MSRDC, Independent Engineer, police or other emergency services in the event of Emergency. Procedures for liaison between Duty Officers and the police and other emergency services shall be developed as part of the ERP.

5.1.4.4.6 In case of Emergency, the Contractor shall

- carry out such emergency maintenance and repairs as may be required to repair the damages, if any, in consultation with the Independent Engineer and where required under the supervision of the police in order to ensure that the Project Facilities are returned to normal operating standards as quickly as possible.

- follow the relevant operating procedure specified in the O&M Manual including the setting up of temporary traffic cones and lights as well as the removal of obstruction and debris expeditiously.

- Take all necessary measures to minimise pollution in accordance with the procedure specified in the O&M Plan/ Environmental Management Plan where liquid or soluble material spillage is involved.
5.1.5 Other Maintenance Works

5.1.5.1 Illumination: The Contractor shall maintain all illumination installations and related hardware in accordance with relevant clauses of IS: 1944 (Part I-V) 1981. The maintenance will normally involve cleaning of luminaries, replacement of burnt out luminaries, damaged illumination poles or brackets and repairs to transformers. Detailed maintenance procedure for the same shall be prepared in consultation with the Independent Engineer. In case of any breakdown, illumination shall be restored within 24 hours. The following standards shall broadly apply:

5.1.5.2 Illumination shall be maintained at the designed level throughout the Contract period.

5.1.5.3 All faults shall be repaired instantly and lighting restored and missing and damaged items shall be replaced instantly.

5.1.5.4 Cleaning shall be done at regular intervals as specified in the O&M Manual to ensure that lighting is not below the specified standard.

5.1.5.5 All installations shall be safeguarded against weathering and ageing effect by repainting and other preventive measures.

5.1.5.6 The servicing of stand-by power generations units shall be carried out in accordance with the manufacturer’s instructions.

5.1.5.7 All electricity charges, water charges, diesel required for D.G Set etc. shall be borne by the Contractor.

[Signature]

For

[Company Name] Ltd

[Signatory]

Contractor

127

Competent Officer
5.1.5.8 The Contractor shall carry out the inspection of existing C.D. works, bridges / retaining walls. If any structure is found to be under distress, the contractor shall consider repair / reconstruction as per the structural arrangements. The cost of such repairs / reconstruction shall be treated as covered in the bid and no in separate payment shall be made to the contractor.

5.1.5.9 The dismantled material of the MPEW and N.H.4 works shall be the property of the contractor. The Contractor shall dispose off the dismantled material as per the instructions of Independent Engineer.

5.1.6 Highway Signs and Road Markings

5.1.6.1 All traffic signs and markings shall always be kept clean, visible and in correct alignment and position.

5.1.6.2 Any damage to traffic signs which reduces or threatens to reduce full and clear visibility shall be rectified within twenty four (24) hours of its occurrence. If they are used as base for posters, the posters shall be removed and the signs shall be cleaned within 24 hours. Signs shall be washed using detergent solution followed by clean water to maintain their visibility and reflectivity unimpaired due to dust etc.

5.1.6.3 Any part of traffic signs damaged due to weathering, corrosion, vandalism or any other cause shall be replaced by the Contractor within seven days.

5.1.6.4 Any mandatory sign including those for traffic safety, damaged beyond repair shall be replaced within 2 days and all other signs replaced within 3 days.

For Ideal Road Builders P. Ltd.

Contractor

Director

- 128 -

Competent Officer
5.1.6.5 Appropriate devices for measuring the luminosity and reflectivity shall be used to check visibility and reflectivity of signs, delineators and markings. These shall be replaced by similar material if the reduction in the level of these two requirements falls below 50% of the original level.

5.1.6.6 Lane marking with thermo-plastic paint shall be carried out soon after any overlay/renewal coat is provided.

5.1.7 Landscaping

5.1.7.1 Maintenance of highway landscape shall include attending to repairs to elements of the landscape connected services as and when necessary, and replacement of irreparable items of work.

5.1.7.2 Trees shall be maintained as per guidelines in SP:21-1979 and no indiscriminate felling of trees shall be resorted. The felling of trees shall be undertaken in consultation with the Independent Engineer and after obtaining permission of forest department, as applicable.

5.1.7.3 While borrowing earth from roadside land for maintenance it shall be ensured that no earth is removed from around roots of trees. All borrowing operations shall be as per IRC:10-1961.

5.1.7.4 Maintenance operations include numbering and maintaining a register of all roadside trees with in the ROW.

5.1.7.5 The routine maintenance such as trimming and shaping shall also cover those hedges and trees within the ROW, which affect the performance of the Project Highway.

Contractor: Director: Competent Officer
5.1.7.6 Cutting or clearance to safeguard visibility at intersections, road bends, accesses and signs shall be carried out in such a way as to avoid permanent damage to hedges and trees. Hedges and trees overhanging carriageways shall be trimmed to provide minimum headroom of 5.5 metres at all times.

5.1.7.7 Turfing within the ROW shall be mowed as to achieve a visual pattern in harmony with adjacent areas. Mowing shall be done when the height of cut reaches 150 mm.

5.1.7.8 The O&M shall include a maintenance and management plan for trees, shrubs, turfing and hedges to sustain their development in a manner pleasing in appearance. It will also include the lawn, turfing, icons on the road / Toll Plaza developed by the MSRDC.

5.1.8 Safety Barriers and Pedestrian Guard Rail

5.1.8.1 The Crash Barrier (W Type) should require minimum maintenance except in case of damage due to impact.

5.1.8.2 Concrete Posts and Steel Beam Guardrails will require repairs or replacement from low to medium impact damage caused by vehicles. Periodic painting will also be required.

5.1.9 Bus Bays / Truck lay byes

Maintenance of Bus / Truck Bays shall include attending to repairs to the pavement, road signs and road marking, landscaping etc shall be done within 2 days.
The following renewal treatment to bituminous surfaces including thermoplastic painting and other road markings will be provided by the contractor when the Roughness index is more than 2000 or after every four years which ever occurs earlier.

Renewal coat of 40 mm thick asphaltic concrete bituminous layer with necessary camber corrections in BM.

The Bitumen for renewal shall be 60/70 grade preferably with CRMB or Polymer modified Bitumen.

5.1.10 Service Roads

Maintenance of Service roads shall include attending to repairs to the pavement, road signs and road markings, land scaping, drainage and shall be done within two days.

The following renewal treatment to bituminous surfaces including thermoplastic painting and other road markings will be provided by the contractor when the Roughness index is more than 2000 or after every four years which ever occurs earlier.

Renewal coat of 25 mm thick Open Graded Carpet with liquid seal coat bituminous layer on carriageway for 2 lane sections with necessary camber corrections in BM.

The Bitumen for renewal shall be 60/70 grade preferably with CRMB or Polymer Modified Bitumen.
5.1.11 Road Furniture

5.1.11.1 Maintenance of road furniture like KM post, Hectometer stones, ROW, pillar etc and attending to repairs to various parts of the road furniture and connected services as and when necessary, and replacement of irreparable items of work in reasonable period.

5.1.11.2 At the end of the Contract period, all road furniture shall be handed over to MSRDC in useable and in working order.

5.1.12 Safety and Traffic Management Operations

5.1.12.1 Safety

5.1.12.1.1 The Contractor shall implement a Safety Management Programme in line with relevant MORT&H and IRC guidelines. This shall form a part of the O&M Manual.

5.1.12.1.2 The Contractor shall nominate a traffic safety and control officer (Traffic Safety Officer) who shall be responsible for all arrangements necessary for traffic safety and control including the provision and operation of recovery vehicles for breakdown. The Traffic Safety Officer shall be available on call on a 24 hours’ basis.

5.1.12.1.3 In case of Emergency, the Contractor shall take prompt and effective steps to minimise the adverse effects to road users and shall act as requested or as directed by the Police and take all such safety precautions and measures to minimise the risk of personal injury.

For Ideal Road Builders Pvt. Ltd.

[Signature]

Contractor

[Signature]

Competent Officer
5.1.13 Traffic Management

General
Traffic Management shall be undertaken during scheduled and unscheduled construction work and maintenance activities and also during any Emergency. Traffic Management during Emergency shall be undertaken in consultation with the Independent Engineer. The extent of the traffic management shall be assessed as per the site conditions.

5.1.13.1 Traffic Management Plan

Before the commencement of construction activity, an overall traffic management plan and programme for a planned scheduled construction and/or operations and maintenance activity of the existing highway shall be prepared in consultation with the Independent Engineer. The plan shall be based on the following operational parameters:

The existing two lane carriageway shall be utilised to the maximum extent possible.

5.1.13.1.1 At major intersections all traffic turning movements will be allowed at all times;

5.1.13.1.2 Lane closure adopted for diverting the main traffic during Construction Works shall be governed by the approved programme of construction.

5.1.13.1.3 Existing 2 lane traffic may be reduced to a one lane one-way operation for a short duration of a maximum of 4 hours in 24 hours provided it is adequately controlled by signing and flag men.

[Signature]
For Ideal Road Builders Ltd. Ltd.

Contractor

Competent Officer

- 133 -
5.1.13.1.4 The activity of renewal or strengthening shall not be carried out in a continuous length of more than 2 km in rural section and 1.0 km in urban section and shall not be closer than 2 km and 1 km in between respectively.

5.1.13.1.5 Lane closure in short lengths less than or equal to 500 metres for carrying out routine maintenance activities shall not be more than for a continuous period of 12 hours.

5.1.13.1.6 Traffic speed through the construction zone shall be reduced to 40 km/hr by designed speed bumps and warning signs.

5.1.13.1.7 For the safety of construction workers as well as the traffic, a physical separation of 1.5 m between work area and the highway traffic shall be maintained by installing orange coloured drums; (Painted rocks/stones are not permitted).

5.1.13.1.8 All construction traffic shall enter and exit the construction site at designated and manually controlled entrances.

5.1.13.1.9 All short (4 months and less and during dry season) and long (more than 4 months and during monsoon season) term temporary road detours (diversions) shall be designed and submitted for approval of the Independent Engineer prior to construction.

5.1.13.1.10 Adequate advance warning and information signs shall be incorporated in the traffic management plan in accordance with IRC/MORT&H standards and specifications.

For Ideal Road Builders Pvt. Ltd.

[Signature]
Contractor

[Signature]
Director

[Signature]
Competent Officer
5.1.13.1.11 The Contractor shall provide, erect, maintain, reposition, cover, uncover and remove traffic signs as required in respect of works on the Project Site (including without limitation any diversions). Adequate safety during night time shall be ensured by providing mobile emergency lighting units with illuminated warning signs at important locations finalised in consultation with the Independent Engineer.

5.1.13.2 Corridor Control Plan

5.1.13.2.1 Regular 24 hours patrol/surveillance of the ROW in respect of the Project/Project Facilities shall be required to monitor, report and take actions against activities, such as, encroachments, unauthorised construction of road or entrance connections, structures, interference with drainage system etc, within 150 m of the highway corridor.

5.1.13.2.2 Surveillance shall also include traffic operation and management of accidents/other incidents.

5.1.13.2.3 The Corridor Control Plan shall be developed in consultation with local administrative authorities and the Independent Engineer and shall form a part of the O and M Manual.

5.1.13.3 Inspections and Frequency

The Contractor shall plan inspection programme for the Project Facilities for its smooth operations as follows:

5.1.13.3.1 Visual Inspection

For Ideal Road Builders Pvt. Ltd.

[Signature]
Director

[Signature]
Contractor

[Signature]
Competent Officer
Visual Inspections are broad general inspections carried out frequently by highway/bridge maintenance engineers having adequate knowledge of road structures. The purpose of visual inspection is to report the obstacles to traffic and fairly obvious deficiencies, which could lead to accidents or maintenance problems. Such inspections should be frequent. The visual inspection may be carried out by visual assessment with careful observation of the specific object/item of the Project Facilities for identification and for quantification of the deficiencies or damages of the Project Facilities.

5.1.13.3.2 Close Inspection

Close inspections may be visual and/or by standard instrumental aids for assessment of defects/deficiencies of Project Highway with careful observation of specific element(s). The close inspection may be daily periodic but it is more intensive and would require detailed examination of element of the Project Highway. It should cover all the aspects of the specific element of Project Highway against a checklist. The frequency of close inspections would depend upon the nature of structure of Project Highway. This inspection is to be carried out by the Highway/Bridge Engineer having good knowledge of road structures with theoretical background to analysis the nature, and extent of defects/deficiencies, suggest suitable remedial measures to rectify/remedy them and quantify repair work.

5.1.13.3.3 Thorough Inspection

A thorough inspection is comprehensive and detailed for assessment of defects/deficiencies of the Project Highway by visual inspection or with aid of standard equipment and non-destructive testing where necessary. Such an inspection is to be carried out on the basis of comprehensive director of the Competent Officer.
checklist of items related to the materials, condition and situation of the structure etc. The checklist is to be prepared meticulously well in advance of inspection. The thorough inspection should be undertaken during the most critical weather condition, which is generally rainy season in India. During rainy season the road/bridge structures are under severe condition thereby the damage and deficiencies of the Project Highway are more pronounced. The inspection carried out during the said period offer the most critical evaluation of the performance of the structure. The thorough inspections would be of critical importance for bridges, culverts and drainage structures, as well as road pavements during adverse weather condition of monsoon period.

5.1.13.3.4 Frequency of Inspections

The type of inspection and related frequency of various items of Project Highway and its facilities have been indicated in the Table - 3 below. The frequency of inspection can be suitably increased in consultation with the Independent Engineer if the situation so warrants. The objective and minimum frequency of inspections under normal circumstances shall be as under. If the exigencies arise, the interval of inspection shall be reduced.
### Table 3

**Objective and Frequency of Inspection**

<table>
<thead>
<tr>
<th><strong>Object</strong></th>
<th><strong>Item</strong></th>
<th>Daily</th>
<th>Monthly</th>
<th>Quarterly</th>
<th>Before and after rainy season</th>
</tr>
</thead>
<tbody>
<tr>
<td>Riding Surface</td>
<td>Pavement</td>
<td></td>
<td>O</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Expansion joints</td>
<td></td>
<td>O</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>Kerb</td>
<td></td>
<td>O</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Shape</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Turfing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pitching and masonry</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Retaining wall</td>
<td></td>
<td>O</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drainage</td>
<td>Side/Toe drain</td>
<td></td>
<td>O</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gullies and catch pits</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bridges</td>
<td>Superstructure</td>
<td></td>
<td></td>
<td>O</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Substructure</td>
<td></td>
<td>O</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Head wing walls and aprons</td>
<td></td>
<td></td>
<td>O</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Painting</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hand rail</td>
<td></td>
<td>O</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Culverts/Underpasses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety Barrier</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traffic operation</td>
<td>Signs</td>
<td></td>
<td></td>
<td>O</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Marking</td>
<td></td>
<td>O</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facilities</td>
<td>Delineator</td>
<td>Lighting</td>
<td>Other facilities</td>
<td>Vegetation / landscaping</td>
<td>Traffic Conditions</td>
</tr>
<tr>
<td>--------------------</td>
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<td>------------------</td>
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<td>✦</td>
<td>O</td>
<td></td>
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</tr>
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<td></td>
<td></td>
<td>✦</td>
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<td></td>
<td></td>
<td>✦</td>
<td>O</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✦</td>
</tr>
</tbody>
</table>

**LEGEND**

- ✦ Visual inspection
- O Close inspection
- ● Thorough inspection
- ✦ Visual inspection during rainy season only

5.2 Reporting Requirements

The reporting and information that generally need to be provided by the Contractor are given below. The Requirements given below are indicative of the type of information to be provided. The format of such reports, recording requirements, software standards, and number of copies required would be finalised in consultation with the Independent Engineer. All reports and records shall be in the English language.

5.2.1 Inspection Reports and Remedial Measures

The periodicity of inspections for maintenance activities by the Contractor shall be set out in the O&M Manual and regular reports on the same shall be sent to the Independent Engineer. Where required,
the Contractor shall carry out any maintenance, repair or rehabilitation works found necessary as a result of such inspections.

5.2.2 Quarterly O & M Report

5.2.2.1 During the Contract Period, the Contractor shall provide to the Independent Engineer/MSRD&C a quarterly report (Quarterly O&M Report) that shall contain the following minimum information:

5.2.2.2 Inspections undertaken by the Contractor during the respective quarter of the year and action taken/proposed thereafter;

5.2.2.3 Details of all reports submitted to the Independent Engineer during the quarter of the year

5.2.2.4 O & M inspection compliance report

5.2.2.5 Maintenance activities undertaken during the quarter ended,

5.2.2.6 Details of any Emergency and action taken

The format of the O&M Report would be finalised in consultation with the Independent Engineer.

5.3 O & M Manual

5.3.1 The O&M Manual prepared by the Contractor in consultation with the Independent Engineer shall set out the operations and maintenance standards and details of the operations and maintenance activities to be undertaken during the Contract period, so that the Project Facilities shall at all times conform to the Design Requirements/specifications.

For Ideal Road Builders Pvt. Ltd.

Competent Officer

Director
5.3.2 The O&M Manual should have separate sections for operations and maintenance.

5.3.2.1 The Manual should include without limitation the following aspects:

5.3.2.2 Organisation structure with responsibilities of key personnel;

5.3.2.3 Traffic Management Plan including the Corridor Control Plan;

5.3.2.4 Safety Management Programme including the Emergency Response Protocol;

5.3.2.5 Procedures;

5.3.2.6 Maintenance Intervention Levels;

5.3.2.7 Asset Management Project Deliverables and Tolerance Criteria;

5.3.2.8 Environment Management Plan;

5.3.2.9 Maintenance Programme;

5.3.2.10 Management information system;

5.3.2.11 Report Formats.

5.4 Miscellaneous

5.4.1 Inventory

5.4.1.1 The Contractor shall maintain an inventory of all items comprised in the Project Facilities (the "Inventory"), in a format to be developed in consultation with the Independent Engineer.

5.4.1.2 Throughout the Contract period the Contractor shall keep the Inventory updated to take account of works carried out on and other changes made to the Project Facilities.

5.4.1.3 A copy of the Inventory shall be submitted by the Contractor to the Independent Engineer within thirty (30) days of receipt of a request for

Contractor: Directors

Competent Officer
5.5 Abnormal Indivisible Load Routing (Oversize and Overweight)

5.5.1 The Contractor shall take all reasonable steps to facilitate the transit of Abnormal Indivisible Loads along the Project Facilities.

5.5.2 The Contractor shall develop a procedure for handling Abnormal Indivisible Loads in consultation with local authorities and the Independent Engineer.

5.6 Equipment belonging to third parties

The Contractor shall be responsible for the installation, operation, maintenance and removal of any equipment belonging to third parties.
# Asset Management Project Deliverables and Tolerance Criteria

<table>
<thead>
<tr>
<th>Asset</th>
<th>Outcome</th>
<th>Performance Target: % of asset that shall be in the outcome described condition</th>
<th>Condition Assessment Acceptance, Tolerances Criteria and Service Delivery</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Pavement including Shoulders and Slopes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paved Lanes and Paved Shoulders (Asphalt)</td>
<td>Smooth</td>
<td>95</td>
<td>Tolerance/s Criteria:</td>
</tr>
<tr>
<td></td>
<td>Safe</td>
<td></td>
<td>• no ruts &gt; 10 mm</td>
</tr>
<tr>
<td></td>
<td>Adequate skid Resistance</td>
<td></td>
<td>• no unsealed cracks larger than 6 mm on 95% of road length</td>
</tr>
<tr>
<td></td>
<td>Roughness Durable Under 2000 mm/km</td>
<td></td>
<td>• no potholes &gt; 5.00 sq.cm area and 2.5 cm deep</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• no shoving &gt; 7 spot per km</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• bleeding, raveling &lt; 3% of total area of pavement</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• no edge deformation &gt; 10 m/km</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• no shallow depressions &gt; 5 sqm/km</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• patching - even, and &lt; 12 mm higher or lower</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• roughness not greater than 3300 mm/km</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• no false ditch (shoulder, build up causes water to drain back onto the pavement)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Timelines Requirement:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• potholes causing a threat to safety will be responded to immediately,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• others within 2 days of notification</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• bleeding surface to be treated immediately within 1 day</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• renewals improving roughness within one months of notification</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unpaved shoulders</td>
<td>Safe</td>
<td>90</td>
<td>Tolerance/s Criteria:</td>
</tr>
<tr>
<td></td>
<td>Smooth (no standing of water)</td>
<td></td>
<td>• &lt; 10% drop off &gt; 25 mm (linear measure)</td>
</tr>
<tr>
<td></td>
<td>Adequate width</td>
<td></td>
<td>• No false ditch (shoulder build up cause water to drain back into the pavement)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• no scouring or deformation.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Timeliness Requirement:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Shall be corrected within two days, if shoulder are deformed or scoured and lower than 25 mm from the adjacent carriageway.</td>
</tr>
</tbody>
</table>
### 2. Roadside

<table>
<thead>
<tr>
<th>Category</th>
<th>Tolerance Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grass / Turf</td>
<td>Neat: 90&lt;br&gt;Atractive: Sight distance Present&lt;br&gt;Tolerance Criteria:&lt;br&gt;- grass height 12&quot; or less&lt;br&gt;- sight distance is clear in intersections, passing zones, curves etc.&lt;br&gt;- neat around crash barrier, headwalls, paved ditches, adequate cover</td>
</tr>
<tr>
<td>Debris, Trees and Roadkill</td>
<td>Roadway free of obstructions: 100&lt;br&gt;Tolerance Criteria:&lt;br&gt;- respond immediately upon notification&lt;br&gt;- roadkill promptly and properly disposed off within 4 hours</td>
</tr>
<tr>
<td>Litter/Malba</td>
<td>Neat: 90&lt;br&gt;Atractive: 80&lt;br&gt;Tolerance Criteria:&lt;br&gt;- roadside appears neat and clean</td>
</tr>
<tr>
<td>Landscaping</td>
<td>Neat: 80&lt;br&gt;Atractive: 100&lt;br&gt;Tolerance Criteria:&lt;br&gt;- overall appearance is nearly maintained&lt;br&gt;- minimal erosion, and no erosion showing a pattern that will endanger the stability of the slope&lt;br&gt;- the slope of pitching surface should be as per design slope, slight variation shall be repaired within two days</td>
</tr>
<tr>
<td>Slopes</td>
<td>Stable: 100&lt;br&gt;No erosion: 95&lt;br&gt;Tolerance Criteria:&lt;br&gt;- no disturbed pitching&lt;br&gt;- inform traffic police and remove blockage, if required construct temporary diversion</td>
</tr>
<tr>
<td>Road blockade</td>
<td>No blockade: 100&lt;br&gt;Tolerance Criteria:&lt;br&gt;- &lt;10% deteriorated barrel&lt;br&gt;- &gt;90% diameter open&lt;br&gt;- drains properly&lt;br&gt;- joints intact&lt;br&gt;- no evidence of flooding&lt;br&gt;- minimal erosion at ends&lt;br&gt;- end protection intact&lt;br&gt;- no dip in road over pipe indicating structural problems</td>
</tr>
</tbody>
</table>

### 3. Drainage

<table>
<thead>
<tr>
<th>Category</th>
<th>Tolerance Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross Pipes</td>
<td>Structural sound Open Drains Joints intact Adequate capacity No erosion: 95&lt;br&gt;Tolerance Criteria:&lt;br&gt;- no evidence of flooding&lt;br&gt;- minimal erosion at ends&lt;br&gt;- end protection intact&lt;br&gt;- no dip in road over pipe indicating structural problems</td>
</tr>
<tr>
<td>Box Culverts</td>
<td>Structurally sound: 95&lt;br&gt;Tolerance Criteria:&lt;br&gt;- no evidence of flooding&lt;br&gt;- minimal erosion at ends&lt;br&gt;- end protection intact&lt;br&gt;- no dip in road over pipe indicating structural problems</td>
</tr>
<tr>
<td>Slab Culverts</td>
<td>Open Drains Joints intact Adequate capacity No erosion</td>
</tr>
<tr>
<td>Ditches, Paved/Aligned lined drains</td>
<td>Structurally sound Clean</td>
</tr>
<tr>
<td>Ditches</td>
<td>Drain Functional</td>
</tr>
<tr>
<td>Unpaved/Unlined drains</td>
<td></td>
</tr>
<tr>
<td>Storm Drains Drop Inlets</td>
<td>Open No flooding No settlement</td>
</tr>
<tr>
<td>Kerb and Gutter</td>
<td>In line Clean drain Sound No undermining</td>
</tr>
<tr>
<td>Erosion or Scour in upstream/downstream</td>
<td>No Erosion due to scour</td>
</tr>
<tr>
<td>Timeliness</td>
<td>For all above cases repair or reconstruction shall be attended and completed within a week as instructed by Independent Engineer</td>
</tr>
<tr>
<td>Bridges Culverts</td>
<td></td>
</tr>
</tbody>
</table>

Tolerance/s Criteria:
- grade drains
- minimal erosion
- outfalls functional
- no obstruction to flow of water that requires action
- no siltation

Tolerance/s Criteria:
- >90% open
- no evidence of flooding

Tolerance/s Criteria:
- minimal obstruction
- no unsealed cracks >6 mm
- no spalling > 1/4" deep
- <25% of surface spalled

Erosion not to be allowed to continue.
<table>
<thead>
<tr>
<th>Overall Bridge</th>
<th>Smooth ride</th>
<th>% scour critical - 0 % posted - 0</th>
<th>Tolerance/Criteria:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strong</td>
<td></td>
<td>• no graffiti on structures</td>
</tr>
<tr>
<td></td>
<td>Aesthetic</td>
<td></td>
<td>• Timeliness Required:</td>
</tr>
<tr>
<td></td>
<td>Wide enough</td>
<td></td>
<td>• structurally critical conditions must be notified immediately</td>
</tr>
<tr>
<td></td>
<td>Available at</td>
<td></td>
<td>• and repaired within a time frame as decided by Independent</td>
</tr>
<tr>
<td></td>
<td>legal limit</td>
<td></td>
<td>Engineer</td>
</tr>
<tr>
<td>Traffic Safety</td>
<td>Present</td>
<td></td>
<td>Tolerance/Criteria:</td>
</tr>
<tr>
<td>Features</td>
<td>Functional</td>
<td></td>
<td>functional</td>
</tr>
<tr>
<td>(Railings,</td>
<td></td>
<td></td>
<td>Timeliness Required:</td>
</tr>
<tr>
<td>Parapet, Walls</td>
<td></td>
<td></td>
<td>• repair or replace badly damaged traffic safety features within 1-2 days</td>
</tr>
<tr>
<td>Drainage spouts</td>
<td></td>
<td></td>
<td>• damaged but functional traffic safety features will be replaced within a week</td>
</tr>
<tr>
<td>etc.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deck</td>
<td>Smooth</td>
<td></td>
<td>Tolerance/Criteria:</td>
</tr>
<tr>
<td></td>
<td>Strong</td>
<td></td>
<td>• minimal spalls, cracks or scaling</td>
</tr>
<tr>
<td></td>
<td>Wide enough</td>
<td></td>
<td>• clean deck</td>
</tr>
<tr>
<td></td>
<td>Drains</td>
<td></td>
<td>• drains/scuppers are clean and functional</td>
</tr>
<tr>
<td></td>
<td>properly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Super-structure</td>
<td>Strong</td>
<td></td>
<td>Tolerance/Criteria:</td>
</tr>
<tr>
<td></td>
<td>Clearance</td>
<td></td>
<td>• no loss of section or cracks</td>
</tr>
<tr>
<td></td>
<td>Aesthetic</td>
<td></td>
<td>• paint in good shape</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• no spalling</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• proper vertical clearance</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• proper opening</td>
</tr>
<tr>
<td>Substructure</td>
<td>Strong</td>
<td></td>
<td>Tolerance/Criteria:</td>
</tr>
<tr>
<td></td>
<td>Looks good</td>
<td></td>
<td>• no spalls, cracks, scaling</td>
</tr>
<tr>
<td></td>
<td>Safe from</td>
<td></td>
<td>• bearing assemblies functional</td>
</tr>
<tr>
<td></td>
<td>scour</td>
<td></td>
<td>• abutment seats cleaned and sound</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stable from settlement</td>
<td>• pier seats clean and sound</td>
</tr>
<tr>
<td></td>
<td></td>
<td>All components</td>
<td>• bearings clean, sound and lubricated periodically</td>
</tr>
<tr>
<td></td>
<td></td>
<td>functional</td>
<td></td>
</tr>
<tr>
<td>Joints</td>
<td>Smooth</td>
<td></td>
<td>Tolerance/Criteria:</td>
</tr>
<tr>
<td></td>
<td>does not</td>
<td></td>
<td>• joints no loose</td>
</tr>
<tr>
<td></td>
<td>leak</td>
<td></td>
<td>• joint are sealed</td>
</tr>
<tr>
<td>Structural</td>
<td></td>
<td></td>
<td>Tolerance/Criteria:</td>
</tr>
</tbody>
</table>

For Ideal Road Built Contractor, Director

Competent Officer

- 146 -
| Culverts | • < 10% deteriorated barrel
  • > 90% diameter open
  • minimal erosion at ends
  • correct grade
  • joints intact
  • no evidence of flooding
  • end protection intact
  • no dip in road over pipe indicating structural problems |

| Retaining Walls | Stable
  | Strong |

| Drainage | Tolerance/s Criteria:
  • vegetation clean
  • protection present and functional
  • no embankment erosion
  • no channel drift |

| 5. Road Signs and Road Furniture | Tolerance/s Criteria:
  • 100% clear of obstruction
  • 95% surface free of damage
  • placement works for motorist at posted speed
  • Timeliness Required:
    replace warning and regulatory signs within 24 hours of notification |

| Signs (includes overhead signs) | Good reflectivity
  • Visible
  • Undamaged
  • Placed according to standards
  100 - regulatory 90 - other |

| Pavement Markings | Bright visible
  95 |

| Object markers and Delineators | Reflective
  Present in right location
  90 |

| Kilometre Marker | Present
  100 |

Competent Officer

Director
| stone/5 km         | Painted in 3 language formula | • 100% clear of any obstruction  
|                   | 95                              | • <5% of surface damaged  
| Hectometer stone  | Present                          | • placement meets IRC standards  
|                   | Painted                          |  
| Bench marks       | Present                          | Tolerance/s Criteria :  
| reference pillars | 100                              | • properly secured  
|                   | Referenced                       | • <10% of surface damaged  
|                   | Painted                          | • placement meets IRC standards  
| Regulatory and    | Present                          |  
| Informatory Sign  | 100                              | Tolerance/s Criteria :  
| Board             | Referenced                       | • 100% clear of any obstruction  
|                   | Painted                          | • As per industry standards  
|                   | 100                              | • 100% accessible  
| Painting and      | Painted to match with existing   | Tolerance/s Criteria :  
| letters on road signs |                 | • 100% clear of any obstruction  
|                   | km stone, 200 m stones and 5 km  | • As per industry standards  
|                   | stone                            | • 10% damaged  
| 6. Other Facilities |                                | Tolerance/s Criteria :  
| Lighting          | Functional                       | • 100% clear of any obstruction  
|                   | Wiring                           | • to match with the existing  
|                   | Undamaged                        |  
|                   | Painting                         |  

Tolerance/s Criteria :

- 100% clear of any obstruction
- <5% of surface damaged
- placement meets IRC standards

Timeliness Required:
Remedy the reason of non-functional of lights so that lights is restored within 6 hours
Replace any damaged poles, switch box or transformer within 24 hours or reasonable time decided by Independent Engineer.
<table>
<thead>
<tr>
<th>Project Implementation</th>
<th>Functional</th>
<th>95</th>
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<tbody>
<tr>
<td>Unit office (PIU)</td>
<td>Clean</td>
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<td>including Laboratory</td>
<td>Hygienic</td>
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<td>Building</td>
<td>Structures</td>
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<td>Toilet</td>
<td>Efficient</td>
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<td>Water Supply</td>
<td>Dry</td>
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<td>Drainage</td>
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<td>Lighting</td>
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<td>Pavement</td>
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<td>Equipment</td>
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<td>Furniture</td>
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<td>Furnishing item</td>
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<tr>
<td>Testing equipment and Apparatus</td>
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<td>Air conditioning and heating</td>
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<tr>
<td>Emergency Generator</td>
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</tbody>
</table>

Tolerance/s Criteria:
- 100% functional of PIU office and laboratory
- 98% functional of Laboratory testing equipment and apparatus
- 100% testing facility of any type of tests
- 98% lights functional, water supply and drainage functional
- 98% time (A.C., water cooler, heater) functional
- 100% furnishing item to be refinished once in every two years.
- 100% furniture to be functional
- Total buildings to be painted every year.

Timeliness:
Repair/replace/refinish within 24 hours of notification of Independent Engineer
6. MAINTENANCE OF STRUCTURES ACROSS MPEW INCLUDING THEIR APPROACHES AND ENTRY / EXIT RAMPS

There are 27 Underpasses, 23 Overpasses, 33 Cart tracks / pedestrian crossings across the Mumbai-Pune Expressway constructed as a part of MPEW for cross movement of traffic. These structures along with their approaches and entry / exit ramps shall be maintained by the contractor as per N.H.4 standards.

The major repairs of these structures is excluded from the scope of the work. However the scope includes major repairs / renewals to their approaches. The renewal of black topped approaches shall be carried out after every 4th year as specified in detailed scope of work.

If the water gets stagnated in the over passes (Subway / Cart track), the same shall be dewatered by the Contractor by fending or pumping as per the situation. The traffic shall be cleared on top priority. The continuous vigilance shall be kept, particularly in Monsoon period.

For Ideal Road Builders Pvt. Ltd.

Contractor

Director - 150 -

Competent Officer
7. DETAILED SCOPE OF WORK FOR COLLECTION OF TOLL ON MPEW AND NH4

GENERAL:
Contractor shall demand and collect Toll only from specified Motor Vehicles and trailers drawn by such vehicles that pass over the said toll station, at the prescribed rates of toll stipulated in the Contract. If the vehicles have to use the road/bridge site continuously and quite frequently in a day or for entire month or even beyond that for much longer period, the collection of toll shall be at concessional rates as specified and the Contractor shall make appropriate arrangements for frequent travelers in the manner prescribed by the Corporation.

7.1 Toll Collection on MPEW:
The work consist of collection of toll from the vehicles of kinds as prescribed in notification crossing the Toll Plazas at Shedung, Khalapur, Kusgaon or Talegaon on MPEW on behalf of MSRDC and on making the upfront payment to the Corporation as specified, including providing necessary manpower, equipments, security arrangements for smooth operation of collection, maintaining the property, equipments handed over by Corporation and discharging the terms of contract and other stipulations.

The Contractor shall demand and collect the toll only from specified motor vehicles that pass over the said section of road at the prescribed rates as stipulated in the contract. If the vehicle has to use part length of the road, he shall collect the toll at concessional rates as specified. The Contractor shall make the necessary arrangements for lighting to ensure proper working of toll station. The Contractor is supposed to pay electric bills, water supply charges as applicable. The Contractor shall display boards of suitable size on which rates at which tolls have been levied on the said section of road and conditions of levy shall be written. The Contractor shall comply with the provisions of Bombay Motor Vehicles Tax Act 1958 and rules made there under.

For Ideal Road Builders Pvt. Ltd.

Contractor

Director

Competent Officer
MSRDC has provided a State of Art equipments like Vehicle Counters Classifiers, Servers, Computers including all accessories, net working and software for efficient collection of toll. The Contractor shall collect the toll using the system provided by the Corporation and carry out necessary periodical repairs to keep the system in working condition. The Contractor shall maintain Toll Plaza Canopy structure, all the toll booths and administrative buildings of all toll stations on MPEW during the contract period.

7.2 Toll Collection on N.H.4:

The work consist of collection of toll from the vehicles of kinds as prescribed in notification crossing the Toll Plazas at Shilphata, Sh. Jung, Kusgaon or Dehu road toll stations on N.H.4 on behalf of MSRDC including providing of necessary manpower, equipments, security arrangements for smooth operation of collection, maintaining the property and discharging the terms of contract and other stipulations.

The Contractor shall demand and collect the toll only from specified motor vehicles that pass over the said section of road at the prescribed rates as stipulated in the contract. If the vehicle has to use part length of the road, the Contractor shall collect the toll at concessional rates as specified. The Contractor shall construct the toll plazas at 4 locations including widening the road, construction of canopy structure, toll booths and administrative building as specified in the drawings. The Contractor shall make the necessary arrangements for lighting to ensure proper working of toll station. The Contractor is supposed to pay electric bill, water supply charges as applicable. The Contractor shall display boards of suitable size on which rates at which tolls have been levied on the said section of road and conditions of levy shall be written.

The Contractor shall provide a State of Art equipments including Vehicle Counters Classifiers, Servers, Computers including all accessories, net working...
and software for efficient collection of toll as specified in the document. The Contractor shall collect the toll using this system and carry out necessary periodical repairs to keep the system in working conditions. The Contractor shall maintain Toll Plaza Canopy, structure of all the booths and administrative buildings of all toll stations on N.H.4 during the contract period.

7.3 THE SCOPE OF TOLL COLLECTION WORK SHALL BE AS BELOW:

7.3.1 Contractor shall issue receipt for the amount of toll collected to vehicle operator in the form prescribed.

7.3.2 Contractor shall arrange collection of toll efficiently in such a manner that the traffic at the said site is not unreasonably detained resulting in blocking up of traffic and there shall be no complaints from passengers about undue waste of time or detention of vehicles for more time than due or exertion.

7.3.3 Contractor shall use the toll station only for the purpose of collection of toll and for no other purpose whatsoever and to protect, preserve and maintain it.

7.3.4 Contractor shall collect and submit data of prepaid toll and exempted vehicles in the form prescribed by the Corporation on request of Corporation.

7.3.5 Upon expiration or earlier termination of this Contract to return the toll station to the Corporation in the same condition in which it was handed over to the Contractor/s, subject to reasonable wear and tear.

7.3.6 Contractor shall pay to Corporation cost of making good the damage caused to the said toll station forthwith on demand.

For Ideal Road Builders Pvt. Ltd.

[Signature]

Contractor         Director - 153 -       Competent Officer
7.3.7 Contractor shall make the necessary arrangement for lighting to ensure proper working of the toll station and regulation of traffic through it.

7.3.8 Contractor shall Make Provision of own electric arrangement and electric lighting, lanterns, etc. if system installed by Corporation fails in working, in sufficient numbers including all expenses required therefore for entire period of the agreement.

7.3.9 Contractor shall Pay punctually the electricity charges, telephone charges, mobile phone charges and water supply charges payable in respect of consumption at the toll station to the respective authorities supplying such services, as they become due and payable and not to allow them to fall in arrears, for the entire period of agreement.

7.3.10 Contractor shall replace at his cost bulbs and tubes and other electric accessories in the toll station.

7.3.11 Contractor shall make his own arrangements for water supply and sanitary arrangements required for his staff at his cost.

7.3.12 Contractor shall permit the officers duly authorized by the Corporation in that behalf, at any time or times during the subsistence of this agreement to enter upon the premises of toll station for the purpose of inspection.

7.3.13 Contractor shall give all required information and inspection of records to the authorized officers of corporation regarding collection of toll if asked for.

For Ideal Reed Builders Pvt Ltd.

Contractor

Director

- 154 -

Competent Officer
7.3.14 Contractor shall in all respects carry out and observe the directions that may from time to time be given to him by the competent officer.

7.3.15 Contractor shall exhibit at a place to be indicated by the Corporation in the vicinity of the said project, boards of such size and design as may prescribed by the Corporation, on which the rates at which tolls have been levied on the said section of a road and conditions of levy are written and to preserve and take care of such boards at his cost.

7.3.16 Contractor shall comply with the provisions of the Bombay Motor vehicles Tax Act 1958 (Bom.LXV of 1958), National Highway Act 1997 and rules made there under and any other law, rules and any other law, rules applicable.

7.3.17 Contractor shall maintain all electronic, electric equipments and computers in good working conditions till the entire period of Agreement.

7.3.18 Contractor shall replace consumable spare parts of above equipments at his own cost.

7.3.19 Contractor shall issue the Monthly Passes, Concessional Coupons, Multiple Entry passes at respective toll stations only.

7.3.20 Contractor shall replace spare parts of electrical and electronic equipments at his own cost.

7.3.21 Contractor shall submit the traffic details and revenue collected on each Toll Plaza to the MSRDC every month.

For Ideal Road Builders Pvt Ltd.

Contractor

Director

Competent Officer