

Risk Assessment

Preamble

The consultant shall ensure safety of workers and road users at construction sites. For this, the consultant shall refer to the requirements specified in Section 100 of MORTH Specifications – particularly Clause 101, 105 and 112 and IRC:SP55 (Guidelines on Safety in Road Construction Zones), IRC: 67 and IRC: 35, Work Zone Road Safety Manual, Good Industry Practice and provisions of Building and Other Construction Workers Acts/Rules. Reference: Safety Manual (2010), Indian Institute of Technology Delhi).

Identifying the risk factors that contribute to injuries is important in identifying interventions that can reduce the risks associated with those factors.

Key Risks Identification & Mitigation Measures

- ❖ Traffic Risk
- ❖ Fire Hazards
- ❖ Constructional Risk
- ❖ Operational and Maintenance Risk
- ❖ Material & Manual Handling
- ❖ Impacts on Wildlife Movement and Mortality

Traffic Risk

Traffic control aims to give adequate warning and clear information to motorists about the nature of works on site. This will translate into correct actions required in order to pass the work site safely

Fire Hazards

The contractor shall ensure that construction site is provided with fire extinguishing equipment sufficient to extinguish any probable fire at construction site. Recharging of fire extinguishers and their proper maintenance should be carried out regularly. All drivers of vehicles, foreman, supervisors and managers shall be trained on operating the fire extinguishers and firefighting equipment.

Constructional Risk

General precautions to be maintained by the Contractor: Ensure health, safety, and welfare of all workers while at work, including:

- A. Maintenance of safe systems and without risks to health

- B. Safe use, handling, storage and transportation
- C. Information, instruction, training and supervision for health and safety
- D. Safe working environment
- E. Provision of Safe articles for use and without risks to workers
- F. Necessary tests and examination for the use of articles before works
- G. Elimination/minimisation of risks to health and safety wherever necessary
- H. Application of suitable methods for prevention and accumulation of dust and fumes

Operational and Maintenance Risk

Proper maintenance is essential for reliable and smooth operation of highway in order to maintain its function as a key infrastructure that serve as network to the nation. Improper maintenance works would increase hazards that lead to accidents associated with human, damage of property and environment as well as boosting the operational cost.

According to Mohamed (2010), the primary goal of highway maintenance is maintaining the roads in a circumstance that turns to a good service and maximum safety to the travelling highway users (Ref. Mohamed, N. W. (2010). Road Maintenance Management System: A Case Study at Public Work Department. Unpublished Master Thesis. Faculty of Civil Engineering, Universiti Teknologi Malaysi).

The highway maintenance is a hazardous workplace due to the condition of works that are expose to movement of vehicle, unpredictable weather condition, surrounding and environment disaster as well as close contact to usage of various instrument, machinery and equipment (Ref. Pratt, S.G., Fosbroke, D. E., & Marsh, S. M. (2001). Building Safer Highway Work Zones: Measures to prevent worker Injuries from Vehicles and Equipment (DHHS (NIOSH) Publication No. 2001-128)).

The top five-workplace hazards that have been discovered by OSHA (2010) are (Ref. Occupational Safety & Health Administration, United States Department of Labor (OSHA) (2010) Hazards – Young Workers. Accessed from <https://www.osha.gov/youngworkers/hazards.htm> l)

Electricity – one of the greatest hazard for worker who expose to power line task at workplace

Excavation and trenching – the most recorded fatalities at site operation

Scaffolding – the most common accident during construction and maintenance work

Falls – the most dangerous accident that causes from slipping, tripping, falling objects and unstable work platforms

Heavy equipment – main accident cause of struck by, collision, overloading, overturning

Main duties and tasks of a highway maintenance worker are to

- ❖ Carry out maintenance and repairs to the highway to remain the roads and surrounding safe and clean.
- ❖ Install, maintain and work within temporary traffic management (using traffic lights, cones and barriers) to keep the traffic flow safe.
- ❖ Carry out repairs on all road categories and types laying new or replacement surfaces to specification.
- ❖ Work with a wide range of hand / power tools and plant to repair potholes, cut, replace and reinstate pavements / kerbs, lay new surfaces and excavate materials.
- ❖ Able to read technical information in order to understand what works needs to be completed.
- ❖ Apply appropriate health, safety and environmental procedures to avoid injury and incidents.