Safety in Design Checklist

Template Version 2.0 – 20 May 2020

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| **Document title** | Safety in Design Checklist |
| **Contact details** | Department of Infrastructure, Planning and Logistics, Transport and Civil Services Division |
| **Document review** | As and when required |
| **TRM number** | 2016/0608-0007~0003 |

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| Version | Date | Author | Changes made |
| 1.0 | N/A | N/A | First Version |
| 1.1 | 1 June 2018 | Sam Hatzivalsamis | Re-formatted document |
| 2.0 | 20 May 2020 | Sam Hatzivalsamis | Minor text amendments and new format |

# Preface

**This checklist has been developed by applying the hierarchy of control – in order of priority**:

1. **Eliminate** – design the hazard out of the building or structure.
2. **Substitute –** less hazardous materials, fixtures, fittings, plant or construction methods.
3. **Isolate** – use guards or barriers to limit access to hazard.
4. **Engineering** – minimise risk by engineering means, eg provide a permanent building maintenance.
5. **Administrative controls** – recommend the establishment of systems of work or signage, where required, to control residual risks.
6. **Personal protective equipment** – recommend suitable personal protective equipment and training, where required, to control residual risks.

A combination of these measures has been applied when no single measure is enough to eliminate or minimise the risk.

The checklist has been completed incorporating consultation from relevant stakeholders, such as the clients and project managers.

This checklist assesses risks for only those components and elements included in the original design. Persons using this report must determine if additional elements have been added to the project that may impact on, alter, or be additional to, the hazards identified in this checklist. While due care has been taken to review hazards in relation to the project during the design process it should be reviewed prior to any construction works commencing and updated as required.

Where actions and comments are recorded in the far right column, these points are not written with the intent of Directing persons giving effect to the design (construction phase) or those with the responsibility for maintenance operation or disposal of the asset after practical completion, but rather to provide recommendations for consideration that may assist in reduction of risks where hazards or impacts have been identified by the designer.

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| **Transport and Civil Services Division – Civil Design** | Project Name: *Insert Project Number and Title* |
| Date Prepared:  *Enter date* | Prepared by: *Insert Name and Position Title* |
| Project Number: # | TRIM Number: # |

| **Items for consideration**  **(how will it be built in a safe way, how will it be used in a safe way)** | **Potential design issues during construction** | **Potential design issues during operation** | **Comments / actions specific to the works occurring** |
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| ***Site Layout*** | | | |
| Have overhead power/underground services been located?  *Eg. Dial before you dig.* | **Yes  No** | **Yes  No  N/A** |  |
| Will materials and equipment be stored in a convenient location? | **Yes  No** | **Yes  No  N/A** |  |
| Are there any other specific site layout issues that need to be considered? | **Yes  No** | **Yes  No  N/A** |  |
| ***Heights*** | | | |
| Can anyone be injured by falling a distance of 1.8 meters from either an elevation or into an excavation  Consider raised road surfaces and trenching / excavations during construction and after practical completion. | **Yes  No** | **Yes  No  N/A** | The contractor to ensure that temporary fall prevention measures have been installed while works are being undertaken, prior to permanent fall protection devices (ie. Guard rails) are installed. |
| Can anyone be injured by objects falling from a height?  *Eg. Work platforms, ladders.* | **Yes  No** | **Yes  No  N/A** |  |
| ***Timing*** | | | |
| Has the effect of the environment been considered when planning the sequence of construction for long term jobs?  *Eg. Wet/Dry season considerations* | **Yes  No** | **Yes  No  N/A** |  |
| ***Access/Egress*** | | | |
| Will vehicles / mobile plant have easy access to the site? | **Yes  No** | **Yes  No  N/A** |  |
| ***Environmental Conditions*** | | | |
| What flora and fauna need to be considered in the local environment? | **Yes  No** | **Yes  No  N/A** |  |
| Are there approvals and sufficient resources for gravel and water extraction? | **Yes  No** | **Yes  No  N/A** |  |
| What sediment and erosion control issues exist in the local environment?  *i.e. table drains, run off, waterways, drainage?* | **Yes  No** | **Yes  No  N/A** |  |
| Will dust suppression be an issue during the works and after practical completion? | **Yes  No** | **Yes  No  N/A** |  |
| Will the noise during construction significantly disrupt surrounding residents or businesses?  *Consider nearby sensitive receptors such as schools, hospitals etc.* | **Yes  No** | **Yes  No  N/A** |  |
| Lighting to be installed for night time work? | **Yes  No** | **Yes  No  N/A** |  |
| ***Environmental Approvals*** | | | |
| Have areas of cultural significance been considered? | **Yes  No** | **Yes  No  N/A** |  |
| Are there land tenure and land council issues to be addressed? | **Yes  No** | **Yes  No  N/A** |  |
| Are there any conditions in the environment approval that needs to be considered? | **Yes  No** | **Yes  No  N/A** |  |
| ***Public Security / Traffic Control*** | | | |
| Will access to the site by members of the public be restricted to prevent injury and vandalism?  *Eg barricades or fences, locked access ways* | **Yes  No** | **Yes  No  N/A** | Contractor to ensure that all plant and equipment is stored in a secure location during site works. |
| Will traffic need to be controlled around the site? | **Yes  No** | **Yes  No  N/A** | Contract to develop a Traffic Management Plan an approved prior to any site works commencing. |
| Will loading or unloading of materials and equipment be needed on site? | **Yes  No** | **Yes  No  N/A** |  |
| Traffic control sufficient to provide access emergency vehicles?  *I.e. Fire, police and ambulance?* | **Yes  No** | **Yes  No  N/A** |  |
| ***HAZCHEM*** | | | |
| Could members of the public be exposed to hazardous material, dust, vapours etc? | **Yes  No** | **Yes  No  N/A** |  |
| Could anyone be injured due to exposure to asbestos, lead or other hazardous materials? | **Yes  No** | **Yes  No  N/A** |  |
| Will hazardous/flammable substances/chemicals be stored correctly?  *Eg. appropriate type and size of containers* | **Yes  No** | **Yes  No  N/A** | Ensure all chemicals are handled in accordance with the Safety Data Sheet.  Storage containers are to be of appropriate type and size for substances they hold and the use they have on site. |
| Will there be adequate ventilation available? | **Yes  No** | **Yes  No  N/A** |  |
| ***Fire / Explosion*** | | | |
| Will surfaces finishes be fire resistant?  Material used, can they be destroyed by fire? | **N/A** | **Yes  No  N/A** |  |
| ***Working Environment*** | | | |
| Is there sufficient ventilation to meet requirements for the work to be performed on the project site? | **Yes  No** | **Yes  No  N/A** |  |
| What will be the weather conditions on site? *Ie: extreme hot or cold weather, dusty or windy conditions, storms.* | **Yes  No** | **Yes  No  N/A** | The contractor is responsible for developing a safe work method for working in site weather conditions to provide safe work conditions. |
| Is there potential for the site to flood or be subject to inundation of water? | **Yes  No** | **Yes  No  N/A** |  |
| Is there a risk to workers from flora or fauna? | **Yes  No** | **Yes  No  N/A** |  |
| Will the workers have access to amenities and facilities such as storage, first aid rooms, rest rooms, meal and accommodation areas and drinking water? | **Yes  No** | **Yes  No  N/A** | The contractor is to ensure that adequate facilities are provided. |
| Will workers be exposed to noise from plant or aspects at the project site? | **Yes  No** | **Yes  No  N/A** |  |
| ***Utilities and Services*** | | | |
| Will the location to, access to and egress from facilities, site office or other be an issue on the project? | **Yes  No** | **Yes  No  N/A** |  |
| ***Building Materials / Structural Safety*** | | | |
| Will the structural strength and stability be enough to hold permanent and temporary loads? | **Yes  No** | **Yes  No  N/A** |  |
| Will there be procedures for disposal of waste? | **Yes  No** | **Yes  No  N/A** | Procedures are to be developed for the temporary on site storage of materials, and the transportation and disposal methods. |
| ***Confined Spaces*** | | | |
| Will anyone need to work in a confined space? | **Yes  No** | **Yes  No  N/A** |  |
| Will adequate ventilation be provided in confined spaces? | **Yes  No** | **Yes  No  N/A** |  |
| ***Emergency Procedures*** | | | |
| Will evacuation and emergency procedures be developed and clearly communicated? | **Yes  No** | **Yes  No  N/A** | The successful contractor to develop a site specific Safety Management Plan that deals with fires during construction.  Location, size and type of firefighting equipment on site to commensurate with potential fire risks at the site. Firefighting equipment to be compliant and serviced.  Local fire station UHF channel and phone numbers for emergency services to be obtained and held at the site office. Site and responsible person details to be provided to the closest emergency service. |
| ***Site Access*** | | | |
| Will site lines provide adequate visibility for trucks/cars entering/exiting the site? | **Yes  No** | **Yes  No  N/A** |  |
| Will the access road have adequate stability for trucks/equipment? | **Yes  No** | **Yes  No  N/A** |  |
| Has adequate turning room been provided for large vehicles and trucks? | **Yes  No** | **Yes  No  N/A** |  |
| Will the strength and stability of the road or bridge structure be enough to hold permanent and temporary loads? | **Yes  No** | **Yes  No  N/A** |  |
| ***Excavation*** | | | |
| Has the stability of walls been checked and support provided where required? | **Yes  No** | **Yes  No  N/A** |  |
| Has a method of access/egress been provided at spillway stilling basin for maintenance? | **N/A** | **Yes  No  N/A** |  |
| ***Dams and Waterways*** | | | |
| Has the stability of walls been checked and support provided where required? | **Yes  No** | **Yes  No  N/A** |  |
| Is there a safe manual access point for sample collection? | **N/A** | **Yes  No  N/A** |  |
| Will adequate covers and railings be provided to prevent falls? | **Yes  No** | **Yes  No  N/A** |  |
| ***Pipelines*** | | | |
| Will equipment such as pipes be securely stored to prevent rolling, theft etc? | **Yes  No** | **Yes  No  N/A** |  |
| Was the location of the pipeline selected to minimise disruption to congested or public areas during construction and/or maintenance? | **Yes  No** | **Yes  No  N/A** |  |
| Has the distance/proximity to other existing services be considered during the selection of the location of the pipeline? | **Yes  No** | **Yes  No  N/A** |  |
| Are supports required in excavations? | **Yes  No** | **Yes  No  N/A** |  |
| If old pipelines are being replaced, will old pipelines be removed or remain capped in the ground? | **Yes  No** | **Yes  No  N/A** |  |

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| ***Other Issues*** | | | |
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**What are the next steps when the Checklist has been completed?**

1. Where hazards are identified, make changes to the design whenever reasonably practicable and record in comments and actions column. In identifying changes, apply the hierarchy of control so that the risk is eliminated or, if not reasonably practicable to do so, minimised to the lowest level reasonably practicable.
2. Provide a completed copy of this review checklist to the Project Manager. This information will be included in the contract documentation so that the hazards are brought to the attention of tenderers/ the contractor and addressed in their Safety Management Plan.

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| Name of Reviewer |  | Position held by reviewer |  | Signature of Reviewer |  | Date of Review |