HEALTH AND SAFETY IN DESIGN PROCEDURE

PROCESS APPLICATION AND SCOPE

This process applies where significant changes to plant, substance or structure are planned in maintaining, reinstating, upgrading, decommissioning or other activities involving the Organisation’s managed assets and services. As such this procedure applies in any of the following situations:

 changing work practices, procedures or the work environment;

 purchasing new or used equipment or using new substances;

 planning to improve productivity or reduce costs; and

 designing and planning significant changes to a plant, substance or structure

PROCEDURE

### SAFETY IN DESIGN REQURIEMENTS

Any proposal for construction of new, or significant changes to plant, substance or structure managed by the organisation must consider health and safety risks.

Any significant change requires a SiD Health & Safety Risk Assessment and must follow the organisation’s Health and Safety in Design process.

### HEALTH AND SAFETY RISK REGISTER REVIEW

The Asset Manager and Investigator (typical for Capex projects) or Operator/Maintainer (typical for Opex projects) shall first review the organisation’s HS risk register and any previous risk assessments and incident information. They shall determine if there are any known health & safety risks associated with this asset, or similar infrastructure that need to be considered.

The Asset Manager and Investigator or Operator/Maintainer then prepares initial SiD Health & Safety Risk Assessment.

The Operator/Maintainer shall consider if technical input is required from others (Investigator, Designer, and Project Manager) to help design the new or modified asset.

### DESIGNER RISK ASSESSMENT

When a design brief is generated and issued to a Designer, the Designer shall review the initial SiD Health & Safety Risk Assessment and further develop it in consultation with the Investigator and Project Manager.

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The Designer shall circulate the SiD Health & Safety Risk Assessment to all stakeholders involved.

If, during the course of the design, the Designer identifies non- routine Health & Safety risks or residual Health & Safety risks that cannot be reduced to below a moderate risk rating, additional consultation shall be sought via a Design meeting.

***PROCEDURE***

If the Designer determines all Health & Safety risks to be routine and residual Health & Safety risk ratings as less than moderate, the designer shall instead seek Operator/Maintainer review.

The Designer is to record the reasons and evidence for decisions made in the SiD Health & Safety Risk Assessment. The Operator/ Maintainer must peer review the Designer’s SiD Health & Safety Risk Assessment prior to the Designer communicating any SiD Health & Safety Risk Assessment.

### HEALTH AND SAFETY IN DESIGN RISK ASSESSMENT

For projects with non-routine health & safety risks or residual health & safety risks assessed as moderate or greater,

the Designer shall facilitate a SiD Workshop with relevant stakeholders, including: Investigator, Project Manager, Operator/ Maintainer, and Contracts Officer. Input from the Property Owner/ Representative and any other affected party must be considered (e.g., local school board, business owner, etc.)

As part of the meeting, establish the design context (considering industry experience; history of the plant, substance or structure and location; intended function and interaction with other plant, substances or structures; and known site or unusual design risks). Where required, complete a site visit as part of this meeting.

The purpose of the workshop is to eliminate or minimise, so far as is reasonably practicable (SFAIRP), risks to health & safety at the design stage. The Designer shall update the SiD Health & Safety Risk Assessment accordingly and circulate it to all stakeholders involved.

The Design Manager shall engage specialist services to facilitate a more detailed Health & Safety risk assessment when designing an entire site where regular person access is reasonably expected to occur or where the stakeholders in the SiD Meeting cannot identify reasonably practicable steps to reduce the risk below high (e.g., design for a pump station with a dry well, but not design for a standard manhole).

In addition, a more detailed Health and Safety risk assessment should be done when:

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 there is uncertainty about how a hazard may result in injury or illness

 the work activity involves a number of different hazards and there is a lack of understanding about how the hazards may interact with each other to produce new or greater risks;

 changes at the workplace occur that may impact on the effectiveness of control measures or

***PROCEDURE***

 existing Standards and Codes are inadequate to address a risk

The Design Manager is to record reasons and evidence for decision in the SiD Health & Safety Risk Assessment.

### DETAILED HEALTH AND SAFETY IN DESIGN WORKSHOPS

A specialist shall facilitate a workshop (including a site visit, if required) using a more detailed risk assessment and management process (e.g. HAZOP or other appropriate technique) to ensure the health and safety risks can be reduced SFAIRP.

The specialist must demonstrate relevant experience and formal training or qualifications, such as:

 Formal training in risk management and/or Health and Safety in Design;

 Demonstrated experience or training in the selection, application and/or facilitation of risk management tools and techniques (e.g. HAZOP, etc.)

The meeting shall include relevant stakeholders including: Designer, Project Manager, Operator/Maintainer, Property Owner/ Representative, Contracts Officer, Contractor and any other relevant affected party.

The Designer shall update the Sid Health & Safety Risk Assessment based on the review from this meeting and circulate it to all stakeholders involved.

COMMUNICATION AND HAND OVER OF HEALTH AND SAFETY IN DESIGN INFORMATION INTO CONSTRUCTION PHASE

During the Contractor/Constructor selection process, the organisation shall communicate the SiD Health & Safety Risk Assessment, including residual risks, to the Contractor.

### PRE-CONSTRUCTION MEETING

A Pre-Construction meeting shall be arranged. This should include as appropriate: Project Manager, Operator/Maintainer, Contracts Officer and Contractor. Input from the Property Owner/ Representative and any other affected party should be sought.

The purpose of this meeting is to review and update the H&S Risk Assessment and to discuss the construction methodology as it relates to the design, confirming that it can be constructed safely. The designer shall update the SiD Health & Safety Risk

Assessment based on the review in this meeting and circulate it to all stakeholders involved.

### PROJECT SPECIFIC HEALTH AND SAFETY MANAGEMENT PLAN

The Contractor shall review and use the SiD Health & Safety Risk Assessment to prepare a project specific Health & Safety plan

for construction, including proposed method for control of, as a minimum, residual Health & Safety risks identified as moderate and above on the SiD Health & Safety Risk Assessment received from the Designer.

The Project Manager shall review the adequacy of the Contractor’s site-specific Health & Safety plan prior to the Contractor commencing construction, and raise any concerns with the Contractor.

The Contractor is responsible for completing construction of the design in accordance with project specific Health & Safety plan.

### CONSTRUCTION HEALTH AND SAFETY MONITORING

The Project Manager and Contracts Officer shall monitor the construction of the design for compliance with the project-specific Health & Safety plan.

For any design changes or unanticipated health & safety risks, the Contractor, Designer, Project Manager and Contracts Officer should reconsider the SiD Health & Safety Risk Assessment, including any requirement to revisit a step in the SiD process.

All relevant stakeholders, such as Operator/Maintainer, must be included as necessary and provided with any updated SiD Health & Safety Risk Assessment.

POST CONSTRUCTION

### POST CONSTRUCTION REVIEW

Where appropriate, the Design Manager shall facilitate a Post- Construction meeting, including the Project Manager, Operator/ Maintainer, Contracts Officer and Contractor. Where appropriate, input from the Property Owner/Representative and any other affected party must be considered.

The purpose of the Post-Construction meeting is to review and update the SiD Health & Safety Risk Assessment and determine if any residual risks remain, following implementation of the design.

The Designer shall update the SiD Health & Safety Risk Assessment following completion of the meeting to ensure any relevant residual health & safety risks are recorded and circulate it to all stakeholders involved.

TRANSFER OF INFORMATION TO OPERATIONS TEAM

The Design Manager shall provide the updated Health & Safety Risk Assessment to the Operations team.

The Operations team is then responsible for the ongoing safe operation of asset, including control of any residual risk.

In addition to the SiD Health & Safety Risk Assessment, the Design Manager must provide further detail on the following if it is necessary for the safe use, operation, maintenance or decommissioning of the plant, substance or structure:

 the results of any calculations, analysis testing or examination including, in relation to a substance, any hazardous properties of the substance identified by testing; and

 any conditions necessary to ensure that the plant, substance or structure is without risks to health and safety when used for a purpose for which it was designed or when carrying out any activity

REFERENCES

### WATER NEW ZEALAND PROCEDURES & GUIDELINES:

***SECTION 3*** *Framework for Health and Safety Management*

#### Health and Safety Procedures:

 Contractor Health and Safety Management

***PROCEDURE***

 Hazard Identification, Risk Assessment and Control

 Health and Safety Training Program

### LEGISLATION, REGULATION AND STANDARDS

 Health and Safety at Work Act of 2015

 Health and Safety at Work (General Risk and Workplace Management) Regulations 2016

 Health and Safety at Work (Worker Engagement, Participation and Representation) Regulations 2016

 Australian Model Code of Practice: Safe Design of Structures (24 July 2012)

 Australian Model Code of Practice: How to Manage Work Health and Safety Risks (7 December 2011