

Appendix C

Rock platform technical criteria example

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- (a) waterway crossings must also be designed and constructed in consultation with all affected stakeholders, including oyster farmers on affected waterways;
- (b) waterway crossings that are a part of the Temporary Works must also be designed and constructed in accordance with requirements of clause 6.5.4 of RMS D&C G36;
- (c) the Contractor must identify, consider, assess and address the risks and impacts of the design and construction of the Temporary Works, including environmental, construction activity, health and safety risks.
- (d) The Contractor must address the impacts of the risks above in the selection of appropriate construction methodologies for the Temporary Works, including the selection of any working platforms, where a working platform includes temporary bridges, barges, rock platforms or combinations thereof.
- (e) The selection of construction methodologies must include consideration of;
 - (i) environmentally sensitive areas of waterways located 1 km upstream and 5 km downstream of the bridge, where environmental sensitive areas include areas of seagrass beds, mangroves, saltmarshes, SEPP 14 Wetlands identified in the State Environmental Planning Policy No 14, aquaculture, including priority oyster aquaculture areas as described by State Environmental Planning Policy No 62, known or potentially contaminated sediments, snags, riparian vegetation and threatened ecological communities, populations and/or species;
 - (ii) the tidal range, variation and flow velocities of the waterway, including those associated with 1 in 2 year and 1 in 10 year average recurrence interval (ARI) events;
 - (iii) the flow velocities of the waterway during non-flood events;
 - (iv) the flood characteristics of the waterway, including afflux constraints (including those associated with sensitive receivers),

- catchment size, associated potential scour impacts and flood evacuation procedures;
 - (v) the river morphology, bed shape, depth, major flow channels and substrate type of the waterway;
 - (vi) the navigational requirements of the waterway, including visibility, speeds and navigational channels;
 - (vii) the commercial and recreational uses of the waterway, including fishing, water skiing and other similar leisure activities;
 - (viii) the procurement and delivery of working platform materials and components, including impacts associated with their mobilisation, proximity to existing river structures, transportation and access for barges and availability of clean rock;
 - (ix) innovations and sustainability initiatives in the design and construction of the working platforms, including opportunities to reuse materials;
 - (x) the management of maintenance and operational activities associated with the working platforms, including refuelling, routine and specific maintenance and spill management activities; and
 - (xi) decommissioning and rehabilitation of the working platforms.
- (f) Rock platforms must:
- (i) be installed in the waterways using sound, reasonable and feasible environmental practices and controls;
 - (ii) effectively managed and maintained to minimise water quality, erosion and sedimentation impacts on the waterways;
 - (iii) be proactively supervised and monitored full-time during their construction, operation, maintenance and decommissioning by dedicated personnel. The dedicated personnel must, as a minimum:
 - A. be suitably trained and qualified for the role;
 - B. have the delegated authority to stop construction, maintenance and decommissioning activities associated with the rock platforms that could potentially or is harming the environment;

- C. keep a daily record of the activity, observations made and the results and any actions arising from their supervision of the construction, maintenance and decommissioning activities;
- (iv) as a minimum:
 - A. be designed to facilitate effective and regular clean up of sediment and spill management;
 - B. be designed to prevent small rock or fine capping materials from being washed out of the platform;
 - C. be designed, constructed and maintained in a manner that minimises the resuspension of sediments or substrates;
 - D. be protected with large rock armouring to provide durability in a 1 in 10 year average recurrence interval (ARI) event;
 - E. be constructed of hard, sound, durable rock that is free of fine particles and not contaminated with foreign materials;
 - F. be protected by anti-pollution booms and heavy duty silt curtains that are designed, installed, anchored and maintained for the specific waterway in which they are located. The anti-pollution booms and heavy duty silt curtains must be installed prior to the commencement of any installation work that has the potential to mobilise sediments;
 - G. be designed, constructed and maintained to comply with afflux requirements;
 - H. be designed, constructed and maintained to minimise downstream bed and bank scour and sediment deposition;
 - I. be designed to facilitate fish passage; and
 - J. remain in the waterway for the minimum time possible;
- (g) The Contractor must design, construct, operate, maintain and decommission the working platforms in compliance with the requirements of the other Environmental Documents and ensure that "best practice" environmental outcomes are achieved. The design of the working platforms must be included in the Design Documentation and be prepared and certified by the Project Verifier in accordance with the requirements of clause 12.2 of the deed. Detailed work method

statements must be prepared and included in the appropriate Project Plans for the design, construction, operation, maintenance and decommissioning of working platforms. The work method statements must be prepared in consultation with the Environmental Representative and must address the requirements:

- (i) for sound environmental practices;
- (ii) for the integration of all environmental mitigative and control measures; and
- (iii) of section 6.5.4 of RMS D&C G36 and Annexure G38/G of RMS D&C G38.

Environmental Workshops

- (a) Early in the development of the Design Documentation, which must be no later than 12 weeks from the date of the Project Deed, the Contractor must hold a workshop to be attended by the Contractor's relevant personnel and the Environmental Representative. RMS Representative, personnel nominated by RMS Representative and representatives from all relevant Authorities (including EPA, NSW Office of Water (NOW), DPI (Fisheries Conservation and Aquaculture) must be invited and permitted to attend and participate in the workshop. The objective of the workshop is to assist the Contractor in the selection, design, establishment, operation, maintenance, and decommissioning any proposed working platforms. The Contractor must produce and circulate to all workshop invitees and attendees, a minimum of 14 days prior to the workshop taking place, a detailed workshop agenda, which must include:
 - (i) the workshop objectives;
 - (ii) relevant Design Documentation and other supporting material;
 - (iii) proposed working platform options;
 - (iv) how the performance of working platforms will be monitored and corrective action taken where appropriate during establishment, operation, maintenance, and decommissioning of working platforms;
 - (v) innovations and sustainability initiatives in the design and construction of the working platforms; and

- (vi) a risk assessment of potential hazards and impacts associated with the establishment, operation, maintenance, and decommissioning of the working platform and associated safeguards/controls.

G36

Project Works in Waterways

Undertake Project Works in and adjacent waterways in accordance with the Environmental Documents and in an environmentally sensitive manner that considers all potential risks and hazards regarding the Project Works and the waterway.

Where reasonable and feasible, retain riparian vegetation and integrate scour protection into current banks to minimise impacts.

Further to requirements for work method statements in Appendix 4 of the Scope of Works and Technical Criteria work method statements must detail how the works are to be undertaken to reduce erosion and minimise impacts on water quality and fauna and flora. The framework contained in Annexure G38/G of RMS D&C G38 must be followed in preparing the work method statement.

Options for temporary waterway crossings and minor working platforms (ie working platforms not described in Appendix 4 of the Scope of Works and Technical Criteria) must be selected to minimise waterway impacts and must address the following:

- be designed, constructed and maintained in accordance with *Managing Urban Stormwater Soils and Construction Volumes 2A and 2D Main Road Construction* (DECC 2008) and Section 5.3.4 of the guideline *Managing Urban Stormwater 4th edition March 2004, Volume 1 Soils and Construction*;
- be 'fish friendly' in accordance with *Why do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings* (Fairfull and Witheridge 2003);
- for temporary crossings. include a lower section to act as an emergency spillway, meeting Section 5.3.4 b (vi) of the *Managing urban Stormwater 4th edition March 2004, Volume 1 Soils and Construction*;
- any pipes or culverts used must be designed in accordance with Appendix 10 of the Scope of Works and Technical Criteria;
- be used for the shortest time required to complete their designed operational function;
- use material that will not result in fine sediment material entering the waterway. If rock is used, it must be hard, sound, durable rock free of fine particles and not contaminated with foreign materials;
- if rock is used, crossings and minor working platforms must be wrapped in geotextile materials with geotextile secured from floor through and up the sides of the rock fill. Bunds or similar must be formed on the sides and the geotextile extended up to form an effective silt containment 'bath'; and
- include erosion and sediment controls at entry/exits points to minimise mudtracking.

Undertaking works within a waterway during periods of flow velocities greater than 2 m/s is considered a high risk activity and controls and safeguards installed to

manage the risk and associated potential environmental impact must be able perform to the manufacturer's standards and specifications.

Temporary crossings and minor working platforms must be removed with minimal disturbance to the drainage system they cross. Partial or complete removal may be required prior to high flow/flood events.

All the above considerations need to be addressed by the Contractor to provide high standard temporary waterway crossings and minor working platforms.

G38

ANNEXURE G38/G – FRAMEWORK FOR WATERWAY WORK METHOD STATEMENTS.

Installation of bridge and culvert structures and associated waterway diversions, temporary access tracks, working platforms, scour protection and restoration works.

Waterway areas are environmentally sensitive areas within road construction projects. Preparation of Work Method Statements is necessary so that activities are planned to control and reduce the impacts of construction. Separate Work Method Statements must be prepared for bridge and culvert works in each waterway. All Work Method Statements must incorporate relevant mitigation measures and controls, identify key procedures to be used concurrently with the Work Method Statement, and be designed to communicate requirements, actions, processes and controls to construction personnel using plans, diagrams and simply written instructions.

A risk management approach must be used to determine the severity and likelihood of the bridge and culvert work's impact on the environment and to prioritise its significance. This process must consider potential regulatory and legal risks as well as taking into consideration the concerns of community and key government agency stakeholders. The objectives of risk assessment are to:

- Identify activities, events or outcomes that have the potential to adversely affect the waterway and/or human health/property.
- Qualitatively evaluate and categorise each risk item.
- Assess whether risk issues can be managed by environmental protection measures.
- Qualitatively evaluate residual risk with implementation of measures.
- Risk assessments are to be based on AS/NZS 4360:1999, the Australian standard for risk assessments.

In some cases, it may be necessary to prepare a Work Method Statement for one component of the activity eg installation of access tracks, scour protection, working platform decommissioning, etc. This framework allows separation of the individual components of bridge and culvert construction, including bridge and culvert structures, along with associated waterway diversions, temporary access tracks, working platforms, scour protection and final restoration or rehabilitation works.

Each Work Method Statement must be developed in consultation with the relevant design and construction personnel to ensure that all issues are addressed, methods and activities are practical and all personnel are aware of their commitments and

responsibilities. It is essential that the site(s) of proposed works are assessed prior to works and that RMS Representative, EPA, DPI (Fisheries Conservation and Aquaculture), and the NSW Office of Water (NOW) are consulted in regards to proposed waterway works and initial field inspections are completed as required, and the draft Work Method Statement forwarded to these agencies for review.

Each Work Method Statement may need to be updated periodically, either by adjusting the Work Method Statement or by adding an annexure(s).

All the relevant issues that are identified in this framework must be addressed by the Contractor for Contractor's Work in waterways as identified in Section 6.5.4 of RMS D&C G36 and Appendix 4 of the Scope of Works and Technical Criteria.

Safety and quality issues may be incorporated into the Work Method Statement(s).

The framework Work Method Statement requirements are detailed below:

1. Introduction

2. Purpose

The Work Method Statement is prepared to address the environmental and construction issues relevant to the installation and decommissioning of bridge and culvert structures, and associated waterway diversions, temporary access tracks, working platforms, scour protection and restoration works, to reduce environmental impacts associated with this work.

Objectives of the Work Method Statement are to (select from these/add to these as appropriate):

- Minimise disturbance to the environment resulting from the installation and decommissioning of bridge and culvert structures and associated waterway diversion, temporary access track, working platforms, scour protection and restoration works.
- Outline the methods and controls that will be used to minimise impacts on local waterways during the installation of the above works.
- Ensure that all personnel are aware of the sensitive nature of the work and the value of local creeks to aquatic life and local landholders via targeted training such as toolboxing for all staff and as part of sign-on procedures for staff undertaking these specific works on the days these works are being conducted.
- Address legislative requirements such as those contained in the POEO Act, Water Management Act and Fisheries Management Act; assess need for specific permits and notifications and DPI (Fisheries Conservation and Aquaculture) guidelines; Address concerns of community and key government agency stakeholders.
- Ensure that as far as possible, the waterway is restored and/or revegetated to maximise its value as aquatic habitat.

3. Responsibilities and training requirements

The following responsibilities and training requirements must be addressed in the Work Method Statement:

- Clear identification of who is responsible for the implementation of this Work Method Statement.
- Clear identification of the training requirements and any specific qualifications for personnel responsible for implementation of this Work Method Statement.

4. Planning the works

Planning for the installation or decommissioning of the bridge and culvert structures and associated waterway diversion, temporary access track, working platforms, scour protection and restoration or rehabilitation works aims to reduce environmental impacts. The following issues must be addressed in the Work Method Statement:

- Detailed schedule and duration of when each activity is proposed at the waterway (down to the week level).
- Material/plant requirements and ordering of these to be delivered at the necessary times.
- Planning to complete the works as quickly as possible.
- Legislation relevant to the works, particularly POEO Act, Water Management Act and Fisheries Management Act. Required licences, permits and notifications.
- Progressive Erosion and Sediment Control Plan(s) prepared and temporary erosion and sediment controls installed prior to works.
- Community and key government agency stakeholder consultation and/or notification.
- Delineation of the site prior to commencement of works.
- Commencement of monitoring and/or surveillance requirements.

5. Managing the works

Managing the installation or decommissioning of the bridge and culvert structures and associated waterway diversion, temporary access track, working platforms, scour protection and restoration or rehabilitation works, must be done in an environmentally sound way. The following management issues must be addressed in the Work Method Statement:

- Reference to RMS D&C G36 and RMS D&C G38 requirements.
- Progressive Erosion and Sediment Control Plan(s) prepared and updated as required.
- Adequate installation of erosion and sediment controls and/or water quality controls while the bridge or culvert is being built. Consideration of temporary controls to withstand designed storm and flood events is to be addressed.
- Procedures for refuelling.
- Spill management and emergency response procedures.
- Flood contingency plan.
- Any waterway diversion methodology.
- Bunding of pumps and plant to capture any accidental hydrocarbon release.
- Spoil management and controls.
- Time controls on works (eg not working during flow velocities >2 m/s or high risk tidal variations)
- ASS and ASR to be excavated, treated and disposed of in accordance with the relevant *RMS Guidelines for the Management of Acid Sulfate Materials: Acid Sulfate Soils, Acid Sulfate Rock and Monosulfidic Black Ooze* (2005) and the *NSW Acid Sulfate Soil Manual* (ASSMAC 1998). Include location of treatment area, distance from watercourse and final use of treatment material.
- Controls on segments of works such as working platforms, piles and piers, headstock, temporary access tracks, scour protection and removal of existing structures.
- Process for recommencing works should monitoring or surveillance result in the need for works or a specific task/activity to be stopped and/or modified.

6. Site restoration, rehabilitation and decommissioning works

The following issues and requirements regarding site restoration, rehabilitation and decommissioning works must be addressed in the Work Method Statement:

- Restoration of all disturbed areas, including shaping and topsoiling;
- Seed mix and/or riparian planting in accordance with the Landscape Plan prepared for the project and the Environmental Documents.
- Material extraction from the waterway undertaken in a manner to minimise pollution.
- Time controls on works (eg not working during flow velocities >2 m/s or high risk tidal variations)
- Staged removal of works.
- Process for recommencing works should monitoring or surveillance result in the need for works or a specific task/activity to be stopped and/or modified.

7. Monitoring, surveillance and maintenance

The following issues and requirements regarding monitoring, surveillance and maintenance of works must be addressed in the Work Method Statement:

- Monitoring of applicable geophysical characteristics to the works (eg weather forecasts, tidal heights and ranges).
- Frequency of inspection and maintenance of environmental controls.
- Adequate checks of machinery to assess leaks of hydrocarbon and other materials.
- Monitoring requirements and/or procedures to verify that environmental controls are adequately performing and outcomes are being achieved. Practical targets or parameters must be established for outcomes including the processes or response to any exceedances of targets/parameters.

8. Environmental awareness toolbox training

The following requirements for the environmental awareness toolbox training must be addressed in the Work Method Statement:

- Environmental protection measures (erosion and sediment control, ASS management, water quality).
- Legislation requirements including licences, permits and notifications.
- The importance of local creeks to aquatic life and local residents.
- The responsibilities of all personnel to protect the environment.
- The methods being used to install structures, temporary access tracks, working platforms, scour protection and final restoration or decommissioning works.