



Transport
Roads & Maritime
Services

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

Additional Crossing of the Clarence River at Grafton


SEPTEMBER 2016




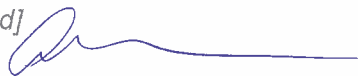
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Appendix B7	Construction Waste and Energy Management Plan
Appendix B8	Construction Flood Management Plan
Appendix B9	Construction Contaminated Land Management Plan

Glossary / Abbreviations

ASS	Acid sulfate soils
CAQMP	Construction Air Quality Management Plan
CCLMP	Construction Contaminated Land Management Plan
CEMP	Construction environmental management plan
CFFMP	Construction Flora and Fauna Management Plan
CFMP	Construction Flood Management Plan
CHMP	Construction Heritage Management Plan
CNVMP	Construction Noise and Vibration Management Plan
Compliance audit	Verification of how implementation is proceeding with respect to a construction environmental management plan (CEMP) (which incorporates the relevant approval conditions).
CoA	Condition of approval
CSWQMP	Construction Soil and Water Quality Management Plan
CTAMP	Construction Traffic and Access Management Plan
CWEMP	Construction Waste and Energy Management Plan
D&C	Design and construct
DGRs	Director General's Environmental Assessment Requirements
DPI	Department of Primary Industries (a division within NSW Trade & Investment)
DPI Water	Department of Primary Industries Water
DPI Fisheries	Department of Primary Industries Fisheries
DP&E	Department of Planning and Environment (formerly Department of Planning and Infrastructure)
ECI	Early Contractor Involvement
EIS	Environmental Impact Statement
EM	Environmental Manager
EMS	Environmental management system
Environmental aspect	Defined by AS/NZS ISO 14001:2004 as an element of an organisation's activities, products or services that can interact with the environment.
Environmental impact	Defined by AS/NZS ISO 14001:2004 as any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organisation's environmental aspects.
Environmental incident	An unexpected event that has, or has the potential to, cause harm to the environment and requires some action to minimise the impact or restore the environment.
Environmental objective	Defined by AS/NZS ISO 14001:2004 as an overall environmental goal, consistent with the environmental policy, that an organisation sets itself to achieve.
Environmental policy	Statement by an organisation of its intention and principles for environmental performance.

Environmental target	Defined by AS/NZS ISO 14001:2004 as a detailed performance requirement, applicable to the organisation or parts thereof, that arises from the environmental objectives and that needs to be set and met in order to achieve those objectives.
EPA	NSW Environment Protection Authority
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPL	Environment Protection Licence
ER	Environmental Representative: A suitably qualified and experienced person independent of project design and construction personnel employed for the duration of construction. The principal point of advice in relation to all questions and complaints concerning environmental performance.
ERG	Environmental Review Group
ESD	Ecological sustainable development: using, conserving and enhancing the community's resources so that the ecological processes on which life depends are maintained and the total quality of life now and in the future, can be increased (Council of Australian Governments, 1992).
EWMS	Environmental Work Method Statements
LALC	Local Aboriginal Land Council
LGA	Local Government Area
Minister, the	Minister for Planning
Non-compliance	Failure to comply with the requirements of the Infrastructure Approval or any applicable license, permit or legal requirements.
Non-conformance	Failure to conform to the requirements of Project system documentation including this CEMP or supporting documentation.
OEH	Office of Environment and Heritage
PESCP	Progressive Erosion and Sediment Control Plan
POEO Act	<i>Protection of the Environment Operations Act 1997 (NSW)</i>
Project, the	Additional Crossing of the Clarence River at Grafton
RMS	Roads and Maritime Services
Secretary	Secretary of the NSW Department of Planning and Environment (or delegate) (formerly Director General of the NSW Department of Planning and Infrastructure)
SSI	The State Significant Infrastructure as generally described in Schedule 1 (SSI-6103) of the Infrastructure Approval.

1 Introduction

1.1 Background

The Additional Crossing of the Clarence River at Grafton Project (the Project) comprises a new road bridge across the Clarence River, road upgrades in Grafton and South Grafton and replacement of part of the Pound Street rail viaduct. The Project is located at Grafton in the Clarence Valley local government area (LGA), on the NSW Mid North Coast, about 610 kilometres north of Sydney.

Roads and Maritime Services is planning and delivering the new Clarence River road bridge, road upgrades and Pound Street rail viaduct replacement.

The Director General's Environmental Assessment Requirements (DGRs) for the Project were issued on 3 October 2013 under section 115Y of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The Environmental Impact Statement (EIS) for the Project (*Additional Crossing of the Clarence River at Grafton Environmental Impact Assessment*, ARUP Pty Ltd, August 2014) was prepared and placed on public exhibition from 20 August to 19 September 2014. The Submissions Report, which provided responses to issues raised during exhibition of the EIS and revised environmental management measures for the Project, was submitted to the Minister for Planning in October 2014. Approval of the Project was granted by the Executive Director Infrastructure and Industry Assessment (delegate of the Minister for Planning) on 19 December 2014.

The Project will be delivered under a design and construct (D&C) contract. A detailed description of the Project is provided in Chapter 2.

1.2 Purpose of this CEMP

This Construction Environmental Management Plan (CEMP) and issue-specific plans have been prepared to comply with:

- the Guideline for the Preparation of Environmental Management Plans (DIPNR, 2004);
- the Infrastructure Approval;
- RMS QA Specification G36;
- AS/NZS ISO 14001.

The purpose of this CEMP is to provide a structured approach to the management of environmental issues during construction of the Project. Implementing this CEMP will ensure that the Project meets regulatory and policy requirements, including RMS requirements and the Minister's Infrastructure Approval, in a systematic manner.

In particular, this CEMP:

- describes the Project in detail, including activities to be undertaken and relative timing;
- provides specific mitigation measures and controls that can be applied on-site to avoid or minimise negative environmental impacts;

- provides specific mechanisms for compliance with applicable policies, approvals, licences, permits, consultation agreements and legislation;
- describes the environmental management related roles and responsibilities of personnel;
- states objectives and targets for issues that are important to the environmental performance of the Project; and
- outlines a monitoring regime to check the adequacy of controls as they are implemented during construction.

The CEMP addresses the requirements of Condition of Approval (CoA) D45. The requirements of this condition and where they are met in this CEMP are shown in Table 1-1.

Table 1-1: CEMP Requirements - CoA D45

CoA no.	Requirement	Reference
D45	The Proponent shall prepare and implement a Construction Environmental Management Plan for the SSI, prior to the commencement of construction, or as otherwise agreed by the Secretary. The Plan shall be prepared in consultation with relevant agencies and Council and outline the environmental management practices and procedures that are to be followed during construction. The Plan shall be prepared in accordance with the <i>Guideline for the Preparation of Environmental Management Plans</i> (Department of Infrastructure, Planning and Natural Resources, 2004) and is to include, but not necessarily be limited to, the following:	This CEMP
(a)	a description of all activities to be undertaken during construction of the SSI (including staging and scheduling);	Chapter 2
(b)	statutory and other obligations that the Proponent is required to fulfil during construction, including approvals, consultations and agreements required from authorities and other stakeholders under key legislation and policies;	Appendix A1, Appendix A2 Chapter 8 Sections 1.3 & 1.4
(c)	a description of the roles and responsibilities for relevant employees involved in the construction of the SSI, including relevant training and induction provisions for ensuring that employees, including contractors and sub-contractors, are aware of their environmental and compliance obligations under these conditions of approval;	Sections 4.2, 4.3 & 5
(d)	an environmental risk analysis to identify the key environmental performance issues associated with the construction phase and details of how environmental performance would be managed and monitored to meet acceptable outcomes, including what actions will be taken to address identified potential adverse environmental impacts (including any impacts arising from the staging of the construction of the SSI). In particular, the following environmental performance issues shall be addressed in the Plan:	Section 3.4, Appendix A3
(i)	measures to minimise hydrology impacts, including measures to stabilise bank structures as required;	Appendix B4 CSWQMP

CoA no.	Requirement	Reference
(ii)	measures to monitor and manage dust emissions including dust from stockpiles, traffic on unsealed roads and from materials tracking;	Appendix B4 CSWQMP Appendix B6 CAQMP
(iii)	measures to minimise emissions from construction vehicles, plant and equipment;	Appendix B6 CAQMP
(iv)	measures to monitor and manage spoil, fill and materials stockpile sites including details of how spoil, fill or material would be handled, stockpiled, reused and disposed in a Stockpile Management Protocol . The Protocol shall include details of the locational criteria that would guide the placement of temporary stockpiles, and management measures that would be implemented to avoid/minimise amenity impacts to surrounding residents and environmental risks (including surrounding water courses);	Appendix CSWQMP B4
(v)	measures to monitor and manage waste generated during construction including but not necessarily limited to: general procedures for waste classification, handling, reuse, and disposal; use of secondary waste material in construction wherever feasible and reasonable; procedures or dealing with green waste including timber and mulch from clearing activities;	Appendix B7 CWEMP
(vi)	measures for managing asbestos waste including its removal, handling, storage, transport and disposal;	Appendix CSWQMP Appendix B7 CWEMP B4
(vii)	measures for reducing demand on water resources (including potential for reuse of treated water from sediment control basins);	Appendix CSWQMP B4
(viii)	measures to monitor and manage hazard and risks including emergency management;	Chapter 8 Appendix A3 Appendix A8
(ix)	details of compliance and incident management consistent with the requirements of condition A12; and	Appendix A7
(x)	procedures for the periodic review and update of the Construction Environmental Management Plan and Plans required under condition D46, as necessary (including where minor changes can be approved by the Environmental Representative).	Chapter 9
	The Plan shall be submitted for the approval of the Secretary no later than one month prior to the commencement of construction, or as otherwise agreed by the Secretary. Construction work shall not commence until written approval has been received from the Secretary.	Section 1.4
	The approval of a Construction Environmental Management Plan does not relieve the Proponent of any requirement associated with this SSI approval. If there is an inconsistency with an approved Construction Environmental Management Plan and the conditions of this SSI approval, the requirements of this SSI approval shall prevail.	Noted

This CEMP is the overarching document in the Project environmental management document system, which includes the documents described in Section 4.1. It will be implemented by all staff and sub-contractors during the construction of the Project.

1.3 Consultation

Consultation for the Project EIS commenced in September 2013. The primary objective of the consultation was to keep stakeholders informed and involved during the Project development.

In accordance with the requirements of the Infrastructure Approval, consultation with the designated stakeholders and agencies will be undertaken as part of the development of the CEMP and issue-specific plans. The agencies and stakeholders to be consulted include:

- Department of Planning and Environment (DP&E)
- Environmental Protection Authority (EPA)
- Office of Environment and Heritage (OEH)
- NSW Heritage Council
- Department of Primary Industries Fisheries
- Department of Primary Industries Water (formerly NSW Office of Water)
- Clarence Valley Council
- State Emergency Services
- Registered Aboriginal Parties.

The main comments and issues raised during the CEMP consultation will be provided in Appendix A2. A response and cross-reference to where the issues raised will be addressed in the CEMP will also be provided in Appendix A2.

Consultation will continue throughout the construction of the Project with relevant stakeholders and agencies. Where relevant, the outcomes of this consultation will be documented in subsequent revisions of the CEMP. The management review is described further in Section 9.

1.4 CEMP approval

This CEMP must be endorsed by the RMS Project Manager, Fulton Hogan Project Director and Fulton Hogan Environmental Manager prior to submission to the Secretary of the Department of Planning & Environment (DP&E).

Submission of the CEMP for the approval of the Secretary is required no later than one month prior to the commencement of construction or as otherwise agreed by the Secretary. Construction will not commence until written approval of the CEMP has been received from the Secretary.

The issue-specific plans prepared under CoA D46 also require approval by the Secretary prior to commencement of construction. Further explanation and details of these documents are provided in Section 4.1. The issue-specific plans are provided as appendices to this CEMP.

1.5 Distribution

This CEMP is available to all personnel and sub-contractors via the Project document control management system. An electronic copy can be found on the Project website.

The document is uncontrolled when printed. One controlled hard copy of the CEMP and supporting documentation will be maintained by the Quality Manager at the Project office.

Registered copies will be distributed to:

- Project Director
- Environmental Representative
- Construction Manager
- Environmental Manager
- Community Relations Manager
- RMS Representative
- RMS Environmental Manager.

1.6 Revision

A document review process is implemented to ensure that environmental documentation, including this CEMP and issue-specific plans, are updated as appropriate for the specific works that are occurring on-site. This includes the management review process described in Chapter 9.

Should the document review process identify any issues or items within the documents that need updating, it is the responsibility of the Environmental Manager or Environmental Officers to prepare the revised documents.

The revised document will then be issued to the RMS Representative and the Environmental Representative for certification of the changes. In accordance with CoA D43(e), the Environmental Representative (ER) can approve “minor” amendments to the CEMP including those that:

- are editorial in nature e.g. typographical or cross-referencing errors, staff and agency/authority name changes;
- do not increase the magnitude of impacts on the environment when considered individually or cumulatively; or
- do not compromise the ability of the Project to meet approval or legislative requirements.

Where the ER deems it necessary, the amended CEMP will also be provided to relevant stakeholders for review and comment and be forwarded to the Secretary of the DP&E for approval. If the ER is unsure as to whether a proposed amendment can be categorised as minor, the ER will seek advice from the DP&E prior to endorsing the subject amendments.

Revised versions of the CEMP will be made available through the process described in Section 1.6.

2 Project description

2.1 General features

The Project comprises the construction of a new bridge over the Clarence River at Grafton on the NSW Mid North Coast, including:

- Construction of a new bridge over the Clarence River about 70 m downstream of the existing road and rail bridge (which is to be retained);
- Upgrades to the road network in Grafton and South Grafton to connect the new bridge to the existing road network, including:
 - widening Iolanthe Street to four lanes;
 - widening the Gwydir Highway to four lanes between Bent Street and the Pacific Highway;
 - realigning the existing Pacific Highway to join Iolanthe Street near Through Street;
 - providing a new roundabout at the intersection of the Pacific Highway and Gwydir Highway;
 - providing a new roundabout at the intersection of Through Street and Iolanthe Street;
 - limiting Spring Street and the Old Pacific Highway to left in and left out only where they meet Iolanthe Street;
 - realigning Butters Lane;
 - widening Pound Street to four lanes between Villiers Street and the approach to the new bridge;
 - providing traffic signals at the intersection at Pound Street and Clarence Street;
 - closing Kent Street where it is crossed by the bridge approach road;
 - realigning and lowering Greaves Street beneath the new bridge;
 - realigning Bridge Street to join directly to the southern part of Pound Street (east of the new bridge approach). There would be no direct connection between Pound Street south and the new bridge approach;
 - widening Clarence Street to provide formal car park spaces;
 - minor modifications to the existing Dobie Street and Villiers Street roundabout;
- Replacement of the existing rail viaduct section across Pound Street with a new bridge structure to provide sufficient vertical clearance for the upgrade of Pound Street;
- Construction of a pedestrian and cycle path and signalised pedestrian crossings for access to and across the new bridge and throughout Grafton and South Grafton;
- Flood mitigation works, including raising the height of sections of the existing levee upstream of the existing bridge in Grafton and South Grafton; and
- Ancillary works such as public utility adjustments, construction compounds and stockpile areas and water management measures.

Figure 2-1: provides an overview of the Project.

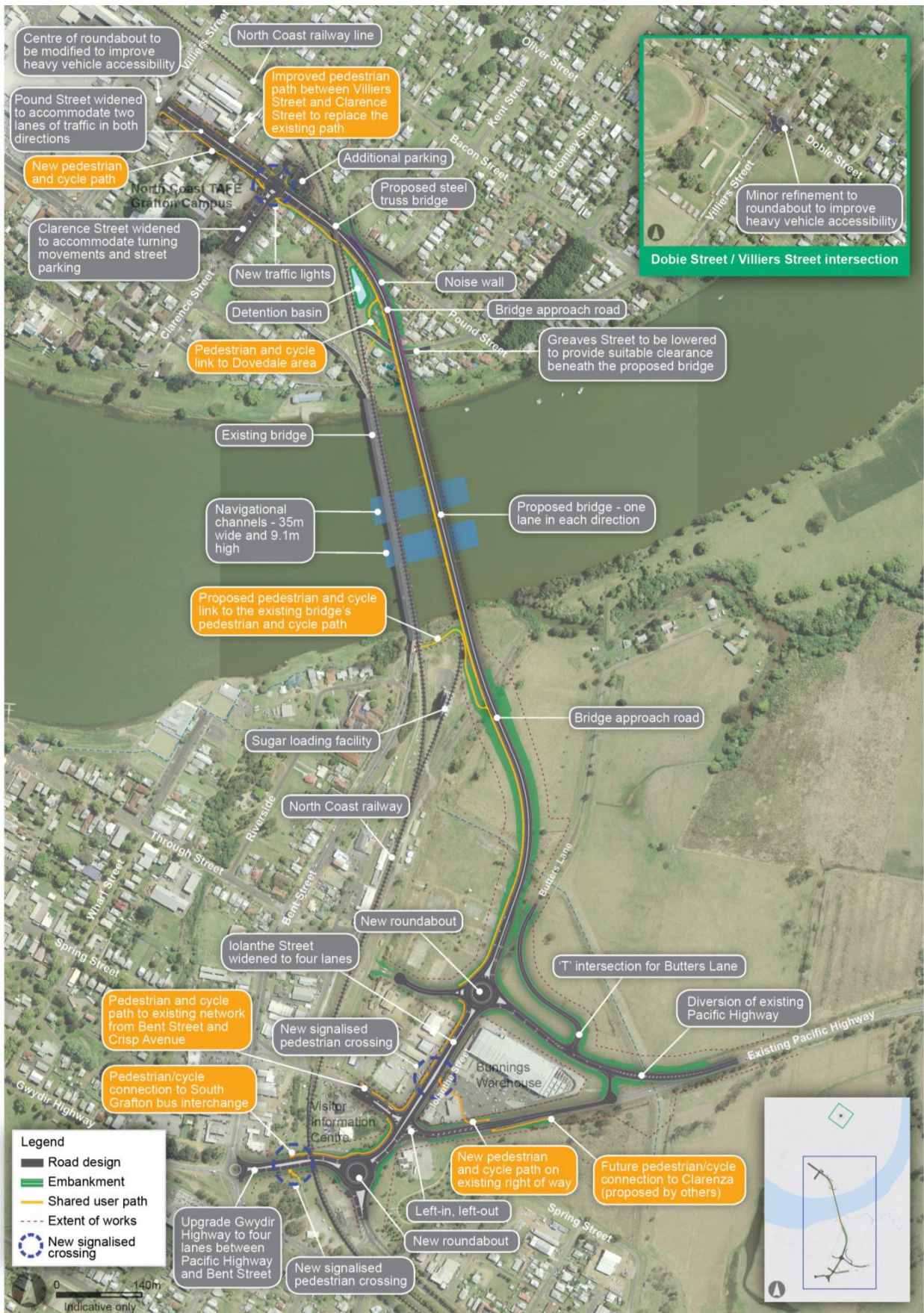


Figure 2-1: Project overview – Additional Crossing of Clarence River at Grafton Project

2.2 Project Program

Construction of the Project will take approximately three years, commencing around mid-2016 with the end of 2019 as the targeted completion date. The indicative program is provided in Figure 2-2 below.

Activities	2016			2017			2018			2019		
Project preliminaries and site establishment												
Flood mitigation												
Roadwork and drainage												
Bulk earthworks												
Bulk earthworks (soft soil treatments)												
Bridge work (rail viaduct replacement)												
Bridge work (Clarence River bridge)												
Road surfacing												
Finishing work												

Figure 2-2: Indicative program of construction works

2.3 Construction activities and sequencing

The construction activities and indicative sequencing for the Project are provided in Table 2-1.

Construction hours and circumstances where construction activities may be undertaken outside of these times are detailed and assessed further in the Construction Noise and Vibration Management Plan (Appendix B3 to this CEMP).

Table 2-1: Construction activities and sequencing

Construction activity	Proposed works	Plant and equipment	Approximate duration
Preliminary activities and site establishment	<ul style="list-style-type: none"> ▪ Property acquisition and adjustments, including property access changes ▪ Detailed geotechnical investigations and survey ▪ Dilapidation surveys ▪ General site clearance, site establishment work, fencing and signage ▪ Establishment of temporary construction facilities and compound sites including the site office ▪ Temporary traffic management arrangements ▪ Progressive installation of environmental controls including temporary or permanent fencing, and erosion and sediment control measures ▪ Construction of temporary drainage controls ▪ Clearing and removal of vegetation ▪ Diversion of utilities 	Trucks, generators, light vehicles, excavators, chainsaws, mulchers, water carts, cranes, drilling rigs	6 months
Flood mitigation works	<ul style="list-style-type: none"> ▪ Clearing of vegetation (where required) ▪ Stripping of topsoil ▪ Placement and compaction of earthwork ▪ Reinstatement of topsoil and planting / grass seeding to establish vegetation ▪ Upgrade of flood mitigation structures ▪ Adjustments to minor structures within built areas ▪ Adjustment of control gates and regulatory devices 	Excavators, dump trucks, compactors, graders, loaders, water carts, profilers, bulldozers, vibratory rollers	6 months

Construction activity	Proposed works	Plant and equipment	Approximate duration
Roadwork and road surfacing.	<ul style="list-style-type: none"> ▪ Stripping of topsoil, removal of trees and other vegetation ▪ Construction of temporary local traffic management diversions ▪ Placement and compaction of earthwork ▪ Road widening, including construction of box cuts and road surfaces ▪ Staged construction on local roads ▪ Installation of traffic signals, roadside furniture and lighting ▪ Installation of road markings ▪ Construction of any retaining walls and subsurface drainage ▪ Construction of road surface ▪ Construction of pedestrian and cycle path ▪ Progressive landscaping and tree planting 	Chainsaw, graders, backhoes, trucks, water carts, vibratory compactors, bitumen sprayers, vibratory rollers, rubber tyred rollers	6-12 months
Drainage	<ul style="list-style-type: none"> ▪ Construction of drainage, including kerb and gutter (where required) ▪ Major drainage work – eg cross-drainage structures and Pound Street drainage, including the pump station ▪ Installation of cross-drainage, including culverts and inlet and outlet work, such as channel diversions and scour protection ▪ Installation of longitudinal and vertical drainage in cuttings and embankments ▪ Construction of diversion and catch drains along the formation and sedimentation control basins or swales (where required) 	Trucks, bulldozers, excavators, concrete pumps, concrete trucks	6-9 months
Bulk earthworks	<ul style="list-style-type: none"> ▪ Stripping topsoil and stockpiling it for reuse in landscaping ▪ Materials haulage ▪ Soft soils treatment ▪ Construction of embankments ▪ Stockpiling 	Trucks, bulldozers, excavators	6-12 months

Construction activity	Proposed works	Plant and equipment	Approximate duration
Bridge work	<ul style="list-style-type: none"> ▪ Establishment of batching plant ▪ Preparation of bridge work areas including temporary piling pads, access platforms Installation of bridge foundations (driven or bored piles, pile caps and footings) ▪ Construction of new bridge superstructure and piers ▪ Replacement of ARTC rail viaduct at Pound Street Construction of bridge superstructure including deck and pavement work (cast in-situ or pre-cast bridge elements) ▪ Construction of noise barrier 	Batching plant, concrete pumps, piling rigs, concrete trucks, cranes, barge(s), excavators, trucks, small equipment	12 - 21 months
Finishing works	<ul style="list-style-type: none"> ▪ Remove temporary work ▪ Restoration and landscaping of temporary sites ▪ General site clean-up ▪ Restoration of topsoil and revegetation of batters ▪ Removal of temporary environmental controls Site clean-up and demobilisation, including restoration of ancillary sites and construction access roads (where required) 	Trucks, generators, light vehicles, cranes	3 - 6 months

2.4 Compound and ancillary facilities

A range of construction related facilities are required to build the Project including site compounds, stockpile areas, precast facilities and flood mitigation stockpile sites.

Ancillary facilities shall comply with the requirements of CoA D36, CoA D37, CoA D38, CoA D39, CoA D40 and CoA D41. An ancillary facility is defined in the Infrastructure Approval as a:

“Temporary facility for construction, including for example an office and amenities compound, construction compound, batch plant (concrete or bitumen), material crushing and screening, materials storage compound, maintenance workshop, testing laboratory or material stockpile area.

Note: Where a stockpile management protocol has been approved by the Secretary for the SSI, material stockpile areas are not considered to be ancillary facilities”.

The EIS identified and assessed the following ancillary facilities:

- The main site compound (about 9 ha in size) in South Grafton, and
- The Pound Street site in Grafton (about 0.45 ha in size).

These ancillary facility sites are shaded yellow in Figure 2-3. In accordance with CoA D36, these sites have been previously identified and assessed in the EIS; therefore, no further assessment of these sites is required. Operation of each ancillary facility will be undertaken in accordance with the CEMP and relevant issue-specific plan(s).

Site compounds will include offices, workforce facilities (such as parking, lunchrooms and toilets), workshops and storage areas for plant and construction materials. The main site compound (about 9 ha in size) will be located in South Grafton and a smaller compound (about 0.45 ha in size) for the construction of the northern abutment, the Pound Street railway viaduct replacement and road upgrades will be located in Grafton. As identified in the EIS, a concrete pre-cast yard will be co-located within the main site compound. All site compounds will be fenced for security and safety purposes. The construction compounds will be used for the duration of the construction.

A description of the process and criteria for assessing any additional ancillary facilities during construction are provided in Appendix A5.

RMS has identified one additional ancillary facility site adjacent to the South Grafton site compound, to the east of Iolanthe Street. This ancillary facility site is shaded green in Figure 2-3. The site was assessed in accordance with CoA D36, D37 and D38 and a report titled “*Minor Consistency Review - South Grafton Ancillary Facilities Site (Lease Area 1)*” was prepared that demonstrated consistency with the approved SSI. The report was forwarded to DP&E in May 2016. No further assessment of this site is required. Operation of this ancillary facility will be undertaken in accordance with the “*Minor Consistency Review - South Grafton Ancillary Facilities Site (Lease Area 1)*”, the CEMP and relevant issue-specific plan(s).

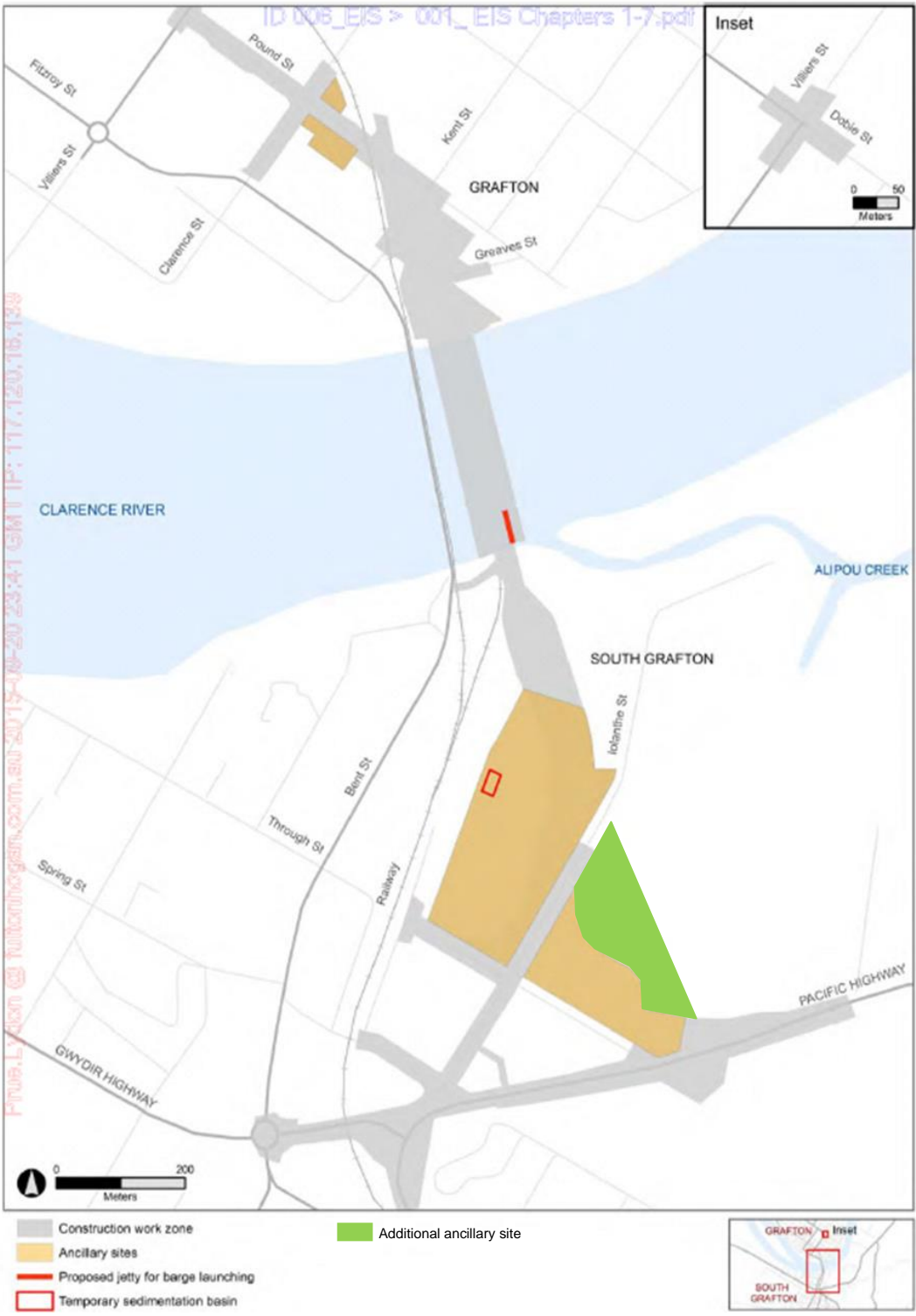


Figure 2-3: Locations of ancillary facilities that have already been identified and assessed

Source: EIS p88 as modified

3 Planning

3.1 Project environmental obligations

All construction personnel working on the Project have the following environmental obligations:

- Minimise pollution of land, air and water.
- Use pollution control equipment and keep it in proper working order.
- Preserve the natural and cultural heritage environment.
- Give notice to RMS and relevant authorities of a non-Aboriginal or Aboriginal heritage discovery.
- Minimise the occurrence of offensive noise.
- Be a good neighbour to surrounding land users.
- Keep the community informed of Project milestones, upcoming activities and duration of relevant aspects of the works.
- Use equipment with noise control features where available and ensure that it is properly maintained.
- Take all feasible and reasonable steps to ensure compliance with the requirements of this CEMP.

3.2 Legal and other requirements

A register of legal and other requirements for the Project is contained in Appendix A1. This register is maintained as a checklist. This register will be reviewed at regular intervals by the Environmental Manager, such as during management reviews, and updated with any applicable changes. Any changes made to the legal requirements register will be communicated to the wider team where necessary through toolbox talks, specific training and other methods detailed in Chapter 5.

3.3 Approvals, permits and licensing

The following approvals, permits and licences are required for the Project:

- Infrastructure Approval under Part 5.1 of the EP&A Act – SSI 6103 was granted by the Minister for Planning on 19 December 2014.
- An Environmental Protection Licence (EPL) for ‘railway systems activities’ under Schedule 1 of the *Protection of the Environment Operations Act 1997*. Rail viaduct works which trigger this requirement will not commence until 2018, so the licence application will be made closer to this time. In accordance with section 115ZH of the EP&A Act, such a licence cannot be refused for an approved project and is to be substantially consistent with the Part 5.1 approval.
- An approval under the (NSW) *Crown Lands Act 1989* to grant a relevant interest (i.e. licence, permit, easement or right of way) over a Crown Reserve.
- At the time of writing the draft CEMP, exhibition of the draft water sharing plan for the Clarence River Unregulated and Alluvial Water Sources had closed and commencement of the plan was anticipated in July 2016. Until the water sharing plan is formally adopted, permits will be required under the Water Act 1912 should access to ground or surface water be required during construction.

In accordance with CoA A6, all necessary licences, permits and approvals required for the development of the Project will be obtained and maintained as required throughout the life of the Project. No condition of the Infrastructure Approval removes the obligation for RMS or Fulton Hogan to obtain, renew or comply with such necessary licences, permits or approvals except as provided under Section 75U of the *EP&A Act*.

The Conditions of Approval are contained in the Compliance Tracking Program in accordance with the requirements of CoA A12. The Compliance Tracking Program provides a reference to where each requirement is addressed by this CEMP or other Project documentation. A checklist of compliance with RMS specification G36 is also included in Appendix A1.

3.4 Environmental aspects and impacts

A risk management approach will be used to determine the severity and likelihood of an activity's impact on the environment and to prioritise its significance. This process considers potential regulatory and legal risks as well as taking into consideration the concerns of the community and other key stakeholders.

The objectives of the risk assessment are to:

- Identify activities, events or outcomes that have the potential to adversely affect the local environment 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.

Appendix A3 contains a list of issues, related aspects and corresponding risks associated with the Project. Measures to mitigate the identified environmental risks are also provided.

3.5 Environmental policy

The Environmental Policy attached in Appendix A4 describes Fulton Hogan's commitment to continual improvement in environmental performance and compliance with applicable legal requirements.

Fulton Hogan's Environmental Policy is displayed on the Project website and at the site office, and communicated to staff, sub-contractors and other interested parties via inductions and ongoing awareness programs.

3.6 Objectives and targets

The strategic aims of the project are to:

- provide a practical alternative for road users needing to cross the Clarence River at Grafton;
- to relieve current and future traffic congestion on the existing bridge; and
- provide greater accessibility (measured in terms of travel time and reliability) for the journey to work, other private travel, freight and commercial activities.

At a wider level the project also aims to improve road safety for motorists, pedestrians and cyclists travelling across the Clarence River and by satisfying these needs, also facilitate local economic development by providing better access for local residents into Grafton and South Grafton, including residents in the predicted growth area of Clarenza.

Specific project objectives are:

- to enhance road safety for all road users over the length of the project;
- to improve traffic efficiency between and within Grafton and South Grafton;
- to support regional and local economic development;
- to involve all stakeholders and consider their interests;
- to provide value for money; and
- to minimise impact on the environment.

Environmental objectives and targets have been established as a means of assessing environmental performance during construction of the Project. These objectives and targets have been developed with consideration of the key issues identified through the environmental assessment and risk assessment process. The objectives and targets are consistent with Fulton Hogan’s Environmental Policy and will assist in monitoring whether the policy commitments are being met.

The targets are incorporated into relevant issue-specific environmental management plans.

The performance of the Project against the objectives and targets will be documented in the Project construction compliance reports and as part of the management review.

Environmental objectives and targets for the Project are provided in Table 3-1 below.

Table 3-1: Environmental objectives and targets

Objective	Target	Measurement tool
Construct the Project in accordance with environmental approvals	<ul style="list-style-type: none"> ▪ Full compliance with statutory approvals. 	Audits, construction compliance reporting, management review.
Compliance with all legal requirements	<ul style="list-style-type: none"> ▪ No regulatory infringements (PINs or prosecutions). ▪ No formal regulatory warning. 	Audits, construction compliance reporting, management review.
Implement an EMS that meets the requirements of AS/NZS ISO 14001	<ul style="list-style-type: none"> ▪ Address non-conformances and corrective actions within specific timeframes (CoA A12g) 	Audits, management reviews.
Engage with the affected community, minimise complaints and respond to any complaints within a suitable timeframe	<ul style="list-style-type: none"> ▪ Disseminate regular Project updates and other information through the Project website (CoA C4) and other tools identified in the Community Communication Strategy (CoA C1). ▪ Record and respond to complaints within the timeframe specified in the Community Communication Strategy (CoAs C1, C2 & C3). 	Review complaints register, construction compliance report, audits.

Objective	Target	Measurement tool
Continuously improve environmental performance	<ul style="list-style-type: none"> ▪ Develop and maintain a program of ongoing environmental training. ▪ Capture lessons learnt from environmental incidents to minimise repeat issues. ▪ Encourage and reward innovation and effort throughout the workforce. 	Construction compliance report, management review, audits.

3.7 Project modifications and refinements

3.7.1 General changes

Modifications/refinements to the Project may be required as a result of detailed design or changed circumstances during construction. RMS is responsible for formally seeking approval from the Minister for any Project modifications and for documenting refinements that are consistent with the approved Project.

The RMS Environmental Services Manager is responsible for the assessment of Project refinements and management of the consistency assessment process. The Contractor's Environmental Manager is responsible for incorporating any new environmental impacts and/or new statutory approval requirements into the appropriate environmental management documentation.

Any design changes or changes in scope of works will be communicated to the Contractor's Environmental Manager. The Contractor's Environmental Manager or Environmental Officer will undertake an environmental assessment and consistency review for the proposed changes in consultation with the RMS Environmental Services Manager to determine if a Project modification may be required.

Should the consistency review determine that a Project modification may be required i.e. the impacts are of a nature and scale that it is not considered consistent with the Infrastructure Approval, the Environmental Representative will be informed immediately and a modification application under Section 75W of the *EP&A Act 1979* will be prepared and submitted to the Secretary of DP&E for determination.

The RMS General Manager will approve all refinements that are deemed consistent with the Infrastructure Approval.

3.7.2 Ancillary facilities assessment criteria

The location of the main site compound and ancillary facilities are nominated, assessed against the criteria in CoA D36, and detailed in Appendix A5. These criteria require that ancillary facilities:

- a) be located more than 50 metres from a waterway, including the Clarence River;
- b) be located within or adjacent to the SSI boundary;
- c) have ready access to the road network or direct access to the construction corridor;
- d) be located to minimise the need for heavy vehicles to travel through residential areas;

- e) be located in areas of low ecological significance and require no clearing of native vegetation;
- f) be located on relatively level land;
- g) be separated from the nearest residences by at least 200 metres (or at least 300 metres for a temporary batching plant);
- h) be above the 20 year ARI flood level unless a contingency plan to manage flooding is prepared and implemented;
- i) not unreasonably affect the land use of adjacent properties;
- j) provide sufficient area for the storage of material to minimise, to the greatest extent practical, the number of deliveries required outside standard construction hours; and
- k) be located in areas of low heritage conservation significance (including areas identified as being of Aboriginal cultural value) and not impact on heritage sites beyond those already impacted by the SSI.

For the purposes of criteria (a) a waterway is defined as: “*Any flowing stream of water, whether natural or artificially regulated (not necessarily permanent).*”

Should changes to the location of existing ancillary facilities or additional ancillary facilities be required during construction, an assessment against the criteria detailed in CoA D36 will be undertaken by Fulton Hogan.

Where the criteria are unable to be met for any proposed ancillary facility, an assessment demonstrating how potential environmental impacts from construction or operation of the facility can be mitigated and managed to acceptable standards will be undertaken by Fulton Hogan and submitted to the Secretary for approval as detailed in CoA D37 and CoA D38. The approvals process for additional ancillary facilities is shown in Figure 3-1. The ancillary facility will be assessed against the criteria in CoA D36 to demonstrate how the potential environmental impacts can be mitigated and managed to acceptable standards. The assessment will include:

- a) details on the site location and access arrangements;
- b) a description of the activities to be undertaken including the hours of use and storage of dangerous goods;
- c) outcomes of the assessment of the site against the locational criteria set out in condition D36;
- d) an assessment of the environmental impacts on the site and the surrounding environment, including, but not limited to noise, vibration, air quality, traffic and access during site establishment and operation, flora and fauna, heritage, erosion and sedimentation, water quality and light spill;
- e) details of the mitigation, monitoring and management procedures specific to the ancillary facility that would be implemented to minimise environmental impacts; and
- f) demonstrated overall consistency with the approved SSI (including impacts identified in the documents listed in condition A2).

The assessment will demonstrate how the potential environmental impacts can be mitigated and managed to acceptable standards.

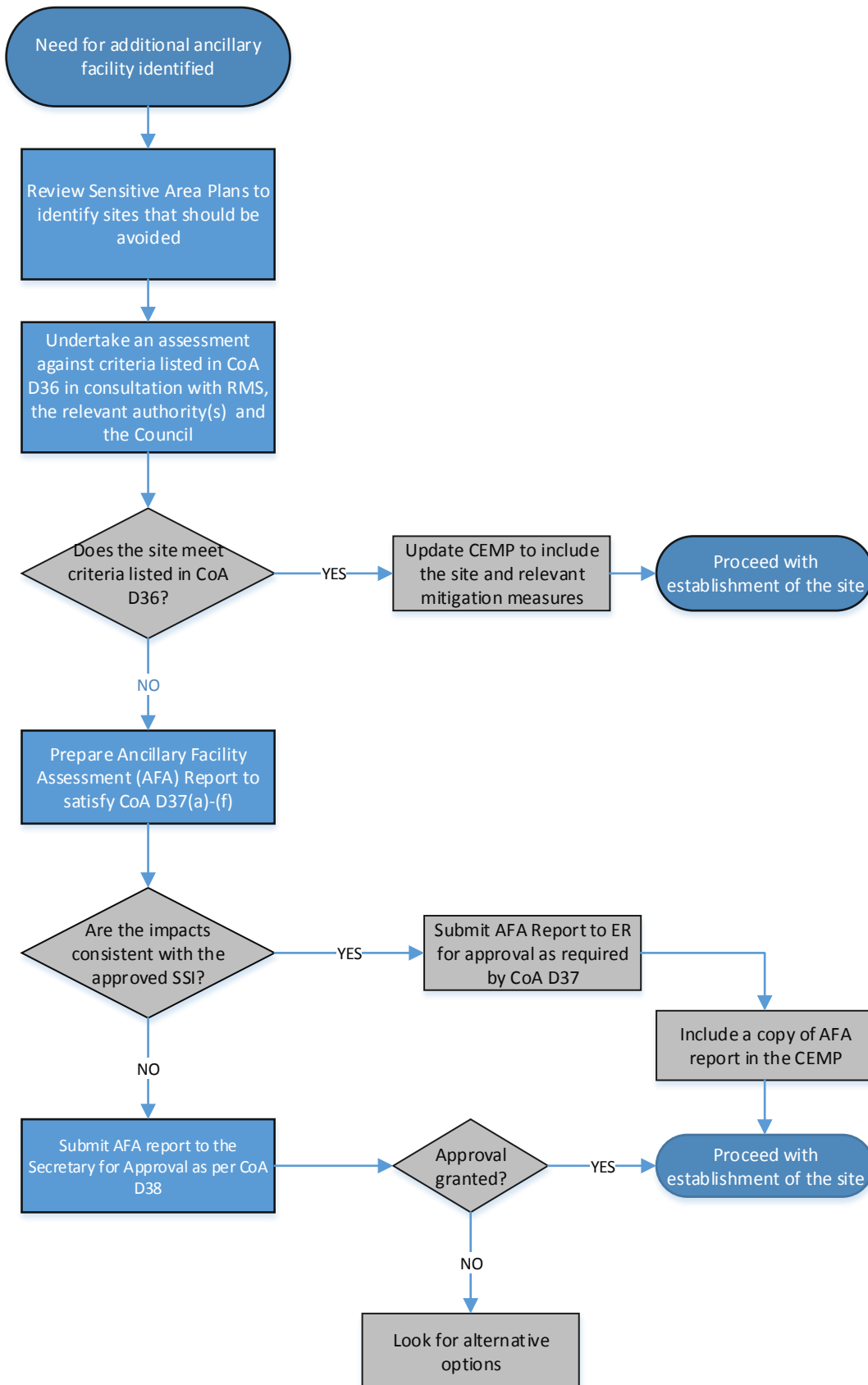


Figure 3-1 Approvals process for additional site facilities

3.7.3 Location and management of stockpiles

Temporary stockpiles will be required during construction to store materials for construction or materials generated from within the construction site including:

- road base constituents;
- stripped topsoil;
- pre-cast concrete components;
- rock crushing and screening machinery;
- crushed rock; and
- excess spoil unsuitable for project use.

Stockpiles will be located and managed in accordance with the criteria contained in the *Stockpile Management Protocol* (Annexure E of the CSWQMP). The Protocol states that the mitigation measures included in the relevant issue-specific plan e.g. CAQMP, CWEMP, CFFMP, CNVMP, CHMP, CSWQMP will be implemented to minimise or avoid impacts of stockpiles on the environment.

4 Implementation and operation

4.1 Environmental management documentation

This CEMP is the overarching management plan for a suite of environmental management documents for the Project as shown in Figure 4-1 below. The CEMP and issue-specific plans required under CoA D45 and CoA D46 will be provided to the Secretary for approval.

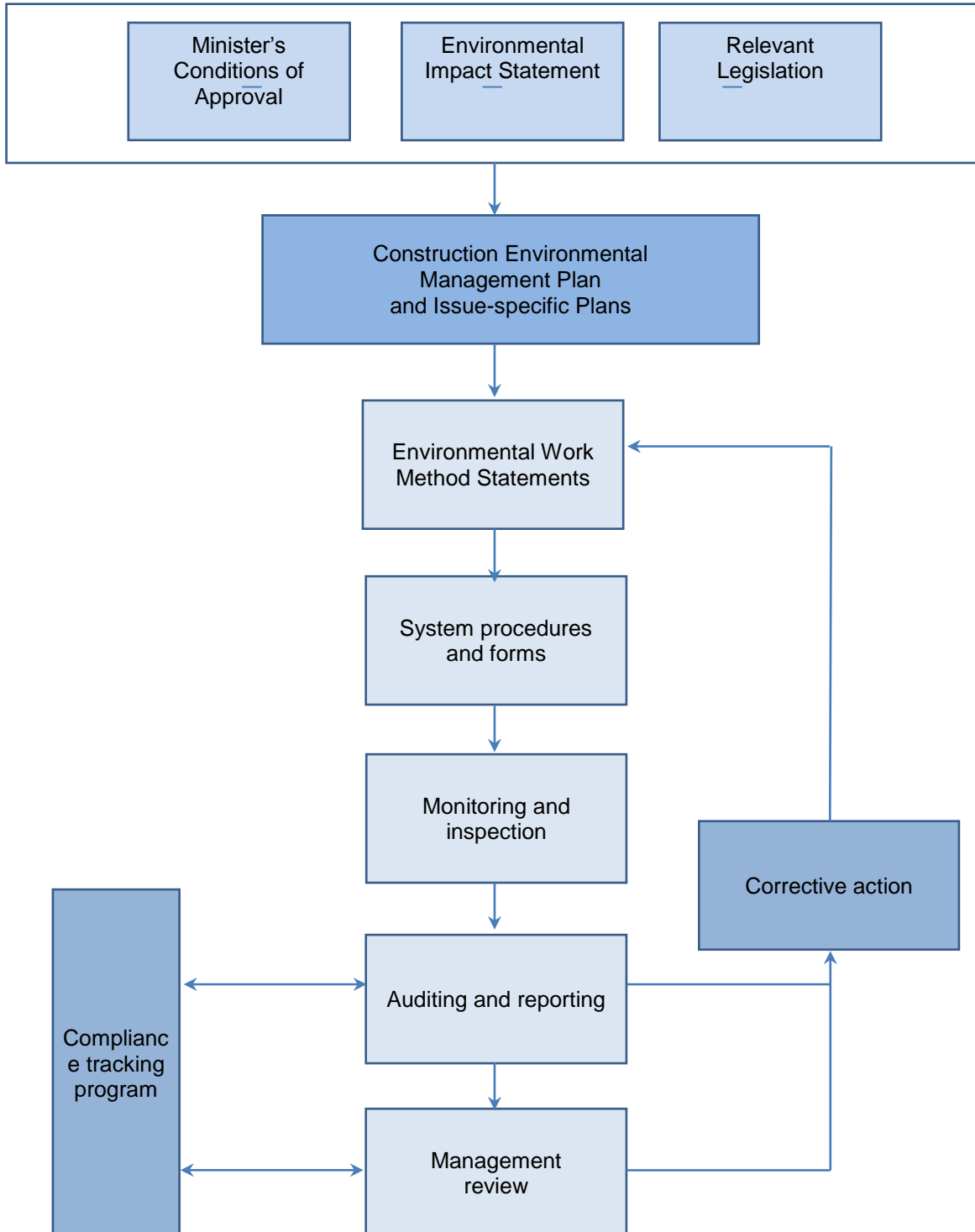


Figure 4-1: Environmental management document system structure

4.1.1 Construction environmental management plan

This CEMP documents the method to manage and control the environmental aspects of the Project during pre-construction and construction. It identifies the requirements applicable to the activities described in Chapter 2. It also provides the overall framework for the system and procedures to ensure environmental impacts are minimised and legislative and other requirements are fulfilled. The strategies defined in this CEMP have been developed with consideration of the Infrastructure Approval requirements and the safeguards and mitigation measures presented in the environmental assessment and approval documents. This CEMP establishes the system for implementation, monitoring and continuous improvement to minimise impacts from the Project on the environment.

4.1.2 Environmental management sub-plans and strategies

The issue-specific plans and strategies listed in Table 4-1: support the CEMP. These documents have been prepared to address specific construction related impacts of the activities described in Chapter 2 and the requirements of the CoAs and environment assessment documentation.

Table 4-1: Environmental management plans and strategies

CoA	Document name	Approval pathway
CoA D46(b)	Appendix B1 - Construction Traffic and Access Management Plan	Secretary of DP&E approval
CoA D46(e)	Appendix B2 - Construction Flora and Fauna Management Plan	Secretary of DP&E approval
CoA D46(a)	Appendix B3 - Construction Noise and Vibration Management Plan	Secretary of DP&E approval
CoA D46(c)	Appendix B4 - Construction Soil and Water Quality Management Plan	Secretary of DP&E approval
CoA D46(d)	Appendix B5 - Construction Heritage Management Plan	Secretary of DP&E approval
CoA D45(d) (ii)	Appendix B6 - Construction Air Quality Management Plan	Secretary of DP&E approval
CoA D45(d) (v)	Appendix B7 – Construction Waste and Energy Management Plan	Secretary of DP&E approval
CoA D46(f)	Appendix B8 - Construction Flood Management Plan	Secretary of DP&E approval
CoA D46(c)(viii),(ix)	Appendix B9 - Construction Contaminated Land Management Plan	Secretary of DP&E approval

4.1.3 Environmental work method statements

Environmental work method statements (EWMS) are prepared to manage and control all activities that have the potential to negatively impact on the environment. EWMSs will be prepared by Fulton Hogan prior to the commencement of the construction activities to which they apply and will incorporate relevant mitigation measures and controls from issue-specific management plans. They also identify key procedures to be used concurrently with the

EWMS. EWMSs are specifically designed to communicate requirements, actions, processes and controls to construction personnel using plans, diagrams and simply written instructions.

EWMSs will be prepared prior to and during construction as required in consultation with relevant members from the Project team, and will be approved by the Environment Manager.

All construction personnel and sub-contractors undertaking a task governed by an EWMS must participate in training on the EWMS and acknowledge that they have read and understood their obligations prior to commencing work.

Regular monitoring, inspections and auditing against compliance with the EWMS will be undertaken by Project management, quality and environmental personnel to ensure that all controls are being followed and that any non-conformances are recorded and corrective actions implemented.

4.1.4 Progressive erosion and sediment control plans

Progressive Erosion and Sediment Control Plans (PESCPs) are used to identify the approximate location of erosion and sediment controls within the Project site. They are produced for construction stages from initial vegetation clearing to rehabilitation, when erosion and sediment controls are no longer required and are removed. PESCPs will be developed and implemented prior to commencing activities at all works areas where there is a risk of erosion and sediment loss.

PESCPs may be produced in conjunction with EWMS to provide more detailed site-specific environmental mitigation measures.

PESCPs will be developed by Fulton Hogan's Environmental Manager in consultation with the superintendent, site engineers, foreman and other site personnel, as required. They will be modified over time to reflect the changing site conditions.

4.1.5 Sensitive area plans

The Project traverses environmentally and socially sensitive areas/sites. To assist pre-construction planning and on-site construction management, these site constraints are consolidated on series of map-based sheets that extend the length of the Project. Sensitive area maps include information pertaining to:

- noise sensitive receivers, e.g. residential dwellings, educational institutions;
- flora features, including threatened species and endangered ecological communities;
- Aboriginal and non-Aboriginal heritage sites, including items, places, objects and sites;
- local waterways;
- recorded threatened fauna sightings; and
- National Parks / Nature Reserves.

The sensitive area plans are presented in Appendix A6. They are a working element of the CEMP and will be revised throughout construction to reflect current conditions and up-to-date information on sensitive sites. Sensitive area plans will be used in conjunction with the EWMSs to help identify key risk areas and to promote ongoing communication to construction personnel during the Project.

4.1.6 Environmental procedures, forms and other documents

Project specific procedures will be developed in response to the requirements of the Project. Where applicable existing contractor procedures and work instructions will be applied or amended for use on the Project.

4.1.7 CEMP availability

This CEMP will be made available for public inspection on request. Confidential information, which may include the location of threatened species, Aboriginal objects or places and personnel contact details, will be removed from all documents provided or made available to the public. An electronic copy of the CEMP is provided on the Project website.

4.2 Resources, roles, responsibilities and authority

Figure 4-2 outlines the Project organisation structure relevant to construction environmental management of the Project. The key environmental management roles and responsibilities shown in Figure 4-2 are described below.

4.2.1 Environmental Representative

The Environmental Representative (ER) must be suitably qualified and experienced and independent of the design and construction personnel. The ER must be approved by the Secretary prior to the commencement of construction. The responsibilities for the ER are defined in CoA D43 and include:

- be the principal point of advice in relation to the environmental performance of the SSI;
- monitor the implementation of environmental management plans and monitoring programs required under this approval and advise the Proponent upon the achievement of these plans/programs;
- have responsibility for considering and advising the Proponent on matters specified in the conditions of this approval, and other licences and approvals related to the environmental performance and impacts of the SSI;
- ensure that environmental auditing is undertaken in accordance with the Proponent's Environmental Management System(s);
- be given the authority to approve/reject minor amendments to the Construction Environment Management Plan. What constitutes a "minor" amendment shall be clearly explained in the Construction Environment Management Plan;
- be given the authority to approve/reject Out of Hours Works in accordance with condition D4. These works shall be conducted in accordance with the Out of Hours Works Protocol (OOHW Protocol) required in accordance with condition D46(a)(vi);
- be given the authority to approve/reject ancillary facilities in accordance with conditions D36 and D37;
- be given the authority and independence to require reasonable steps be taken to avoid or minimise unintended or adverse environmental impacts, and failing the effectiveness of such steps, to direct that relevant actions be ceased immediately should an adverse impact on the environment be likely to occur; and

- be consulted in responding to the community concerning the environmental performance of the SSI where the resolution of points of conflict between the Proponent and the community is required.

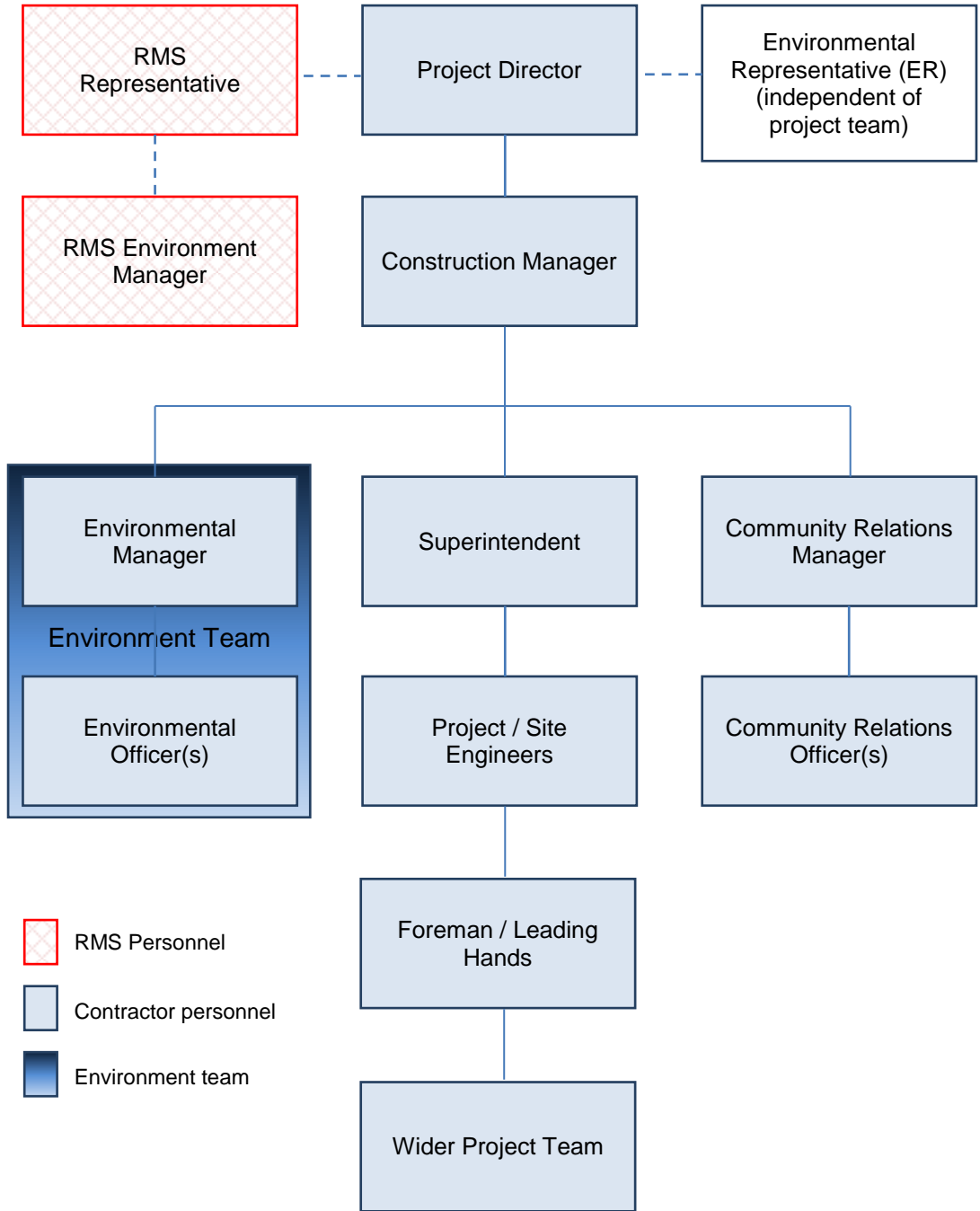


Figure 4-2: Project Environmental Management Structure

RMS Roles

4.2.2 RMS Environment Manager

The environmental responsibilities of the RMS Environment Manager include:

- review environmental management plans and related documents prepared for the Project;
- review minor Project refinements that are consistent with the Project environmental assessment and approval documentation and recommend they be approved by the RMS Representative;
- Monitor the environmental performance of the Project in relation to RMS requirements.

4.2.3 RMS Representative

The environmental responsibilities of the RMS Representative include:

- evaluate and advise on compliance with RMS environmental requirements;
- review and approve any environmental management plans for the Project or related activities that are not required to be approved by the Secretary of DP&E.

Contractor Roles

4.2.4 Project Director

The environmental responsibilities of the Project Director include:

- ensure all works comply with relevant regulatory and Project requirements;
- ensure the requirements of this CEMP are fully implemented, and in particular, that environmental requirements are not secondary to other construction requirements;
- endorse and support the Project environmental policy attached at Appendix A4;
- liaise with RMS, the Environmental Representative and other government authorities as required;
- participate and provide guidance in the regular review of this CEMP and supporting documentation;
- provide adequate resources (personnel, financial and technological) to ensure effective development, implementation and maintenance of this CEMP;
- ensure that all personnel receive appropriate induction training, including details of the environmental and community requirements;
- ensure that complaints are investigated to ensure effective resolution;
- stop work immediately where there is an actual or potential risk of harm to the environment.

4.2.5 Construction Manager

The environmental responsibilities of the Construction Manager include:

- plan construction works in a manner that avoids or minimises impact to environment;
- ensure the requirements of this CEMP are fully implemented;

- ensure construction personnel manage construction works in accordance with statutory and approval requirements;
- ensure environmental management procedures and protection measures are implemented;
- ensure all Project personnel attend an induction prior to commencing works;
- liaise with RMS, Environmental Representative and other government authorities as required;
- stop work immediately where there is an actual or potential risk of harm to the environment.

4.2.6 Superintendent

The environmental responsibilities of the superintendent include:

- communicate with all personnel and sub-contractors regarding compliance with the CEMP and site-specific environmental issues;
- ensure all site workers attend an environmental induction prior to the commencement of works;
- co-ordinate the implementation of the CEMP;
- co-ordinate the implementation and maintenance of pollution control measures;
- identify resources required for implementation of the CEMP;
- report any activity that has resulted, or has the potential to result, in an environmental incident immediately to the Environmental Manager / Environmental Officers;
- co-ordinate action in emergency situations and allocate required resources;
- stop activities where there is an actual or potential risk of harm to the environment and advise the Construction Manager and Environmental Manager.

4.2.7 Environmental Manager

The environmental responsibilities of the Environmental Manager (EM) include:

- overall responsibility for the management of environmental aspects of the Project;
- development, implementation, monitoring and updating of the CEMP and issue-specific plans;
- report to Project Director on the performance and implementation of the CEMP;
- ensure management reviews of the CEMP are undertaken annually, documented and actions implemented;
- ensure environmental risks of the Project are identified and appropriate mitigation measures implemented;
- identify where environmental measures are not meeting the set targets and where improvement can be achieved;
- ensure environmental protocols are in place and managed;
- ensure environmental compliance;
- obtain and update all environmental licences, approvals and permits as required;
- lead liaison with Environmental Representative and approval authorities;
- manage environmental document control, reporting, inductions and training;

- manage environmental reporting within the Project team and to the RMS and regulatory authorities;
- prepare reports on a monthly basis outlining the Project Works undertaken, achievements and areas where improvements were made;
- oversee site environmental monitoring, inspections and internal audits;
- manage all subcontractors and consultants with regards to environmental matters, including assessing their environmental capabilities and environmental documents;
- prepare and/or distribute environment awareness notes;
- review and approve PESCPs;
- develop and facilitate induction, toolbox talks and other training programs regarding environmental requirements for all site personnel;
- notify RMS and relevant authorities in the event of an environmental incident and manage close-out of these;
- stop activities where there is actual or potential risk of harm to the environment or to prevent an environmental non-conformance and advise the Project Director, Construction Manager and Superintendent;
- assist the Community Relations Manager to resolve environment-related complaints.

4.2.8 Environmental Officer

The environmental responsibilities of the Environmental Officer include:

- assist in preparing the CEMP (including any future revisions);
- develop PESCP in consultation with the superintendent, site engineers, foreman and other relevant site personnel, as required;
- undertake site inspections, carry out monitoring activities and complete site checklists;
- ensure monitoring records are appropriately maintained, reviewed and any non-compliance issues addressed;
- manage the day-to-day environmental elements of construction;
- record and provide written reports of non-conformances with the CEMP or corrective actions required to the Environmental Manager. This may include the need to implement additional measures or revise existing measures;
- assist in identifying environmental risks;
- advise the Environmental Manager and Construction Manager of the need to stop work if there is the potential for an unacceptable impact on the environment to occur;
- advise the Construction Manager or site construction staff to take reasonable steps to avoid or minimise impacts;
- provide reports to the Environmental Manager on any major issues resulting from the Project;
- advise site staff on issues concerning Project environmental matters;
- assist in developing training programs regarding environmental requirements and deliver where required, including delivery of the environmental component of toolbox talks;

- stop activities where there is an actual or immediate risk of harm to the environment and advise the Project Director, Construction Manager, Superintendent and Environmental Manager.

4.2.9 Community Relations Manager

The environmental responsibilities of the Community Relations Manager:

- ensure that all community consultation activities are carried out;
- report any environmental issues raised by stakeholders or members of the community to the Environmental Manager;
- communicate environment related Project progress, performance, mitigation measures and issues to stakeholders and the community;
- maintain the 24 hour complaints hotline.

4.2.10 Project/Site Engineers

The environmental responsibilities of the Project/Site engineers include:

- provide input into the preparation of environmental planning documents as required;
- ensure instructions and information relating to project environmental risks are provided to staff;
- ensure that the works are carried out in accordance with the requirements of the CEMP and supporting documentation, including the implementation of all environmental controls;
- identify environmental risks;
- identify resource needs for implementation of CEMP requirements and related documents;
- ensure that environment related complaints are investigated to ensure effective resolution;
- take action in the event of an environmental incident or potential environmental incident and allocate the required resources to minimise environmental impact;
- report any activity that has resulted, or has the potential to result, in an environmental incident immediately to the Superintendent and Environmental Manager.

4.2.11 Foreman

The environmental responsibilities of the foreman include:

- undertake environmental duties as defined by the Superintendent or Project/Site engineers;
- control field works and implement/maintain effective environmental controls;
- where required, undertake environmental risk assessment of works prior to commencement;
- ensure site activities comply with EWMS and relevant records are kept;
- ensure all site workers are site inducted prior to commencement of works;
- attend to any spills or environmental incidents that may occur on-site;
- report any activity that has resulted, or has the potential to result, in an environmental incident immediately to the Superintendent;

- stop activities where there is an actual or potential risk of harm to the environment and advise the Project Director, Construction Manager, Superintendent or Environmental Manager.

4.2.12 Project Team (including sub-contractors)

- comply with the relevant requirements of the CEMP and other environmental documentation;
- participate in the Project/site induction program;
- report any environmental incidents to the foreman immediately or as soon as practicable if reasonable steps can be adopted to control the incident;
- undertake remedial action as required to ensure environmental controls are maintained in good working order;
- stop activities where there is an actual or potential risk of harm to the environment and advise the Project Director, Construction Manager, Superintendent or Environmental Manager.

4.3 Sub-contractor management

Sub-contractor environmental requirements and responsibilities are to be specified in the contract documentation. All sub-contractors are required to work in accordance with the approved CEMP.

The Environmental Manager, or delegate, will participate in the tender assessment and selection process where it is deemed necessary due to associated environmental risks. All subcontractors will be required to complete a subcontractor questionnaire or similar.

All sub-contractors are required to attend Project and/or site inductions where the requirements and obligations of the CEMP are communicated. A record of all sub-contractors inducted will be maintained as part of the Project induction and training register.

A standard form will be developed to monitor:

- the sub-contractor's general work practices;
- the effectiveness of the sub-contractor's environmental protection measures;
- the sub-contractor's compliance with the requirements of this CEMP; and
- the maintenance of the sub-contractor's environmental measures.

5 Competence, training and awareness

To ensure that this CEMP is effectively implemented, each level of management is responsible for ensuring that all personnel reporting to them are aware of the requirements of this CEMP. The Environmental Manager will coordinate environmental training in conjunction with other training and development activities.

5.1 Environmental induction

All personnel, including sub-contractors, are required to attend a compulsory site induction that includes an environmental component prior to commencement on-site. The Environmental Manager (or delegate) will conduct the environmental component of the site induction. The environmental component will include an overview of:

- relevant details of the CEMP including purpose and objectives;
- key environmental issues;
- conditions of environmental licences, permits and approvals;
- specific environmental management requirements and responsibilities;
- mitigation measures for the control of environmental issues;
- incident response and reporting requirements; and
- information relating to the location of environmental constraints.

A record of all environment inductions will be maintained and kept on-site.

The Environmental Manager may authorise amendments to the induction where required to address Project modifications, legislative changes or amendments to this CEMP or related documentation.

The Environmental Representative will review and endorse the induction program and monitor its implementation.

5.2 Toolbox talks, training and awareness

Toolbox talks will be used to raise awareness and educate personnel on construction related environmental issues. The toolbox talks will be used to ensure environmental awareness continues during construction. Toolbox talks will include details of EWMSs for relevant personnel.

Toolbox talks will be tailored to specific environmental issues including:

- erosion and sedimentation control;
- hours of work;
- emergency and spill response;
- Aboriginal and non-Aboriginal heritage;
- threatened species, endangered ecological communities, clearing controls and vegetation protection;
- weed management; and
- dust control.

Toolbox attendance is mandatory and attendees of toolbox talks are required to sign an attendance form and the records maintained.

Targeted environmental awareness training will be provided to individuals or groups of workers with a specific authority or responsibility for environmental management or those undertaking an activity with a high risk of environmental impact.

Awareness notes, in the form of posters, booklets or similar may be developed and distributed to engineers, leading hands, foreman and others with a responsibility for managing specific work locations or activities. Awareness notes may also be distributed to the broader workforce at daily pre-start meetings (see section 5.3) or made available in worker crib sheds / break facilities.

The Environmental Representative will review and endorse the training program and monitor its implementation.

5.3 Daily pre-start meetings

The pre-start meeting is a tool for informing the workforce of the day's activities, safe work practices, environmental protection practices, work area restrictions, activities that may affect the works, coordination issues with other trades, hazards and other information that may be relevant to the day's work.

The Foreman, or other appropriate site staff member, will conduct a daily pre-start meeting for the site workforce before the commencement of work each day (or shift) or where changes occur during a shift. Pre-start meetings may be project-wide and/or held for specific work areas.

The environmental component of pre-starts will include any environmental issues that could potentially be impacted by, or impact on, the day's activities. All attendees will be required to sign on to the pre-start and acknowledge their understanding of the issues explained.

Pre-start topics, dates delivered and a register of attendees will be recorded and the records maintained.

6 Communication

6.1 Internal communication

The environmental team will meet regularly to discuss on-site environmental management, amendments to plans, changes to construction activities etc.

Regular meetings may also be scheduled with the Environmental Representative and RMS environmental staff to communicate ongoing environmental performance and to discuss issues to be addressed.

The environment team members will participate regularly in toolbox talks to communicate to the wider project personnel on environmental performance, to advise on sensitive environmental matters for future work areas and to receive feedback from on-site personnel.

Information relating to toolbox talks and daily pre-start meetings is provided in Sections 5.2 and 5.3 above.

6.2 Communication with Government authorities

The Environmental Manager is responsible for reporting on the environmental performance of the Project to RMS, the Environmental Representative and other government agencies. The Environmental Manager will report regularly to RMS on progress and any key environmental matters and to the EPA through monthly EPL reports. The following two project team members are nominated as 24 hour contacts for environmental regulatory authorities, with the authority to take immediate action to shut down any activity, or to affect any pollution control measure:

- Sam Leigh (Environmental Manager) 0428 712 901, and
- Mark Stevenson (Project Director), 0423 823 306.

Refer to Section 7.1 for how Fulton Hogan communicates with agencies and authorities about pollution incidents that cause or threaten material harm to the environment.

Relevant government agencies will be consulted throughout construction through their involvement in regular Environment Review Group (ERG) meetings. These meetings will discuss environmental performance, upcoming works, high risk activities and will include inspections or the work sites as required.

6.3 Stakeholder and community communication

6.3.1 Community Communication Strategy

A Community Communication Strategy (CCS) has been developed for the Project in accordance with the requirements of CoA C1. The strategy is designed to facilitate communication between the Proponent, the Contractor, the Environmental Representative, the local council and the local community during the construction of the Project. The CCS identifies the relevant stakeholders and the consultation and communication methods to be used for the Project.

The CCS will be approved by the Secretary prior to the commencement of construction. The CCS will be maintained and implemented throughout construction of the Project.

6.3.2 Complaints and enquires procedure

A Construction Complaints Management System consistent with AS-ISO 10002-2006 Complaints Handling (which has superseded AS 4269 Complaints Handling) AS 4269: Complaints Handling, has been developed for the Project, in accordance with the requirements of CoA C2 and CoA C3..

All community inquiries and complaints related to the construction activities will be referred to the 24-hour community information line 1800 633 332. A postal address and email address has been provided for receipt of complaints and enquiries:

*Additional Crossing of the Clarence River at Grafton
Roads and Maritime Services
PO Box 546
Grafton NSW 2460
graftonbridge@rms.nsw.gov.au*

In accordance with CoA C2 and CoA C4, the 24 hour telephone number, postal address and email address will be published in newspapers circulating in the local area prior to the commencement of construction and provided on the Project website.

Information on all complaints received, including the means by which they were addressed and whether resolution was reached and whether mediation was required or used, will be included in a complaints register. The information contained within the register will be made available to the Secretary on request. The mediation system for complaints unable to be resolved will be set up prior to the commencement of pre-construction and construction and will be available for the duration of construction.

The Environmental Manager will apply an adaptive approach to ensure that corrective actions are applied in consultation with the appropriate construction staff to ensure modifications and improvements in the management of any environmental issues which have resulted in community complaints.

7 Incidents and emergencies

7.1 Incident and emergency management

In the event of an environmental incident or emergency, the environmental incident and emergency response procedures will be implemented. These procedures include the initial actions required to be undertaken to avoid or minimise environmental harm and notify relevant Project personnel.

Once initial incident management has occurred, RMS's Environmental Incident Classification and Reporting Procedure will be implemented. The Procedure is provided in Appendix A7.

The RMS procedure provides information on:

- types of incidents;
- criteria for classification of environmental incidents;
- processes for systematically responding to and managing emergency situations; and
- processes and legal requirements (e.g. Acts, Regulations, EPL) for the reporting and notification of an environmental incident.

The RMS procedure covers the management of events including:

- spills of fuels, oils, chemicals and other hazardous materials;
- unauthorised discharge from sediment basins or other containment devices;
- unauthorised clearing or clearing beyond the extent of the Project boundary or premises;
- inadequate installation and subsequent failure of temporary erosion and sediment controls;
- unauthorised damage or interference to threatened species, endangered ecological communities or critical habitat;
- unauthorised harm or desecration to Aboriginal objects and Aboriginal places;
- unauthorised damage or destruction to any State or locally significant relic or Heritage item;
- unauthorised dredging or reclamation works within a watercourse;
- potential contamination of waterways or land;
- accidental starting of a fire or a fire breaking out of containment;
- any potential breach of legislation, including a potential breach of a condition of an EPL, CoA approval or any agency permit condition;
- works undertaken without appropriate approval or assessment under the *Environmental Planning & Assessment Act 1979*;
- works undertaken that are not in accordance with a Project assessment;
- unauthorised dumping of waste.

In addition to the requirements of the RMS procedure, a Pollution Incident Response Management Plan, as required by Part 5.7 of the *Protection of the Environment Operations Act 1997* (NSW) (POEO Act) will be developed for the Project (where applicable).

Emergency planning and awareness training will also be undertaken for the Project and will include but not be limited to development of a communication protocol, both internal and external during emergencies, identified potential environmental emergencies that may occur on the Project, and the response procedures for these emergencies and tests of the emergency response procedures.

In accordance with the requirements of CoA A12, the Compliance Tracking Program will document:

- mechanisms for reporting and recording incidents and actions taken in response to those incidents;
- provisions for reporting environmental incidents to the Secretary during construction; and
- procedures for rectifying any non-compliance identified during review of incident management.

The RMS Representative and the Environmental Representative will generally be notified verbally immediately and in writing within 1 hour of the occurrence of an environmental incident. Incident reports will be provided to the RMS Representative and the Environmental Representative within 24 hours of the incident occurring, including lessons learnt from each environmental incident and proposed measures to prevent the occurrence of a similar incident. All efforts will be undertaken immediately to avoid and reduce impacts of incidents and suitable controls put in place. Incidents will be close out as quickly as possible, taking all required action to resolve each environmental incident.

In accordance with CoA A13, the RMS will notify the EPA of any pollution incident occurring in carrying out the SSI via the EPA Environment Line (telephone 131 555), as required by the *Protection of the Environment (Operations) Act 1997*. The RMS will also provide the Secretary with a record of any such notification. Immediate notification will be undertaken of any incident which causes actual or potential harm to the health or safety of human beings or ecosystems is not minor; or if actual or potential loss or property damage (including clean-up costs) associated with a pollution incident exceeds \$10,000, to the following organisations:

- EPA (via the EPA pollution line 131 555).
- Ministry of Health (via the Public Health Unit).
- WorkCover Authority.
- Local Authority (Clarence Valley Council).
- Fire and Rescue NSW.

Where an incident involves an Aboriginal site, relevant Registered Aboriginal Parties will be notified and their input sought in closing out the incident.

In accordance with CoA A14, the RMS will notify the Secretary of any incident (other than those relating to the *Protection of the Environment (Operations) Act 1997*) with actual or potential significant off-site environmental impacts on people or the biophysical environment as soon as practicable and within 24 hours of becoming aware of the incident. The RMS will provide full written details of the incident to the Secretary within seven days of the date on which the incident occurred.

In accordance with CoA A15, Fulton Hogan will meet the requirements of the Secretary or relevant public authority (as determined by the Secretary) to address the cause or impact of any incident, as it relates to the Infrastructure Approval, reported in accordance with CoA A14, within such period as the Secretary may require.

RMS Environment Branch and the Project Team will maintain records relating to environmental incidents.

All necessary contact numbers will be identified in advance and stored for immediate access should a pollution incident need to be notified. These contact numbers will also be identified in the Pollution Incident Response Management Plan prepared for the Project (if required).

7.2 Incident reporting and investigation

All environmental incidents will be managed and reported in accordance with the RMS's Environmental Incident Classification and Reporting Procedure.

Where required, due to the severity or ongoing nature of the incident, investigations will be conducted and action plans established in order that the event does not occur again. Where lessons are learnt from the investigation or current procedures are identified as being ineffective, the CEMP will be revised by the Environmental Manager to include the improved procedures or requirement.

Environmental investigations will include the following basic elements:

- identification of the cause, extent and responsibility of the incident;
- identification and implementation of the necessary corrective action;
- identification of the personnel responsible for carrying out the corrective action;
- implementation or modification of controls necessary to avoid a repeat occurrence of the incident;
- recording of any changes in written procedures required; and
- notifying all relevant authorities of incidents causing or threatening material harm to the environment immediately after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the POEO Act.

8 Inspections, monitoring and auditing

8.1 Environmental inspections

8.1.1 Weekly and post rainfall site inspections

The Environmental Manager and/or Environmental Officers will undertake inspections of the work sites weekly and daily during periods of rainfall causing runoff, if safe to do so, to evaluate the effectiveness of environmental controls. The Environmental Manager and/or Environmental Officers will record inspection findings using a mobile software application, such as 'iAuditor'. A sample weekly inspection checklist created using iAuditor is included in Appendix A8.

If any maintenance and/or deficiencies in environmental controls or in the standard of environmental performance are observed, they will be recorded using the mobile software application on the checklist form. Records will also include details of any maintenance required, the nature of the deficiency, any actions required and an implementation priority. The completion of the actions will be monitored to ensure they are implemented within the timeframes specified in the checklist.

8.1.2 Environmental Representative, RMS and ERG inspections

The Environmental Representative and RMS staff and members of the Environmental Review Group (ERG) will undertake regular inspections of work sites during construction. Inspections by the Environmental Representative and RMS Project staff would typically occur on a weekly or fortnightly basis depending on the complexity of the work and anticipated environmental risks associated with the stage of construction.

ERG inspections will typically be less frequent, likely on a monthly basis (or alternate timeframe depending on the construction staging of Project). The ERG will be maintained for the duration of the Project and will meet regularly and undertake environmental inspections. The role the ERG is to provide proactive advice on environmental management issues and review the environmental performance of the Project. Section 8.6 describes the process if the ERG raise non-conformances or issues requiring corrective/preventative action during site inspections.

A member of the Project environment team will participate in all Environmental Representative, client and ERG inspections and records maintained. Deficiencies and required actions will be analysed and prioritised at the completion of the inspection and timeframes for implementation of corrective actions agreed. Refer Section 8.6 for more details.

8.1.3 Pre-work inspections

Prior to the commencement of work each day, the foreman will conduct a daily pre-start meeting. The pre-start meeting will include an environmental component, which will include any environmental issues that need to be addressed, including erosion and sediment control issues. Refer to Section 5.3 for additional information on daily pre-start meetings.

8.2 Environmental monitoring

Monitoring will be undertaken to validate the impacts predicted for the Project, to measure the effectiveness of environmental controls and implementation of this CEMP, and to address approval requirements. The monitoring required under the Infrastructure Approval during construction is listed in Table 8-1 below and addressed in the relevant environmental management plans.

Table 8-1: Summary of construction environmental monitoring required by the Project Infrastructure Approval

CoA	Description	Relevant Plan	Reporting Requirements
B17	Monitoring during construction works in the vicinity of the flood levee in highly archaeologically sensitive areas, overseen by an appropriately qualified archaeologist	Construction Heritage Management Plan (Appendix B5)	Refer to Appendix B5
D1	Monitoring of biodiversity offset measures	Construction Flora and Fauna Management Plan (Appendix B2)	Refer to Appendix B2
D37 (e)	Measures to monitor impacts associated with the construction and operation of ancillary facilities	Ancillary facilities assessment criteria (Appendix A5)	Refer to Appendix A5
D45 (d)(ii)	Measures to monitor dust emissions	Construction Air Quality Management Plan (Appendix B6)	Refer to Appendix B6
D45 (d)(iv)	Measures to monitor spoil, fill and materials stockpile sites	Construction Soil and Water Quality Management Plan (Appendix B4)	Refer Appendix B4
D45 (d)(v)	Measures to monitor waste generated during construction	Construction Waste and Energy Management Plan (Appendix B7)	Refer to Appendix B7
D45 (d)(viii)	Measures to monitor construction hazards and risks	Environmental Inspection Checklist (Appendix A8) Environmental aspects and impacts register (Appendix A3)	Refer to Appendix A8 Appendix A3
D46 (a) (v), (vii), (viii)	Monitoring required under the CNVMP	Construction Noise and Vibration Management Plan (Appendix B3)	Refer to Appendix B3
D46 (c) (iv)	Water quality monitoring	Construction Soil and Water Quality Management Plan (Appendix B4)	Refer Appendix B4

CoA	Description	Relevant Plan	Reporting Requirements
D46 (c) (xii)	Monitoring of the effectiveness of CSWQMP actions and measures	Construction Soil and Water Quality Management Plan (Appendix B4)	Refer to Appendix B4
D46 (d) (ii)	Monitoring required under the CHMP	Construction Heritage Management Plan (Appendix B5)	Refer to Appendix B5
D46 (e)(v)	Procedures for monitoring success of regeneration and revegetation	Construction Flora and Fauna Management Plan (Appendix B2)	Refer to Appendix B2
D46 (e)	Monitoring required under the CFFMP	Construction Flora and Fauna Management Plan (Appendix B2)	Refer to Appendix B2
D46 (e)(viii)	Procedures for updating of ecological monitoring	Construction Flora and Fauna Management Plan (Appendix B2)	Refer to Appendix B2
D46(f) (vi)	Monitoring of the work sites during flood events	Construction Flood Management Plan (Appendix B8)	Refer to Appendix B8

The ER and RMS Representative will be advised of non-conformances with monitoring targets identified in the issue-specific plans and the details provided in the monthly report.

Should a non-conformance be detected or monitoring results directly attributable to the Project exceed any targets set in the issue-specific plans or Infrastructure Approval, the process described in Section 8.6 will be implemented. A non-conformance Environmental Incident Report and/or Environmental Improvement Notice may be issued by the Environmental Manager in response to the non-conformance if it is found to be construction-related. The timing for any improvement will be agreed between the relevant Engineer/ Superintendent and Environmental Manager based on the level of risk, e.g. a significant risk will require immediate action.

Environmental monitoring equipment will be maintained and calibrated according to the manufacturer's specifications and appropriate records kept.

8.3 Compliance

A Compliance Tracking Program (CTP) has been developed for the Project in accordance with the requirements of CoA A12. The CTP contains:

- a) provisions for the notification of the Secretary prior to the commencement of construction and prior to the commencement of operation of the SSI (including prior to each stage, where works are being staged);
- b) provisions for periodic review of the compliance status of the SSI against the requirements of the Infrastructure Approval;
- c) provisions for periodic reporting of compliance status to the Secretary, including but not limited to:

- i. a Pre-Construction Compliance Report, prior to the commencement of construction;
- ii. 6-monthly Construction Compliance Reports, for the duration of construction; and
- iii. a Pre-Operation Compliance Report prior to the commencement of operation;
- d) a program for independent environmental auditing in accordance with *AS/NZS ISO 19011:2014 – Guidelines for Auditing Management Systems*;
- e) mechanisms for recording environmental incidents during construction and actions taken in response to those incidents;
- f) provisions for reporting environmental incidents to the Department and relevant public authorities during construction;
- g) procedures for rectifying any non-compliance identified during environmental auditing, review of compliance or incident management;
- h) provisions for ensuring all employees, contractors and sub-contractors are aware of, and comply with, the conditions of this approval relevant to their respective activities; and
- i) provisions for reporting complaints received in accordance with the Construction Complaints Management System required under condition C2 of the Infrastructure Approval.

The Compliance Tracking Program describes how the requirements of CoA A12 will be met and identifies the frequency for the Project compliance reporting and independent auditing, as summarised in Table 8-2.

Table 8-2: Compliance reporting

Report	Requirement	Timing	Responsibility	Recipient
Compliance tracking program CoA A12	Describes how the requirements of CoA A12 will be met	Prior to commencement of construction and continuing for a minimum of 1 year following commencement of Project operation	Contractor	To be submitted to the Secretary for approval
Compliance reporting CoA A12(c)	Periodic reporting of compliance status to the Secretary	<ul style="list-style-type: none"> ▪ 1 month prior to commencement of construction. ▪ 6 monthly during construction ▪ 1 month prior to commencement of operation. 	Contractor	To be submitted to the Secretary EPA to be sent a copy for information as requested on 19/08/2016 during the CEMP review and commenting phase.

Report	Requirement	Timing	Responsibility	Recipient
Incident Reporting CoA A12(f)	Reporting of environmental incidents	As required	RMS/Contractor	Department of Planning and Environment and relevant public authorities EPA to be sent a copy for information as requested on 19/08/2016 during the CEMP review and commenting phase.
Complaints Reporting CoA A12(i) & CoA C2	Reporting of complaints received in accordance with the Complaints Management System	Included with compliance reporting	Contractor	To be submitted to the Secretary EPA to be sent a copy for information as requested on 19/08/2016 during the CEMP review and commenting phase.

8.4 Auditing

8.4.1 Independent audits

Independent environmental auditing will be undertaken by an independent environment auditor in accordance with *ISO 19011:2014 - Guidelines for auditing management systems*, as required by CoA A12(d). Independent auditing will be undertaken annually, with the first audit being held six months after the pre-construction compliance report.

8.4.2 Contractor audits

Internal contractor audits will be undertaken on a six monthly basis during the construction of the Project to verify compliance with:

- this CEMP and issue-specific plans;
- approval requirements (CoAs); and
- any relevant legal and other requirements (e.g. licenses, permits, regulations, RMS contract documentation).

An audit checklist will be developed and amended as necessary to reflect changes to this CEMP, subsequent approvals and changes to Acts, regulations or guidelines.

Table 8-3 summarises the auditing to be undertaken for the Project.

Table 8-3: Audit requirements

Audit	Requirement	Timing	Responsibility	Recipient
Independent audit A12(d)]	Verify compliance with Infrastructure Approval, CEMP and issue-specific plans.	Annually, commencing 6 months after the pre-construction compliance report	RMS to procure independent auditor	Project Director, RMS
Internal contractor audit	Verify compliance with approval and legal requirements, RMS specifications and construction documentation	The first audit to be carried out within three months of the commencement of construction and then at six monthly intervals thereafter. The final audit to be submitted within five working days of contract completion date.	Environmental Manager	Project Director, RMS

8.5 Other reporting

Environmental reporting will be prepared to address the requirements of the Infrastructure Approval and internal RMS reporting requirements. Table 8-4 sets out the indicative reporting requirements for the Project.

Table 8-4: Indicative environmental reporting requirements

CoA	Report	Requirement	Timing	Responsibility	Recipient
N/A	Monthly environmental report	For incorporation in monthly Project Reports including environmental statistics (i.e. incidents, regulatory action, complaints on environmental issues), regulatory and authority considerations, monitoring program performance and key environmental issues	Monthly	Environmental Manager	RMS
N/A	EPL monthly report	Details of all non-compliances with conditions of the EPL, measures taken to prevent recurrence,	Within 10 working days of the end of each calendar month (once EPL for 'railway systems activities' is in place – not expected until 2018).	Environmental Manager	EPA
N/A	EPL annual return (once EPL for 'railway systems activities' is in place – not expected until 2018).	Annual report on compliance with the EPL.	Within 60 days of the anniversary of the EPL (once EPL for 'railway systems activities' is in place – not expected until 2018).	Environmental Manager	EPA
CoA D43(b)	ER inspection report	Report of site environmental performance following routine inspections.	Monthly	ER	RMS
CoA D45(d)	Environmental risk assessment	Undertaken as part of the preparation of the CEMP	Prior to construction during development of CEMP and updated as required thereafter.	Environmental Manager, Construction Manager	RMS

CoA	Report	Requirement	Timing	Responsibility	Recipient
CoA D45	Monitoring results	Report on monitoring data recorded and potential exceedances against criteria.	As required in Sub Plans	Environmental Manager, Environmental Officer (s)	RMS
N/A	EPA or any other Authority, inspection report, other than for arranged inspections.	The report will detail the purpose, outcome and actions pertaining to the visit and will be submitted to the RMS Representative	Within one working day of the EPA or any other Authority visit, other than for arranged inspections.	Environmental Manager	RMS
	RMS and/or EPA environmental inspection reports	Response to matters raised in RMS and/or EPA site inspections.	As required. Typically every two weeks for RMS inspection reports and monthly for EPA inspection reports.	Environmental Manager, Environmental Officer (s)	RMS/EPA
CoAs B14, B16	Archival recording	Report containing the archival recordings of CZB18, CZB25, CZB26, CZB27, CZB28, CZB30, CZB31, CZB32, CZB33, CZB35,	Prior to the commencement of construction in proximity to the heritage items.	RMS	DP&E, Heritage Council, ARTC, local library, local Historical Society.
CoAs B15, B16	Archival recording	Report containing the archival recordings of CZB10, CZB11, CZB19, CZB20, CZB21 and CZB37	Prior to construction partially affecting the heritage items	RMS	DP&E,, Heritage Council ARTC, local library, local Historical Society.
CoA D17	Road Dilapidation Report	Road dilapidation report for local roads outside the SSI boundary	Prior to construction	Contractor Report to be prepared by an independent and qualified expert	Clarence Valley Council
N/A	Nest and Roost Box Inspection Report (G40 CI 2.4)	The report will be consistent with the publication - DEC Threatened species survey and assessment: Guidelines for developments and activities (Working Draft) (2004).	Twice a year	Environmental Manager	RMS
A12	Compliance tracking program	Describes how the requirements of CoA A12 will be met	Prior to commencement of construction	Environmental Manager	Secretary

CoA	Report	Requirement	Timing	Responsibility	Recipient
			and continuing for a minimum of 1 year following commencement of Project operation		
A12(c)	Compliance reporting	Periodic reporting of compliance status to the Secretary	1 month prior to commencement of construction. 6 monthly during construction 1 month prior to commencement of operation.	Environmental Manager	Secretary
A12(i), C2	Complaints Reporting (Included in Compliance reporting above)	Report complaints in accordance with the Complaints Management System	As above	As above	As above
A12(f)	Incident Reporting	Reporting of environmental incidents	As required	Environmental Manager	Secretary and relevant public authorities as required

8.6 Non-conformity, corrective and preventative actions

Any member of the Project team may raise a non-conformance or improvement opportunity. The Quality Management Plan describes the process for managing non-conforming work practises and initiating corrective/preventative actions or system improvements.

The Environmental Representative, RMS Representative or public authority may also raise a non-conformance or improvement opportunity using the same process.

A non-conformance is the failure or refusal to comply with the requirements of this CEMP and supporting documentation.

For each non-conformance identified corrective/preventative action (or actions) must be implemented. In addition any environmental management improvement opportunities can be initiated as a result of incidents or emergencies, monitoring and measurement, audit findings or other reviews. Improvement opportunities may also result in the implementation of corrective/preventative actions.

Corrective/preventative actions and improvement opportunities will be entered into the contractor's quality system database and include detail of the issue, action required and timing and responsibilities. The record will be updated with date of close out and any

necessary notes. The database will be reviewed regularly to ensure actions are closed out as required.

Non-conforming activities may be stopped, if necessary, by the Environmental Manager, Environmental Officers or Project / Site Engineer following consultation with the Construction Manager or delegate. The works will not recommence until a corrective / preventative action has been closed out. The Environmental Representative may also stop works in these circumstances. In such circumstances a non-conformance report must be prepared in accordance with the Quality Plan.

Procedures for rectifying any non-compliance identified during environmental auditing, review of compliance or incident management are documented in the Compliance Tracking Program in accordance with the requirements of CoA A12.

9 Review and improvement

9.1 Management Review

Periodic reviews and updates are undertaken as part of the continual improvement process as required by CoA D45 and CoA D46. The management review can consist of group or executive reviews.

A group review is initiated by the Environmental Manager and includes relevant Project team members and stakeholders. The environment team meet quarterly, or at other pre-determined periods, to review environmental management issues for the Project. The environment team meeting can be run in conjunction with a wider group meeting if the Environmental Manager deems it appropriate.

The environment group meetings include:

- a review of the aspects and impacts register, legal register and environmental induction;
- consideration of monitoring, inspection and audit results;
- consideration of incidents and any lessons learnt;
- consideration of any new regulatory issues;
- a review of the effectiveness of erosion and sediment controls;
- consideration of changes in operational needs such as resourcing;
- feedback from management reviews.

An executive review will involve the management team. This review will be held every 12 months and will include a review of:

- effectiveness of environmental management documentation implementation;
- management effectiveness;
- potential improvements to the environmental management documentation;
- adequacy of resources;
- findings of audits;
- environmental objectives and targets;
- environmental performance;
- compliance with legal and other requirements;
- critical non-conformance or repeated non-conformances;
- organisation changes;
- effectiveness of training and inductions.

The outcomes of the environmental group and executive reviews could include amendments to this CEMP, issue-specific Plans and related documentation, revision to the Project's environmental management system, review of the risk assessment, re-evaluation of the Project objectives and targets as well as input into other Project documents. For further details on the CEMP revision process, refer to Section 1.6.

10 Documentation

10.1 Environmental records

The Environmental Manager is responsible for maintaining all environmental management documents as current at the point of use. Types of records include:

- monitoring, inspection and compliance reports/records;
- correspondence with public authorities;
- induction and training records;
- reports on environmental incidents, other environmental non-conformances, complaints and follow-up action;
- community engagement information;
- minutes of CEMP and construction environmental management system review meetings and evidence of any action taken.

All environmental management documents are subject to ongoing review and continual improvement. This includes times of change to scheduled activities or to legislative or licensing requirements.

Only the Environmental Manager, or delegate, has the authority to change any of the environmental management documentation.

10.2 Document control

Fulton Hogan or RMS where relevant, will coordinate the preparation, review and distribution, as appropriate, of the environmental documents listed above. During construction, the environmental documents will be stored at the main site compound.

Fulton Hogan will implement a document control procedure to control the flow of documents within and between RMS, stakeholders and subcontractors.

The procedure will also ensure that documentation is:

- developed, reviewed and approved prior to issue;
- issued for use;
- controlled and stored for the legally required timeframe;
- removed from use when superseded or obsolete;
- archived.

A register and distribution list will identify the current revision of particular documents or data.

Appendices

Appendix A1 Register of legal and other requirements

Table 1: Legal register

Act	Activity / aspect	Requirement	Reference	Part 5.1 applicability
General				
<i>Environmental Planning and Assessment Act 1979</i>	All	Comply with the Minister for Planning's approval for the project. Obtain the Minister's approval for any project modifications that are not consistent with the planning approval.	115ZI	Yes
<i>Protection of the Environment Operations Act 1997</i>	Site licensing	Do not carry out or allow an activity listed in Schedule 1, or carry out work to enable such an activity, unless the premises are licensed by the EPA. This applies to 'road construction', 'crushing, grinding and separating', 'extractive activities', and 'railway systems activities' (and any other scheduled activity undertaken for the Project).	S47 S48	Yes An Environment Protection Licence is only required for the replacement of the Pound Street viaduct component of the project.
<i>Crown Lands Act 1989</i>		An approval may be required to grant a relevant interest (ie licence, permit, easement or right of way) over a Crown Reserve		
<i>Land Acquisition (Just Terms Compensation) Act 1991</i>		Applies to the acquisition of any land required for the project.		
Pollution				
<i>Protection of the Environment Operations Act 1997</i>	Harming the environment	Do not risk harming the environment by wilfully or negligently: <ul style="list-style-type: none"> • disposing of waste unlawfully • causing any substance to leak, spill or otherwise escape (whether or not from a container), or • emitting an ozone depleting substance 	S115 S116 S117	Yes
<i>Protection of the Environment Operations Act 1997</i>	Control equipment	Properly and efficiently maintain and operate any installed pollution control equipment (including	S167	Yes

Act	Activity / aspect	Requirement	Reference	Part 5.1 applicability
<i>Act 1997</i>		monitoring devices).		
<i>Protection of the Environment Operations Act 1997</i>	Notification of pollution incidents	Notify the EPA immediately of pollution incidents where material harm to the environment is caused or threatened.	S148	Yes
Water				
<i>Water Management Act 2000</i>	Water access and use.	Do not take water from a water source (a lake, river or estuary or place where water occurs naturally on or below the surface of the ground, and includes coastal waters) without an access licence. Do not use of water on land (unless supplied by a water utility, irrigation corporation etc. or in accordance with basic landholder rights) without a water use approval. An aquifer interference approval/licence may be required if construction requires intersection of a groundwater source.	S56 S60A S89 S91A	No
<i>Water Management Act 2000</i>	Water management works	Do not construct/use a water supply work, drainage work or flood work without the appropriate approval.	S90 S91B S91C S91D	No
<i>Water Management Act 2000</i>	Waterfront land.	Do not deposit material, excavate, or remove material within a watercourse bank, shore or bed, or on land 40 metres inland, or interfere with the likely flow of water to such a body, without a controlled activity approval.	S91	No Public authorities are exempt from the need to obtain a controlled activity approval. Water Management (General) Regulation 2004 (cl.39A)

Act	Activity / aspect	Requirement	Reference	Part 5.1 applicability
<p><i>Water Act 1912</i></p> <p>Note that this Act is being progressively repealed by the <i>Water Management Act 2000</i> (WM Act).</p> <p>With the exception of controlled activity approvals, the WM Act only applies in relation to those water sources covered by operational water sharing plans – these areas cover most of the State's major regulated river systems.</p>	Surface water	Obtain a licence or permit for construction or use of 'work' for purposes including the taking and using of water	S21B	Yes
	Groundwater	Obtain a licence where interference with groundwater is likely to occur.	S112 S121A	S112 does not apply to the Crown. RMS is therefore not required to obtain a licence under this provision.
	Floodplains	Obtain an approval for controlled works. These include works which occur on a designated floodplain, which can prevent land from being flooded or which can affect water flow to or from a river or lake.	S180	An exemption in relation to roads potentially applies – see clause 4 of the Water (Part 8-General) Regulation 1995.
<i>Protection of the Environment Operations Act 1997</i>	Water pollution	Do not cause water pollution (other than to a sewer), except in accordance with the conditions of any EPA licence.	S120 S122	Yes
Noise				
<i>Protection of the Environment Operations Act 1997</i>	Plant maintenance and operation	Do not operate plant if it emits noise caused by poor maintenance or operation.	S139	Yes
<i>Protection of the Environment Operations Act 1997</i>	Materials management	Do not cause noise by failing to properly and efficiently deal with materials.	S140	Yes
<i>Protection of the Environment Operations (Noise Control) Regulation 2008</i>	Marine vessels – offensive noise and noise control equipment	As owner or captain, do not allow a vessel to be used on navigable waters so as to emit offensive noise. Do not use a vessel on navigable waters if its noise control equipment is defective.	cl. 30-31 cl. 32	Yes
Contaminated material				

Act	Activity / aspect	Requirement	Reference	Part 5.1 applicability
<i>Protection of the Environment Operations Act 1997</i>	Land pollution	Do not cause or permit land pollution other than under authority of a licence or regulation. (However it is not a land pollution offence to place virgin excavated natural material or lawful pesticides and fertilisers on land, or by placing matter on land that has been notified to the EPA as an unlicensed landfill and which is operated in accordance with the regulations.)	S142A – S142E	Yes
<i>Contaminated Land Management Act 1997</i>	Reporting contamination	<p>Notify the EPA if</p> <ul style="list-style-type: none"> Contaminants exceed thresholds contained in guidelines or the regulations where contamination has entered or will foreseeably enter neighbouring land, the atmosphere, groundwater or surface water. Contaminants in soil are equal to or exceed guideline levels with respect to the current or approved use of the land. Contamination meets other criteria that may be prescribed by the regulations. 	S60	Yes
Biodiversity				
<i>Noxious Weeds Act 1993</i>	Weed control	<p>As a public authority occupier of land, control noxious weeds on the land as required under the control category or categories specified in relation to the weeds concerned.</p> <p>Notify relevant control authority within 3 days of becoming aware that a notifiable weed (W1 weed) is on land. (or ought reasonably to have known).</p> <p>Must not scatter or cause to scatter notifiable weed material.</p>	S13 S16 S30	Yes
<i>National Parks and Wildlife Act 1974</i>	Native fauna	Do not harm any animal that is of a threatened species population or ecological community, or its habitat except in accordance with a planning	Part 8A	Yes

Act	Activity / aspect	Requirement	Reference	Part 5.1 applicability
		approval.		
		Do not harm critical habitat except as in accordance with a planning approval.	S98	Yes
		Do not harm native fauna (other than listed unprotected fauna) except in accordance with a planning approval or licence.	S120, S127, 132C	Yes
<i>Native Vegetation Act 2003</i>	Flora and native vegetation conservation	Only clear native vegetation in accordance with a planning approval or property vegetation plan.	S12	Yes
<i>National Parks and Wildlife Act 1974</i>	Flora and native vegetation conservation	Do not pick protected native plants without a licence.	S117 S131	Yes
<i>Fisheries Management Act 1994</i>	Dredging or reclamation	Provide the Minister for Primary Industries 28 days' notice of planned dredging or reclamation work.	S199	Yes
<i>Fisheries Management Act 1994</i>	Mangroves, seagrasses and marine vegetation	Do not harm any mangroves, seagrasses or other marine vegetation on public water land protected by the regulations without a permit.	S205	Yes
<i>Fisheries Management Act 1994</i>	Fish passage	Do not block fish passage without a permit	S219	No
<i>Environment Protection Biodiversity Conservation Act, 1999 (Commonwealth)</i>	Flora and fauna conservation	Do not kill, injure or take a member of a listed threatened species without a permit.	Part 13	Yes
		Comply with the terms of any EPBC Act approval for the project.		Yes
Waste				
<i>Protection of the Environment Operations Act 1997</i>	Littering	Do not litter in a public place or an open private place. Do not litter from a vehicle. Only deposit advertising material in receptacles	Part 5.6A	Yes

Act	Activity / aspect	Requirement	Reference	Part 5.1 applicability
		provided for mail or newspapers or under the door of the premises. Do not deposit advertising material on or in vehicles.		
<i>Protection of the Environment Operations Act 1997</i>	Waste and transportation	Do not undertake a scheduled waste activity unless in accordance with an environmental protection licence. A licence must be obtained when construction and demolition wastes are applied to land under certain circumstances. This includes the reincorporation of crushed road base material back into roads and the placing of excess fill material onto properties. A licence is not required if the material: <ul style="list-style-type: none"> • Is VENM. • Does not exceed 200 tonnes in the Sydney, Newcastle and Wollongong areas, or 20,000 tonnes outside these areas. • Is covered by a “general exemption”. Current exempted materials are ENM, recycled aggregates and raw mulch. These exemptions are conditional and require some chemical testing of materials before they are placed onto land. A licence must be obtained if more than 2,500 tonnes (or cubic metres) is stored on a stockpile site at any one time, or more than 30,000 tonnes of waste is received per year from off site.	Part 3.2 Schedule 1	Yes
		Only transport waste to a facility that can lawfully accept the waste.	S143	Yes
		Do not dispose of waste in a manner that harms or is likely to harm the environment.	S115	Yes
<i>Protection of the Environment Operations</i>	Waste and	Comply with general requirements for the transport of waste. For example, any vehicle used by the person	Regulation	Yes

Act	Activity / aspect	Requirement	Reference	Part 5.1 applicability
<i>(Waste) Regulation 2005</i>	transportation	to transport waste must be kept in a clean condition and be maintained so as to prevent spillage of waste. For some wastes only licensed transporters can be used.	cl.49	
		Comply with record keeping requirements in relation to the transport of certain types of waste.	Regulation Part 3	Yes
Heritage				
<i>Heritage Act 1977</i>	Heritage	Do not undertake an activity that will affect a place, building, work, relic, moveable object or precinct which is subject to an Interim Heritage Order or is listed on the State Heritage Register without approval from the Heritage Council.	S56-57	No
		Do not disturb or excavate land with knowledge or reasonable cause to suspect that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed; or Do not disturb or excavate land on where a relic has been discovered or exposed.	S139	No
		Notify the heritage Council on discovery of a relic	S146	Yes
<i>National Parks and Wildlife Act 1974</i>	Aboriginal places and objects	Do not harm or desecrate an Aboriginal object or Aboriginal place without consent.	S86 S90	No
		Notify the NPWS within reasonable time of becoming aware of the location or discovery of certain Aboriginal objects.	S89A	Yes
<i>Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (Commonwealth)</i>	Protection of areas and objects	Report any discovery of Aboriginal remains to the Federal Minister for the Environment and Heritage.	S20	Yes
		Comply with the provisions of any declaration in	S22	Yes

Act	Activity / aspect	Requirement	Reference	Part 5.1 applicability
		relation to a significant Aboriginal area or object.		
Hazards and risks				
<i>Environmentally Hazardous Chemicals Act, 1985</i>	Hazards and risks	Obtain a licence to undertake prescribed activities involving environmentally hazardous chemicals or declared chemical wastes.	S28	Yes
<i>Dangerous Goods (Road and Rail Transport) Act 2008</i>	Hazards and risks	Ensure that dangerous goods are transported in a safe manner.	S9	Yes
<i>Pesticides Act 1999</i>	Hazards and risks	Use pesticides in an environmentally sensitive manner.	S12	Yes
		Do not use an unregistered pesticide without a permit.	S13	
		Read the label or permit for the pesticide.	S14	
		Use registered pesticides in accordance with instructions on the label.	S15	
		Do not use any restricted pesticide unless authorised by a certificate of competency or a pesticide control order under the Act.	S17	
		Compliance with pesticide codes of practice is required.		
Greenhouse gas emissions				
<i>National Greenhouse and Energy Reporting Act 2007 and Regulations 2008</i>	Greenhouse gas emissions	Accounting and reporting of greenhouse gases produced and energy consumed during construction. Applicability dependent on thresholds.	-	Yes

Table 2: RMS G36 requirements¹

G36 reference	Requirement	Relevant section of CEMP or supporting documentation
3.1	CEMP for Work Under the Contract, including Environmental Policy and Sub-Plans	Sections 1.2, 3.4
3.2.2	Compliance tracking program	Section 8.3
3.2.3	Environmental objectives and targets	Section 3.6
3.2.4	Environmental Work Method Statements	Section 4.1.3
3.3	Names, responsibilities and authority of site management personnel, including ESR, with responsibility for implementing CEMP. Where applicable, the relationship between Environmental Management Representative and ESR and ER.	Section 4.2
3.4	Procedures to ensure subcontractor compliance	Section 4.3
3.5	Environmental induction and training plan	Chapter 5
3.6	Procedure for notifying the RMS Representative and all relevant Authorities in advance of any proposed extension to working hours	Appendix B3 – CNVMP Community Communication Strategy
3.7	Details of processes for external and internal communication in relation to environmental aspects of work	Chapter 6 Community Communication Strategy
3.8	Emergency planning and response procedures	Chapter 7
3.9	Procedure(s) to monitor and measure environmental management performance and to evaluate compliance	Chapter 8, 9
3.9	Environmental monitoring and auditing program	Chapters 8
4.1	Construction Soil and Water Quality Management Plan (refer D&C G38)	Appendix B4 - CSWQMP
4.2	Construction Contaminated Land Management Plan and Remediation Action Plan	Appendix B4 – CSWQMP
4.2.6	Construction Acid Sulphate Materials Management Plan	Appendix B4 - CSWQMP

G36 reference	Requirement	Relevant section of CEMP or supporting documentation
4.3	Procedure(s) for spill prevention and response	Appendix B4 – CSWQMP, Appendix A7
4.3	Procedures for controlling and removing chemical, fuel and lubricant spillage on the Site and adjoining areas	Appendix B4 – CSWQMP, Appendix A7
4.4	Construction Air Quality Management Plan and procedures for effective dust control, including dust monitoring and reporting procedures	Appendix B6 – CAQMP
4.6	Construction Noise Management Plan	Appendix B3 – CNVMP
4.7	Construction Vibration Management Plan	Appendix B3 – CNVMP
4.8	Construction Flora and Fauna Management Plan and EWMS for clearing and grubbing	Appendix B2 – CFFMP
4.9 & 4.10	Construction Heritage Management Plan and procedure for the management of unexpected potential archaeological relics	Appendix B5 – CHMP
4.11	Waste Management Sub-Plan and Waste Management Register	Appendix B7 – CWEMP
4.13	Sensitive Areas Maps and EWMS for working in or near environmentally sensitive areas	Appendix A6
4.14	Environmental incident reporting and investigation procedure	Chapter 7, Appendix A7

¹ In accordance with Annexure G36/D – Planning Documents.

Appendix A2

Stakeholder and agency CEMP consultation

Table 1: Issues raised during CEMP consultation and Contractor responses

Issue	Issue raised	Contractor responses
CEMP (main document) [CoA D45]		
Environmental Protection Authority (EPA)		
<p>Fri 19/08/2016 5:06 PM via email - Comments with respect to CEMP (main document) Revision 2</p>	<p>Thank you for the opportunity to comment on the Project's CEMP Rev2. The EPA has reviewed the proposed procedure submitted to the Department on the 12 August 2016 and has provided comments on key areas of concern in the table attached.</p> <p>Reference: Please note</p> <p>Comments below relate to: An Environmental Protection Licence (EPL) for 'railway systems activities' under Schedule 1 of the Protection of the Environment Operations Act 1997. Rail viaduct works which trigger this requirement will not commence until 2018, so the licence application will be made closer to this time.</p>	<p>Noted.</p>
	<p>Reference: 4.2.1 (dot point 6)</p> <p>In addition to stated protocols and conditions, OOHW require EPL compliance in accordance with condition L4 –Hours of operation</p>	<p>Noted. The CEMP will be updated to incorporate all the requirements of the EPL for 'railway systems activities' once it is obtained (expected to be in 2018).</p>
	<p>Reference: 7.2 Incident reporting and investigation</p> <p>"Advising the relevant government agencies if any substantial pollution has occurred". EPL condition R2 Notification of environmental harm states "The licensee or its employees must notify all relevant authorities of incidents causing or threatening material harm to the environment immediately after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the PoEO Act.</p>	<p>Updated Template text so that the 6th dot point now reads: <i>'notifying all relevant authorities of incidents causing or threatening material harm to the environment immediately after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the POEO Act.'</i></p>
	<p>Reference: 8.1.1 Weekly and post rainfall events</p> <p>In accordance with EPL condition O5.8 All erosion and sediment control measures installed on the premises must be inspected and works undertaken to repair and/or maintain these controls: includes b) daily during periods of rainfall. This is required to comply with Sec 120 of the</p>	<p>Updated Template text to allow for daily inspections during periods of rainfall causing runoff, if safe to do so. The first sentence of Section 8.1.1 now reads: <i>'The Environmental Manager and/or Environmental Officers will undertake inspections of the work sites weekly and daily during periods of</i></p>

Issue	Issue raised	Contractor responses
	<p>PoEO Act, and Condition (L1.1) of the EPL.</p> <p>Sec 8.1.1 of the CEMP states only weekly and post rainfall site inspections.</p> <p>Reference: Table 8-2. Compliance reporting</p> <p>The EPA suggests being included in the 'recipient' column for the following Reporting sections due to compliance responsibilities to EPL conditions as outlined below;</p> <p>Compliance reporting: Condition R1 Annual return documents include</p> <p>a) statement of compliance</p> <p>Incident reporting: Condition R1 Annual return documents include R1.8 and condition R2.</p> <p>Complaints reporting: Condition R1 Annual return documents include</p> <p>b) a Monitoring and Complaints Summary</p>	<p><i>rainfall causing runoff, if safe to do so, to evaluate the effectiveness of environmental controls.'</i></p> <p>Updated Table 8-2 to include EPA as a 'recipient' for compliance reporting, incident reporting and complaints reporting.</p>
Office of Environment and Heritage (Aboriginal Heritage)		
<p>Wed 31/08/2016 3:08 PM via email from Craig Dunk - Comments with respect to CEMP (main document) Revision 2</p>	<p>A draft Construction Environmental Management Plan Revision 2 was provided to the Office of Environment and Heritage (OEH) by Fulton Hogan on 12 August 2016 requesting advice on Aboriginal cultural heritage. The OEH is providing advice to the Environment Protection Authority for inclusion in a consolidated response to this matter.</p> <p>We have reviewed the documentation provided and note the Construction Heritage Management Plan (CHMP) that will form part of the Construction Environmental Management Plan (CEMP).The OEH has no additional comments on the CHMP main document.</p> <p>However, the OEH welcomes the opportunity to review the proposed environmental work method statements (EWMS) as they are prepared to manage and control all activities that have the potential to negatively impact on Aboriginal cultural heritage.</p>	<p>Noted.</p> <p>Fulton Hogan looks forward to providing all EWMS for high risk activities that have the potential to negatively impact on Aboriginal cultural heritage to OEH (Aboriginal heritage) for review and comment. EWMS will be prepared progressively throughout construction.</p>

Issue	Issue raised	Contractor responses
Department of Primary Industries (DPI) Fisheries		
Mon 15/08/2016 2:50 PM via email - Comments with respect to CEMP (main document) Revision 2	I have no comment on the CEMP.	Noted.
Department of Primary Industries (DPI) Water		
15/08/16 10:15 AM via email - Comments with respect to CEMP (main document) Revision 2	DPI Water has no comments to make of rev 2 CEMP.	Noted.
Clarence Valley Council		
Fri 2/09/2016 6:56 AM via email - Comments with respect to CEMP (main document)	Council has given cursory review of the CEMP Main Document and does not identify issues or concerns. Unfortunately, we have not the resources available at this time to provide a detailed review within the requested timeframe but are confident that the document adequately coordinates the other CEMPs.	Noted.

Issue	Issue raised	Contractor responses
Revision 2		
The Department of Planning and Environment (DP&E)		
Fri 19/08/2016 4:20 PM via email - Comments with respect to CEMP (main document) Revision 2	<p>Reference: Contents – Appendices</p> <p>I note that Appendix A6 contains the Sensitive Area Plans, Appendix A7 the Environmental incident classification and reporting procedure and Appendix A8 the environmental inspection checklist. The list of appendices needs to be updated.</p>	Updated list of appendices. Also updated cross references throughout the document.
	<p>Reference: Table 1-1</p> <p>CoA D45(d)(ix) – correct reference is Appendix A7. Appendix A9 contains the Compliance Tracking Program.</p>	Amended reference from Appendix A9 to Appendix A7 in Table 1-1.
	<p>Reference: Section 3.7.3</p> <p>Include material stockpiles for the levee upgrade works and type of material stockpiled.</p>	In accordance with Section 3.7.3, stockpiles will be located and managed in accordance with the <i>Stockpile Management Protocol</i> (Annexure E of the CSWQMP). This protocol has recently been revised as part of CSWQMP Rev3 in response to comments from EPA and RMS. The protocol now clearly provides a process for the establishment of temporary stockpile areas within and outside the approved project boundary to ensure that environmental impacts associated with stockpiling are minimised during construction. The protocol now also includes a register of all stockpile sites (Table E-2, included in the protocol), which will be maintained by the Environmental officer (EO) for the duration of construction.
	<p>Reference: Appendix A1</p> <p>Protection of the Environment Operations Act 1997 – state that an Environment Protection Licence is only required for the replacement of the Pound Street viaduct component of the project.</p>	Updated Appendix A1 <i>Protection of the Environment Operations Act 1997</i> to acknowledge that an Environment Protection Licence is only required for the replacement of the Pound Street viaduct component of the project.

Issue	Issue raised	Contractor responses
Construction Noise and Vibration Management Plan (CNVMP) [CoA D46 (a)]		
Environmental Protection Authority (EPA)		
Fri 26/08/2016 12:16 PM via email - Comments with respect to CNVMP Revision 3	The EPA appreciates confirmation of the changes made in relation to EPAs review and comments on the CNVMP and has no further comments at this time.	Noted.
Mon 15/08/2016 11:25 AM via email - Comments with respect to CNVMP Revision 2	<p>Reference: Section 3.1.2 Guidelines</p> <p>The EPA notes that the document titled NSW Environmental Criteria for Road Traffic Noise (ECRTN) (EPA 1999) is listed as a document which is relevant to the CNVMP.</p> <p>The EPA advises that the ECRTN was replaced by the NSW Road Noise Policy with effect from the 1 July 2011.</p>	<p>In Section 3.1.2, deleted 'NSW Environmental Criteria for Road Traffic Noise (ECRTN) (EPA 1999)' from the RMS Template.</p> <p>Noted.</p>
	<p>Reference: Section 5.2 Noise Catchment Areas</p> <p>The EPA notes the identification of noise catchment areas which are understood to have been identified in the EIS developed for the project.</p> <p>The EPA is aware that during certain times of the year temperature inversions carry noise much further, and this should be taken into consideration as under these conditions there is potential for noise complaints from people well outside of the currently identified areas.</p>	<p>Noted. Predicted noise levels in Annexure B have been carried out in accordance with ISO 9613-2 prediction methodology and are therefore based on propagation under a "moderate ground-based temperature inversion". For most standard hours works this is expected to be sufficient, although it is noted that additional consideration to propagation may be required for OOHW at night when the NMLs are much lower.</p>
	<p>Reference: Section 6.1 Construction noise and vibration goals.</p> <p>The EPA notes reference to the definition of feasible and reasonable under the infrastructure approval.</p>	<p>Noted. Added RNP definition of feasible and reasonable to Section 8.</p>

Issue	Issue raised	Contractor responses
	<p>The EPA notes that the Road Noise Policy at section 3.3 provides direction around what is reasonable and feasible. The EPA encourages consideration of the direction that is provided in this document.</p>	
	<p>Reference: 6.2.2 ICNG Screening criteria and sleep disturbance criteria.</p> <p>The EPA acknowledges the intention of Fulton Hogan to use the L_{max} instead of $LA_{1(1\text{ minute})}$ as a screening criteria.</p> <p>The EPA notes that this is also consistent with advice provided on the EPA website in application notes provided for the industrial noise policy which advises that other factors that may be important in assessing the extent of impacts on sleep include, but are not necessarily limited to:</p> <ul style="list-style-type: none"> • how often high noise events will occur • time of day (normally between 10pm and 7am). The likely distribution of events throughout the night would be useful • whether there are times of day when there is a clear change in the noise environment (such as during early morning shoulder periods). This could be illustrated by presentation of the level and distribution throughout the night of current L_{Amax} (or $LA_{1(1min)}$) events. 	<p>Noted.</p>
	<p>Reference: Section 7.2 Construction Noise and Vibration impacts.</p> <p>The EPA acknowledges the factors listed as having the potential to impact on sensitive receivers or structures.</p> <p>The EPA notes that environmental conditions such as wind speed, temperature, humidity, and temperature inversions have the potential to influence impacts on sensitive receivers.</p>	<p>Section 7.2 in Rev2 is now Section 7.3 in Rev3. In Section 7.3, added another dot point that reads: '<i>environmental conditions such as wind speed, temperature, humidity, and temperature inversions.</i>'</p>
	<p>Reference: Table 8-1</p> <p>The EPA notes the intention to minimise reversing of equipment to prevent nuisance caused by reversing alarms.</p> <p>The EPA encourages Fulton Hogan to also consider the type of</p>	<p>Noted. Fulton Hogan will ensure that non-tonal reversing alarms (or an equivalent mechanism) will be fitted and used on all construction vehicles and mobile plant regularly used on site in accordance with Table 8-3 mitigation measure ID CNVMM3 and ID OOHMM9. Both of these mitigation measures now read: '<i>Ensure all construction vehicles and mobile plant</i></p>

Issue	Issue raised	Contractor responses
	<p>reversing alarms used on the site (i.e. use smart broad band or white noise alarms rather than pure tone alarms) given the proximity to sensitive receivers; and the potential to turn off alarms during out of hours works and to use spotters or alternative means to comply with WH&S requirements.</p>	<p><i>regularly used on site (i.e. greater than one day) have non-tonal reversing alarms (or an equivalent mechanism) fitted'.</i></p>
	<p>Reference: Annexure C. Attachment 1: OOHW Approval request form. Item 12.</p> <p>The EPA notes that at item 12 there is a question about what lighting is to be provided for night work.</p> <p>The EPA encourages Fulton Hogan to also include a question about how any lighting will be managed to minimise the potential for light to impact on adjacent residents or drivers on adjacent roads.</p>	<p>Added a new row to Attachment 1: OOHW Approval request form, under item 12, to read: <i>'How will any lighting be managed to minimise the potential for light to impact on adjacent residents or drivers on adjacent roads'.</i></p>
	<p>Reference: Annexure C. Attachment 1: OOHW Approval request form. Assessment.</p> <p>The EPA notes the direction to undertake an acoustic assessment to determine if the works are above RBL +5dB(A) at the closest receptor.</p> <p>Please confirm if the acoustic assessment is via a model or attended noise monitoring. If attended noise monitoring is undertaken the records for the monitoring should be undertaken by an appropriately qualified and experienced person, and should be supported by appropriate contemporaneous notes about the sound environment.</p>	<p>Assessment will be undertaken using a predictive model. Under Annexure C <i>'Out of hours works approval process'</i> 3rd dot point, added reference to predictive noise model. First sentence now reads: <i>'If the EM determines, based on initial noise assessment conducted using a predictive noise model, that the works will generate LAeq(15 minutes) noise levels that will be less than RBL + 5 dB(A) and meet the requirements of CoA D3, the works will be approved by the EM.'</i></p> <p>Monitoring will be undertaken for all OOHW to confirm compliance in accordance with Annexure C <i>'Noise monitoring'</i>. It is noted that monitoring undertaken for previous OOHW may be used as part of an assessment for similar proposed OOHW where relevant.</p>
	<p>Reference: Annexure D. Vibration Monitoring test procedure.</p> <p>The EPA notes that the test procedure does not confirm the method for setup of the monitor in accordance with an accepted standard.</p> <p>Please confirm in the procedure what standard will be adopted to ensure the correct setup of monitoring equipment (vibration transducers) on</p>	<p>Added reference to AS 2775-2004 under Annexure D Vibration monitoring <i>'Test procedures'</i>. The additional dot point reads: <i>'Transducer to be affixed to ground or building in general accordance with AS 2775-2004.'</i></p>

Issue	Issue raised	Contractor responses
	buildings or ground so that valid measurements can be collected.	
The Department of Planning and Environment (DP&E)		
Wed 10/08/2016 2:33 PM - Comments with respect to CNVMP Revision 2	<p>Reference: CoA D46(a)(ii) ... an indicative schedule for construction works ...</p> <p>The CNVMP must include an indicative schedule for the construction of the project.</p>	Indicative schedule from Section 2.2. of the CEMP (main document) included as Section 7.1.
	<p>Reference: Table 6-7</p> <p>Include details of handheld compactor, if vibration impacts are generated beyond the construction boundary.</p>	Safe working distances for handheld compactor added to Table 6-7. Impacts not expected beyond construction boundary.
	<p>Reference: Table 7-1</p> <p>Does the construction activity flood mitigation works include raising the height of the flood levee? If not levee works must be added to the table and details of construction activities and plant and equipment provided.</p> <p>Include the establishment and operation of ancillary facilities as a typical construction activity and provide details of typical plant and equipment.</p>	<p>Yes, construction activity flood mitigation works does include raising the height of the flood levee.</p> <p>In Table 7-1 under '<i>Preliminary activities and site establishment</i>' construction activity includes '<i>Establishment of temporary construction facilities and compound sites including the site office</i>'.</p> <p>Operation of ancillary facilities added to Table 7-1, last row.</p>
	<p>Reference: Section 7.2.1</p> <p>Add sub-section describing levee works/flood mitigation works and potential impacts on sensitive/other receivers.</p> <p>Add a sub-section describing the replacement of the Pound Street viaduct and potential impacts on sensitive receivers, particularly out of hours work (24 hours) during rail shutdown periods.</p>	<p>Section 7.2.1 in Rev2 is now Section 7.3.1 in Rev3. Added sub-section 7.3.1.2 <i>Flood Mitigation Works</i>.</p> <p>Added as sub-section 7.3.1.6 <i>Pound Street Viaduct</i>.</p>
	<p>Reference: Table 8-3</p>	

Issue	Issue raised	Contractor responses
	<p>Are mitigation measures specific to the replacement of the Pound Street viaduct required during the rail shutdown period when work would be continuous (24 hours) over a number of days, including Sundays. Details of specific measures should be provided.</p>	<p>The OOHMM would be considered and implemented where feasible and reasonable. Mitigation measure ID OOHMM17 to OOHMM21 would be implemented for Pound Street viaduct works that stretch over a number of nights where they exceed NMLs by more than 20 dB(A) and/or exceed sleep disturbance criteria.</p>
	<p>Reference: Appendix B Predicted noise levels for construction activities The predicted levels during operation of ancillary facilities should be included in the appendix.</p>	<p>Added predicted noise levels for ancillary facilities to Annexure B.</p>
	<p>Reference: Appendix C Out of Hours Works Procedure, Predicted out of hours work Is there a category of unpredicted (unknown) out of hours work? The replacement of the Pound Street viaduct should be included in this category as predicted works which will be undertaken out of hours during the rail shutdown period.</p>	<p>Added 'ad hoc' out of hours works as a dot point in Annexure C under '<i>Predicted Out of Hours Works</i>' to encompass those works which are not able to be known at this stage. The dot point reads: '<i>Ad hoc out of hours works required due to technical or other justifiable reasons.</i>' Added Pound Street viaduct works during rail shutdown as a dot point in Annexure C under '<i>Predicted Out of Hours Works</i>'. The dot point reads: '<i>Works associated with the replacement of the Pound Street viaduct which will need to be undertaken during the rail shutdown period.</i>'</p>
	<p>Reference: Appendix C Out of Hours Works Procedure, Noise and vibration impact assessment It is stated that where OOHW do not comply with CoA D3 a noise and vibration impact assessment will be undertaken. It is then stated that where applications for OOHW with medium or high risk factors (based on the TfNSW 2011 Construction Noise Strategy), these applications must be supported by a construction noise impact statement. This would mean that OOHW with low risk factors would not require a construction noise impact statement.</p>	<p>Yes. This is a difference based on terminology. Applications for low risk works would still need to be supported by noise predictions, as this is part of the process of assessing Out of Hours Work. An impact statement would require additional detail and consideration of mitigation measures. Have removed the word "impact" from the earlier statements in Annexure C to</p>

Issue	Issue raised	Contractor responses
	<p>This is inconsistent with the previous statement that a noise and vibration impact assessment would be undertaken for all OOHW that do not comply with CoA D3.</p>	<p>clarify this.</p>
	<p>Reference: Appendix C Out of Hours Works Procedure, Noise monitoring</p> <p>The requirement to only undertake noise monitoring when 2 or more complaints are received is inconsistent with the Noise and Vibration Monitoring Plan which states monitoring would be undertaken in response to complaints received.</p>	<p>Edited to make consistent with Noise Monitoring Plan wording. Second dot point now reads <i>'If a complaint is received about the activity or works on the telephone complaints line then additional monitoring and review will be undertaken to assess the source of the complaint if this is considered an appropriate response.'</i></p>
	<p>Reference: Appendix C Out of Hours Works Procedure, Figure C-1</p> <p>The out of hours work approval flow chart indicates that OOHW that is not high risk would have an approval issued. I assume the approval is issued by the ER.</p> <p>OOHW that is high risk requires an application to be prepared for submission to the ER.</p> <p>All OOHW requires the approval of the ER and therefore an application to be prepared and submitted for review, irrespective of whether it is low, medium or high risk.</p>	<p>Deleted Figure C-1 in Rev3 to avoid inconsistencies with the text, particularly with regard to responsibilities. This change has no impact on our responses provided below.</p> <p>Yes - OOHW that is not high risk and does not meet CoA D3 would have an approval issued. This approval would be issued by the ER and RMS Representative.</p> <p>Yes - OOHW that is high risk requires an application to be prepared for submission to the ER and RMS Representative.</p> <p>Yes - all OOHW that do not meet CoA D3 require approval of the ER and RMS Representative and therefore an application to be prepared and submitted for review, irrespective of whether it is low, medium or high risk.</p>
<p>Clarence Valley Council</p>		

Issue	Issue raised	Contractor responses
<p>Fri 12/08/2016 3:19 PM via email - Comments with respect to CNVMP Revision 2</p>	<p>Subject heading: Grafton Bridge - CEMPs - Noise & Vibration, and Air Quality Council's environmental health staff have reviewed the above CEMPs and have no specific comment. It is assumed that the noise issue would be covered by the Interim Construction Noise Guideline and the Industrial Noise Policy.</p>	<p>Section 3.1.2 of the CNVMP refers to both the NSW Industrial Noise Policy (INP) (EPA 2000) and Interim Construction Noise Guideline (ICNG) (DECC 2009) as documents that are relevant to the CNVMP.</p>

Issue	Issue raised	Contractor responses
Construction Traffic Access Management Plan (CTAMP) [CoA D46 (b)]		
Clarence Valley Council		
Wed 7/09/2016 8:29 PM via email - Comments with respect to CTAMP Revision 1	Our Roads section has reviewed the document and considers the measures proposed are satisfactory. Council has no further comment at this stage and looks forward to on going consultation as the project progresses.	Noted.
The Department of Planning and Environment (DP&E)		
Fri 2/09/2016 3:44 PM via email - Comments with respect to CTAMP Revision 1	<p>Reference: CoA D46(b)(ii) Details of vehicle movements for construction sites, levee stockpile areas ...</p> <p>The CTAMP has not adequately addressed this requirement in terms of details of levee upgrade works construction vehicle movements.</p>	<p>Section 7.2.1 has been amended to provide additional details regarding the levee works.</p> <p>The Vehicle Movement Plans (VMP) for the levee works will be developed and submitted progressively via a hold point under Contract Specification G10 as set out under sections 7.2.2, 7.7 and 6.3.1 of the CTAMP.</p> <p>These VMPs will be developed in compliance with the requirements of CTAMP, in particular to the details depicted under Figure 7-3 and RMS's Traffic Control at Worksites Manual.</p>
	<p>Reference: D46(b)(viii) Information on the number of moorings to be relocated, their current location, proposed location, whether the relocation would be permanent and if not, the duration of relocation.</p> <p>The Department considers this requirement has not been adequately addressed in the CTAMP and the Construction Navigation Management Plan. Details on the relocation of existing swing moorings impacted by the project must be provided in the CTAMP.</p>	A new section been added to Annexure F of CTAMP, detailing moorings impacted by the works.
	Reference: Section 5	A new section 7.13.6 been added to CTAMP.

Issue	Issue raised	Contractor responses
	<p>CoA D16 requires the provision of alternative temporary parking for formal on-street parking removed or impacted by the project. Replacement parking spaces must be provided in consultation with Clarence Valley Council and affected businesses prior to the commencement of construction that impacts those parking spaces. The number of parking spaces impacted and likely alternative parking arrangements and consultation process should be outlined in this section of the CTAMP.</p> <p>This section should provide details of the local roads used to access the levee works stockpile areas and the levee upgrade works, including land uses traversed by construction vehicles and nature and volume of existing traffic volumes.</p>	<p>A new section 7.13.6 been added to CTAMP.</p> <p>A new section added to the end of section 7.2.1, titled as Levee Works</p>
	<p>Reference: Sections 6.2 and 6.3</p> <p>Provide details of type and volume of construction vehicle usage of the construction routes to the levee upgrade stockpile sites and the levee upgrade works. See Figure 7-3 showing typical construction access routes to the levee works stockpile areas.</p>	<p>A new section added to the end of section 7.2.1, titled as Levee Works</p>
	<p>Reference: Section 7.2.1</p> <p>Construction staging Grafton North and works to the north of Clarence Street. The provision of alternative parking spaces to replace formal on-street parking impacted by the project must be addressed prior to construction commencement. See comment 3 above. This section should provide details of the levee upgrade works as a separate stage of the project.</p>	<p>A new section 7.13.6 been added to CTAMP.</p> <p>A new section added to the end of section 7.2.1, titled as Levee Works</p>
	<p>Reference: Section 7.2.10</p> <p>The Department notes the “Error! Reference source not found” on page 38 of the Report.</p>	<p>Error adjusted.</p>
	<p>Reference: Appendix F</p> <p>Construction Navigation Management Plan</p> <p>The Plan must provide details of locations where construction barges and vessels would be moored outside river construction hours, and during river flooding periods. Details of the river management measures must be provided for the mooring and berthing of construction barges and vessels.</p>	<p>A new section been added to Annexure F of CTAMP, detailing requirements for construction barges and vessels.</p>

Issue	Issue raised	Contractor responses
	Further, the Department notes the “Error! Reference source not found” on the first page of Annexure F.	Error adjusted.

Issue	Issue raised	Contractor responses
Construction Soil and Water Quality Management Plan (CSWQMP) (CoA D46 (c))		
Environmental Protection Authority (EPA)		
Wed 7/09/2016 4:24 PM via email - Comments with respect to CSWQMP Revision 3	<p>The EPA has reviewed the response to agency comments provided in appendix A2 and reiterates the need to consider the receiving environment when releasing water from the project site to the environment to ensure that Fulton Hogan does not breach section 120 of the Protection Of the Environment Operations (POEO) Act 1997.</p> <p>The EPA also highlights the need to ensure that monitoring, management and maintenance of stockpiles and ERSED controls is diligently undertaken during the project construction stage.</p>	Noted. This information has been passed on to the project delivery team.
Wed 10/08/2016 03:26 PM via email - Comments with respect to CSWQMP Revision 2	<p>Reference:</p> <p>The EPA appreciates the opportunity to review the Construction Soil and Water Management Plan (CSWMP) prepared by Fulton Hogan for the Grafton bridge project.</p> <p>The EPA acknowledges the mitigation measures included in the plan to manage potential water quality impacts and provides comments on the CSWMP in the attached comment table.</p> <p>Reference: Table 7-2 I.D. General - CSWQMM1.</p> <p>The EPA notes the intention to engage a soil conservationist to assist with PESCP development and training until completion of the project.</p>	Noted.
	<p>Reference: Table 7-2 I.D. General - CSWQMM43.</p> <p>The EPA notes the intention to use small rock, aggregate or other similar material on the Banks of the Clarence River in the vicinity of the bridge works to protect the riverbank from erosion and instability as required.</p> <p>The EPA highlights the need to ensure that any materials used to stabilise the river bank are of a suitable size or are adequately secured to prevent them from being washed away during a flood event.</p>	Noted.

Issue	Issue raised	Contractor responses
	<p>Reference: Table 7-2 I.D. General - CSWQMM43.</p> <p>The EPA notes the intention to apply flocculent to basin's within 24 hours of a rainfall event.</p> <p>The EPA supports the use of flocculants to achieve rapid turnaround of basins which should provide improved environmental outcomes and highlights that any flocculants that are used should be assessed to ensure that they do not cause harm.</p>	<p>Noted.</p>
	<p>Reference: Table 7-2 I.D. General – CSWQMM60.</p> <p>The EPA notes the intention to test and treat site water before it is released to the environment. The EPA notes that the water quality criteria to be achieved are pH 6.5 – 8.5, TSS <50mg/L and no visible or grease.</p> <p>The EPA highlights that as there is no licence issued to Fulton Hogan for this project that the site staff should consider the receiving water quality prior to discharging site water; and ensure that they do not pollute waters (s. 120 of POEO creates an offence for pollution of waters). Pollution of waters is defined in the dictionary to the POEO Act. The EPA notes that water quality monitoring provided in table 5-3 indicates that the background water quality is highly variable.</p>	<p>Noted. Fulton Hogan will undertake background water quality monitoring for at least 1 month prior to construction. Annexure B Table B-2 (1st row) has been updated to reflect this.</p> <p>Updated Section 5.2.3, last sentence, to highlight that background water quality monitoring will be undertaken prior to construction. The last sentence of Section 5.2.3 now reads: <i>'Additional background water quality monitoring will be undertaken prior to construction. The Water Quality Monitoring Program to be implemented during pre-construction and construction is provided in Annexure B.'</i></p> <p>Updated Table 7-2 mitigation measure ID CSWQMM64 to refer to both pre-construction and construction water quality monitoring. Mitigation measure ID CSWQMM64 now reads: <i>'Complete pre-construction and construction water quality monitoring in accordance with the Water Quality Monitoring Program attached at Annexure B.'</i></p> <p>Updated Table 7-2 mitigation measure ID CSWQMM60 to acknowledge that receiving water quality will be considered prior to discharge of site water. Table 7-2 mitigation measure ID CSWQMM60 now reads: <i>'Consider the receiving water quality prior to discharging site water. The discharge must meet or be better than the background water quality. Test and, if required, treat water before it is released from any discharge points (e.g. from sediment basins). Then re-test (and, if required, re-treat) the water. Do not release until the following</i></p>

Issue	Issue raised	Contractor responses
		<p><i>water quality criteria are met:</i></p> <ul style="list-style-type: none"> - <i>pH 6.5-8.5</i> - <i>Total suspended solids (TSS) < 50mg/L</i> - <i>No visible oil or grease.</i> <p><i>Promptly distribute the results of water quality monitoring to relevant project staff for action and further investigate any exceedances. Where a discharge occurs solely as a result of rainfall exceeding the 5-day 85th percentile rainfall depth value of 37.2mm, the abovementioned pH and TSS criteria do not apply.'</i></p>
	<p>Reference: Table 7-2 I.D. General – CSWQMM61.</p> <p>The EPA notes the intention to undertake water testing for discharges less than or equal to 37.2mm (5 day 85th percentile rainfall depth value).</p> <p>The EPA suggests that water testing be undertaken for any events when water discharges or is released from the project site. By undertaking water testing the project can compare receiving water quality with the quality of any water released from the site and can better understand the potential for impacts on the environment and respond to the community with appropriate information.</p> <p>The EPA highlights that temporary works for the control of pollution including sediment filters should be designed to be stable and to be able to withstand the forces of the design storm event, which is usually taken to be the 10 year ARI time of concentration event (refer to sections 6.1.3 (f) and 6.3.7 (e) of the Blue Book.</p>	<p>Deleted Table 7-2 mitigation measure ID CSWQMM61 as it was not correct. Water testing will be undertaken as required to demonstrate compliance with the criteria identified in Table 7-2 mitigation measure ID CSWQMM60. Mitigation measure ID CSWQMM61 has been replaced with text about a statistical correlation instead, and now reads: <i>'Once pre-construction water quality monitoring has been completed, Fulton Hogan may develop:</i></p> <ul style="list-style-type: none"> - <i>a statistical correlation to identify the relationship between turbidity (NTU) and TSS, and</i> - <i>a statistical correlation methodology to detail the method to enable ongoing verification of the relationship between NTU and TSS.</i> <p><i>Both the statistical correlation and statistical correlation methodology will be submitted to EPA and RMS for approval prior to their use.'</i></p> <p>Updated Table 7-2 mitigation measure ID CSWQMM3 to also refer to 'design'. Mitigation measure ID CSWQMM3 now reads: <i>'Design and install all erosion and sediment controls in accordance with the Erosion and sediment control plan (ESCP) included in Annexure A of this plan. The plan has been</i></p>

Issue	Issue raised	Contractor responses
	<p>Reference: Annexure E – Stockpile management protocol. Item 3 dot point 3.</p> <p>The EPA notes that the mitigation measure states that materials will be stockpiled at least 10m from waterways that are classed as Class 1 or Class 2.</p> <p>The EPA is of the opinion that stockpiles should be located further from waterways to minimise the potential for pollution of waters and notes that the attached table 1 which is labelled Stockpile requirements states that stockpiles be located at least 50m from a waterway.</p> <p>The EPA suggests that this difference should be clarified and that the greater distance of 50m should be adopted to protect waters.</p>	<p><i>prepared in accordance with the Blue Book (Landcom, 2004 and DECC, 2008) and includes relevant standard drawings and details from these texts.'</i></p> <p>It is noted that Annexure E <i>Stockpile Management Protocol</i> has been revised as part of Rev3.</p> <p>Yes, this is a requirement of RMS Specification D&C G38 Clause 3.2.</p> <p>The reference to 50m previously included in Table 1 as part of the Template is not applicable to the Grafton Bridge project. Stockpiling will be required within 50m of the Clarence River to enable completion of the levee works. Stockpiling will be required within the construction footprint along sections of the levee that need to be raised for the project. All stockpiles will be carefully managed as per the ESCP included in Annexure A. Furthermore, regular monitoring and inspections will be undertaken in accordance with Section 8.3 and Annexure B of the CSWQMP.</p>
The Department of Planning and Environment (DP&E)		
<p>Wed 17/08/2016 10:31 AM via email - Comments with respect to CSWQMP Revision 2</p>	<p>Reference: CoA D46(c)(i) details of construction activities and their locations, which have the potential to impact on waterways and stormwater drainage</p> <p>Details of construction activities are described in section 6.1 however no details of the location of the activities are provided.</p> <p>Reference: CoA D46(c)(ii) surface water impact assessment criteria consistent with Australian and New Zealand Environment Conservation Council (ANZECC) guidelines</p> <p>Table 3-1 states this requirement is addressed in Annexure A. The annexure does not discuss the surface water impact assessment criteria.</p>	<p>Amended Section 6.1 so that all construction activities and their locations are now included in a table (Table 6-1).</p> <p>Amended Table 3-1 to refer to Section 5.2.3 where the surface water impact assessment findings completed as part of the EIS are discussed.</p>

Issue	Issue raised	Contractor responses
	<p>Reference: CoA D46(c)(vi) details of how spoil and fill material required by the SSI will be sourced, handled, stockpiled, reused and managed ...</p> <p>This requirement is addressed in the Stockpile Management Protocol. However no details are provided of the source of fill and the reuse of spoil (see comment 9).</p>	<p>Added Section 6.2.1.4 <i>Spoil and fill material management</i> to detail how spoil and fill material required by the SSI will be sourced, handled, stockpiled, reused and managed.</p>
	<p>Reference:</p> <p>There are a number of cross referencing error messages throughout the document.</p>	<p>Reviewed CSWQMP Rev3 and amended all incorrect cross references and error messages.</p>
	<p>Reference: Glossary/Abbreviations</p> <p>Add DoE - Department of the Environment.</p> <p>Add after DSEWPC – now DoE.</p>	<p>Added DoE - Department of the Environment to the 'Glossary/Abbreviations'.</p> <p>Added '(now DoE)' to '<i>Department of Sustainability, Environment, Water, Population and Communities</i>' in the 'Glossary/Abbreviations'. The line now reads: '<i>DSEWPC - Department of Sustainability, Environment, Water, Population and Communities (now DoE)</i>'</p>
	<p>Reference: Section 7 and Table 7-1.</p> <p>Discussion of measures to protect water quality must include subsections describing:</p> <ul style="list-style-type: none"> • Construction work/plant on barges moored in the river; and • Construction work on the bridge as its structure is built over the river. <p>Risks to water quality include refuelling of plant and equipment, spillages and leaks of hydrocarbons during plant operation, and spillage of concrete and other construction material, into the Clarence River.</p>	<p>Included new subsection Section 7.1.4 <i>Construction work/plant on barges moored in the river</i>, which discusses the measures to protect water quality.</p> <p>Included new subsection Section 7.1.5 <i>Construction work on the bridge</i>, which discusses the measures to protect water quality.</p>
	<p>Reference: Annexure A</p> <p>Concept erosion and sediment control plans – the plans do not describe/illustrate the proposed control measures for the levee upgrade works, stockpile sites and ancillary facility sites. Details must be provided to address CoA D46(c)(vii).</p>	<p>Included revised ESCP.</p> <p>Also updated Table 3-1 to make it clear that the erosion and sediment control measures to be implemented are also described in Table 7-2 under mitigation measure ID CSWQMM1-CSWQMM8, CSWQMM24-CSWQMM39.</p>

Issue	Issue raised	Contractor responses
	<p>Reference: Annexure D</p> <p>This annexure describes actions to be undertaken in the event of a heavy or violent rainfall forecast.</p> <p>The Plan should include procedures and actions in the event of a predicted flood event.</p>	<p>Management measures and procedures to be implemented prior to a flooding event, including timeframes for securing work sites and moving plant and equipment, are addressed in the Construction Flood Management Plan (CFMP), as required by CoA D46(f)(iv). Added a second paragraph to <i>Annexure D</i> under 'Purpose', to explain this. The paragraph reads:</p> <p><i>'For management measures and procedures to be implemented prior to a flooding event, including timeframes for securing work sites and moving plant and equipment, refer to the Construction Flood Management Plan (CFMP).'</i></p>
	<p>Reference: Annexure E</p> <p>Stockpile Management Protocol – the protocol states its purpose is to provide details of how excavated material would be handled, stockpiled, reused and disposed. The protocol does not provide details of how excavated material would be reused and disposed, particularly of unsuitable and/or surplus material.</p>	<p>Annexure E <i>Stockpile Management Protocol</i> has been revised. The purpose now reads <i>'This protocol provides a process for the establishment of temporary stockpile areas within and outside the approved project boundary to ensure that environmental impacts associated with stockpiling are minimised during construction.'</i></p> <p>Details of how excavated material will be reused and disposed, particularly unsuitable and/or surplus material is detailed under a new section - Section 6.2.1.4 <i>Spoil and fill material management</i>.</p>
	<p>Reference: Annexure F</p> <p>RMS Environmental Direction: Management of Tannins from Vegetation Mulch. A copy of the direction has not been provided for review.</p>	<p>RMS Environmental Direction: Management of Tannins from Vegetation Mulch is now appended to CSWQMP Revision 3. This is a standard RMS procedure.</p>
Department of Primary Industries (DPI) Fisheries		
08/08/2016 10:22 AM via email - Comments with respect to CSWQMP	I've got no comments on the CSWMP and the appendices provided.	Noted.

Issue	Issue raised	Contractor responses
Revision 2		
Department of Primary Industries (DPI) Water		
15/08/2016 10:46 AM via email - Comments with respect to CSWQMP Revision 2	DPI Water has no comments on the CSWQMP	Noted.
Clarence Valley Council		
Tue 6/09/2016 8:42 PM via email - Comments with respect to CSWQMP Revision 3	I have had a quick look and Council has no objections to the responses to our initial comments.	Noted.
Thu 1/09/2016 11:58 AM via email - Comments with respect to CSWQMP Revision 2	<p>Our staff have reviewed this document and are satisfied that the concept wastewater controls for operational works incorporates best practice methods, strategies, management protocols and adoption of relevant guidelines.</p> <p>Their also comment as follows :</p> <ol style="list-style-type: none"> 1. It has been advised that detailed control measures will be developed and implemented throughout the progressive stages of the bridge works. It is recommended that the works provider update and provide to Council the specific site based control plans during development and construction phases of the project. 	A revised ESCP with additional detail is included in Annexure A. More detailed controls will be outlined in Progressive ESCPs, which will be developed throughout construction for each stage or parcel of work (where required). CVC is welcome to view these on site at any time. Alternatively, the PESCP(s) of interest could be tabled at any monthly ERG Meeting at the request of CVC.

Issue	Issue raised	Contractor responses
	<p>Compliance and effectiveness of identified control measures designed to prevent and minimise stormwater impacts to the receiving Clarence River shall be monitored during operational works by the contractor and NSW Environmental Protection Agency. Council Environmental Health Officers may assist monitoring or refer any non-compliance matters with the nominated contractors or NSW Environmental Protection Agency for any issues that may arise during construction phases.</p>	<p>Fulton Hogan prides itself on being open and transparent with all relevant government agencies about water quality monitoring results. Regular monitoring and inspections will be undertaken during construction in accordance with Annexure B of the CSWQMP. Water quality monitoring results will be communicated to relevant government agencies, including CVC and EPA, through monthly Environment Review Group (ERG) meetings.</p>

Issue	Issue raised	Contractor responses
Construction Heritage Management Plan (CHMP) (CoA D46 (d))		
The Department of Planning and Environment (DP&E)		
Thu 11/08/2016 5:22 PM via email - Comments with respect to CHMP Revision 3	<p>Reference: Section 4.2</p> <p>Update this section in the final Plan to provide outcomes of consultation undertaken with stakeholders, including no comments/response.</p>	<p>Added a sentence to Section 4.2, consistent with other plans, to clarify that '<i>A summary of consultation undertaken during the preparation of this CHMP is provided in Appendix A2 of the CEMP.</i>'</p>
	<p>Reference: Table 6-2</p> <p>Item CZB29 14 Pound Street. States an indirect impact (visual and noise) but the text refers to demolition of the heritage item. Clarify whether the project has a direct or indirect impact.</p>	<p>Table 6-2 in Rev3 is now Table 6-3 in Rev4.</p> <p>Deleted original Template text and included text obtained directly from the EIS (Appendix G, p211). It is now clear that CZB29 will only be subject to <i>Indirect impact – visual and noise</i>; it will not be demolished.</p> <p>Also included Table 6-2 in Rev4, which clearly lists the various Project impacts to known non-Aboriginal heritage items.</p>
	<p>Reference: Figure 6-2</p> <p>Is the ancillary site shown in the figure bounded by Iolanthe Street, Through Street, the rail line and the flood levee correct? I understood a site to the east of Iolanthe Street has been identified for the South Grafton ancillary site.</p>	<p>Figure 6-1, Figure 6-2 and Figure 6-3 have been extracted directly from the EIS. Source references have now been included under each Figure to make this clear. As each figure title indicates, the purpose of these figures is to show the built heritage impacted by the Project. These figures are not to be relied upon to ascertain the most current locations of ancillary facilities, which have been identified and assessed post-EIS phase. This information is contained in the CEMP (main document) Section 2.4.</p> <p>Since the EIS phase, RMS has identified and assessed one additional ancillary facility site adjacent to the South Grafton site compound, to the east of Iolanthe Street. This ancillary facility site is discussed in the CEMP (main document) Section 2.4.</p>
	<p>Reference: Appendix B</p> <p>Archaeological monitoring program – this covers non-Aboriginal heritage, however, it is silent on Aboriginal heritage. The program should</p>	<p>The implementation of the <i>RMS standard management procedure – Unexpected heritage items</i> (Roads and Maritime Services, 2013) would be the means of managing Aboriginal</p>

Issue	Issue raised	Contractor responses
	<p>be updated to discuss procedures should Aboriginal artefacts be uncovered during construction.</p>	<p>heritage values associated with the levee upgrades (refer to Table 7-3 mitigation measure ID CHMM2) should artefacts be uncovered during construction. In contrast, the non-Aboriginal assessment identified that much of the initial settlement of Grafton was located on the banks of the Clarence River, which is now occupied by certain alignments of the levee. As such, there is potential for the archaeological remains of these built structures to be impacted by the levee upgrade, and a monitoring program is required.</p> <p>Based on advice received from Biosis Pty Ltd, no Aboriginal monitoring is required in regard to the flood levee because Biosis did not identify any areas of archaeological potential associated with the levee upgrades during the EIS and earlier studies. The margin associated with the levee system is located in close proximity to the Clarence River, this landform has been heavily flood affected and has significantly reduced potential to contain Aboriginal objects. Any objects present within these landform are likely to be transient (i.e. have been moved from their original location either by flooding or the construction of the levee).</p> <p>Biosis has also advised that no comments from DP&E or OEH were received during the exhibition of the EIS requesting further assessment of the levee system for Aboriginal heritage.</p> <p>Added a second paragraph under 'Purpose' of the <i>Archaeological monitoring program</i> to clarify why no Aboriginal monitoring program is required in this instance.</p> <p>It is also noted that regular monitoring and inspections will be undertaken during construction for both Aboriginal and non-Aboriginal heritage in accordance with Section 8.1 and Section 8.2 of the CEMP, as documented in Section 8.3 of the CHMP.</p>
Office of Environment and Heritage (Aboriginal Heritage)		
Wed	A draft Construction Environmental Management Plan Revision 2 was	Noted.

Issue	Issue raised	Contractor responses
31/08/2016 3:08 PM via email from Craig Dunk - Comments with respect to CHMP	<p>provided to the Office of Environment and Heritage (OEH) by Fulton Hogan on 12 August 2016 requesting advice on Aboriginal cultural heritage. The OEH is providing advice to the Environment Protection Authority for inclusion in a consolidated response to this matter.</p> <p>We have reviewed the documentation provided and note the Construction Heritage Management Plan (CHMP) that will form part of the Construction Environmental Management Plan (CEMP).The OEH has no additional comments on the CHMP main document.</p> <p>However, the OEH welcomes the opportunity to review the proposed environmental work method statements (EWMS) as they are prepared to manage and control all activities that have the potential to negatively impact on Aboriginal cultural heritage.</p>	Fulton Hogan looks forward to providing all EWMS for high risk activities that have the potential to negatively impact on Aboriginal cultural heritage to OEH (Aboriginal heritage) for review and comment. EWMS will be prepared progressively throughout construction.
Mon 22/08/2016 3:30 PM letter received via email - Comments with respect to CHMP Revision 3	<p>A draft <i>Appendix 85 Construction Heritage Management Plan - Additional Crossing of the Clarence River at Grafton Project</i> (Grafton Bridge: CHMP Rev3 - Revision date 1 August 2016)) was provided to the Office of Environment and Heritage (OEH) by Fulton Hogan on 3 August 2016 requesting advice on Aboriginal cultural heritage. The OEH is providing advice to the Environment Protection Authority for inclusion in a consolidated response to this matter.</p> <p>We have reviewed the documentation provided detailing the proposed Construction Heritage Management Plan (CHMP) that will form part of the Construction Environmental Management Plan (CEMP)</p> <p>The OEH supports the key objective of the CHMP to ensure that impacts to Aboriginal heritage are minimised and within the scope permitted by the Infrastructure Approval. To enable that objective to be achieved the OEH recommends the following matters be considered:</p>	Noted.
	<ul style="list-style-type: none"> the archaeological monitoring program referred to in Appendix B should be overseen by a heritage specialist with expertise in Aboriginal cultural heritage identification as well as non-Aboriginal heritage for Measure/Requirement AH7. 	The <i>Archaeological monitoring program</i> contained in Annexure B is only required to cover non-Aboriginal heritage. Added a second paragraph under 'Purpose' to clarify why the same type of monitoring program is not required for Aboriginal heritage in this instance.

Issue	Issue raised	Contractor responses
		<p>In the event that unexpected Aboriginal and non-Aboriginal heritage finds are encountered during construction Fulton Hogan will follow the <i>RMS standard management procedure – Unexpected heritage items</i> (Roads and Maritime Services, 2013) (refer to Table 7-3 mitigation measure ID CHMM2).</p>
	<ul style="list-style-type: none"> the fencing of nearby Aboriginal sites located in close proximity to the construction work zone, referred to in Measure/Requirement AH6 should be appropriate for purpose. 	<p>In accordance with Table 7-3 mitigation measure ID CHMM1, the fencing of Aboriginal sites will be undertaken in accordance with the <i>RMS Biodiversity guidelines: Guide 2 – Exclusion Zones</i> (RTA, 2011). This requires a number of factors to be considered before selecting exclusion fence type, including for example: the sensitivity of what is being excluded; accessibility to the excluded area; the limitations of fencing options; the type and number of plant and equipment; and the area to be fenced. Consideration of these factors will ensure that exclusion fencing is appropriate for purpose.</p>
	<ul style="list-style-type: none"> the documents should be updated to reflect changes in ancillary facility locations. 	<p>Figure 6-1, Figure 6-2 and Figure 6-3 have been extracted directly from the EIS. Source references have now been included under each Figure to make this clear. As each figure title indicates, the purpose of these figures is to show the built heritage that will be impacted by the Project. These figures are not to be relied upon to ascertain the most current locations of ancillary facilities, which have been identified and assessed post-EIS phase. This information is contained in the CEMP (main document) Section 2.4.</p> <p>Since the EIS phase, RMS has identified and assessed one additional ancillary facility site adjacent to the South Grafton site compound, to the east of Iolanthe Street. This ancillary facility site is discussed in the CEMP (main document) Section 2.4.</p>
	<ul style="list-style-type: none"> the planned induction program should include Aboriginal stakeholder participation in its delivery. 	<p>As per meeting held with Grafton Ngerrie LALC on 21/07/16 a 'Train the Trainer' session will be undertaken between the relevant Fulton Hogan personnel (e.g. Environmental Manager, Environmental Officer) and a member of Grafton Ngerrie LALC</p>

Issue	Issue raised	Contractor responses
	<ul style="list-style-type: none"> the most recent version of the Roads and Maritime Services' Standard Management Procedure Unexpected Heritage Items should be used as a mitigation measure for Aboriginal objects not expected to be identified within the approved project area. <p>The OEH supports continued Aboriginal consultation even after the finalisation of the CHMP.</p>	<p>to ensure that the person delivering the induction is aware of all the issues, and culturally sensitive information is managed appropriately.</p> <p>In accordance with Table 7-3 mitigation measure ID CHMM2, Fulton Hogan will adopt and follow the <i>RMS standard management procedure – Unexpected heritage items</i> (Roads and Maritime Services, 2013) in the event that unexpected Aboriginal and non-Aboriginal heritage finds are encountered during construction, including human remains.</p> <p>Fulton Hogan looks forward to continued consultation with OEH for the duration of the Project.</p>
Clarence Valley Council		
Wed 31/08/2016 3:40 PM via email - Comments with respect to CHMP Revision 4	Council has reviewed Rev 4 of the Construction Heritage Management Plan and in particular App 2 summarising how it has addressed Council's comments, and confirms that it is satisfied with the document and has no further comment to make.	Noted.
Fri 12/08/2016 3:23 PM via email - Comments with respect to CHMP Revision 3	<p>Reference: Page 3 Section 3.1.2 The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance (1999). Note- The latest version was updated in 2013.</p> <p>Reference: page 15 Table 5-2: Historic themes for the Grafton area References to 'Fishers Park' Heritage study references are to Fisher Park. Extract SHI 1640053</p>	<p>Amended the date included in the RMS Template from 1999 to 2013 so that the dot point now reads: '<i>The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance (2013).</i>'</p> <p>No change proposed. Section 5.2.1 explains that '<i>The EIS identified eight local history themes for the Grafton area, as summarised in Table 5-2. Table 5-2 is a summary of the information contained in the EIS; therefore, Fulton Hogan is not at liberty to change the content.</i></p>

Issue	Issue raised	Contractor responses
	<p>“The park was named after Thomas Fisher who was Mayor in 1874 and a leading citizen. In 1907 -1908 Fisher Park was subdivided with a section set aside for a Show Ground.”</p>	
	<p>Reference: page 18</p> <p>CZB07 Fisher’s Drain - precaution in relation to any works in this area.</p> <p>Note for info- Recent stabilisation works were approved to reline part of the historic brick drain with a structural liner.</p>	<p>Thank you for this information.</p>
	<p>Reference: page 23 Section 6.3.1.1</p> <p>Perhaps the report should summarise the total number of heritage items which are to be demolished, prior to itemising the different numbers in the categories as this can appear confusing.</p>	<p>Agree. Added Section 6.3.1 <i>Summary of impacts on known non-Aboriginal Heritage</i> to the Template, including Table 6-2. Table 6-2 clearly sets out the total number of heritage items (10) to be demolished.</p>
	<p>Reference: page 38</p> <p><i>NH1 A heritage interpretation plan will be prepared to provide opportunities to enhance understanding and appreciation of the heritage items, values and themes associated with Grafton....The heritage interpretation plan will be developed in consultation with Clarence Valley Council and relevant stakeholders.</i></p> <p>Note - I would like to contribute to the development of the heritage interpretation plan.</p>	<p>Noted. The <i>Heritage Interpretation Plan</i> (covering both Aboriginal and non-Aboriginal heritage) will be included in the <i>Urban Design and Landscape Management Plan</i> (UDLMP) and provided separately to the CEMP. In accordance with the Minister’s conditions of approval (CoA D42), the UDLMP will be prepared in consultation with EPA, the Heritage Division (OEH), Clarence Valley Council (CVC) and the community.</p>
	<p>Reference: page 43</p> <p><i>NH3 If required, architectural noise treatments on heritage items will be applied in a sympathetic manner to minimise impact on the significance of the heritage item.</i></p> <p>Consideration should also be given not only to the potential impact of any works on the property concerned, but also to the cumulative impact of any noise attenuation measures on the overall significance and setting of the Conservation Area. For example any removal and replacement of traditional low and non- solid fences. Fences in excess of 1.2 metres and of solid construction are out of character in the Conservation Area. Landscaping should be considered to add greater</p>	<p>All architectural noise treatments, as identified in the EIS, will be developed and implemented by RMS. RMS will work closely with its heritage consultant, Biosis, to ensure that heritage impacts are minimised. It is unlikely that changes would be made to fences, as part of this work. In regard to landscaping, CVC will be consulted during the preparation of the UDLMP as required by CoA D42.</p>

Issue	Issue raised	Contractor responses
	<p>privacy if required. Changes to fenestration need to be carefully considered.</p> <p>Note-Changes to the exterior including fabric, finish and appearance require prior consent under CI 5.10 of the CVLEP 2011. Fences in front setbacks within a Conservation Area and all fences on the boundary of a heritage item are not exempt development under SEPP Codes 2008.</p>	
	<p>Reference: page 46</p> <p><i>Archival Reports NH6 Archival recording will be prepared for the following heritage items:</i></p> <p><i>CZB10, CZB11, CZB13, CZB16, CZB17, CZB18, CZB19, CZB20 & CZB21, CZB24, CZB25, CZB26, CZB27, CZB28, CZB29, CZB30, CZB31, CZB32, CZB33, CZB34, CZB35, CZB36 and CZB37.</i></p> <p><i>Archival recording will also be carried out for portions of Pound Street within the Grafton Conservation Area (C3).</i></p> <p>Noted- Copies should be provided to the Clarence River Historical Society, Grafton Regional Library and Clarence Valley Council.</p>	<p>CoA B16 requires the Archival Report to be submitted to the Department of Planning and Environment, the Heritage Council of NSW, Australian Rail Track Corporation, the local library and the local Historical Society. As requested, RMS will also provide CVC with a copy of the report once it has been finalised.</p>
	<p>Reference: General</p> <p>No other issues were identified.</p> <p>Question. Will the properties scheduled for total demolition, be offered for relocation as part of the heritage impact options?</p>	<p>Fulton Hogan shall discuss this option with the successful demolition subcontractor and suggest there may be an interest in the local community for relocation that the subcontractor could explore at its own cost and time.</p> <p>Fulton Hogan does not generally relocate dwellings due to the cost and associated liabilities.</p>
Heritage Division, Office of Environment and Heritage (OEH)		
<p>Wed 31/08/16 1:47 PM - via email</p>	<p>Heritage Division advised:</p> <p>“Thanks for emailing. I do note that the conditions for the CHMP require consultation with the Heritage Council, which has not yet occurred. If possible it might be better for you to delay your submission for our comments in order for you to meet the Minister’s CoA for this.</p> <p>Can you also advise how any comments we may supply would be</p>	<p>Fulton Hogan response:</p> <p>“We acknowledge the Minister’s CoA requirement for consultation with NSW Heritage Council on the CHMP. The CHMP was submitted to the Heritage Council for review and comment on 3 August being 4 weeks ago.</p> <p>Given the time elapsed and the Heritage Council advice that its</p>

Issue	Issue raised	Contractor responses
	<p>incorporated into the CHMP if it has already been submitted to DP&E for endorsement?"</p>	<p>review will take an additional 1-2 weeks, it is our intention to submit the CHMP to DP&E for approval at the same time as the Heritage Council undertakes its review.</p> <p>In the event Fulton Hogan receives Heritage Council comments prior to DP&E approval, Fulton Hogan comment responses (and updated plan where required) shall be sent to DP&E for consideration. If comments are received after DP&E approval, Fulton Hogan shall address the comments and inform DP&E of the responses. The plan will be amended as required in consultation with DP&E.</p> <p>We trust you find this approach a workable solution for all parties. This will allow the approvals process to progress without delaying the project while ensuring comments are adequately considered and addressed."</p>
<p>Wed 31/08/16 – via email</p>	<p>Heritage Division advised: "I've had a look at the document and it seems as though it requires inputs from our archaeological team. Katrina Stankowski, Senior Team Leader: Archaeology, has indicated that they will require 1-2 weeks to carry out this work."</p>	<p>Fulton Hogan response: "As discussed, thank you for letting me know about the expected review timeframe of 1-2 weeks. Unfortunately, we are unable to delay the CHMP submission to DP&E by this same timeframe. Our intention is to submit Revision 4 of the CHMP to DP&E tomorrow. We will advise DP&E at the same time that comments from Heritage Division (OEH) are pending and expected in 1-2 weeks."</p>
<p>Tue 30/08/16 11:10 AM - via email</p>	<p>Carole Lynne Kerrigan requested a hardcopy of the CHMP Revision 3.</p>	<p>Fulton Hogan emailed Heritage Division a pdf version of Revision 4 of the CHMP with 'track changes'.</p>
<p>Wed 24/08/16 PM – via telephone</p>	<p>Sarah advised that the plan would be allocated to Carole Lynne Kerrigan who would not be back from training until next week.</p>	<p>NA.</p>

Issue	Issue raised	Contractor responses
Mon 22/08/16 AM – via telephone	Fulton Hogan was advised by the receptionist that Sarah Jane Brazil would be in a training session until 1pm and a message would be passed on to her to call Fulton back later this afternoon.	NA.
Fri 19/08/16 – via telephone	Fulton Hogan was advised by the receptionist that the CHMP had been allocated to Sarah Jane Brazil.	NA.
Thu 11/08/16 10:01 AM – via telephone	Fulton Hogan was advised by the receptionist that while the CHMP Rev3 had been received, it had not yet been allocated to an assessment officer. The receptionist advised that Fulton Hogan should call back on Wednesday 17/8 as the CHMP may have been allocated by then.	NA.
Wed 3/08/16 9:52 AM via email - CHMP Revision 3	Fulton Hogan issued Revision 3 of the CHMP to Heritage Division (OEH) for review and comment. Comments were requested by Wednesday 17 August 2016.	No comments/response received.
Grafton Ngerrie Local Aboriginal Land Council (LALC) /Registered Aboriginal Parties.		
Mon 22/08/2016 10:30 AM – via telephone	Grafton Ngerrie LALC advised Fulton Hogan that the members meeting had been cancelled.	No comments/response received with respect to the CHMP as at 01/09/16.
Fri 19/08/16 about 1:10PM via telephone	Grafton Ngerrie LALC invited Fulton Hogan to attend the members meeting on Tuesday 23 August 2016.	Fulton Hogan accepted the invitation and had planned to discuss the CHMP and other aspects of the project.
Wed 3/08/2016	Fulton Hogan issued Revision 3 of the CHMP to Grafton Ngerrie LALC for review and comment. Comments were requested by Wednesday 17	No comments/response received.

Issue	Issue raised	Contractor responses
9:52 AM via email - CHMP Revision 3	August 2016.	
21/07/16 Face-to face meeting	Meeting with Grafton Ngerrie LALC to discuss the Construction Heritage Management Plan (CHMP) and other aspects of the project. It was agreed that Grafton Ngerrie LALC would discuss the CHMP at the next members meeting on 27/07/16 and advise Fulton Hogan of the outcome. Refer to Meeting Minutes attached under ' <i>Consultation Correspondence</i> ' for additional detail.	No comments/response received.
Fri 15/07/2016 3:13 PM via email - CHMP Revision 2	Fulton Hogan issued Revision 2 of the CHMP to Grafton Ngerrie LALC for review and comment.	No comments/response received.

Issue	Issue raised	Contractor Responses
Construction Flora and Fauna Management Plan (CFFMP) (CoA D46 (e))		
Department of Primary Industries (DPI) Fisheries		
Mon 5/09/2016 1:01 PM via email - Comments with respect to CFFMP Revision 2	The changes look good, I've got no further comments.	Noted.
29/08/2016 1:05 PM via email - Comments with respect to CFFMP Revision 1	<p>Can you please add this in to the fauna handling and rescue and delete the reference to placing aquatic fauna in plastic bags</p> <p>Dewatering procedure and aquatic fauna relocation</p> <p>Where necessary, aquatic fauna shall be relocated in accordance with the following steps:</p> <ol style="list-style-type: none"> 1) Ensure all aquatic fauna relocation works are supervised by a suitably qualified aquatic ecologist. 2) Prior to the commencement of pumping, advice should be sought from the aquatic ecologist on pumping methods and the extent of drawdown. 3) The water level should be pumped down to a level that will allow the safe and effective implementation of capture methods, such as seine nets, dip nets and electrofishing. 4) A fine mesh screen with not >5mm mesh must be installed on the inlet of the pump or a fish basket used to remove the risk of native aquatic fauna being transferred through pump. A maximum depth of 500mm is typically required before fish salvage can commence but site-specific advice will be required from the aquatic ecologist. 5) Aquatic ecologist is to establish the presence of native and introduced aquatic fauna and plan relocation. Access to adjoining properties may 	Added the ten identified steps for aquatic fauna relocation to Annexure D <i>Fauna Handling and Recue Procedure</i> under Section D5.

Issue	Issue raised	Contractor Responses
	<p>be required for relocation, particularly when dewatering dams. The aquatic ecologist will ensure that native aquatic fauna species are released into suitable habitat as close to the original location as possible.</p> <p>6) Native fish will be placed in tubs full of water sourced from the salvage site where they will be housed for brief periods before being transferred to the release site. Pest fish will be euthanased using an ice slurry.</p> <p>7) Following completion of relocation, a final check shall be undertaken to find any remaining fish, or dying/dead fish.</p> <p>8) All euthanized and dead fish will be transported to a licensed landfill facility for disposal.</p> <p>9) Records will be kept on habitat type, method of water extraction, species, number of individuals and reproductive status of fish encountered.</p> <p>10) Aquatic ecologist will prepare a report on the relocation, detail the source of the fish, the number and species of fish released and euthanased.</p>	
Environmental Protection Authority (EPA) - Biodiversity		
<p>05/09/2016 02:18 PM via email - Comments with respect to CFFMP Revision 2</p>	<p>The EPA are comfortable with the included reference to the TTSTS MP in table 7-2., and have no further comment regarding this.</p> <p>The EPA support the DPE comment that some reference to risk assessment for turtles and dolphins be included in the document, and notice that none has been included in this revised document. I have mentioned this in ERG meetings to date, and would suggest a similar risk assessment be made for Osprey, at the least by the ecologist once they are appointed.</p>	<p>Noted.</p> <p>Included new subsection 6.2.3.3 <i>Marine species</i>. Also refer to response to DP&E comment below.</p>
<p>02/09/2016 04:00 PM via email -</p>	<p>Reference: General</p> <p>On the whole this is a well developed management plan. The EPA have only one real area of concern, that is regarding the temporary fencing</p>	

Issue	Issue raised	Contractor Responses
Comments with respect to CFFMP Revision 1	requirements and approach for the three toed snake toothed skink (TTSTS).	Noted.
	<p>Reference: Table 7-2: Additional environmental management measures for biodiversity impacts. Loss of TTSTS</p> <p>This table presents an approach to temporary fencing that appears at odds to the TTSTS management plan.</p> <p>Both CFFMM22 and CFFMM23 contain reference to a duration of construction of 4 weeks as a trigger to install temporary fencing around works which is inaccurate. Temporary fencing is to be installed in construction areas that are areas of known habitat or with a moderate or high likelihood of presence.</p> <p>The 4 week (less or more) trigger is only relevant to relocation sites.</p> <p>ACTION: The EPA requests that this section be corrected to reflect the actions developed in the TTSTS MP regarding temporary fencing. This may include some discussion with the MP author to gain a better understanding of what is required.</p>	To avoid inconsistency, Table 7-2 mitigation measure ID CFFMM22 has been amended to refer to Annexure L <i>Three-Toed Snake Tooth Skink Construction Management Plan</i> , and mitigation measure ID CFFMM23 and CFFMM24 have been deleted.
Clarence Valley Council		
Mon 5/09/2016 9:35 AM via email - Comments with respect to CFFMP Revision 1	Council's ecologist has reviewed the Construction Flora and Fauna Management Plan for the Grafton Bridge project and has no objection or comment.	Noted.
The Department of Planning and Environment (DP&E)		
30/08/2016 10:54 AM	Reference: D46(e) The Plan shall be prepared by a suitably qualified	Included reference to Section 1.3 in Table 3-1 under CoA D46(e). Section 1.3 states <i>'In accordance with the Instrument</i>

Issue	Issue raised	Contractor Responses
via email - Comments with respect to CFFMP Revision 1	and experienced ecologist ... Please provide details of the qualifications and experience of the ecologist who prepared the CFFMP and include the ecologist's comments in Appendix C of the CFFMP.	<p><i>of Approval (CoA) D46(e), this CFFMP has been prepared by Jane Raithby-Veall Principal Ecologist, Biosis Pty Ltd in consultation with the EPA and Department of Primary Industries (DPI) Fisheries. Details of the consultation carried out as part of the preparation of this CFFMP are provided in Section Error! Reference source not found.</i></p> <p>DP&E has also been provided with a copy of Jane's CV, which details Jane's qualifications and experience, as part of the Rev3 CFFMP submission. Please note that Jane's surname has changed in the last 9 months from Jane Murray to Jane Raithby-Veall.</p>
	<p>Reference: D46(e)(iv) rehabilitation and revegetation details, including objectives, identification of flora species and sources, measures for the management and maintenance of rehabilitated areas, and timeframes and responsibilities for revegetation and rehabilitation</p> <p>The Plan states that this requirement would be addressed in the permanent Revegetation Strategy which will be included in the Urban Design and Landscape Management Plan required by condition D42. However, as the levee upgrade works would be completed within 4 weeks of commencement, the CFFMP must provide details of the landscaping/rehabilitation of the levees and the levee upgrade stockpile sites following completion of the works. This should be addressed in section 7 of the CFFMP.</p>	<p>RMS has discussed the issue of levee revegetation with DP&E and will submit a letter to DPE outlining levee revegetation approach and Council approach to vegetation on levees. All levee works will be either turfed (urban areas) or seeded (rural areas) in agreement with the property owners to re-establish the existing grass cover. Levee stockpile sites will be seeded. Requirements for revegetation of the levees is captured in the levee design documentation (drawings and specifications).</p> <p>Included a paragraph in Table 3-1 under CoA D46(e)(iv) explaining the above.</p>
	<p>Reference: Table of Contents</p> <p>Check the accuracy of tables listed in the Table of contents (duplication/missing tables/non-existent tables).</p>	<p>Updated the 'Tables' and 'Figures' in the 'Table of Contents'. Also updated table and figure references throughout the document.</p>
	<p>Reference: Glossary</p> <ul style="list-style-type: none"> • DP&E – correct name is Department of Planning and Environment. • Update reference to DSEWPaC – now the Department of the Environment. 	<p>Corrected Template to refer to Department of Planning and Environment.</p> <p>Updated reference to DSEWPaC to read: '<i>Department of Sustainability, Environment, Water, Population and Communities (now the Department of the Environment)</i>'</p>

Issue	Issue raised	Contractor Responses
	<p>Reference: Section 6.2.3</p> <p>This section should discuss potential impacts to the Green Turtle (and other river turtles) and Dolphins during river based construction and the erection of structures in the waterway, including silt curtains, and potential entanglement of these species.</p> <p>Proposed mitigation measures should be included in Table 7-1.</p>	<p>Included new subsection 6.2.3.3 <i>Marine species</i>.</p> <p>Based on advice received from Biosis Pty Ltd, the construction of the project is unlikely to impact marine species, due to the lack of permanent marine habitat in the estuarine reaches of the Clarence River. In the event that a marine species is identified during construction, impact to such species is unlikely because:</p> <ul style="list-style-type: none"> • potential construction impacts on aquatic habitat will be temporary and confined to areas occupied by the bridge foundations and abutments; • erosion and sediment mitigation measures (refer Appendix B4 CSWQMP) will minimise potential impacts to water quality, aquatic species and their habitat as a result of sedimentation and erosion from construction areas and/or spillage of fuels and chemicals; • waste mitigation measures (refer Appendix B7) will minimise the potential for injury and fatality to marine life cause by ingestion of, or entanglement in, waste debris; • the proposed river-based construction activities or structures will not be barriers to the marine passage along the Clarence River; • Lack of aquatic vegetation or seagrasses (<i>Posidonia</i> sp.), which form habitat for marine species, are expected to be present in the Clarence River at the location of the proposed bridge. <p>In addition, a <i>Barge Works</i> EWMS and <i>Works in Waterways</i> EWMS (refer Appendix B4 CSWQMP Table 7-2 mitigation measure ID CSWQMM41) will be issued to the relevant agencies for review and comment prior to commencement of bridge work in the Clarence River in May 2017.</p>
	<p>Reference: Table 7-1</p> <p>Vegetation clearing B5 – the 4th dot point states pre-clearing surveys will be carried out for the Three-toed Snake-tooth Skink in suitable areas</p>	<p>Pre-clearing surveys will be undertaken by the ecologist for the Three-toed Snake-tooth Skink prior to the commencement of</p>

Issue	Issue raised	Contractor Responses
	<p>not yet surveyed (ancillary sites and houses to be demolished) before demolition and construction works. Section 6.3 of the CFFMP states that surveys of missing lots were undertaken and the Three-toed Snake-tooth Skink was found. It is unclear whether pre-clearing surveys would be undertaken by the ecologist for the Three-toed Snake-tooth Skink prior to the commencement of clearing and demolition of houses.</p> <p>Will pre-clearing surveys be conducted for the levee upgrade works?</p> <p>The mitigation measures must be consistent with the measures in the Three-toed Snake-tooth Skink Construction Management Plan.</p>	<p>clearing and demolition of houses in accordance with Annexure A <i>Biodiversity Monitoring Program</i> (2nd row from the top of Table A-1) and Annexure L <i>Three-Toed Snake Tooth Skink Construction Management Plan</i>.</p> <p>Updated Table 7-1 under B5 to cross reference Annexure A, Annexure L, Section 6.3, and mitigation measure CFFMM22.</p> <p>Pre-clearing surveys will be conducted for the levee upgrade works in the same way that they would be completed for the rest of the project – in accordance with Annexure A <i>Biodiversity Monitoring Program</i> (2nd row from the top of Table A-1) and Annexure L <i>Three-Toed Snake Tooth Skink Construction Management Plan</i>.</p> <p>To avoid duplication and inconsistency, amended Table 7-2 mitigation measure ID CFFMM22 to refer to Annexure L, and deleted CFFMM23 and CFFMM24.</p>
	<p>Reference: Appendix L Three-toed Snake Tooth Skink Construction Management Plan Section 3.3.2</p> <p>It is unclear when the TTSTS exclusion fence would be installed – prior to clearing and grubbing or prior to excavation. The location of the exclusion fence should be shown in Figure 3-1.</p>	<p>This issue is addressed in Section 3.5.1 <i>Timing of Installation</i>, outlining two options. Option A covers installation of the fence prior to any habitat disturbance or habitat removal works. Option B allows for habitat disturbance and removal to take place without the fence installed, however, the exclusion fence must be installed before any captured TTSTS can be relocated. For construction works extending 4 weeks or less, skinks would be retained in captivity and released upon the completion of those works in any given area to reduce the risk of mortality. The retention of TTSTS in this instance would be in accordance with a NSW Animal Care and Ethics Committee Approval held by the Project Ecologist. Refer to Section 3.5.2.</p> <p>Section 3.5.2 also outlines the location of temporary TTSTS exclusion fencing – ‘For 30 m either side of the relocation point or an area known or assigned as having a moderate or high likelihood’. Finalisation of fencing locations is currently being progressed as there are a lot of issues to assess and will be</p>

Issue	Issue raised	Contractor Responses
	<p>Reference: Appendix L Three-toed Snake Tooth Skink Construction Management Plan Section 3.7</p> <p>At sites where temporary construction works are less than 28 days duration, captured TTSTS would be retained and held in captivity until works are completed. Details of the capture, hold and release of the TTSTS must be provided in the TTSTSCMP. This includes details of:</p> <ul style="list-style-type: none"> • Transport to and from the capture site • Captivity site and how the reptiles are held in captivity • Duration of captivity • Monitoring of TTSTS health and food resources of the captivity site 	<p>progressed in consultation with the ERG/ EPA.</p> <p>Information relating to the following forms part of the standard operating procedures for annual compliance under Animal Care and Ethics Licences in NSW (refer to Section 3.5.2):</p> <ul style="list-style-type: none"> • Transport to and from the capture site • Captivity site and how the reptiles are held in captivity • Duration of captivity • Monitoring of TTSTS health and food resources of the captivity site.
	<p>Reference: Appendix L Three-toed Snake Tooth Skink Construction Management Plan Section 4.0 and Table 4-1</p> <p>Details of monitoring of the health and condition of TTSTS at the captivity sites must be included in the TTSTSCMP.</p>	<p>This information forms part of the standard operating procedures for annual compliance under Animal Care and Ethics Licences in NSW. Refer to Section 3.5.2.</p> <p>Moreover, the details would also be provided in post-clearing inspection reports prepared as part of the Construction Flora and Fauna Management Plan (refer Annexure A, last row of Table A-1).</p>

Issue	Issue raised	Contractor Responses
Construction Flood Management Plan (CFMP) (CoA D46 (f))		
The Department of Planning and Environment (DP&E)		
Thu 18/08/2016 2:49 PM via email - Comments with respect to CFMP Revision 3	<p>Reference: CoA D46(f)(v) consideration of the flood management objectives described in condition D23(b)</p> <p>The Construction Flood Management Plan has not addressed this requirement. Information about how the Plan addresses flood height, duration, velocity and direction must be provided.</p>	Included Annexure A <i>Flood Management Objectives and Mitigation Measures for Affected Properties</i> .
	<p>Reference: Section 4.1</p> <p>Please provide details of the qualifications and experience of the hydrologist consulted during the preparation of the Flood Management Plan. The comments of the hydrologist and agencies consulted and the RMS/Fulton Hogan responses should be provided to the Department.</p>	<p>Talia Guest, Associate in Infrastructure Services at Aurecon was the hydrologist consulted during preparation of the CFMP. Details of Talia's qualifications and experience are provided below:</p> <ul style="list-style-type: none"> • Bachelor of Environmental Engineering (BEngEnv) • Master of Emergency Management (MEmergMgt) • 15 years' experience in flood modelling and flood emergency management • Chartered Professional Engineer (CPEng) • National Professional Engineering Register (NPER) • Registered Professional Engineer Queensland (RPEQ) <p>The comments of the hydrologist and agencies consulted and the Fulton Hogan responses are provided below in this table.</p>
	<p>Reference: Section 6.1</p> <p>This section should reference the Hydrological Mitigation Report (KBR 7 June 2016) and the flood mitigation works recommended by the report. The report was approved by the Secretary on 6 July 2016.</p>	Included a reference to ' <i>Flood mitigation works as identified in the Hydrological Mitigation Report (KBR, June 2016)...</i> ' in Section 6.1.
	<p>Reference: Section 7.2</p> <p>What is the expected timeframe between the issue of a flood warning and the flood peak occurring? This information should be provided in this section.</p>	Included SES advice in Section 7.2.1 <i>Monitor flood warning services</i> regarding the flood watch being issued a couple of days before peak flooding occurs (potentially). New paragraph now reads: " <i>Flood Watch</i> " is issued by the Bureau of Meteorology when flooding is possible. A " <i>Flood Warning</i> " is

Issue	Issue raised	Contractor Responses
		<p><i>issued when a flood is likely. SES advises that a “Flood Watch” for the Clarence River is typically issued several days before the event is anticipated. SES clarified by example that there could be 3-4 days of rain in the upper catchment before this runoff actually impacts (increasing river height and velocity) is experienced in vicinity of the site.’</i></p>
	<p>Reference: Section 7.2.1</p> <p>The third dot point refers to the Severe Weather Event Evacuation Procedure where a barge is in the river. A copy of the procedure should be appended to the Construction Flood Management Plan, and provided to the Department for review.</p>	<p>Included a cross reference to Table 7-2 mitigation measure ID CFMM6.</p> <p>Updated Table 7-2 mitigation measure ID CFMM6 to make it clear that the <i>Severe Weather Event Evacuation Procedure</i> will form part of the Environmental Work Method Statement for the barge works, which is expected to undergo agency review and consultation in February 2017.</p> <p>As discussed in Environment Review Group Meeting 02, a separate barge works EWMS will be issued to the relevant agencies for review and comment in February 2017, about the same time as the Works in Waterways EWMS. This is well before the planned commencement of bridge work in the Clarence River in May 2017.</p> <p>It is also noted that the barge operator has not yet been formally engaged by Fulton Hogan.</p>
	<p>Reference: Annexure A</p> <p>This annexure contains the Grafton Sector Response Strategy – the Strategy was not appended to the draft Flood Management Plan.</p>	<p>Grafton Sector Response Strategy is now Annexure C and appended to CFMP Revision 4.</p>
<p>State Emergency Services (SES)</p>		
<p>Wed 17/08/2016 12:31 PM via TX#0157 - Comments with respect</p>	<p>SES comfortable with Evacuation Details contained within CFMP Rev3. Only comment reporting of flood modelling 50yr,100yr PMF heights slightly diferent to heights shown in SES Flood Safe Gudies. Very minor anomaly will not affect warning notifications.</p>	<p>Noted. Flood modelling data was obtained from the <i>Hydrological Mitigation Report</i> (KBR 7 June 2016), which was approved by the Secretary on 6 July 2016.</p>

Issue	Issue raised	Contractor Responses
to CWEMP Revision 3		
21/07/16 Face-to face meeting	Meeting with SES & Clarence Valley Council (CVC) to discuss the Construction Flood Management Plan (CFMP). Refer to Meeting Minutes attached under ' <i>Consultation Correspondence</i> ' for additional detail.	Issued CFMP Revision 3 to SES for review and comment on 17/08/16.
Clarence Valley Council		
Tue 23/08/2016 4:14 PM via email - Comments with respect to CFMP Revision 3	From an emergency management perspective your current CFMP is much more comprehensive than the initial draft. I am satisfied that these improvements will allow Fulton Hogan to better manage a flood event during construction.	Noted.
21/07/16 Face-to face meeting	Meeting with SES & Clarence Valley Council (CVC) to discuss the Construction Flood Management Plan (CFMP). Refer to Meeting Minutes attached under ' <i>Consultation Correspondence</i> ' for additional detail.	Issued CFMP Revision 3 to CVC for review and comment 17/08/16.
Environmental Protection Authority (EPA)		
Wed 31/08/2016 3:52 PM via email - Comments with respect to CFMP Revision 5	Subject: CFMP Rev5 – in response to your comments I have reviewed the response to comments provided by the EPA and have no further comments at this time.	Noted.
Thu 25/08/2016	Reference: Section 7.1.2 Preparation of the site. Dot point 3. The EPA notes the statement "Where feasible, hazardous materials are	Section 7.1.2 in Rev3 is now Section 7.2.2 <i>Preparation of the site</i> in Rev5.

Issue	Issue raised	Contractor Responses
<p>10:07 AM via email - Comments with respect to CFMP Revision 3</p>	<p>to be removed from the site...”</p> <p>The EPA strongly encourages Fulton Hogan to revisit the approach to the storage and management of hazardous materials, and to set up any storage facility in the flood plain so that it can easily be relocated to a suitable site above the predicted flood.</p>	<p>Dangerous and hazardous goods will be stored in a dangerous goods (shipping) container which is purpose built and compliant with the Australian Standard for the storage and handling of flammable and combustible liquids (AS 1940:2004). These dangerous goods (shipping) containers are typically equipped with an internal door release, ventilation, bunded floor and a lockable stainless steel valve in the bund wall, ensuring safety is the number one priority.</p> <p>Fulton Hogan intends to locate a suitably sized dangerous goods (shipping) container at the South Grafton main compound, which is situated outside the extent of a 20-yr ARI flood event.</p> <p>Fulton Hogan has re-worded this dot point in an attempt to address EPA’s concerns. It now reads: <i>‘All dangerous and hazardous goods will be stored at the main compound, outside the extent of a 20-yr ARI flood event, in a dangerous goods (shipping) container which is purpose built and compliant with the Australian Standard for the storage and handling of flammable and combustible liquids (AS 1940:2004). In the event a flood greater than the 20-yr ARI is predicted, the dangerous goods (shipping) container is to be removed/relocated from site to a safe and secure location outside the extent of the predicted flood event.’</i></p>
	<p>Reference: Section 7.1.2 Preparation of the site. Dot point 3.</p> <p>The EPA notes the proposal to secure barges by setting an additional anchor...</p> <p>The EPA suggests that the management of barges be reviewed and that a series of actions be established with additional measures being taken for each potential increase in flood height, for example a predicted low flood level may trigger an additional anchor, moderate flood level may trigger movement of the barge to the inside bend of the river and major flooding may trigger relocation of the barge to an alternative location downstream of Grafton. These actions should be discussed with the master in charge of these vessels and should consider the amount and</p>	<p>Section 7.1.2 in Rev3 is now Section 7.2.2 <i>Preparation of the site</i> in Rev5. Dot point 7.</p> <p>The setting of anchors and paying out more anchor wire is advice received from the potential barge operator, taking into account their experience in similar projects and understanding the in-stream environment. All actions to be implemented by the barge operator will be in accordance with a <i>Severe Weather Event Evacuation Procedure</i> that will be developed by the barge operator prior to commencement of the barge works. The Procedure will form part of the Environmental Work Method Statement for the barge works, which is expected to undergo agency review and consultation in February 2017</p>

Issue	Issue raised	Contractor Responses
	type of debris that is transported during flood events.	(refer to Table 7-2 mitigation measure ID CFMM6). This is well before the planned commencement of bridge work in the Clarence River in May 2017. It is also noted that the barge operator has not yet been formally engaged by Fulton Hogan.
	<p>Reference: Appendix A – Grafton sector Response Strategy.</p> <p>The EPA notes that the Grafton sector Response Strategy was not attached at Appendix A.</p>	Grafton Sector Response Strategy is now Annexure C and appended to CFMP Revision 5.
	<p>Reference: General Comment</p> <p>The EPA highlights the importance of having a documented processes which detail how stockpiled materials and containers holding fuels, chemicals and sewage will be managed during a flood event. The current flood management plan is very general and provides broad direction. Prior to locating any of the above materials on any site associated with the project consideration should be given to not only the flood height but also potential velocities and impacts on debris that may be transported by the flood.</p>	<p>Dangerous and hazardous goods will be stored in the South Grafton main compound, which is located outside the 20-yr ARI flood event and therefore has flood immunity in flood events less than the 20-yr ARI event. A toilet block, which will be regularly serviced, will also be established at the South Grafton main compound.</p> <p>Fulton Hogan maintains a <i>Stockpile Management Protocol</i> which considers several criteria before temporarily stockpiling material in a location. This <i>Stockpile Management Protocol</i> considers the temporary establishment of a stockpile in relation to potential flood impacts.</p>
Hydrologist		
24/08/16 via letter - Comments with respect to CFMP Revision 4	<p>CFMP Consultation</p> <p>As per your request, the Construction Flood Management Plan (Rev4) for the Additional Crossing of the Clarence River at Grafton Project has been reviewed with respect to the flooding aspects of the plan. In general, the document provides a reasonable management plan in the event that a flood occurs. Comments were provided to further strengthen the document in some areas.</p> <p>My qualifications in regards to this matter are:</p> <ul style="list-style-type: none"> • Bachelor of Environmental Engineering (BEngEnv) • Master of Emergency Management (MEmergMgt) 	Noted.

Issue	Issue raised	Contractor Responses
	<ul style="list-style-type: none"> • 15 years experience in flood modelling and flood emergency management • Chartered Professional Engineer (CPEng) • National Professional Engineering Register (NPER) • Registered Professional Engineer Queensland (RPEQ) <p>Yours faithfully</p> <p>Talia Guest</p> <p>Associate, Infrastructure Services</p>	
<p>Tues 23/08/2016 8:08 AM via email - Comments with respect to CFMP Revision 3</p>	<p>The document focuses mainly on the 20 year ARI event. I understand that this is the event that the levee is designed to and therefore deserves due consideration, however I do not feel that enough consideration of the 100yr ARI event has been made.</p>	<p>The EIS states that floods above the 20-year ARI flood event have the potential to impact construction ancillary sites and construction work zones and to disrupt construction activities (ARUP 2014, Pg 162). Therefore the significance of impact for the Project focuses on this particular flood event and greater. Nevertheless, the triggering for flood preparations in the CFMP are dependent on the issuing of a “flood watch” or “flood warning” by SES (Section 7.2.1). These notifications (flood watch and flood warning) could be issued for any flood event which threatens the region, including a 100-yr flood event. It’s worth noting that should a flood event threaten the site, the actions listed in 7.2.2 and 7.3.1 would have been implemented.</p>
	<p>Has any flood modelling of interim construction stages occurred? It would be worth considering the impacts of any construction stages which create constrictions to flow or are significantly different to the final design stage. This is the typical approach I would take for this type of project. If modelling isn’t being undertaken this could be covered off by a general discussion of likely impacts of certain stages.</p>	<p>The impacts of flooding on the construction site (and vice versa) have been considered and reported in the EIS, and are briefly summarised in Section 5.</p>
	<p>Reference: Section 5</p> <p>This section, and the document in general, would be strengthened by consideration of likely warning times in the system. Are there typical warning times between rainfall in certain parts of the catchment and</p>	<p>Yes, SES has provided observational/anecdotal timeframes which have been included in Revision 4 of the Plan Section 7.2.1 (runoff in the upper catchments takes approximate 3-4</p>

Issue	Issue raised	Contractor Responses
	<p>flooding at Grafton?</p> <p>What are the typical travel times between gauges?</p> <p>Are there any upstream gauges that are a good indicator of whether the Grafton area will flood?</p> <p>This type of information would give more weight to the planned actions in a flood event and whether or not these are feasible in the likely timeframes</p> <p>Reference: Section 7.2.2.3:</p> <p>I am not comfortable with the proposed method of developing evacuation routes once an evacuation is planned. I think the number of tasks to be carried out and the timeframes in which to do so will limit the ability of this planning to occur and some consideration of this should be made now. I would prefer to see a basic plan, with comments that it is to be reviewed in light of the actual event.</p> <p>Reference: Minor point - Section 7.3</p> <p>Who is able to check structural integrity of buildings? This should be limited to someone with a suitable skillset. Similar comments apply to all the dot points in this section.</p>	<p>days before flood impacts in Grafton are experienced).</p> <p>FH doesn't believe this is applicable.</p> <p>FH will be monitoring flood warning systems that are maintained and monitored by the appropriate emergency authority (SES and Clarence Valley Council).</p> <p>As SES and CVC are the designated emergency authorities responsible for flood response, FH believes it is more appropriate (and cause less confusion) to monitor the systems these authorities have in place rather than establish a separate independent system.</p> <p>Flood evacuation routes are identified in Figure 5-1, the need to create alternative flood evacuation routes as described in Section 7.3.2.3 would only be necessary if the evacuation routes in Figure 5-1 were compromised. CFMP Revision 4 reflects this.</p> <p>A suitably qualified professional would check the structural integrity of buildings. 5th dot point under Section 7.4 now reads '<i>Check the structural integrity of all buildings on site by a suitably qualified professional.</i>' Other dot points that relate to electrical equipment already state that a qualified electrician would carry out this work.</p>
Office of Environment and Heritage (Regional Operations Group - Alstonville)		
Wed 02/09/2016 3:05 PM via email – CFMP Revision 3	I've reviewed the Construction Flood Risk Management Plan. I found it well written and have no comments to offer.	Noted.

Issue	Issue raised	Contractor Responses
Wed 17/08/2016 11:20 AM via email – CFMP Revision 3	Fulton Hogan issued Revision 3 of the CFMP to OEH for review and comment. Comments were requested by 31 August 2016.	NA.

Issue	Issue raised	Contractor responses
Construction Waste and Energy Management Plan (CWEMP) [CoA D45 (d)(v)] – Revision 2 and Revision 3		
Environmental Protection Authority (EPA)		
Fri 19/08/2016 8:46 AM via email - Comments with respect to CWEMP Revision 3	The EPA notes the response provided to comments regarding revision 3 of the CWEMP and has no further comments.	Noted.
Wed 10/08/2016 11:27 AM via email - Comments with respect to CWEMP Revision 2	The EPA appreciates the opportunity to review the Construction Waste and Energy Management Plan (CWEMP) prepared by Fulton Hogan for the Grafton bridge project. The EPA acknowledges the mitigation measures included in the plan to manage potential air quality impacts and provides comments on the CWEMP in the attached comment table.	Noted. Noted.
	<p>Reference: Section 3.1.2 Guidelines and Standards; and Table 6.2</p> <p>The EPA notes that this section of the document identifies documents relevant to the plan.</p> <p>The EPA highlights that the Mulch exemption and the mulch order 2014 have recently been replaced by “The Mulch order 2016” and “The Mulch exemption 2016” which both came into effect on the 25 July 2016. The EPA suggests checking the EPA website for the most recent versions of exemptions and orders.</p> <p>The EPA also notes that the time for application of raw mulch to land has been defined in the notes to the exemption and now considers that 6 weeks would be the absolute limit in all circumstances.</p>	<p>Updated all exemption details in Section 3.1.2 and Table 6-2 as per the EPA website.</p> <p>Included note below in bold in Table 6-2 under the ‘<i>The mulch exemption 2016</i>’.</p> <p>NOTE: Mulch that meets the conditions of this exemption should be applied to land by the consumer within 2 weeks of being</p>

		received. Where there are extenuating circumstances the mulch should be land applied within 4 weeks. The EPA considers that 6 weeks would be the absolute limit in all circumstances.'
Clarence Valley Council (CVC)		
Thu 18/08/2016 2:32 PM via email - Comments with respect to CWEMP Revision 3	Council is satisfied with Rev 3, in particular in the manner that our comments have been addressed.	Noted.
Fri 12/08/2016 3:16 PM via email - Comments with respect to CWEMP Revision 2	Please find attached Council's comments on the RMS Construction Waste and Energy Management Plan for the new Grafton Bridge. I have also attached a copy of our criteria for the acceptance of asbestos at the Grafton Landfill that should be included with our comments. Thank you for the opportunity to comment on the draft waste and energy management plan, it has provided Council with an insight into the quantity and type of waste that is likely to be generated by the project.	Added a new annexure (Annexure C) titled ' <i>Grafton Regional Landfill Requirements for the acceptance of asbestos</i> '.
	Comments: 1. Litter – the draft plan does not make provision for the management of litter. Being a sensitive urban and aquatic site control measures for the prevention of litter and the collection of litter escaping from the site should be incorporated.	No change to the CWEMP proposed. The effective management of litter is an environmental aspect that Fulton Hogan takes very seriously. Table 7-2 includes management measure ID CWEMM2, which specifically covers litter ' <i>Keep site free of litter and maintain good housekeeping</i> .' In addition, regular monitoring will be undertaken during construction to verify the effectiveness of this management measure. In accordance with Table 8-1, environmental inspections for litter will be undertaken weekly by the Fulton Hogan Environmental Manager and recorded in the <i>Environmental Inspection Checklist</i> .
	2. Energy use (5.2) – The installation of solar electricity generating system at the site depot/office could significantly reduce emissions	Noted. Fulton Hogan will carefully consider the procurement of solar in accordance with management measure ID CWEMM31

<p>from electricity & is strongly supported by Council.</p>	<p><i>'Consider the procurement of renewable energy technologies (e.g. solar photovoltaic, wind power) for power generation onsite during the construction phase.'</i></p>
<p>3. It is noted at 6.1 that it is unlikely that suitable surplus material will need to be removed from the site as the volume of fill needed is greater than the volume of material excavated.</p>	<p>Noted.</p>
<p>4. Tyre disposal table 6.1, it should be noted that the EPA has a tracking system for the disposal of tyres known as Waste Locate. Compliance with this system should be included.</p>	<p>No change to the CWEMP proposed. Fulton Hogan tracks all waste removed from site using a <i>Waste Register</i>. It details the types of waste collected, amounts, date and details of disposal. Refer to Table 7-1 management measure ID WM14, Table 7-2 management measure CWEMM13 and Annexure B.</p> <p>It is noted that the CWEMP has also been provided to the EPA for review and comment.</p>
<p>Mulch Exemption table 6.2, it should be noted that the mulch exemption and mulch order 2014 has been replaced. Current exemption provisions should be applied.</p>	<p>Updated Table 6-2 to refer to <i>'The mulch exemption 2016'</i>.</p>
<p>5. Environmental management measures Table 7-1</p> <ul style="list-style-type: none"> • WM2 rubbish bins, Council can arrange for commercial wheeled bin services for residual waste (red lid), recyclable waste (yellow lid) and food/organic waste (green lid) to be provided to the site. 	<p>Noted.</p>
<ul style="list-style-type: none"> • WM6 asbestos waste, it should be noted that the Grafton Regional Landfill has strict requirements for the acceptance of asbestos waste. (please refer attached) 	<p>Added a new annexure (Annexure C) titled <i>'Grafton Regional Landfill Requirements for the acceptance of asbestos'</i>.</p> <p>Added information to Table 6-1 - <i>'For example, Grafton Regional Landfill has strict requirements for the acceptance of asbestos waste (refer to Annexure C).'</i></p>
<ul style="list-style-type: none"> • WM18 demolition waste & CWEMM14, Council encourages the relocation if possible or deconstruction of redundant houses to ensure the greatest reuse of valuable resource is achieved. 	<p>Noted.</p>

	<p>6. As a general comment Clarence Valley Council provides a wide range of resource recovery and waste disposal facilities relevant to this project. For the disposal of large quantities or special waste early notification and planning is essential to ensure adequate space resources are available to accept the material.</p>	<p>Noted.</p>
<p>The Department of Planning and Environment (DP&E)</p>		
<p>Thu 11/08/2016 9:41 AM via email</p>	<p>The Department notes the “<i>Error! Reference source not found</i>” on the following two pages of the Construction Waste and Energy Management Plan:</p> <ol style="list-style-type: none"> 1. Section 6.2 – last para. 2. Section 8.5 – last para 	<p>No change to the CWEMP proposed. Unable to locate either error reference. Snapshots of relevant text provided below.</p> <p>Section 6.2 – last paragraph</p> <p>The construction aspects, <u>the -and-</u>types of wastes that may be generated during construction of the Project <u>and the resource use management strategies</u> are outlined <u>with classifications</u> in Table 6-1.</p> <p>Section 8.5 – last paragraph</p> <p><u>8.5 Complaints</u></p> <p><u>Complaints will be recorded and addressed in accordance with Section 6.3 of the CEMP and the Community Communication Strategy (CCS).</u></p> <p>Additional requirements and responsibilities in relation to inspections, in addition to those in Table 6-1 are documented in Section 8.2 of the CEMP.</p>

Issue	Issue raised	Contractor responses
Construction Air Quality Management Plan (CAQMP) [CoA D45 (d)(ii)]		
Environmental Protection Authority (EPA)		
10-August-16 09:42 AM via EML:FH-MANY#0022	<p>The EPA appreciates the opportunity to review the Construction Air Quality Management Plan (CAQMP) prepared by Fulton Hogan for the Grafton bridge project.</p> <p>The EPA notes the intention to apply for an EPL for Rail System Activities later in the project and acknowledges the mitigation measures included in the plan to manage potential air quality impacts.</p>	Noted.
The Department of Planning and Environment (DP&E)		
Thu 11/08/2016 9:30 AM via Email	<p>The Department notes that in Section 6.1.2 – Demolition Activities, there is a reference to WorkCover NSW. This reference should be replaced with SafeWork NSW as from 1 September 2015, WorkCover NSW was replaced by three new entities – Insurance and Care NSW (icare), the State Insurance Regulatory Authority (SIRA), and SafeWork NSW.</p> <p>The Department raises no further comments to the Construction Air Quality Management Plan.</p>	In Section 6.1.2, replaced reference to WorkCover NSW with SafeWork NSW.
Clarence Valley Council (CVC)		
Fri 12/08/2016 3:19 PM via Email	<p>Subject heading: Grafton Bridge - CEMPs - Noise & Vibration, and Air Quality</p> <p>Council's environmental health staff have reviewed the above CEMPs and have no specific comment. It is assumed that the noise issue would be covered by the Interim Construction Noise Guideline and the Industrial Noise Policy.</p>	Noted.

Issue	Issue raised	Contractor responses
Construction Contaminated Land Management Plan (CCLMP) [CoA D46(c)(viii),(ix)]		
Environmental Protection Authority (EPA)		
<p>Mon 5/09/2016 3:34 PM via email – Comments with respect to CCLMP Revision 1</p>	<p>The EPA appreciates the opportunity to review the Construction Contaminated Land Management Plan (CCLMP). The EPA does not have any comments on the plan at this time.</p> <p>The EPA looks forward to updates in relation to contamination of the project site as works commence on the project.</p>	<p>Noted.</p>
The Department of Planning and Environment (DP&E)		
<p>Mon 29/08/2016 4:00 PM via email – Comments with respect to CCLMP Revision 1</p>	<p>On page 6 of the Report, under 5.1 EIS, there seems to be duplication between first and second para.</p> <p>On page 8 of the Report, there is a mention about the impact of the fill material on the existing Grafton and South Grafton levees. The report however is silent about the proposed 0.2m increase in the levee height along the river and whether these works will impact on contaminated material. It is recommended that the risk associated with increase in levee height along the river and appropriate options to manage and mitigate the impacts on potential contaminated materials should be included in the Report.</p> <p>The Department raises no further comments to the Construction Contaminated Land Management Plan.</p>	<p>Deleted duplicated paragraph.</p> <p>Included two additional sentences (last 2 in the paragraph). The paragraph now reads: <i>'Within the existing Grafton and South Grafton levees, the fill material is likely to comprise virgin excavated natural material (VENM) as well as fill material of unknown quality. There is a minor risk of encountering contaminated fill during the levee raising work (EIS, p337). Disturbance to the levee will therefore be minimised where practicable (refer Chapter 7 mitigation measure ID CCLMM9). Should unexpected contamination be identified, the Unexpected Discovery of Contaminated Land Procedure included in Annexure C will be implemented (refer to Chapter 7 mitigation measure ID CCLMM12).'</i></p>
Clarence Valley Council (CVC)		
<p>Wed 7/09/2016 3:27 PM - Comments</p>	<p>Council is satisfied with the responses.</p>	<p>Noted.</p>

Issue	Issue raised	Contractor responses
with respect to CCLMP Revision 1		
Wed 7/09/2016 3:27 PM - Comments with respect to CCLMP Revision 1	<p>Council staff have reviewed the Construction Contaminated Land Management Plan.</p> <p>Issues that may need addressing are:</p> <ol style="list-style-type: none"> 1. There haven't been any investigations in the northern (Grafton) side levee wall which could require excavation for pylon construction - the issue being the presence of fill of unknown origin with potential for contaminants of concern. For example, a recent redevelopment of a site adjoining the levee in Victoria Street revealed some asbestos in the fill material used for the levee construction. 2. There has also been no investigation on or near the road reserve in the proximity of the former Gas Works at 48 Pound Street (Lot 4 DP 579964) – road widening is proposed in this vicinity. 	<p>Disturbance to the levee will be minimised where practicable (refer Chapter 7 mitigation measure ID CCLMM9). Should unexpected contamination be identified, the <i>Unexpected Discovery of Contaminated Land Procedure</i> included in Annexure C of the CCLMP will be implemented (refer to Chapter 7 mitigation measure ID CCLMM12).</p> <p>48 Pound Street is located outside the project boundary. That said, should contamination be identified, the <i>Unexpected Discovery of Contaminated Land Procedure</i> included in Annexure C of the CCLMP will be implemented (refer to Chapter 7 mitigation measure ID CCLMM12).</p>

Consultation Correspondence

[Contractor to attach consultation letters]

CEMP

Environment Protection Authority

ENVIRONMENT PROTECTION AUTHORITY - COMMENT SHEET

Project:	Grafton Bridge – Fulton Hogan		
Document title:	Construction Environmental Management Plan – Additional Crossing of the Clarence River at Grafton		
Revision No.:	Rev2.		
Reviewer name:	Chloe Harrison	Review date:	19 August 2016
Responses by:	Environment Protection Authority (EPA)	Response due:	26 August 2016

Thankyou for the opportunity to comment on the Project's **CEMP Rev 2**. EPA has reviewed the proposed procedure submitted to the Department on the 19 August 2016 and has provided comments on key areas of concern in the table below.

Report Reference	EPA Comments	Response
Please note	Comments below relate to: An Environmental Protection Licence (EPL) for 'railway systems activities' under Schedule 1 of the <i>Protection of the Environment Operations Act 1997</i> . Rail viaduct works which trigger this requirement will not commence until 2018, so the licence application will be made closer to this time.	
4.2.1 (dot point 6)	In addition to stated protocols and conditions, OOHW require EPL compliance in accordance with condition L4 –Hours of operation	
7.2 Incident reporting and investigation	<i>"Advising the relevant government agencies if any substantial pollution has occurred"</i> . EPL condition R2 Notification of environmental harm states "The licensee or its employees must notify all relevant authorities of incidents causing or threatening material harm to the environment immediately after the person becomes aware of the incident in accordance with the requirements	

Report Reference	EPA Comments	Response
	of Part 5.7 of the PoEO Act.	
8.1.1 Weekly and post rainfall events	In accordance with EPL condition O5.8 All erosion and sediment control measures installed on the premises must be inspected and works undertaken to repair and/or maintain these controls: includes b) daily during periods of rainfall. This is required to comply with Sec 120 of the PoEO Act, and Condition (L1.1) of the EPL. Sec 8.1.1 of the CEMP states only weekly and post rainfall site inspections.	
Table 8-2. Compliance reporting	<p>The EPA suggests being included in the 'recipient' column for the following Reporting sections due to compliance responsibilities to EPL conditions as outlined below;</p> <p>Compliance reporting: Condition R1 Annual return documents include a) statement of compliance</p> <p>Incident reporting: Condition R1 Annual return documents include R1.8 and condition R2.</p> <p>Complaints reporting: Condition R1 Annual return documents include b) a Monitoring and Complaints Summary</p>	

Byrne, Rebekah

From: Chloe Harrison <Chloe.Harrison@epa.nsw.gov.au>
Sent: Friday, 19 August 2016 5:06 PM
To: Byrne, Rebekah
Subject: EPA comments - CEMP Rev2
Attachments: EPA Comments CEMP Rev 2.doc

Hi Rebekah,

Thank you for the opportunity to comment on the Project's CEMP Rev2. The EPA has reviewed the proposed procedure submitted to the Department on the 12 August 2016 and has provided comments on key areas of concern in the table attached.

Kind regards,

Chloe Harrison

Operations Officer – Pacific Highway Upgrade Team

North Branch, NSW Environment Protection Authority

+61 2 6640 2512 +61 411 434 450

Chloe.Harrison@epa.nsw.gov.au www.epa.nsw.gov.au [@EPA_NSW](#)

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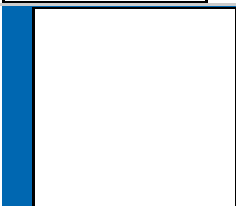
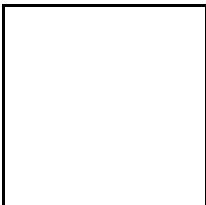
BEFORE PRINTING THIS E-MAIL
please consider the environment

From: Nikka Marcial on iTWOcx/FH_CRB [mailto:FH_CRB@au.itwocx.com]

Sent: Friday, 12 August 2016 5:18 PM

To: Craig Dunk <Craig.Dunk@epa.nsw.gov.au>

Subject: TRIM: TX#0153: CEMP (main document) Rev2 - for your review and comment [K3.1.1#499589.464E06]



Hi Craig,

[Nikka Marcial](#) has issued you this [Transmittal](#).

Reply to this email to post a comment on the document or click the respond button for more options.

[Show me how](#)

Respond

PROJECT NO FH_CRB

PROJECT Additional Crossing of the Clarence River at Grafton

COMPANY Fulton Hogan Construction

Transmittal

STAT

ISSUED 12-August-16 05:17 PM

AUTHOR	COMPANY	PHONE
Nikka Marcial	Fulton Hogan Construction	02 8346 9400

COLLABORATORS	ACTION	PHONE
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Craig Dunk	EPA	
David Morrison	Clarence Valley Council	
James Sakker	DPI Fisheries	
Michael Stubbs	NSW State Emergency Service	02 6641 6903
Michael Young	Department of Planning	02 9228 6437
Patrick Pahlow	NSW Office of Water	02 6676 7386
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Themis Prodromakis	Arcadis/App	02 8907 9000

INFO	COMPANY	PHONE
Brendon Johnson	Fulton Hogan Construction	02 8346 9400
Gregory Nash	Roads and Maritime Services of NSW	1800 633 332
Irina Kliger	Fulton Hogan Construction	02 8346 9400
Jason Sheehan	Roads and Maritime Services of NSW	1800 633 332
John O'Donnell	Roads and Maritime Services of NSW	1800 633 332
Rebekah Byrne	Fulton Hogan Construction	02 8346 9400
Scott Lawrence	Roads and Maritime Services of NSW	1800 633 332
Simon Williams	Geolink	
Stella Wilson	Arcadis/App	02 8907 9000
stuart murphy	EPA	

CEMP (main document) Rev2 - for your review and comment

Hi everyone,

Re: Additional Crossing of the Clarence River at Grafton

Please find attached Revision 2 of the Construction Environmental Management Plan (main document) for your review and comment.

1. CEMP (main document) Rev2 in Word with all changes to the RMS Template shown in 'Track Changes'.
2. App A1 Legal and other requirements
3. App A2 Stakeholder and agency CEMP consultation
4. App A3 Environmental aspects and impacts register
5. App A4 Environmental policy
6. App A5 Ancillary facilities assessment criteria
7. App A6 Sensitive Area Plans
8. App A7 Environmental Incident Classification and Reporting Procedure
9. App A8 Environmental inspection checklist

Please note that Appendix A2 will not be updated until all agency consultation for the CEMP has been completed.

For those of you who are not aware, Fulton Hogan has adopted the RMS Template Construction Environmental Management Plan from the Department of Planning and Environment. All changes made to the RMS Template are shown in 'Track Changes'. This approach has been used with the RMS Template can focus on reviewing only those parts of the Template that have changed and thereby, promote the time efficiency.

Please provide your comments by 26 August 2016. If you have no comments, could you please send me a quick email to say the same.

Should you have any queries, please do not hesitate to contact me.

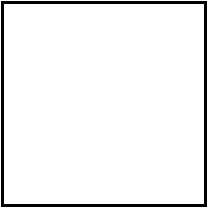
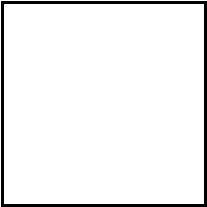
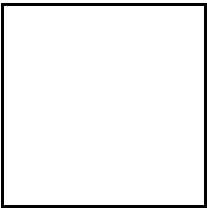
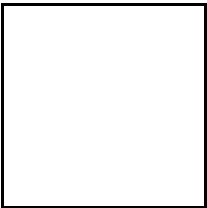
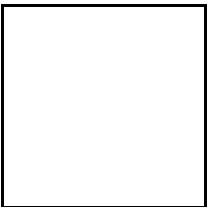
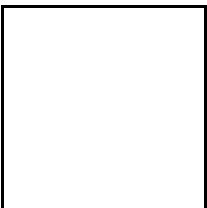
Regards,

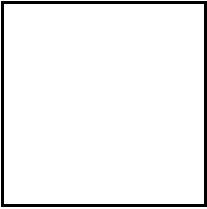
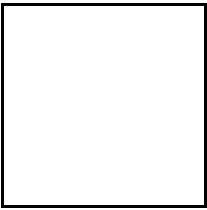
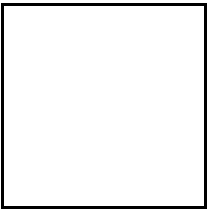
Rebekah Byrne Environment Advisor – NSW Construction | Fulton Hogan | Level 3, 90 Bourke Road Alexandria NSW 2015 | PO Box 1000
+61 2 8346 9400 | Fax +61 2 8346 9444

Sent by:

Nikka Amiel Marcial | Fulton Hogan | Level 3, 90 Bourke Road, Alexandria, NSW, 2015 | P.O. Box 6099, Alexandria, NSW, 2015, Au

Nikka.Marcial@fultonhogan.com.au |

FILE	NAME	REV	DATE	DES
1	 APP A1 LEGAL AND OTHER REQUIREMENTS GRAFTON REV2	-	12-August-16	No File oth Gra
2	 APP A2 STAKEHOLDER AND AGENCY CEMP CONSULTATION GRAFTON REV2	-	12-August-16	No File and con Rev
3	 APP A3 ENVIRONMENTAL ASPECTS AND IMPACTS REGISTER GRAFTON REV2	-	12-August-16	No File Env and Gra
4	 APP A4 ENVIRONMENTAL POLICY REV2	-	12-August-16	No File Env Rev
5	 APP A5 ANCILLARY FACILITIES ASSESSMENT CRITERIA REV2	-	12-August-16	No File faci crite
6	 APP A6 SENSITIVE AREA PLANS ISSUE B REV2	-	12-August-16	No File Are Rev

7		APP A7 ENVIRONMENTAL INCIDENT CLASSIFICATION AND REPORTING PROCEDURE	-	12-August-16	No File: Env Clas Rep
8		APP A8 ENVIRONMENTAL INSPECTION CHECKLIST REV2	-	12-August-16	No File: Env che
9		CEMP_GRAFTON_REV2I 120816	-	12-August-16	No File: 120

Status Legend: 100% - Final Design, 15% - Developed Concept Design, 85% - Substantial Detailed Design, APR - Approved, CERT - Cert Information, P-IFC

COMMENTS

Nikka Marcial (FH-NM)

12-August-16 05:17 PM

Transmittal Issued

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CEMP

Office of Environment and Heritage (Aboriginal heritage)



Office of
Environment
& Heritage

Our Ref: DOC16/426906
Your Ref: CEMP_Grafton_Revi120816

Mr Craig Dunk
Coordinator Pacific Highway Upgrade Team
PO Box 498
Grafton NSW 2460


Dear Mr Dunk

Re: Additional Crossing of the Clarence River at Grafton - Revision 2 of the Construction Environmental Management Plan (main document).

A draft *Construction Environmental Management Plan Revision 2* was provided to the Office of Environment and Heritage (OEH) by Fulton Hogan on 12 August 2016 requesting advice on Aboriginal cultural heritage. The OEH is providing advice to the Environment Protection Authority for inclusion in a consolidated response to this matter.

We have reviewed the documentation provided and note the Construction Heritage Management Plan (CHMP) that will form part of the Construction Environmental Management Plan (CEMP). The OEH has no additional comments on the CHMP main document.

However, the OEH welcomes the opportunity to review the proposed environmental work method statements (EWMS) as they are prepared to manage and control all activities that have the potential to negatively impact on Aboriginal cultural heritage.

For more information on this matter, Ms Rosalie Neve, Aboriginal Heritage Planning Officer, Regional Operations, OEH, can be contacted on 6659 8221 or at rosalie.neve@environment.nsw.gov.au

Yours sincerely

 26 August 2016

DIMITRI YOUNG
Senior Team Leader Planning, North East Region
Regional Operations

Contact officer: ROSALIE NEVE
6659 8221

Byrne, Rebekah

From: Craig Dunk <Craig.Dunk@epa.nsw.gov.au>
Sent: Wednesday, 31 August 2016 3:08 PM
To: Byrne, Rebekah
Subject: Grafton Bridge CEMP Rev 2
Attachments: OEH Response - Grafton Bridge CEMP Rev2 Letter to EPA Signed DY 20160826.PDF

Hi Rebekah,

Please find attached OEH comments in relation to the CEMP and CHMP.

Regards

Craig Dunk

Coordinator Pacific Highway Upgrade Team – North Coast Region

North Branch, NSW Environment Protection Authority

+61 2 6640 2514 +61 427 237 154

craig.dunk@epa.nsw.gov.au www.epa.nsw.gov.au [@EPA_NSW](https://www.facebook.com/EPA_NSW)

Report pollution and environmental incidents 131 555 (NSW only) or +61 2 9995 5555



Please Note: The EPA has introduced an electronic document management system. Please electronically submit all letters and documents for the EPA's Grafton office to email address: north.coast@epa.nsw.gov.au. If you wish to submit a larger document (i.e. more than 5mb in size) please provide an electronic copy via an alternative download method; or on a USB memory stick or DVD to: "EPA, PO Box 498, Grafton NSW 2460".

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PLEASE CONSIDER THE ENVIRONMENT BEFORE PRINTING THIS EMAIL

CEMP

Department of Primary Industries Fisheries

Byrne, Rebekah

From: James Sakker on iTWOcx/FH_CRB <FH_CRB@au.itwocx.com>
Sent: Monday, 15 August 2016 2:50 PM
To: Byrne, Rebekah
Subject: TX#0153: CEMP (main document) Rev2 - for your review and comment [K3.1.1#499589.4748A3]



Hi Rebekah,
[James Sakker](#) has issued you this [Transmittal](#).
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PROJECT NO FH_CRB

PROJECT Additional Crossing of the Clarence River at Grafton

COMPANY Fulton Hogan

PHONE 02

FAX 02

REF TX#

Transmittal

STATUS CL

ISSUED 12-August-16 05:17 PM

DUE

AUTHOR

COMPANY

PHONE

Nikka Marcial

Fulton Hogan

02 8346 9400

COLLABORATORS ACTION

Craig Dunk

EPA

04

David Morrison

Clarence Valley Council

04

James Sakker

DPI Fisheries

04

Michael Stubbs

NSW State Emergency Service

02 6641 6903

04

Michael Young

Department of Planning

02 9228 6437

Patrick Pahlow

NSW Office of Water

02 6676 7386

Rosalie Neve

Fulton Hogan

02 8346 9400

Themis Prodromakis

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Scott Lawrence	Roads and Maritime Services of NSW	1800 633 332	04
Simon Williams	Geolink		
Stella Wilson	Arcadis/App	02 8907 9000	04
stuart murphy	EPA		

CEMP (main document) Rev2 - for your review and comment

SENT FOR REV:Review

Hi everyone,

Re: Additional Crossing of the Clarence River at Grafton

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9. App A8 Environmental inspection checklist

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Please provide your comments by 26 August 2016. If you have no comments, could you please send me a quick email to say the same.



Should you have any queries, please do not hesitate to contact me.




Regards,

Rebekah Byrne Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road Alexandria NSW 2015 | PO Box 6099, Alexandria NSW, 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

Sent by:

Nikka Amiel Marcial | **Fulton Hogan** | Level 3, 90 Bourke Road, Alexandria, NSW, 2015 | P.O. Box 6099, Alexandria, NSW, 2015, Australia | Nikka.Marcial@fultonhogan.com.au |

FILE	NAME	REV	DATE	DESCRIPTION
1	 APP A1 LEGAL AND OTHER REQUIREMENTS GRAFTON REV2 Superseded Owner:	-	12-August-16	No title provided File: App A1 Legal and other requirements Grafton Rev2.docx Download
2	 APP A2 STAKEHOLDER AND AGENCY CEMP CONSULTATION GRAFTON REV2 Superseded Owner:	-	12-August-16	No title provided File: App A2 Stakeholder and agency CEMP consultation Grafton Rev2.docx
3	 APP A3 ENVIRONMENTAL ASPECTS AND IMPACTS REGISTER GRAFTON REV2 Superseded Owner:	-	12-August-16	No title provided File: App A3 Environmental aspects and impacts register Grafton Rev2.docx
4	 APP A4 ENVIRONMENTAL POLICY REV2 Superseded Owner:	-	12-August-16	No title provided File: App A4 Environmental policy Rev2.pdf
5	 APP A5 ANCILLARY FACILITIES ASSESSMENT CRITERIA REV2 Superseded Owner:	-	12-August-16	No title provided File: App A5 Ancillary facilities assessment criteria Rev2.docx
6	 APP A6 SENSITIVE AREA PLANS ISSUE B REV2 Superseded Owner:	-	12-August-16	No title provided File: App A6 Sensitive Area Plans Issue B Rev2.pdf

7		APP A7 ENVIRONMENTAL INCIDENT CLASSIFICATION AND REPORTING PROCEDURE Superseded Owner:	-	12-August-16	No title provided File: App A7 Environmental In Classification and Reporting Proce
8		APP A8 ENVIRONMENTAL INSPECTION CHECKLIST REV2 Superseded Owner:	-	12-August-16	No title provided File: App A8 Environmental in checklist Rev2.pd
9		CEMP_GRAFTON_REV2I 120816 Superseded Owner:	-	12-August-16	No title provided File: CEMP_Graft 120816.docx

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Status Legend: 100% - Final Design, 15% - Developed Concept Design, 85% - Substantial Detailed Design, APR - Approved, CERT
Construction, INF - Information, P-IFC - Pre-Issued t

COMMENTS

James Sakker (DPI-JS)

15-August-16 02:50 PM

Hi Nikka

I have no comment on the CEMP
regards james

Patrick Pahlow (NOW-PP)

15-August-16 10:15 AM

DPI Water has no comments to make of rev 2 CEMP

Nikka Marcial (FH-NM)

12-August-16 05:17 PM

Transmittal Issued

CEMP

Department of Primary Industries Water

Byrne, Rebekah

From: Patrick Pahlow on iTWOcx/FH_CRB <FH_CRB@au.itwocx.com>
Sent: Monday, 15 August 2016 10:16 AM
To: Byrne, Rebekah
Subject: TX#0153: CEMP (main document) Rev2 - for your review and comment [K3.1.1#499589.46C84D]



Hi Rebekah,
[Patrick Pahlow](#) has issued you this [Transmittal](#).
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PROJECT NO FH_CRB

PROJECT Additional Crossing of the Clarence River at Grafton

COMPANY Fulton Hogan

PHONE 02

FAX 02

REF TX#

Transmittal

STATUS CL

ISSUED 12-August-16 05:17 PM

DUE

AUTHOR

COMPANY

PHONE

Nikka Marcial

Fulton Hogan

02 8346 9400

COLLABORATORS ACTION

Craig Dunk

EPA

04

David Morrison

Clarence Valley Council

04

James Sakker

DPI Fisheries

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Simon Williams	Geolink		
Stella Wilson	Arcadis/App	02 8907 9000	04
stuart murphy	EPA		

CEMP (main document) Rev2 - for your review and comment

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Should you have any queries, please do not hesitate to contact me.




Regards,

Rebekah Byrne Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road Alexandria NSW 2015 | PO Box 6099, Alexandria, NSW, 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

Sent by:

Nikka Amiel Marcial | **Fulton Hogan** | Level 3, 90 Bourke Road, Alexandria, NSW, 2015 | P.O. Box 6099, Alexandria, NSW, 2015, Australia | Nikka.Marcial@fultonhogan.com.au |

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Patrick Pahlow (NOW-PP)

15-August-16 10:15 AM

DPI Water has no comments to make of rev 2 CEMP

Nikka Marcial (FH-NM)

12-August-16 05:17 PM

Transmittal Issued

CEMP
Clarence Valley Council

Byrne, Rebekah

From: David Morrison <David.Morrison@clarence.nsw.gov.au>
Sent: Friday, 2 September 2016 6:56 AM
To: Byrne, Rebekah
Subject: CEMP

Hi Rebekah

Council has given cursory review of the CEMP Main Document and does not identify issues or concerns. Unfortunately, we have not the resources available at this time to provide a detailed review within the requested timeframe but are confident that the document adequately coordinates the other CEMPs.

Don't hesitate to call me if you need any further clarification.

Regards

Dave Morrison

Sent from my iPad

David Morrison
Manager Strategic & Economic Planning
Clarence Valley Council
Locked Bag 23, GRAFTON NSW 2460
P: (02) 6643 0204
F: (02) 6642 7647
M: 0408 296 365
www.clarence.nsw.gov.au

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CEMP

Department of Planning and Environment

Additional Crossing of the Clarence River at Grafton Project (SSI-6103)

Document		Construction Environmental Management Plan	
Version No.		Revision 2 July 2016	
Agency Name		Department of Planning & Environment	
Date		18 August 2016	
Item	Condition No/ Report Reference	Department's Comment	RMS Response
1.	Contents – Appendices	I note that Appendix A6 contains the Sensitive Area Plans, Appendix A7 the Environmental incident classification and reporting procedure and Appendix A8 the environmental inspection checklist. The list of appendices needs to be updated.	
2.	Table 1-1	CoA D45(d)(ix) – correct reference is Appendix A7. Appendix A9 contains the Compliance Tracking Program.	
3.	Section 3.7.3	Include material stockpiles for the levee upgrade works and type of material stockpiled.	
4.	Appendix A1	Protection of the Environment Operations Act 1997 – state that an Environment Protection Licence is only required for the replacement of the Pound Street viaduct component of the project.	
5.			
6.			
7.			

Byrne, Rebekah

From: Michael.Young@planning.nsw.gov.au
Sent: Friday, 19 August 2016 4:20 PM
To: FH_CRB@au.itwocx.com
Cc: Byrne, Rebekah; Gregory.NASH@rms.nsw.gov.au; LAWRENCE Scott B (Scott.LAWRENCE@rms.nsw.gov.au)
Subject: RE: TX#0153: CEMP (main document) Rev2 - for your review and comment [K3.1.1#499589.464E08]
Attachments: DPE Comments 2016 08 18 - CEMP.docx

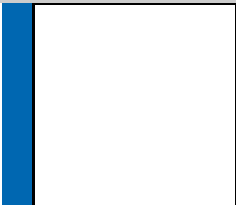
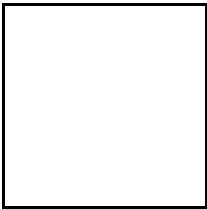
Hi Nikka

I have attached the Department's comments on the CEMP. Please call me should you wish to discuss.

Regards

Michael

From: Nikka Marcial on iTWOcx/FH_CRB [mailto:FH_CRB@au.itwocx.com]
Sent: Friday, 12 August 2016 5:18 PM
To: Michael Young (DPE-DIPNR) <Michael.Young@planning.nsw.gov.au>
Subject: TX#0153: CEMP (main document) Rev2 - for your review and comment [K3.1.1#499589.464E08]



Hi Michael,

[Nikka Marcial](#) has issued you this [Transmittal](#).

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PROJECT Additional Crossing of the Clarence River at Grafton

COMPANY Fulton Hogan Construction

Transmittal

STAT

ISSUED 12-August-16 05:17 PM

AUTHOR	COMPANY	PHONE
Nikka Marcial	Fulton Hogan Construction	02 8346 9400
COLLABORATORS ACTION		PHONE
Craig Dunk	EPA	
David Morrison	Clarence Valley Council	
James Sakker	DPI Fisheries	
Michael Stubbs	NSW State Emergency Service	02 6641 6903
Michael Young	Department of Planning	02 9228 6437
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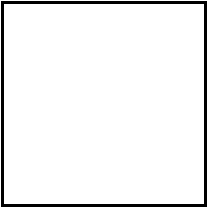
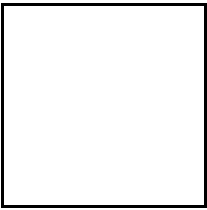
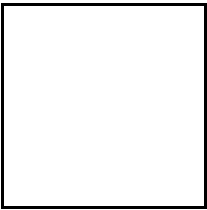
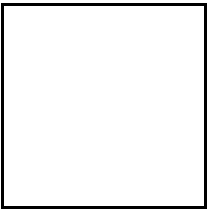
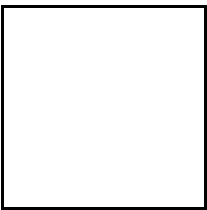
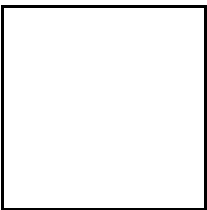
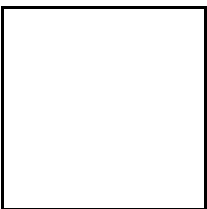
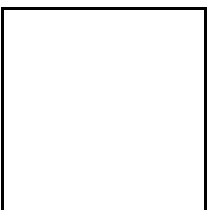
Regards,

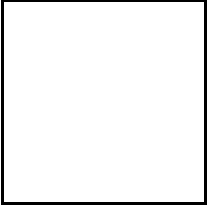
Rebekah Byrne Environment Advisor – NSW Construction | Fulton Hogan | Level 3, 90 Bourke Road Alexandria NSW 2015 | P.O. Box 6099, Alexandria, NSW, 2015, Australia
+61 2 8346 9400 | Fax +61 2 8346 9444

Sent by:

Nikka Amiel Marcial | Fulton Hogan | Level 3, 90 Bourke Road, Alexandria, NSW, 2015 | P.O. Box 6099, Alexandria, NSW, 2015, Australia
Nikka.Marcial@fultonhogan.com.au |

FILE	NAME	REV	DATE	DES
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1		APP A1 LEGAL AND OTHER REQUIREMENTS GRAFTON REV2	-	12-August-16	No File oth Gra
2		APP A2 STAKEHOLDER AND AGENCY CEMP CONSULTATION GRAFTON REV2	-	12-August-16	No File and con Rev
3		APP A3 ENVIRONMENTAL ASPECTS AND IMPACTS REGISTER GRAFTON REV2	-	12-August-16	No File Env and Gra
4		APP A4 ENVIRONMENTAL POLICY REV2	-	12-August-16	No File Env Rev
5		APP A5 ANCILLARY FACILITIES ASSESSMENT CRITERIA REV2	-	12-August-16	No File faci crite
6		APP A6 SENSITIVE AREA PLANS ISSUE B REV2	-	12-August-16	No File Are Rev
7		APP A7 ENVIRONMENTAL INCIDENT CLASSIFICATION AND REPORTING PROCEDURE	-	12-August-16	No File Env Clas Rep
8		APP A8 ENVIRONMENTAL INSPECTION CHECKLIST REV2	-	12-August-16	No File Env che



Status Legend: 100% - Final Design, 15% - Developed Concept Design, 85% - Substantial Detailed Design, APR - Approved, CERT - Cert Information, P-IFC

COMMENTS

Nikka Marcial (FH-NM)

12-August-16 05:17 PM

Transmittal Issued

CNVMP

Environment Protection Authority

Byrne, Rebekah

From: Craig Dunk on iTWOcx/FH_CRB <FH_CRB@au.itwocx.com>
Sent: Friday, 26 August 2016 12:16 PM
To: Byrne, Rebekah
Subject: GEN#0011: CNVMP Rev3 – in response to your comments [K3.1.1#4A6386.4CD165]



Hi Rebekah,
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PROJECT NO FH_CRB

PHONE 02 8346 9400

PROJECT Additional Crossing of the Clarence River at Grafton

FAX 02 8346 9444

COMPANY Fulton Hogan

REF [GEN#0011](#)

General Correspondence

STATUS **OPEN**

ISSUED 25-August-16 10:35 AM

DUE 15-September-16 10:31 AM

AUTHOR

COMPANY

Nikka Marcial

Fulton Hogan

COLLABORATORS ACTION

[David Morrison](#)

[Clarence Valley Council](#)

[Craig Dunk](#)

[EPA - Environmental Protection Agency](#)

INFO

stuart murphy

EPA - Environmental Protection Agency

Brendon Johnson

Fulton Hogan

Irina Kliger

Fulton Hogan

Rebekah Byrne

Fulton Hogan

Simon Williams

Geolink

Gregory Nash

Roads and Maritime Services of NSW

Jason Sheehan

Roads and Maritime Services of NSW

John O'Donnell

Roads and Maritime Services of NSW

Scott Lawrence

Roads and Maritime Services of NSW

CNVMP Rev3 – in response to your comments

Comment

Hi Craig, David,

Thank you for your comments with respect to Revision 2 of the Construction Noise and Vibration Management Plan (CNVMP). In response, please find attached:

- 1) Revision 3 of the CNVMP with all changes shown in 'track changes'
- 2) Annexure D – Figure D-1 *Noise Monitoring Locations*
- 3) Fulton Hogan's responses to your comments (within the pdf document titled '*App A2 Stakeholder and agency CEMP consultation - for CNVMP only 250816*')

It is noted that Annexures A-C are already included with the CNVMP Word document.

Following review, could you please confirm whether Revision 3 of the CNVMP satisfactorily addresses your comments.

Regards,

Rebekah Byrne iEnvironment Advisor – NSW Construction i **Fulton Hogan** i Level 3, 90 Bourke Road
Alexandria NSW 2015iPO Box 6099 Alexandria NSW 2015 i Phone +61 2 8346 9400 i Fax +61 2 8346 9444

Sent By:

Nikka Amiel Marcial | Fulton Hogan | Level 3, 90 Bourke Road, Alexandria, NSW, 2015 | P.O. Box 6099,
Alexandria, NSW, 2015, Australia | Nikka.Marcial@fultonhogan.com.au |

ATTACHMENTS



cnvmp_...6.docx



app a2...16.pdf



annexu...ns.pdf



~wrd000.jpg

Attached file: [34183818_ANNEXURE D FIGURE D-1 NOISE MONITORING LOCATIONS.PDF\(492k\)](#)
[34183818_APP A2 STAKEHOLDER AND AGENCY CEMP CONSULTATION - FOR CNVMP ONLY 250816.PDF\(333k\)](#)
[34183818_CNVMP_GRAFTON_REV3 250816.DOCX\(12.3Mb\)](#)
26-August-16 [34285170_~WRD000.jpg\(823b\)](#)

[Download all attachments in one zip](#)

COMMENTS

Craig Dunk (EPA-CD)

OPEN

26-August-16 12:15 PM

HI Nikka/Rebekah,

The EPA appreciates confirmation of the changes made in relation to EPAs review and comments on the CNVMP and have no further comments at this time.

Regards

Craig Dunk

Coordinator Pacific Highway Upgrade Team – North Coast Region

North Branch, NSW Environment Protection Authority

+61 2 6640 2514 +61 427 237 154

craig.dunk@epa.nsw.gov.au www.epa.nsw.gov.au  @EPA_NSW

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Attached file: [34285170_~WRD000.jpg\(823b\)](#)

Nikka Marcial (FH-NM)

OPEN

25-August-16 10:35 AM

CNVMP Rev3 – in response to your comments Issued to MANY

Byrne, Rebekah

From: Craig Dunk on iTWOcx/FH_CRB <FH_CRB@au.itwocx.com>
Sent: Monday, 15 August 2016 11:25 AM
To: Byrne, Rebekah
Subject: EML:FH-MANY#0022: Grafton Bridge: CNVMP Rev2 - for your review and comment [K3.1.1#489039.4D02BC]



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PROJECT NO FH_CRB

PROJECT Additional Crossing of the Clarence River at Grafton

COMPANY Fulton Hogan

Incoming Email

STA

ISSUED 29-July-16 04:50 PM

AUTHOR

Rebekah Byrne

COMPANY

Fulton Hogan

COLLABORATORS ACTION

[Craig Dunk](#)

[EPA](#)

INFO

Brendon Johnson

Fulton Hogan

C C

Arcadis/App

Gregory Nash

Roads and Maritime Services of NSW

Irina Kliger

Fulton Hogan

Jason Sheehan

Roads and Maritime Services of NSW

John O'Donnell

Roads and Maritime Services of NSW

Michael Young

Department of Planning

Salar Aga

Fulton Hogan

Scott Lawrence

Roads and Maritime Services of NSW

Simon Williams

Geolink

Grafton Bridge: CNVMP Rev2 - for your review and comment

Email **From:** Byrne, Rebekah[Rebekah.Byrne@fultonhogan.com.au]**Date:** Friday, July 29, 2016 4:50:17 PM**To:** craig.dunk@epa.nsw.gov.au, Michael Irina; john.o'donnell@rms.nsw.gov.au; NASH Gregory D; Johnson, Brendon; LAWRENCE Scott B; Mail Handler; SHEEHAN Jason L; Simon Williams Prodrimakis; Stella.Wilson@arcadis.com**Subject:** Grafton Bridge: CNVMP Rev2 - for your review and comment

Hi Craig, Michael,

Re: Additional Crossing of the Clarence River at Grafton

Revision 2 of the Construction Noise and Vibration Management Plan (CNVMP) is ready for your review and comment. Due to the complexity of the plan, please refer to the following link:<https://app.box.com/s/u163xou724hch2oe9wkfrbovxkq47qte>.

As discussed during the last ERG meeting, all changes to the RMS Template are shown in 'Track Changes'.

Please provide your comments by 12 August 2016.

Should you have any queries, please do not hesitate to contact me.

Regards,

Rebekah Byrne | Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

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ATTACHMENTS



- Attached file:
- 10-August-16 [33372123_~WRD000.jpg\(823b\)](#)
 - 10-August-16 [33401992_~WRD000.jpg\(823b\)](#)
 - 10-August-16 [32859403_HWP-001 COMMENCEMENT OF THE REVIEW PERIOD AT STEP 2.XLS\(17k\)](#)
 - 10-August-16 [33409364_CNVMP_GRAFTON_REV2 250716.DOCX\(12.6Mb\)](#)
 - 15-August-16 [33580045_~WRD000.jpg\(823b\)](#)
 - 15-August-16 [33580045_EPA comments_CEMP B3 _Noise and Vibration Mgt Plan_20160811.doc\(66k\)](#)

[Download all attachments in one zip](#)

COMMENTS

Craig Dunk (EPA-CD)
15-August-16 11:24 AM

Hi Rebekah,

The EPA appreciates the opportunity to review and comment on the Construction Noise and Vibration Plan (CNVMP) for the

The EPA has reviewed the CNVMP and has made comments which are in the attached comments sheet.

Regards

Craig Dunk

Coordinator Pacific Highway Upgrade Team – North Coast Region

North Branch, NSW Environment Protection Authority

+61 2 6640 2514 +61 427 237 154

craig.dunk@epa.nsw.gov.au www.epa.nsw.gov.au @EPA_NSW

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Attached file: [33580045_~WRD000.jpg\(823b\)](#)

Attached file: [33580045_EPA comments_CEMP B3_Noise and Vibration Mgt Plan_20160811.doc\(66k\)](#)

Craig Dunk (EPA-CD)

11-August-16 08:59 AM

Thanks Salar. I am unable to open to the two jpg documents.

Regards

Craig Dunk

Coordinator Pacific Highway Upgrade Team – North Coast Region

North Branch, NSW Environment Protection Authority

+61 2 6640 2514 +61 427 237 154

craig.dunk@epa.nsw.gov.au www.epa.nsw.gov.au @EPA_NSW

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Salar Aga (FH-SA)

10-August-16 05:41 PM

Hi Craig,

As requested 10/08/2016 3:49 PM, please find attached Revision 2 of the Construction Noise and Vibration Management Plan (CNVMP) for y

Hopefully you receive it this time, if you have any issues just let me know.

on behalf of,

Rebekah Byrne Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road Alexandria NSW 2015 | PO Box 6099 9400 | Fax +61 2 8346 9444

Attached file: [32859403_HWP-001 COMMENCEMENT OF THE REVIEW PERIOD AT STEP 2.XLS\(17k\)](#)

Attached file: [33409364_CNVMP_GRAFTON_REV2 250716.DOCX\(12.6Mb\)](#)

Craig Dunk (EPA-CD)

10-August-16 03:48 PM

Hi Rebekah,

The EPA IT section will not allow access to the link to download this document.

Are you able to provide this document via Project Centre, Teambinder, RMS large file transfer, or some other method please

Regards

Craig Dunk

Coordinator Pacific Highway Upgrade Team – North Coast Region

North Branch, NSW Environment Protection Authority

+61 2 6640 2514 +61 427 237 154

craig.dunk@epa.nsw.gov.au www.epa.nsw.gov.au  @EPA_NSW

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Attached file: [33401992_~WRD000.jpg\(823b\)](#)

Craig Dunk (EPA-CD)

10-August-16 09:42 AM

Hi Rebekah,

The EPA appreciates the opportunity to review the Construction Air Quality Management Plan (CAQMP) prepared by Fulton H

The EPA notes the intention to apply for an EPL for Rail System Activities later in the project and acknowledges the mitigation measures to manage potential air quality impacts.

Regards

Craig Dunk

Coordinator Pacific Highway Upgrade Team – North Coast Region

North Branch, NSW Environment Protection Authority

+61 2 6640 2514 +61 427 237 154

craig.dunk@epa.nsw.gov.au www.epa.nsw.gov.au  @EPA_NSW

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Attached file: [33372123_~WRD000.jpg\(823b\)](#)

Salar Aga (FH-SA)

4-August-16 10:22 AM

adding PV to this correspondence.

Rebekah Byrne (FH-RB)

29-July-16 04:50 PM

Initiated: **Grafton Bridge: CNVMP Rev2 - for your review and comment** By email: Rebekah.Byrne@fultonhogan.com.au

LINKED

REF	ACTION	DATE	TITLE
GEN#0003	FH-SA	29-July-16	Hold Point 001 - Commencement of the review period at step 2 to allow regulatory authorities and cou

ENVIRONMENT PROTECTION AUTHORITY - COMMENT SHEET

Project:	Grafton Bridge		
Document title:	CEMP – Appendix B3 – Construction Noise and Vibration Management Plan		
Revision No.:	Revision 2, 25 July 2016.		
Reviewer name:	Craig Dunk	Review date:	15 August 2016

Thankyou for the opportunity to comment on the Grafton Bridge Construction Noise and Vibration Management Plan (CNVMP). The EPA has reviewed the CNVMP and has comments in the table below:

Reference	EPA Comments	Client Response
Section 3.1.2 Guidelines	<p>The EPA notes that the document titled NSW Environmental Criteria for Road Traffic Noise (ECRTN) (EPA 1999) is listed as a document which is relevant to the CNVMP.</p> <p>The EPA advises that the ECRTN was replaced by the NSW Road Noise Policy with effect from the 1 July 2011.</p>	
Section 5.2 Noise Catchment Areas	<p>The EPA notes the identification of noise catchment areas which are understood to have been identified in the EIS developed for the project.</p> <p>The EPA is aware that during certain times of the year temperature inversions carry noise much further, and this should be taken into consideration as under these conditions there is potential for noise complaints from people well outside of the currently identified areas.</p>	
Section 6.1 Construction noise and vibration goals.	<p>The EPA notes reference to the definition of feasible and reasonable under the infrastructure approval.</p> <p>The EPA notes that the Road Noise Policy at section 3.3 provides direction</p>	

	around what is reasonable and feasible. The EPA encourages consideration of the direction that is provided in this document.	
6.2.2 ICNG Screening criteria and sleep disturbance criteria.	<p>The EPA acknowledges the intention of Fulton Hogan to use the L_{max} instead of $LA_{1(1\text{ minute})}$ as a screening criteria.</p> <p>The EPA notes that this is also consistent with advice provided on the EPA website in application notes provided for the industrial noise policy which advises that other factors that may be important in assessing the extent of impacts on sleep include, but are not necessarily limited to:</p> <ul style="list-style-type: none"> • how often high noise events will occur • time of day (normally between 10pm and 7am). The likely distribution of events throughout the night would be useful • whether there are times of day when there is a clear change in the noise environment (such as during early morning shoulder periods). This could be illustrated by presentation of the level and distribution throughout the night of current L_{Amax} (or $LA_{1(1min)}$) events. 	
Section 7.2 Construction Noise and Vibration impacts.	<p>The EPA acknowledges the factors listed as having the potential to impact on sensitive receivers or structures.</p> <p>The EPA notes that environmental conditions such as wind speed, temperature, humidity, and temperature inversions have the potential to influence impacts on sensitive receivers.</p>	
Table 8-1	<p>The EPA notes the intention to minimise reversing of equipment to prevent nuisance caused by reversing alarms.</p> <p>The EPA encourages Fulton Hogan to also consider the type of reversing alarms used on the site (i.e. use smart broad band or white noise alarms rather than pure tone alarms) given the proximity to sensitive receivers; and the potential to turn off alarms during out of hours works and to use spotters or alternative means to comply with WH&S requirements.</p>	
Annexure C. Attachment 1: OOHW Approval	<p>The EPA notes that at item 12 there is a question about what lighting is to be provided for night work.</p> <p>The EPA encourages Fulton Hogan to also include a question about how any</p>	

request form. Item 12.	lighting will be managed to minimise the potential for light to impact on adjacent residents or drivers on adjacent roads.	
Annexure C. Attachment 1: OOHW Approval request form. Assessment.	<p>The EPA notes the direction to undertake an acoustic assessment to determine if the works are above RBL +5dB(A) at the closest receptor.</p> <p>Please confirm if the acoustic assessment is via a model or attended noise monitoring. If attended noise monitoring is undertaken the records for the monitoring should be undertaken by an appropriately qualified and experienced person, and should be supported by appropriate contemporaneous notes about the sound environment.</p>	
Annexure D. Vibration Monitoring test procedure.	<p>The EPA notes that the test procedure does not confirm the method for setup of the monitor in accordance with an accepted standard.</p> <p>Please confirm in the procedure what standard will be adopted to ensure the correct setup of monitoring equipment (vibration transducers) on buildings or ground so that valid measurements can be collected.</p>	

CNVMP

Department of Planning and Environment

Byrne, Rebekah

From: Michael.Young@planning.nsw.gov.au
Sent: Wednesday, 10 August 2016 2:33 PM
To: Byrne, Rebekah
Cc: LAWRENCE Scott B (Scott.LAWRENCE@rms.nsw.gov.au); Gregory.NASH@rms.nsw.gov.au
Subject: RE: Grafton Bridge: CNVMP Rev2 - for your review and comment
Attachments: DPE Comments 2016 08 08 - Appendix B3 CNVMP.docx

Hi Rebekah

I have attached the Department's comments on the Const Noise & Vibration Management plan.

Please call me should you wish to discuss.

Regards

Michael

From: Byrne, Rebekah [mailto:Rebekah.Byrne@fultonhogan.com.au]
Sent: Friday, 29 July 2016 4:50 PM
To: Craig Dunk <Craig.Dunk@epa.nsw.gov.au>; Michael Young (DPE-DIPNR) <Michael.Young@planning.nsw.gov.au>
Cc: Kliger, Irina <Irina.Kliger@fultonhogan.com.au>; john.o'donnell@rms.nsw.gov.au; NASH Gregory D <Gregory.NASH@rms.nsw.gov.au>; Johnson, Brendon <Brendon.Johnson@fultonhogan.com.au>; LAWRENCE Scott B <Scott.LAWRENCE@rms.nsw.gov.au>; fh_crb@au.itwocx.com; SHEEHAN Jason L <Jason.L.SHEEHAN@rms.nsw.gov.au>; Simon Williams <SWilliams@geolink.net.au>; Stuart Murphy <Stuart.Murphy@epa.nsw.gov.au>; Themis Prodromakis <themis.prodromakis@hyderconsulting.com>; Stella.Wilson@arcadis.com
Subject: Grafton Bridge: CNVMP Rev2 - for your review and comment

Hi Craig, Michael,

Re: Additional Crossing of the Clarence River at Grafton

Revision 2 of the Construction Noise and Vibration Management Plan (CNVMP) is ready for your review and comment. Due to the size of the plan (12MB), please refer to the following link:
<https://app.box.com/s/u163xou724hch2oe9wkfrbovxkg47qte>.

As discussed during the last ERG meeting, all changes to the RMS Template are shown in 'Track Changes'.

Please provide your comments by 12 August 2016.

Should you have any queries, please do not hesitate to contact me.

Regards,

Rebekah Byrne | Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road
Alexandria NSW 2015 | PO Box 6099 Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

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Additional Crossing of the Clarence River at Grafton Project (SSI-6103)

Document		Appendix B3 Construction Noise and Vibration Management Plan Additional Crossing of the Clarence River at Grafton Project	
Version No.		Revision 2 July 2016	
Agency Name		Department of Planning & Environment	
Date		10 August 2016	
Item	Condition No/ Report Reference	Department's Comment	RMS Response
1.	CoA D46(a)(ii) ... an indicative schedule for construction works ...	The CNVMP must include an indicative schedule for the construction of the project.	
2.	Table 6-7	Include details of handheld compactor, if vibration impacts are generated beyond the construction boundary.	
3.	Table 7-1	Does the construction activity flood mitigation works include raising the height of the flood levee? If not levee works must be added to the table and details of construction activities and plant and equipment provided. Include the establishment and operation of ancillary facilities as a typical construction activity and provide details of typical plant and equipment.	
4.	Section 7.2.1	Add sub-section describing levee works/flood mitigation works and potential impacts on sensitive/other receivers. Add a sub-section describing the replacement of the Pound Street viaduct and potential impacts on sensitive receivers, particularly out of hours work (24 hours) during rail shutdown periods.	
5.	Table 8-3	Are mitigation measures specific to the replacement of the Pound Street viaduct required during the rail shutdown period when work would be continuous (24 hours) over a number of days, including Sundays. Details of specific measures should be provided.	

Appendix B Predicted noise levels for construction activities		
6.		The predicted levels during operation of ancillary facilities should be included in the appendix.
Appendix C Out of Hours Works Procedure		
7.	Predicted out of hours work	<p>Is there a category of unpredicted (unknown) out of hours work?</p> <p>The replacement of the Pound Street viaduct should be included in this category as predicted works which will be undertaken out of hours during the rail shutdown period.</p>
8.	Noise and vibration impact assessment	<p>It is stated that where OOHW do not comply with CoA D3 a noise and vibration impact assessment will be undertaken.</p> <p>It is then stated that where applications for OOHW with medium or high risk factors (based on the TfNSW 2011 <i>Construction Noise Strategy</i>), these applications must be supported by a construction noise impact statement. This would mean that OOHW with low risk factors would not require a construction noise impact statement.</p> <p>This is inconsistent with the previous statement that a noise and vibration impact assessment would be undertaken for all OOHW that do not comply with CoA D3.</p>
9.	Noise monitoring	The requirement to only undertake noise monitoring when 2 or more complaints are received is inconsistent with the Noise and Vibration Monitoring Plan which states monitoring would be undertaken in response to complaints received.
10.	Figure C-1	<p>The out of hours work approval flow chart indicates that OOHW that is not high risk would have an approval issued. I assume the approval is issued by the ER.</p> <p>OOHW that is high risk requires an application to be prepared for submission to the ER.</p> <p>All OOHW requires the approval of the ER and therefore an application to be prepared and submitted for review, irrespective of whether it is low, medium or high risk.</p>

CNVMP
Clarence Valley Council

Byrne, Rebekah

From: David Morrison <David.Morrison@clarence.nsw.gov.au>
Sent: Friday, 12 August 2016 3:19 PM
To: Byrne, Rebekah
Subject: Grafton Bridge - CEMPs - Noise & Vibration, and Air Quality

Rebecca

Council's environmental health staff have reviewed the above CEMPs and have no specific comment. It is assumed that the noise issue would be covered by the Interim Construction Noise Guideline and the Industrial Noise Policy.

Regards

Dave Morrison

David Morrison
Manager Strategic & Economic Planning
Clarence Valley Council
Locked Bag 23, GRAFTON NSW 2460
P: (02) 6643 0204
F: (02) 6642 7647
M: 0408 296 365
www.clarence.nsw.gov.au

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#####

Byrne, Rebekah

From: Byrne, Rebekah
Sent: Wednesday, 3 August 2016 7:02 AM
To: David Morrison (David.Morrison@clarence.nsw.gov.au)
Cc: fh_crb@au.itwocx.com; john.o'donnell@rms.nsw.gov.au; NASH Gregory D; Johnson, Brendon; Kliger, Irina; SHEEHAN Jason L
Subject: Grafton Bridge: CNVMP Rev2 - for your review and comment

Good morning David,

RMS requested that I forward Revision 2 of the Construction Noise and Vibration Management Plan (CNVMP) to yourself/Clarence Valley Council for comment as well.

Please refer to the following link for the plan: <https://app.box.com/s/u163xou724hch2oe9wkfrbovxkq47qte>.

If you could please provide your comments by 12 August 2016 that would be much appreciated.

Regards,

Rebekah Byrne | Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road
Alexandria NSW 2015 | PO Box 6099 Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

From: Byrne, Rebekah
Sent: Friday, 29 July 2016 4:50 PM
To: 'craig.dunk@epa.nsw.gov.au'; 'Michael.young@planning.nsw.gov.au'
Cc: Kliger, Irina; john.o'donnell@rms.nsw.gov.au; NASH Gregory D; Johnson, Brendon; LAWRENCE Scott B; fh_crb@au.itwocx.com; SHEEHAN Jason L; Simon Williams; 'stuart.murphy@epa.nsw.gov.au'; Themis Prodromakis; 'Stella.Wilson@arcadis.com'
Subject: Grafton Bridge: CNVMP Rev2 - for your review and comment

Hi Craig, Michael,

Re: Additional Crossing of the Clarence River at Grafton

Revision 2 of the Construction Noise and Vibration Management Plan (CNVMP) is ready for your review and comment. Due to the size of the plan (12MB), please refer to the following link:
<https://app.box.com/s/u163xou724hch2oe9wkfrbovxkq47qte>.

As discussed during the last ERG meeting, all changes to the RMS Template are shown in 'Track Changes'.

Please provide your comments by 12 August 2016.

Should you have any queries, please do not hesitate to contact me.

Regards,

Rebekah Byrne | Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road
Alexandria NSW 2015 | PO Box 6099 Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

CTAMP
Clarence Valley Council

Byrne, Rebekah

From: David Morrison <David.Morrison@clarence.nsw.gov.au>
Sent: Wednesday, 7 September 2016 8:29 PM
To: Byrne, Rebekah
Subject: Grafton Bridge - Traffic CEMP

Hi Rebekah

Our Roads section has reviewed the document and considers the measures proposed are satisfactory. Council has no further comment at this stage and looks forward to on going consultation as the project progresses.

Thanks

Dave Morrison

Sent from my iPad

David Morrison
Manager Strategic & Economic Planning
Clarence Valley Council
Locked Bag 23, GRAFTON NSW 2460
P: (02) 6643 0204
F: (02) 6642 7647
M: 0408 296 365
www.clarence.nsw.gov.au

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#####

CTAMP

Department of Planning and Environment

Additional Crossing of the Clarence River at Grafton Project (SSI-6103)

Document		Appendix B1 Construction Traffic and Access Management Plan	
Version No.		Revision 1 August 2016	
Agency Name		Department of Planning & Environment	
Date		2 September 2016	
Item	Condition No/ Report Reference	Department's Comment	RMS Response
1.	CoA D46(b)(ii) Details of vehicle movements for construction sites, levee stockpile areas ...	The CTAMP has not adequately addressed this requirement in terms of details of levee upgrade works construction vehicle movements.	
2.	D46(b)(viii) Information on the number of moorings to be relocated, their current location, proposed location, whether the relocation would be permanent and if not, the duration of relocation.	The Department considers this requirement has not been adequately addressed in the CTAMP and the Construction Navigation Management Plan. Details on the relocation of existing swing moorings impacted by the project must be provided in the CTAMP.	
3.	Section 5	<p>CoA D16 requires the provision of alternative temporary parking for formal on-street parking removed or impacted by the project. Replacement parking spaces must be provided in consultation with Clarence Valley Council and affected businesses prior to the commencement of construction that impacts those parking spaces.</p> <p>The number of parking spaces impacted and likely alternative parking arrangements and consultation process should be outlined in this section of the CTAMP.</p> <p>This section should provide details of the local roads used to access the levee works stockpile areas and the levee upgrade works, including land uses traversed by construction vehicles and nature and volume of existing traffic volumes.</p>	

4.	Sections 6.2 and 6.3	Provide details of type and volume of construction vehicle usage of the construction routes to the levee upgrade stockpile sites and the levee upgrade works. See Figure 7-3 showing typical construction access routes to the levee works stockpile areas.	
5.	Section 7.2.1	<p>Construction staging Grafton North and works to the north of Clarence Street. The provision of alternative parking spaces to replace formal on-street parking impacted by the project must be addressed prior to construction commencement. See comment 3 above.</p> <p>This section should provide details of the levee upgrade works as a separate stage of the project.</p>	
6.	Section 7.2.10	The Department notes the <i>"Error! Reference source not found"</i> on page 38 of the Report.	
7.	Appendix F	<p>Construction Navigation Management Plan</p> <p>The Plan must provide details of locations where construction barges and vessels would be moored outside river construction hours, and during river flooding periods. Details of the river management measures must be provided for the mooring and berthing of construction barges and vessels.</p> <p>Further, the Department notes the <i>"Error! Reference source not found"</i> on the first page of Annexure F.</p>	

Byrne, Rebekah

From: Michael Young on iTWOcx/FH_CRB <FH_CRB@au.itwocx.com>
Sent: Friday, 2 September 2016 3:44 PM
To: Byrne, Rebekah
Subject: GEN#0010: Grafton Bridge: Construction Traffic and Access Management Plan [K3.1.1#4A413C.544B54]



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PROJECT NO FH_CRB

PHONE 02 8346 9400

PROJECT Additional Crossing of the Clarence River at Grafton

FAX 02 8346 9444

COMPANY Fulton Hogan

REF [GEN#0010](#)

General Correspondence

STATUS **OPEN**

ISSUED 23-August-16 12:30 PM

DUE 7-September-16 12:23 PM

	AUTHOR	COMPANY
	Salar Aga	Fulton Hogan
COLLABORATORS	ACTION	
	David Morrison	Clarence Valley Council
	INFO	
	C C	Arcadis/App
	James Willis	Arcadis/App
	Stella Wilson	Arcadis/App
	Themis Prodromakis	Arcadis/App
	Michael Young	Department of Planning
	Brendon Johnson	Fulton Hogan
	Irina Kliger	Fulton Hogan
	Nikka Marcial	Fulton Hogan
	Rebekah Byrne	Fulton Hogan
	Samuel Leigh	Fulton Hogan

Simon Williams

Brett Tribe

Gregory Nash

John O'Donnell

Scott Lawrence

Geolink

Roads and Maritime Services of NSW

Roads and Maritime Services of NSW

Roads and Maritime Services of NSW

Roads and Maritime Services of NSW

Grafton Bridge: Construction Traffic and Access Management Plan

Comment

David,

Please find below downloadable link to Revision 1 of the Construction Traffic and Access Management Plan (CTAMP) for your review and comment, including:

1. CTAMP Word document with all changes shown in 'track changes'.

Your comments is appreciated by Wednesday 7 September 2016.

Should you have any queries, please do not hesitate to contact us.

Regards,

Salar Aga | Regional Quality Manager | Fulton Hogan | Level 3, 90 Bourke Road, Alexandria, NSW, 2015 | P.O. Box 6099, Alexandria, NSW, 2015, Australia | Phone +61 02 8346 9400 | Fax +61 02 8346 9444 | Mobile +61 427 880 078 | Web www.fultonhogan.com

ATTACHMENTS



dpe co...p.docx



constr...].docx



~wrd000.jpg

Attached file: [34050822_CONSTRUCTION TRAFFIC AND ACCESS MANAGEMENT PLAN \[1\]\[SA\].DOCX\(5.6Mb\)](#)

2-September-16 [34722447_~WRD000.jpg\(823b\)](#)

2-September-16 [34722447_DPE Comments 2016 09 02 - CTAMP.docx\(25k\)](#)

[Download all attachments in one zip](#)

COMMENTS

Michael Young (DPE-MY)

OPEN

2-September-16 03:43 PM

Hi

Please find attached the Department's comments on the Construction Traffic and Access Management Plan.

Please phone me on (02) 9228 6437 should you have any queries.

Regards

Michael

Attached file: [34722447_~WRD000.jpg\(823b\)](#)

Attached file: [34722447_DPE Comments 2016 09 02 - CTAMP.docx\(25k\)](#)

Salar Aga (FH-SA)

OPEN

23-August-16 12:30 PM

Grafton Bridge: Construction Traffic and Access Management Plan Issued to CVC

CSWQMP

Environment Protection Authority

Byrne, Rebekah

From: Craig Dunk on iTWOcx/FH_CRB <FH_CRB@au.itwocx.com>
Sent: Wednesday, 7 September 2016 4:24 PM
To: Byrne, Rebekah
Subject: TX#0175: CSWQMP Rev3 – in response to your comments [K3.1.1#4B573B.512879]



Hi Rebekah,
[Craig Dunk](#) has issued you this [Transmittal](#).
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PROJECT NO FH_CRB

PROJECT Additional Crossing of the Clarence River at Grafton

COMPANY Fulton Hogan

PHONE 02 8346 9400

FAX 02 8346 9444

REF [TX#0175](#)

Transmittal

STATUS **CLOSED**

ISSUED 6-September-16 05:08 PM

DUE

	AUTHOR	COMPANY	PHONE	MOBILE
	Salar Aga	Fulton Hogan	02 8346 9400	0427 880 078
COLLABORATORS	ACTION			
	Craig Dunk	EPA - Environmental Protection Agency		0427 237 154
	INFO			
	Brendon Johnson	Fulton Hogan	02 8346 9400	+61 404 486 348
	Gregory Nash	Roads and Maritime Services of NSW	1800 633 332	0412 254 640
	Irina Kliger	Fulton Hogan	02 8346 9400	0488 264 613
	Jason Sheehan	Roads and Maritime Services of NSW	1800 633 332	0422 003 460
	John O'Donnell	Roads and Maritime Services of NSW	1800 633 332	0401 474 615
	Rebekah Byrne	Fulton Hogan	02 8346 9400	
	Samuel Leigh	Fulton Hogan	0428 712 901	0428 712 901
	Scott Lawrence	Roads and Maritime Services of NSW	1800 633 332	0419 248 583
	Simon Williams	Geolink		

CSWQMP Rev3 – in response to your comments

SENT FOR REV:Review

Hi David, Craig,

Thank you for your comments with respect to Revision 2 of the Construction Soil and Water Quality Management Plan (CSWQMP). In response, please find attached:

- 1) Revision 3 of the CSWQMP with all changes shown in 'track changes'
- 2) Annexure A – *Erosion and Sediment Control Plan* (this has been revised)
- 3) Annexure F – *RMS Environmental Direction: Management of Tannins from Vegetable Mulch*
- 4) Annexure H – *Pacific Highway Projects Dewatering Practice Note*
- 5) Fulton Hogan's responses to your comments (within the pdf document file name '*App A2 Stakeholder and agency CEMP consultation - for CSWQMP only 060916*')

All other Annexures (B-E, G) are already included within the CSWQMP Word document.

Following review, could you please confirm whether Revision 3 of the CSWQMP satisfactorily addresses your comments. It would be greatly appreciated if you could please respond by COB tomorrow.

on behalf of,

Rebekah Byrne ĩEnvironment Advisor – NSW Construction ĩ **Fulton Hogan** ĩ Level 3, 90 Bourke Road Alexandria
NSW 2015 ĩ PO Box 6099 Alexandria NSW 2015 ĩ Phone +61 2 8346 9400 ĩ Fax +61 2 8346 9444

ATTACHMENTS



~wrd000.jpg

Attached file:

7-September-16 34943953_~WRD000.jpg(823b)

[Download all attachments in one zip](#)

FILE	NAME	REV	DATE	DESCRIPTION	FMT	STATUS
Download all files in zip (20.55Mb)						
1	754-CRB-CSWQMP.A2	-	6-September-16	Title: App A2 Stakeholder and agency CEMP consultation - for CSWQMP only 060916 File: App A2 Stakeholder and agency CEMP consultation - for CSWQMP only 060916.pdf	PDF 77kb	REV
2	754-CRB-CSWQMP.ANNEX.A	0	6-September-16	Title: CSWQMP Annexure A - Erosion and Sediment Control Plan File: Annexure A Erosion and Sediment Control Plan.pdf	PDF 9.9Mb	REV
3	754-CRB-CSWQMP.ANNEX.F	2	5-August-16	Title: CSWQMP Annexure A - Tannis File: Annexure F Tannins.pdf	PDF 1Mb	REV
4	754-CRB-CSWQMP.ANNEX.H	2	5-August-16	Title: CSWQMP Annexure A - Dewatering Practise Notes File: Annexure H Dewatering Practice Notes.pdf	PDF 2.1Mb	REV
5	754-CRB-CSWQMP	3	6-September-16	Title: Construction Soil and Water Quality Management Plan File: CSWQMP_Grafton_Rev3 060916.docx	DOCX 7.5Mb	REV

Download all files in zip (20.55Mb)

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COMMENTS

Craig Dunk (EPA-CD)

CLOSED

7-September-16 04:22 PM

Hi Rebekah,

The EPA has reviewed the response to agency comments provided in appendix A2 and reiterates the need to consider the receiving environment when releasing water from the project site to the environment to ensure that Fulton Hogan does not breach section 120 of the *Protection Of the Environment Operations (POEO) Act 1997*.

The EPA also highlights the need to ensure that monitoring, management and maintenance of stockpiles and ERSED controls is diligently undertaken during the project construction stage.

Regards

Craig Dunk

Coordinator Pacific Highway Upgrade Team – North Coast Region

North Branch, NSW Environment Protection Authority

+61 2 6640 2514 +61 427 237 154

craig.dunk@epa.nsw.gov.au www.epa.nsw.gov.au  @EPA_NSW

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Attached file: [34943953_~WRD000.jpg\(823b\)](#)

Salar Aga (FH-SA)

CLOSED

6-September-16 05:08 PM

Transmittal Issued

ENVIRONMENT PROTECTION AUTHORITY - COMMENT SHEET

Project:	Grafton Bridge		
Document title:	CEMP – Appendix B4 – Construction Soil and Water Quality Management Plan		
Revision No.:	Revision 2, 28 July 2016.		
Reviewer name:	Craig Dunk	Review date:	10 August 2016

Thankyou for the opportunity to comment on the Woolgoolga to Ballina Environmental Work Method statement for Temporary Waterway Crossings. The EPA has reviewed the EWMS and has comments in the table below:

Reference	EPA Comments	Client Response
Table 7-2 I.D. General - CSWQMM1.	The EPA notes the intention to engage a soil conservationist to assist with PESCP development and training until completion of the project.	
Table 7-2 I.D. General - CSWQMM43.	The EPA notes the intention to use small rock, aggregate or other similar material on the Banks of the Clarence River in the vicinity of the bridge works to protect the riverbank from erosion and instability as required. The EPA highlights the need to ensure that any materials used to stabilise the river bank are of a suitable size or are adequately secured to prevent them from being washed away during a flood event.	
Table 7-2 I.D. General - CSWQMM43.	The EPA notes the intention to apply flocculent to basin's within 24 hours of a rainfall event. The EPA supports the use of flocculants to achieve rapid turnaround of basins which should provide improved environmental outcomes and highlights that any flocculants that are used should be assessed to ensure that they do not cause harm.	

<p>Table 7-2 I.D. General – CSWQMM60.</p>	<p>The EPA notes the intention to test and treat site water before it is released to the environment. The EPA notes that the water quality criteria to be achieved are pH 6.5 – 8.5, TSS <50mg/L and no visible or grease.</p> <p>The EPA highlights that as there is no licence issued to Fulton Hogan for this project that the site staff should consider the receiving water quality prior to discharging site water; and ensure that they do not pollute waters (s. 120 of POEO creates an offence for pollution of waters). Pollution of waters is defined in the dictionary to the POEO Act. The EPA notes that water quality monitoring provided in table 5-3 indicates that the background water quality is highly variable.</p>	
<p>Table 7-2 I.D. General – CSWQMM61.</p>	<p>The EPA notes the intention to undertake water testing for discharges less than or equal to 37.2mm (5 day 85th percentile rainfall depth value).</p> <p>The EPA suggests that water testing be undertaken for any events when water discharges or is released from the project site. By undertaking water testing the project can compare receiving water quality with the quality of any water released from the site and can better understand the potential for impacts on the environment and respond to the community with appropriate information.</p> <p>The EPA highlights that temporary works for the control of pollution including sediment filters should be designed to be stable and to be able to withstand the forces of the design storm event, which is usually taken to be the 10 year ARI time of concentration event (refer to sections 6.1.3 (f) and 6.3.7 (e) of the Blue Book.</p>	
<p>Annexure E – Stockpile management protocol. Item 3 dot point 3.</p>	<p>The EPA notes that the mitigation measure states that materials will be stockpiled at least 10m from waterways that are classed as Class 1 or Class 2.</p> <p>The EPA is of the opinion that stockpiles should be located further from waterways to minimise the potential for pollution of waters and notes that the attached table 1 which is labelled Stockpile requirements states that stockpiles be located at least 50m from a waterway.</p> <p>The EPA suggests that this difference should be clarified and that the greater distance of 50m should be adopted to protect waters.</p>	

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Byrne, Rebekah

From: Patrick Pahlow on iTWOcx/FH_CRB <FH_CRB@au.itwox.com>
Sent: Monday, 15 August 2016 10:47 AM
To: Byrne, Rebekah
Subject: TX#0028: CSWQMP Rev2 - for your review and comment [K3.1.1#4913B2.49DE8C]



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PROJECT NO FH_CRB

PHONE 02 8346 9400

PROJECT Additional Crossing of the Clarence River at Grafton

FAX 02 8346 9444

COMPANY Fulton Hogan

REF [TX#0028](#)

Transmittal

STATUS **CLOSED**

ISSUED 5-August-16 10:33 AM

DUE

AUTHOR	COMPANY	PHONE	MOBILE
Nikka Marcial	Fulton Hogan	02 8346 9400	

COLLABORATORS ACTION

Craig Dunk	EPA		0427 237 154
David Morrison	Clarence Valley Council		0408 296 365
James Sakker	DPI Fisheries		0419 185 378
Michael Young	Department of Planning	02 9228 6437	
Patrick Pahlow	NSW Office of Water	02 6676 7386	
Themis Prodromakis	Arcadis/App	02 8907 9000	

INFO

Brendon Johnson	Fulton Hogan	02 8346 9400	+61 404 486 348
Gregory Nash	Roads and Maritime Services of NSW	1800 633 332	0412 254 640
Irina Kliger	Fulton Hogan	02 8346 9400	0488 264 613
Jason Sheehan	Roads and Maritime Services of NSW	1800 633 332	0422 003 460
John O'Donnell	Roads and Maritime Services of NSW	1800 633 332	0401 474 615

Rebekah Byrne	Fulton Hogan	02 8346 9400	
Scott Lawrence	Roads and Maritime Services of NSW	1800 633 332	0419 248 583
Simon Williams	Geolink		
Stella Wilson	Arcadis/App	02 8907 9000	0418 770 380
stuart murphy	EPA		

CSWQMP Rev2 - for your review and comment

SENT FOR REV:Review

Hi everyone,

Re: Additional Crossing of the Clarence River at Grafton

Please find attached Revision 2 of the Construction Soil and Water Quality Management Plan (CSWQMP) for your review and comment, including:

1. CSWQMP Rev2 Word document with all changes shown in 'Track Changes'.
2. Annexure A – Erosion and Sediment Control Plan
3. Annexure F – RMS Environmental Direction: Management of Tannins from Vegetable Mulch
4. Annexure H – Pacific Highway Projects Dewatering Practice Note

All other Annexures (B-E, G) are already included within the CSWQMP.

For those of you who are not aware, Fulton Hogan has adopted the RMS Template Construction Environmental Management Plan (CEMP), which is supported by the Department of Planning and Environment. All changes made to the RMS Template are shown in 'Track Changes'. This approach has been adopted so that agencies familiar with the RMS Template can focus on reviewing only those parts of the Template that have changed and thereby, promote the timely review of the plans.

Please provide your comments by 19 August 2016.

Should you have any queries, please do not hesitate to contact me.

Regards,

Rebekah Byrne | Environment Advisor – NSW Construction | Fulton Hogan

Sent by:

Nikka Amiel Marcial | Fulton Hogan | Level 3, 90 Bourke Road, Alexandria, NSW, 2015 | P.O. Box 6099, Alexandria, NSW, 2015, Australia | Nikka.Marcial@fultonhogan.com.au |

ATTACHMENTS



epa co...10.doc



~wrd000.jpg

Attached file:

10-August-16 [33400054_~WRD000.jpg\(823b\)](#)

10-August-16 [33400054_EPA comments_CEMP B4 _Soil and Water Quality Mgt Plan_20160810.doc\(60k\)](#)

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FILE	NAME	REV	DATE	DESCRIPTION	FMT	STATUS
Download all files in zip (21.87Mb)						
1	754-CRB-CSWQMP.ANNEX.A	2	5-August-16	Title: CSWQMP Annexure A - Erosion and Sediment Control Plan File: Annexure A ESCP.pdf	PDF 10.6Mb	REV
2	754-CRB-CSWQMP.ANNEX.F	2	5-August-16	Title: CSWQMP Annexure A - Tannis File: Annexure F Tannins.pdf	PDF 1Mb	REV
3	754-CRB-CSWQMP.ANNEX.H	2	5-August-16	Title: CSWQMP Annexure A - Dewatering Practise Notes File: Annexure H Dewatering Practice Notes.pdf	PDF 2.1Mb	REV
4	754-CRB-CSWQMP	2	5-August-16	Title: CSWQMP Annexure A - Construction Soil and Water Quality Management Plan File: CSWQMP_Grafton_Rev2 280716.docx	DOCX 8.2Mb	REV

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Status Legend: 100% - Final Design, 15% - Developed Concept Design, 85% - Substantial Detailed Design, APR - Approved, CERT - Certification, IFC - Issued for Construction, INF - Information, P-IFC - Pre-Issued for Construction, REV - Review

COMMENTS

Patrick Pahlow (NOW-PP)

CLOSED

15-August-16 10:46 AM

DPI Water has no comments on the CSWQMP

Craig Dunk (EPA-CD)

CLOSED

10-August-16 03:26 PM

Hi Nikka,

The EPA appreciates the opportunity to review the Construction Soil and Water Management Plan (CSWMP) prepared by Fulton Hogan for the Grafton bridge project.

The EPA acknowledges the mitigation measures included in the plan to manage potential water quality impacts and provides comments on the CSWMP in the attached comment table.

Regards

Craig Dunk

Coordinator Pacific Highway Upgrade Team – North Coast Region

North Branch, NSW Environment Protection Authority

+61 2 6640 2514 +61 427 237 154

craig.dunk@epa.nsw.gov.au www.epa.nsw.gov.au  [@EPA_NSW](#)

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Attached file: [33400054_~WRD000.jpg\(823b\)](#)

Attached file: [33400054_EPA comments_CEMP B4 _Soil and Water Quality Mgt Plan_20160810.doc\(60k\)](#)

Salar Aga (FH-SA)

10-August-16 09:51 AM

General revisions.

James Sakker (DPI-JS)

CLOSED

8-August-16 10:23 AM

Hi I've got no comments on the CSWMP and appendices
regards james

James Sakker (DPI-JS)

CLOSED

8-August-16 10:22 AM

Hi Nikka
I've got no comments on the CSWMP and the appendices provided regards James

Nikka Marcial (FH-NM)

5-August-16 11:15 AM

General revisions.

Nikka Marcial (FH-NM)

CLOSED

5-August-16 10:33 AM

Transmittal Issued

CSWQMP

Department of Planning and Environment

Additional Crossing of the Clarence River at Grafton Project (SSI-6103)

Document		Appendix B4 Construction Soil and Water Quality Management Plan	
Version No.		Revision 2 July 2016	
Agency Name		Department of Planning & Environment	
Date		16 August 2016	
Item	Condition No/ Report Reference	Department's Comment	RMS Response
1.	CoA D46(c)(i) details of construction activities and their locations, which have the potential to impact on waterways and stormwater drainage	Details of construction activities are described in section 6.1 however no details of the location of the activities are provided.	
2.	CoA D46(c)(ii) surface water impact assessment criteria consistent with Australian and New Zealand Environment Conservation Council (ANZECC) guidelines	Table 3-1 states this requirement is addressed in Annexure A. The annexure does not discuss the surface water impact assessment criteria.	
3.	CoA D46(c)(vi) details of how spoil and fill material required by the SSI will be sourced, handled, stockpiled, reused and managed ...	This requirement is addressed in the Stockpile Management Protocol. However no details are provided of the source of fill and the reuse of spoil (see comment 9).	
4.		There are a number of cross referencing error messages throughout the document.	
5.	Glossary/Abbreviations	Add DoE - Department of the Environment. Add after DSEWPC – now DoE.	
6.	Section 7 and Table 7-1.	Discussion of measures to protect water quality must include subsections describing: <ul style="list-style-type: none"> • Construction work/plant on barges moored in the river; and 	

		<ul style="list-style-type: none"> • Construction work on the bridge as its structure is built over the river. <p>Risks to water quality include refuelling of plant and equipment, spillages and leaks of hydrocarbons during plant operation, and spillage of concrete and other construction material, into the Clarence River.</p>	
7.	Annexure A	Concept erosion and sediment control plans – the plans do not describe/illustrate the proposed control measures for the levee upgrade works, stockpile sites and ancillary facility sites. Details must be provided to address CoA D46(c)(vii).	
8.	Annexure D	<p>This annexure describes actions to be undertaken in the event of a heavy or violent rainfall forecast.</p> <p>The Plan should include procedures and actions in the event of a predicted flood event.</p>	
9.	Annexure E	Stockpile Management Protocol – the protocol states its purpose is to provide details of how excavated material would be handled, stockpiled, reused and disposed. The protocol does not provide details of how excavated material would be reused and disposed, particularly of unsuitable and/or surplus material.	
10.	Annexure F	RMS Environmental Direction: Management of Tannins from Vegetation Mulch. A copy of the direction has not been provided for review.	

Byrne, Rebekah

From: Michael.Young@planning.nsw.gov.au
Sent: Wednesday, 17 August 2016 10:31 AM
To: FH_CRB@au.itwocx.com
Cc: Byrne, Rebekah; LAWRENCE Scott B (Scott.LAWRENCE@rms.nsw.gov.au)
Subject: RE: TX#0028: CSWQMP Rev2 - for your review and comment [K3.1.1#4913B2.43D5BC]
Attachments: DPE Comments 2016 08 15 - Appendix B4 CSWQMP.docx

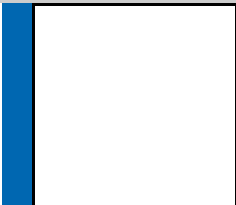
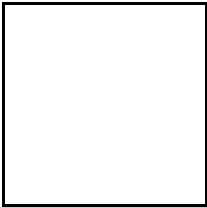
Hi Nikka

I have attached the Department's comments on the Const Soil and Water Quality Management Plan. Please call me should you wish to discuss.

Regards

Michael

From: Nikka Marcial on iTWOcx/FH_CRB [mailto:FH_CRB@au.itwocx.com]
Sent: Friday, 5 August 2016 10:34 AM
To: Michael Young (DPE-DIPNR) <Michael.Young@planning.nsw.gov.au>
Subject: TX#0028: CSWQMP Rev2 - for your review and comment [K3.1.1#4913B2.43D5BC]



Hi Michael,

[Nikka Marcial](#) has issued you this [Transmittal](#).

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PROJECT NO FH_CRB

PROJECT Additional Crossing of the Clarence River at Grafton

COMPANY Fulton Hogan Construction

PHONE 02 8346 9400

FAX 02 8346 9444

REF TX#0028

ISSUED 5-August-16 10:33 AM

DUE

	AUTHOR	COMPANY	PHONE	MOBILE
	Nikka Marcial	Fulton Hogan Construction	02 8346 9400	
COLLABORATORS	ACTION		PHONE	mobile
	Craig Dunk	EPA		0427 237 154
	David Morrison	Clarence Valley Council		0408 296 365
	James Sakker	DPI Fisheries		0419 185 378
	Michael Young	Department of Planning	02 9228 6437	
	Patrick Pahlow	NSW Office of Water	02 6676 7386	
	Themis Prodromakis	Arcadis/App	02 8907 9000	
	INFO	COMPANY	PHONE	mobile
	Brendon Johnson	Fulton Hogan Construction	02 8346 9400	+61 404 486 348
	Gregory Nash	Roads and Maritime Services of NSW	1800 633 332	0412 254 640
	Irina Kliger	Fulton Hogan Construction	02 8346 9400	0488 264 613
	Jason Sheehan	Roads and Maritime Services of NSW	1800 633 332	0422 003 460
	John O'Donnell	Roads and Maritime Services of NSW	1800 633 332	0401 474 615
	Rebekah Byrne	Fulton Hogan Construction	02 8346 9400	
	Scott Lawrence	Roads and Maritime Services of NSW	1800 633 332	0419 248 583
	Simon Williams	Geolink		
	Stella Wilson	Arcadis/App	02 8907 9000	0418 770 380
	stuart murphy	EPA		

CSWQMP Rev2 - for your review and comment

SENT FOR REV:Review

Hi everyone,

Re: Additional Crossing of the Clarence River at Grafton

Please find attached Revision 2 of the Construction Soil and Water Quality Management Plan (CSWQMP) for your review and comment including:

1. CSWQMP Rev2 Word document with all changes shown in 'Track Changes'.
2. Annexure A – Erosion and Sediment Control Plan

3. Annexure F – RMS Environmental Direction: Management of Tannins from Vegetable Mulch
4. Annexure H – Pacific Highway Projects Dewatering Practice Note

All other Annexures (B-E, G) are already included within the CSWQMP.

For those of you who are not aware, Fulton Hogan has adopted the RMS Template Construction Environmental Management Plan (CEMP), which is supported by the Department of Planning and Environment. All changes made to the RMS Template are shown in 'Track Changes'. This approach has been adopted so that agencies familiar with the RMS Template can focus on reviewing only the parts of the Template that have changed and thereby, promote the timely review of the plans.

Please provide your comments by 19 August 2016.

Should you have any queries, please do not hesitate to contact me.

Regards,

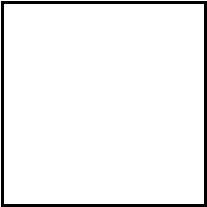
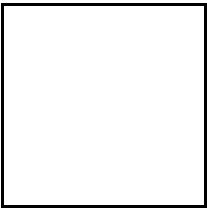
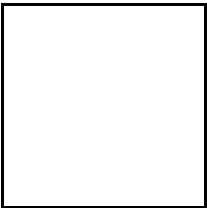
Rebekah Byrne | Environment Advisor – NSW Construction | Fulton Hogan

Sent by:

Nikka Amiel Marcial | Fulton Hogan | Level 3, 90 Bourke Road, Alexandria, NSW, 2015 | P.O. Box 6099, Alexandria, NSW, 2015, Australia | Nikka.Marcial@fultonhogan.com.au |

FILE	NAME	REV	DATE	DESCRIPTION	FMT	S
1	 ANNEXURE A ESCP	-	5-August-16	No title provided. File: Annexure A ESCP.pdf	PDF 10.6Mb	R

[Download all files in zip \(21.1 Mb\)](#)

2		ANNEXURE F TANNINS	-	5-August-16	No title provided. File: Annexure F Tannins.pdf	PDF 1Mb	R
3		ANNEXURE H DEWATERING PRACTICE NOTES	-	5-August-16	No title provided. File: Annexure H Dewatering Practice Notes.pdf	PDF 2.1Mb	R
4		CSWQMP_GRAFTON_REV2 280716	-	5-August-16	No title provided. File: CSWQMP_Grafton_Rev2 280716.docx	DOCX 8.2Mb	R

[Download all files in zip \(21.](#)

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COMMENTS

Nikka Marcial (FH-NM)

5-August-16 10:33 AM

Transmittal Issued

CSWQMP

Department of Primary Industries Fisheries

Byrne, Rebekah

From: James Sakker on iTWOcx/FH_CRB <FH_CRB@au.itwocx.com>
Sent: Monday, 8 August 2016 10:22 AM
To: Byrne, Rebekah
Subject: TX#0028: CSWQMP Rev2 - for your review and comment [K3.1.1#4913B2.44E3CA]



Hi Rebekah,
[James Sakker](#) has issued you this [Transmittal](#).
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PROJECT NO FH_CRB

PROJECT Additional Crossing of the Clarence River at Grafton

COMPANY Fulton Hogan Construction

PHONE 02 8346 9400

FAX 02 8346 9444

REF [TX#0028](#)

Transmittal

STATUS **CLOSED**

ISSUED 5-August-16 10:33 AM

DUE

AUTHOR	COMPANY	PHONE	MOBILE
Nikka Marcial	Fulton Hogan Construction	02 8346 9400	

COLLABORATORS ACTION

Craig Dunk	EPA		0427 237 154
David Morrison	Clarence Valley Council		0408 296 365
James Sakker	DPI Fisheries		0419 185 378
Michael Young	Department of Planning	02 9228 6437	
Patrick Pahlow	NSW Office of Water	02 6676 7386	
Themis Prodromakis	Arcadis/App	02 8907 9000	

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Gregory Nash	Roads and Maritime Services of NSW	1800 633 332	0412 254 640
Irina Kliger	Fulton Hogan Construction	02 8346 9400	0488 264 613
Jason Sheehan	Roads and Maritime Services of NSW	1800 633 332	0422 003 460
John O'Donnell	Roads and Maritime Services of NSW	1800 633 332	0401 474 615

Rebekah Byrne	Fulton Hogan Construction	02 8346 9400	
Scott Lawrence	Roads and Maritime Services of NSW	1800 633 332	0419 248 583
Simon Williams	Geolink		
Stella Wilson	Arcadis/App	02 8907 9000	0418 770 380
stuart murphy	EPA		

CSWQMP Rev2 - for your review and comment

SENT FOR REV:Review

Hi everyone,

Re: Additional Crossing of the Clarence River at Grafton

Please find attached Revision 2 of the Construction Soil and Water Quality Management Plan (CSWQMP) for your review and comment, including:

1. CSWQMP Rev2 Word document with all changes shown in 'Track Changes'.
2. Annexure A – Erosion and Sediment Control Plan
3. Annexure F – RMS Environmental Direction: Management of Tannins from Vegetable Mulch
4. Annexure H – Pacific Highway Projects Dewatering Practice Note

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For those of you who are not aware, Fulton Hogan has adopted the RMS Template Construction Environmental Management Plan (CEMP), which is supported by the Department of Planning and Environment. All changes made to the RMS Template are shown in 'Track Changes'. This approach has been adopted so that agencies familiar with the RMS Template can focus on reviewing only those parts of the Template that have changed and thereby, promote the timely review of the plans.

Please provide your comments by 19 August 2016.


Should you have any queries, please do not hesitate to contact me.

Regards,

Rebekah Byrne | Environment Advisor – NSW Construction | Fulton Hogan

Sent by:

Nikka Amiel Marcial | Fulton Hogan | Level 3, 90 Bourke Road, Alexandria, NSW, 2015 | P.O. Box 6099, Alexandria, NSW, 2015, Australia | Nikka.Marcial@fultonhogan.com.au |

FILE	NAME	REV	DATE	DESCRIPTION	FMT	STATUS
Download all files in zip (21.87Mb)						
1	 CSWQMP.ANNEXURE.A	2	5-August-16	Title: ESCP File: Annexure A ESCP.pdf	PDF 10.6Mb	REV
2	 CSWQMP.ANNEXURE.F	2	5-August-16	Title: Tannis File: Annexure F Tannins.pdf	PDF 1Mb	REV
3	 CSWQMP.ANNEXURE.H	2	5-August-16	Title: Dewatering Practise Notes File: Annexure H Dewatering Practice Notes.pdf	PDF 2.1Mb	REV
4	 CSWQMP_GRAFTON_REV2 280716	2	5-August-16	Title: Construction Soil and Water Quality Management Plan File: CSWQMP_Grafton_Rev2 280716.docx	DOCX 8.2Mb	REV

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Status Legend: 100% - Final Design, 15% - Developed Concept Design, 85% - Substantial Detailed Design, APR - Approved, CERT - Certification, IFC - Issued for Construction, INF - Information, P-IFC - Pre-Issued for Construction, REV - Review

COMMENTS

James Sakker (DPI-JS)

CLOSED

8-August-16 10:22 AM

Hi Nikka

I've got no comments on the CSWMP and the appendices provided regards James

Nikka Marcial (FH-NM)

5-August-16 11:15 AM

General revisions.

CSWQMP

Department of Primary Industries Water

Byrne, Rebekah

From: Patrick Pahlow on iTWOcx/FH_CRB <FH_CRB@au.itwox.com>
Sent: Monday, 15 August 2016 10:47 AM
To: Byrne, Rebekah
Subject: TX#0028: CSWQMP Rev2 - for your review and comment [K3.1.1#4913B2.49DE8C]



Hi Rebekah,
[Patrick Pahlow](#) has issued you this [Transmittal](#).
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PROJECT NO FH_CRB

PHONE 02 8346 9400

PROJECT Additional Crossing of the Clarence River at Grafton

FAX 02 8346 9444

COMPANY Fulton Hogan

REF [TX#0028](#)

Transmittal

STATUS **CLOSED**

ISSUED 5-August-16 10:33 AM

DUE

AUTHOR	COMPANY	PHONE	MOBILE
Nikka Marcial	Fulton Hogan	02 8346 9400	

COLLABORATORS ACTION

Craig Dunk	EPA		0427 237 154
David Morrison	Clarence Valley Council		0408 296 365
James Sakker	DPI Fisheries		0419 185 378
Michael Young	Department of Planning	02 9228 6437	
Patrick Pahlow	NSW Office of Water	02 6676 7386	
Themis Prodromakis	Arcadis/App	02 8907 9000	

INFO

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Gregory Nash	Roads and Maritime Services of NSW	1800 633 332	0412 254 640
Irina Kliger	Fulton Hogan	02 8346 9400	0488 264 613
Jason Sheehan	Roads and Maritime Services of NSW	1800 633 332	0422 003 460
John O'Donnell	Roads and Maritime Services of NSW	1800 633 332	0401 474 615

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Scott Lawrence	Roads and Maritime Services of NSW	1800 633 332	0419 248 583
Simon Williams	Geolink		
Stella Wilson	Arcadis/App	02 8907 9000	0418 770 380
stuart murphy	EPA		

CSWQMP Rev2 - for your review and comment

SENT FOR REV:Review

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Re: Additional Crossing of the Clarence River at Grafton

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Please provide your comments by 19 August 2016.

Should you have any queries, please do not hesitate to contact me.

Regards,

Rebekah Byrne | Environment Advisor – NSW Construction | Fulton Hogan

Sent by:

Nikka Amiel Marcial | Fulton Hogan | Level 3, 90 Bourke Road, Alexandria, NSW, 2015 | P.O. Box 6099, Alexandria, NSW, 2015, Australia | Nikka.Marcial@fultonhogan.com.au |

ATTACHMENTS



epa co...10.doc



~wrd000.jpg

Attached file:

10-August-16 [33400054_~WRD000.jpg\(823b\)](#)

10-August-16 [33400054_EPA comments_CEMP B4 _Soil and Water Quality Mgt Plan_20160810.doc\(60k\)](#)

[Download all attachments in one zip](#)

FILE	NAME	REV	DATE	DESCRIPTION	FMT	STATUS
Download all files in zip (21.87Mb)						
1	754-CRB-CSWQMP.ANNEX.A	2	5-August-16	Title: CSWQMP Annexure A - Erosion and Sediment Control Plan File: Annexure A ESCP.pdf	PDF 10.6Mb	REV
2	754-CRB-CSWQMP.ANNEX.F	2	5-August-16	Title: CSWQMP Annexure A - Tannis File: Annexure F Tannins.pdf	PDF 1Mb	REV
3	754-CRB-CSWQMP.ANNEX.H	2	5-August-16	Title: CSWQMP Annexure A - Dewatering Practise Notes File: Annexure H Dewatering Practice Notes.pdf	PDF 2.1Mb	REV
4	754-CRB-CSWQMP	2	5-August-16	Title: CSWQMP Annexure A - Construction Soil and Water Quality Management Plan File: CSWQMP_Grafton_Rev2 280716.docx	DOCX 8.2Mb	REV

[Download all files in zip \(21.87Mb\)](#)

Status Legend: 100% - Final Design, 15% - Developed Concept Design, 85% - Substantial Detailed Design, APR - Approved, CERT - Certification, IFC - Issued for Construction, INF - Information, P-IFC - Pre-Issued for Construction, REV - Review

COMMENTS

Patrick Pahlow (NOW-PP)

CLOSED

15-August-16 10:46 AM

DPI Water has no comments on the CSWQMP

Craig Dunk (EPA-CD)

CLOSED

10-August-16 03:26 PM

Hi Nikka,

The EPA appreciates the opportunity to review the Construction Soil and Water Management Plan (CSWMP) prepared by Fulton Hogan for the Grafton bridge project.

The EPA acknowledges the mitigation measures included in the plan to manage potential water quality impacts and provides comments on the CSWMP in the attached comment table.

Regards

Craig Dunk

Coordinator Pacific Highway Upgrade Team – North Coast Region

North Branch, NSW Environment Protection Authority

+61 2 6640 2514 +61 427 237 154

craig.dunk@epa.nsw.gov.au www.epa.nsw.gov.au  [@EPA_NSW](#)

Report pollution and environmental incidents 131 555 (NSW only) or +61 2 9995 5555



Please Note: The EPA has introduced an electronic document management system. Please electronically submit all letters and documents for the EPA's Grafton office to email address: north.coast@epa.nsw.gov.au. If you wish to submit a larger document (i.e. more than 5mb in size) please provide an electronic copy via an alternative download method; or on a USB memory stick or DVD to: "EPA, PO Box 498, Grafton NSW 2460".

Attached file: [33400054_~WRD000.jpg\(823b\)](#)

Attached file: [33400054_EPA comments_CEMP B4 _Soil and Water Quality Mgt Plan_20160810.doc\(60k\)](#)

Salar Aga (FH-SA)

10-August-16 09:51 AM

General revisions.

James Sakker (DPI-JS)

CLOSED

8-August-16 10:23 AM

Hi I've got no comments on the CSWMP and appendices
regards james

James Sakker (DPI-JS)

CLOSED

8-August-16 10:22 AM

Hi Nikka
I've got no comments on the CSWMP and the appendices provided regards James

Nikka Marcial (FH-NM)

5-August-16 11:15 AM

General revisions.

Nikka Marcial (FH-NM)

CLOSED

5-August-16 10:33 AM

Transmittal Issued

CSWQMP
Clarence Valley Council

Byrne, Rebekah

From: David Morrison <David.Morrison@clarence.nsw.gov.au>
Sent: Tuesday, 6 September 2016 8:42 PM
To: <FH_CRB@au.itwocx.com>
Cc: Byrne, Rebekah
Subject: Re: TX#0174: CSWQMP Rev3 – in response to your comments [K3.1.1#4B573A.50190D]

Hi Salar and Rebekah

I have had a quick look and Council has no objections to the responses to our initial comments.

Regards

Dave Morrison

Sent from my iPad

On 6 Sep 2016, at 7:02 pm, Salar Aga on iTWOcx/FH_CRB <FH_CRB@au.itwocx.com> wrote:



Hi David,

[Salar Aga](#) has issued you this [Transmittal](#).

Reply to this email to post a comment on the document or click the respond button for more options.

[Show me how](#)

Respond

PROJECT NO FH_CRB

PHONE 02 8346 9400

PROJECT Additional Crossing of the Clarence River at Grafton

FAX 02 8346 9444

COMPANY Fulton Hogan

REF [TX#0174](#)

Transmittal

STATUS **CLOSED**

ISSUED 6-September-16 05:08 PM

DUE

AUTHOR

COMPANY

PHONE

MOBILE

Salar Aga

Fulton Hogan

02 8346 9400

0427 880 078

COLLABORATORS ACTION

[David Morrison](#)

[Clarence Valley Council](#)

[0408 296 365](#)

INFO

Brendon Johnson **Fulton Hogan**

02 8346 9400

+61 404 486 348

Gregory Nash	Roads and Maritime Services of NSW	1800 633 332	0412 254 640
Irina Kliger	Fulton Hogan	02 8346 9400	0488 264 613
Jason Sheehan	Roads and Maritime Services of NSW	1800 633 332	0422 003 460
John O'Donnell	Roads and Maritime Services of NSW	1800 633 332	0401 474 615
Rebekah Byrne	Fulton Hogan	02 8346 9400	
Samuel Leigh	Fulton Hogan	0428 712 901	0428 712 901
Scott Lawrence	Roads and Maritime Services of NSW	1800 633 332	0419 248 583
Simon Williams	Geolink		

CSWQMP Rev3 – in response to your comments

SENT FOR REV:Review

Hi David, Craig,


Thank you for your comments with respect to Revision 2 of the Construction Soil and Water Quality Management Plan (CSWQMP). In response, please find attached:

- 1) Revision 3 of the CSWQMP with all changes shown in 'track changes'
- 2) Annexure A – *Erosion and Sediment Control Plan* (this has been revised)
- 3) Annexure F – *RMS Environmental Direction: Management of Tannins from Vegetable Mulch*
- 4) Annexure H – *Pacific Highway Projects Dewatering Practice Note*
- 5) Fulton Hogan's responses to your comments (within the pdf document file name '*App A2 Stakeholder and agency CEMP consultation - for CSWQMP only 060916*')

All other Annexures (B-E, G) are already included within the CSWQMP Word document.

Following review, could you please confirm whether Revision 3 of the CSWQMP satisfactorily addresses your comments. It would be greatly appreciated if you could please respond by COB tomorrow.

on behalf of,

FILE	NAME	REV	DATE	DESCRIPTION	FMT	STATUS
Download all files in zip (20.55Mb)						
1	 754-CRB-CSWQMP.A2	-	6-September-16	Title: App A2 Stakeholder and agency CEMP consultation - for CSWQMP only 060916 File: App A2 Stakeholder and agency CEMP consultation - for CSWQMP only 060916.pdf	PDF 77kb	REV
2	 754-CRB-CSWQMP.ANNEX.A	0	6-September-16	Title: CSWQMP Annexure A - Erosion and Sediment Control Plan File: Annexure A Erosion and Sediment Control Plan.pdf	PDF 9.9Mb	REV
3	 754-CRB-CSWQMP.ANNEX.F	2	5-August-16	Title: CSWQMP Annexure A - Tannis File: Annexure F Tannins.pdf	PDF 1Mb	REV
4	 754-CRB-CSWQMP.ANNEX.H	2	5-August-16	Title: CSWQMP Annexure A - Dewatering Practise Notes File: Annexure H Dewatering Practice Notes.pdf	PDF 2.1Mb	REV
5	 754-CRB-CSWQMP	3	6-September-16	Title: Construction Soil and Water Quality Management Plan File: CSWQMP_Grafton_Rev3 060916.docx	DOCX 7.5Mb	REV

[Download all files in zip \(20.55Mb\)](#)

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COMMENTS

Salar Aga (FH-SA)

CLOSED

6-September-16 05:08 PM

Transmittal Issued

David Morrison
 Manager Strategic & Economic Planning
Clarence Valley Council
 Locked Bag 23, GRAFTON NSW 2460
 P: (02) 6643 0204
 F: (02) 6642 7647
 M: 0408 296 365
www.clarence.nsw.gov.au

Byrne, Rebekah

From: David Morrison <David.Morrison@clarence.nsw.gov.au>
Sent: Thursday, 1 September 2016 11:58 AM
To: Byrne, Rebekah
Subject: Construction Soil and Water Quality Management Plan (CSWQMP) Rev 2

Hi Rebekah

Our staff have reviewed this document and are satisfied that the concept wastewater controls for operational works incorporates best practice methods, strategies, management protocols and adoption of relevant guidelines.

Their also comment as follows :

1. It has been advised that detailed control measures will be developed and implemented throughout the progressive stages of the bridge works. It is recommended that the works provider update and provide to Council the specific site based control plans during development and construction phases of the project.
2. Compliance and effectiveness of identified control measures designed to prevent and minimise stormwater impacts to the receiving Clarence River shall be monitored during operational works by the contractor and NSW Environmental Protection Agency. Council Environmental Health Officers may assist monitoring or refer any non-compliance matters with the nominated contractors or NSW Environmental Protection Agency for any issues that may arise during construction phases.

Trust that this helps.

Regards

Dave Morrison

David Morrison
Manager Strategic & Economic Planning
Clarence Valley Council
Locked Bag 23, GRAFTON NSW 2460
P: (02) 6643 0204
F: (02) 6642 7647
M: 0408 296 365
www.clarence.nsw.gov.au



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CHMP

Department of Planning and Environment

Additional Crossing of the Clarence River at Grafton Project (SSI-6103)

Document		Appendix B5 Construction Heritage Management Plan	
Version No.		Revision 3 July 2016	
Agency Name		Department of Planning & Environment	
Date		11 August 2016	
Item	Condition No/ Report Reference	Department's Comment	RMS Response
1.	Section 4.2	Update this section in the final Plan to provide outcomes of consultation undertaken with stakeholders, including no comments/response.	
2.	Table 6-2	Item CZB29 14 Pound Street. States an indirect impact (visual and noise) but the text refers to demolition of the heritage item. Clarify whether the project has a direct or indirect impact.	
3.	Figure 6-2	Is the ancillary site shown in the figure bounded by Iolanthe Street, Through Street, the rail line and the flood levee correct? I understood a site to the east of Iolanthe Street has been identified for the South Grafton ancillary site.	
4.	Appendix B	Archaeological monitoring program – this covers non-Aboriginal heritage, however, it is silent on Aboriginal heritage. The program should be updated to discuss procedures should Aboriginal artefacts be uncovered during construction.	

Byrne, Rebekah

From: Michael.Young@planning.nsw.gov.au
Sent: Thursday, 11 August 2016 5:22 PM
To: Byrne, Rebekah; David Morrison (David.Morrison@clarence.nsw.gov.au); Rosalie Neve; gnlalc@bigpond.com; OEH ROGHM Heritage Mailbox
Cc: Kliger, Irina; john.o'donnell@rms.nsw.gov.au; NASH Gregory D; Johnson, Brendon; LAWRENCE Scott B; fh_crb@au.itwocx.com; SHEEHAN Jason L; Simon Williams; Craig Dunk
Subject: RE: Grafton Bridge: CHMP Rev3 - for your review and comment
Attachments: DPE Comments 2016 08 11 - Appendix B5 CHMP.docx

Hi Rebekah

I have attached the Department's comments on the Const Heritage Management Plan. Please call me should you wish to discuss.

Regards

Michael

From: Byrne, Rebekah [mailto:Rebekah.Byrne@fultonhogan.com.au]
Sent: Wednesday, 3 August 2016 9:52 AM
To: Michael Young (DPE-DIPNR) <Michael.Young@planning.nsw.gov.au>; David Morrison (David.Morrison@clarence.nsw.gov.au) <David.Morrison@clarence.nsw.gov.au>; Rosalie Neve <Rosalie.Neve@environment.nsw.gov.au>; gnlalc@bigpond.com; OEH ROGHM Heritage Mailbox <HERITAGEMailbox@environment.nsw.gov.au>
Cc: Kliger, Irina <Irina.Kliger@fultonhogan.com.au>; john.o'donnell@rms.nsw.gov.au; NASH Gregory D <Gregory.NASH@rms.nsw.gov.au>; Johnson, Brendon <Brendon.Johnson@fultonhogan.com.au>; LAWRENCE Scott B <Scott.LAWRENCE@rms.nsw.gov.au>; fh_crb@au.itwocx.com; SHEEHAN Jason L <Jason.L.SHEEHAN@rms.nsw.gov.au>; Simon Williams <SWilliams@geolink.net.au>; Craig Dunk <Craig.Dunk@epa.nsw.gov.au>
Subject: Grafton Bridge: CHMP Rev3 - for your review and comment

Hi Michael, David, Rosalie, Brett and the Heritage Division (OEH),

Re: Additional Crossing of the Clarence River at Grafton

Revision 3 of the Construction Heritage Management Plan (CHMP) is ready for your review and comment. Due to the size of the plan (15MB), it is available at the following link:
<https://app.box.com/s/lh7rxzpp0z6c57p8rvlp69!95dfck7oo>

For those of you who are not aware, Fulton Hogan has adopted the RMS Template Construction Environmental Management Plan (CEMP), which is supported by the Department of Planning and Environment. All changes made to the RMS Template are shown in 'Track Changes'. This approach has been adopted so that agencies familiar with the RMS Template can focus on reviewing only those parts of the Template that have changed and thereby, promote the timely review of the plans.

Please provide your comments by Wednesday 17 August 2016.

Should you have any queries, please do not hesitate to contact me.

Regards,

CHMP

Office of Environment and Heritage (Aboriginal
heritage)



Office of
Environment
& Heritage

Our Ref: DOC16/426906
Your Ref: CEMP_Grafton_Revi120816

Mr Craig Dunk
Coordinator Pacific Highway Upgrade Team
PO Box 498
Grafton NSW 2460


Dear Mr Dunk

Re: Additional Crossing of the Clarence River at Grafton - Revision 2 of the Construction Environmental Management Plan (main document).

A draft *Construction Environmental Management Plan Revision 2* was provided to the Office of Environment and Heritage (OEH) by Fulton Hogan on 12 August 2016 requesting advice on Aboriginal cultural heritage. The OEH is providing advice to the Environment Protection Authority for inclusion in a consolidated response to this matter.

We have reviewed the documentation provided and note the Construction Heritage Management Plan (CHMP) that will form part of the Construction Environmental Management Plan (CEMP). The OEH has no additional comments on the CHMP main document.

However, the OEH welcomes the opportunity to review the proposed environmental work method statements (EWMS) as they are prepared to manage and control all activities that have the potential to negatively impact on Aboriginal cultural heritage.

For more information on this matter, Ms Rosalie Neve, Aboriginal Heritage Planning Officer, Regional Operations, OEH, can be contacted on 6659 8221 or at rosalie.neve@environment.nsw.gov.au

Yours sincerely

 26 August 2016

DIMITRI YOUNG
Senior Team Leader Planning, North East Region
Regional Operations

Contact officer: ROSALIE NEVE
6659 8221

Byrne, Rebekah

From: Craig Dunk <Craig.Dunk@epa.nsw.gov.au>
Sent: Wednesday, 31 August 2016 3:08 PM
To: Byrne, Rebekah
Subject: Grafton Bridge CEMP Rev 2
Attachments: OEH Response - Grafton Bridge CEMP Rev2 Letter to EPA Signed DY 20160826.PDF

Hi Rebekah,

Please find attached OEH comments in relation to the CEMP and CHMP.

Regards

Craig Dunk

Coordinator Pacific Highway Upgrade Team – North Coast Region

North Branch, NSW Environment Protection Authority

+61 2 6640 2514 +61 427 237 154

craig.dunk@epa.nsw.gov.au www.epa.nsw.gov.au [@EPA_NSW](https://www.facebook.com/EPA_NSW)

Report pollution and environmental incidents 131 555 (NSW only) or +61 2 9995 5555



Please Note: The EPA has introduced an electronic document management system. Please electronically submit all letters and documents for the EPA's Grafton office to email address: north.coast@epa.nsw.gov.au. If you wish to submit a larger document (i.e. more than 5mb in size) please provide an electronic copy via an alternative download method; or on a USB memory stick or DVD to: "EPA, PO Box 498, Grafton NSW 2460".

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Our Ref: DOC16/386081
Your Ref: Grafton Bridge CHMP Rev3

Mr Craig Dunk
Coordinator Pacific Highway Upgrade Team – North Coast Region
PO Box 498
Grafton NSW 2460

Craig
Dear ~~Mr Dunk~~

Re: Appendix B5 Construction Heritage Management Plan - Additional Crossing of the Clarence River at Grafton Project

A draft *Appendix B5 Construction Heritage Management Plan - Additional Crossing of the Clarence River at Grafton Project* (Grafton Bridge: CHMP Rev3 – Revision date 1 August 2016)) was provided to the Office of Environment and Heritage (OEH) by Fulton Hogan on 3 August 2016 requesting advice on Aboriginal cultural heritage. The OEH is providing advice to the Environment Protection Authority for inclusion in a consolidated response to this matter.

We have reviewed the documentation provided detailing the proposed Construction Heritage Management Plan (CHMP) that will form part of the Construction Environmental Management Plan (CEMP)

The OEH supports the key objective of the CHMP to ensure that impacts to Aboriginal heritage are minimised and within the scope permitted by the Infrastructure Approval. To enable that objective to be achieved the OEH recommends the following matters be considered:

- the archaeological monitoring program referred to in Appendix B should be overseen by a heritage specialist with expertise in Aboriginal cultural heritage identification as well as non-Aboriginal heritage for Measure/Requirement AH7.
- the fencing of nearby Aboriginal sites located in close proximity to the construction work zone, referred to in Measure/Requirement AH6 should be appropriate for purpose.
- the documents should be updated to reflect changes in ancillary facility locations.
- the planned induction program should include Aboriginal stakeholder participation in its delivery.
- the most recent version of the Roads and Maritime Services' *Standard Management Procedure Unexpected Heritage Items* should be used as a mitigation measure for Aboriginal objects not expected to be identified within the approved project area.

The OEH supports continued Aboriginal consultation even after the finalisation of the CHMP.

For more information on this matter, Ms Rosalie Neve, Aboriginal Heritage Planning Officer, Regional Operations, OEH, can be contacted on 6659 8221 or at rosalie.neve@environment.nsw.gov.au

Yours sincerely

 22 August 2016

DIMITRI YOUNG
Senior Team Leader Planning, North East Region
Regional Operations

Contact officer: ROSALIE NEVE
6659 8221

Byrne, Rebekah

From: Rosalie Neve <Rosalie.Neve@environment.nsw.gov.au>
Sent: Monday, 22 August 2016 3:30 PM
To: Craig Dunk
Cc: Byrne, Rebekah
Subject: OEH Aboriginal heritage comments Grafton Bridge CHMP Rev3
Attachments: OEH ACH comments Grafton Bridge CHMP Rev 3.pdf

The original is in the mail
Scanned copy attached for your convenience

Rosalie Neve
Aboriginal Heritage Planning Officer
Regional Operations Group
Office of Environment and Heritage
Locked Bag 914, Coffs Harbour, NSW 2450
T: (02) 66598221
M. 0472 828 864
W: www.environment.nsw.gov.au

I acknowledge the Traditional Custodians of the lands on which I work and pay my respects to Elders past and present.

This email is intended for the addressee(s) named and may contain confidential and/or privileged information.

If you are not the intended recipient, please notify the sender and then delete it immediately.
Any views expressed in this email are those of the individual sender except where the sender expressly and with authority states them to be the views of the NSW Office of Environment and Heritage.

PLEASE CONSIDER THE ENVIRONMENT BEFORE PRINTING THIS EMAIL

CHMP
Clarence Valley Council

Byrne, Rebekah

From: David Morrison <David.Morrison@clarencensw.gov.au>
Sent: Wednesday, 31 August 2016 3:40 PM
To: Byrne, Rebekah
Subject: CHMP- Rev 4

Rebekah

Council has reviewed Rev 4 of the Construction Heritage Management Plan and in particular App 2 summarising how it has addressed Council's comments, and confirms that it is satisfied with the document and has no further comment to make.

Regards

Dave Morrison

David Morrison
Manager Strategic & Economic Planning
Clarence Valley Council
Locked Bag 23, GRAFTON NSW 2460
P: (02) 6643 0204
F: (02) 6642 7647
M: 0408 296 365
www.clarencensw.gov.au



From: Byrne, Rebekah [mailto:Rebekah.Byrne@fultonhogan.com.au]
Sent: Wednesday, 31 August 2016 1:51 PM
To: David Morrison
Subject: CEMP status of CVC plan comments

Hi David,

Current status of CVC plan comments are summarised in the table below. They are in order of priority from top to bottom. The most critical response I need from you is with respect to the CHMP, followed by that for the CSWQMP and CEMP (main document). I have also attached the relevant emails for your convenience.

Plan	Status (correct at 31/08/16 1:13PM)
Construction Heritage Management Plan (CHMP)	Issued CHMP Revision 4 to CVC o that comments have been satisfact David, this is the most critical to me
Construction Soil and Water Quality Management Plan (CSWQMP)	Issued CSWQMP Revision 2 to CV Comments were due 19/08/16.
Construction Environmental Management Plan (main document) (CEMP)	Issued CEMP (main document) Rev Comments were due 26/08/16.
Construction Flora and Fauna Management Plan (CFFMP)	Issued CFFMP Revision 1 to CVC o Comments due 02/09/16.
Construction Contaminated Land Management Plan	Issued CCLMP Revision 1 to CVC o Comments due 02/09/16.

Please do not hesitate to contact me should you require any further information.

Regards,

Rebekah Byrne | Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road
Alexandria NSW 2015 | PO Box 6099 Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

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Comments on Draft Construction Heritage Management Plan for Second Crossing of the Clarence River.

Page and Section Reference	Comment
Page 3 3.1.2	<p>The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance (1999).</p> <p>Note- The latest version was updated in 2013.</p>
Page 15	<p>Table 5-2: Historic themes for the Grafton area References to 'Fishers Park'</p> <p>Heritage study references are to Fisher Park.</p> <p>Extract SHI 1640053 "The park was named after Thomas Fisher who was Mayor in 1874 and a leading citizen. In 1907 -1908 Fisher Park was subdivided with a section set aside for a Show Ground."</p>
Page 18	<p>CZB07 Fisher's Drain - precaution in relation to any works in this area.</p> <p>Note for info- Recent stabilisation works were approved to reline part of the historic brick drain with a structural liner.</p>
Page 23	<p>6.3.1.1</p> <p>Perhaps the report should summarise the total number of heritage items which are to be demolished, prior to itemising the different numbers in the categories as this can appear confusing.</p>
Page 38	<p><i>NH1 A heritage interpretation plan will be prepared to provide opportunities to enhance understanding and appreciation of the heritage items, values and themes associated with Grafton....The heritage interpretation plan will be developed in consultation with Clarence Valley Council and relevant stakeholders.</i></p> <p>Note- I would like to contribute to the development of the heritage interpretation plan.</p>
Page 43	<p><i>NH3 If required, architectural noise treatments on heritage items will be applied in a sympathetic manner to minimise impact on the significance of the heritage item.</i></p> <p>Consideration should also be given not only to the potential impact of any works on the property concerned, but also to the cumulative impact of any noise attenuation measures on the overall significance and setting of the Conservation Area. For example any removal and replacement of traditional low and non- solid fences. Fences in excess of 1.2 metres and of solid construction are out of character in the Conservation Area. Landscaping should be considered to add greater privacy if required. Changes to fenestration need to be carefully considered.</p> <p>Note-Changes to the exterior including fabric, finish and appearance require prior consent under CI 5.10 of the CVLEP 2011. Fences in front setbacks within a Conservation Area and all fences on the boundary of a heritage item are not exempt development under SEPP Codes 2008.</p>

Page 46	<p><i>Archival Reports NH6 Archival recording will be prepared for the following heritage items:</i> <i>CZB10, CZB11, CZB13, CZB16, CZB17, CZB18, CZB19, CZB20 & CZB21, CZB24, CZB25, CZB26, CZB27, CZB28, CZB29, CZB30, CZB31, CZB32, CZB33, CZB34, CZB35, CZB36 and CZB37.</i></p> <p><i>Archival recording will also be carried out for portions of Pound Street within the Grafton Conservation Area (C3).</i></p> <p>Noted- Copies should be provided to the Clarence River Historical Society, Grafton Regional Library and Clarence Valley Council.</p>
General	<p>No other issues were identified.</p> <p>Question. Will the properties scheduled for total demolition, be offered for relocation as part of the heritage impact options?</p>

Deborah Wray, Senior Strategic Planner

Clarence Valley Council

8 August 2016.

Byrne, Rebekah

From: David Morrison <David.Morrison@clarence.nsw.gov.au>
Sent: Friday, 12 August 2016 3:23 PM
To: Byrne, Rebekah
Subject: EML:FH-MANY#0026: Grafton Bridge: CHMP Rev3 - for your review and comment [K3.1.1#48B503.436296]
Attachments: Review of draft Construction Heritage Management Plan Grafton second crossing.pdf

Rebekah

Please find attached comments from Council's Heritage Officer.
If you need any clarification, please contact me or Deborah Wray – her contact details are below :

Deborah Wray
Senior Strategic Planner
Clarence Valley Council
Locked Bag 23, GRAFTON NSW 2460
P: (02) 6643 0271
F: (02) 6642 7647

Hope this helps.

Regards

Dave Morrison

David Morrison
Manager Strategic & Economic Planning
Clarence Valley Council
Locked Bag 23, GRAFTON NSW 2460
P: (02) 6643 0204
F: (02) 6642 7647
M: 0408 296 365
www.clarence.nsw.gov.au



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CHMP

Heritage Division, Office of Environment and
Heritage

Byrne, Rebekah

From: Byrne, Rebekah
Sent: Wednesday, 31 August 2016 4:17 PM
To: 'Katrina Stankowski'
Cc: Sarah Jane Brazil; Carole Lynne Kerrigan
Subject: RE: Clarence River crossing at Grafton

Hi Katrina,

We acknowledge the Minister's CoA requirement for consultation with NSW Heritage Council on the CHMP. The CHMP was submitted to the Heritage Council for review and comment on 3 August being 4 weeks ago.

Given the time elapsed and the Heritage Council advice that its review will take an additional 1-2 weeks, it is our intention to submit the CHMP to DP&E for approval at the same time as the Heritage Council undertakes its review.

In the event Fulton Hogan receives Heritage Council comments prior to DP&E approval, Fulton Hogan comment responses (and updated plan where required) shall be sent to DP&E for consideration. If comments are received after DP&E approval, Fulton Hogan shall address the comments and inform DP&E of the responses. The plan will be amended as required in consultation with DP&E.

We trust you find this approach a workable solution for all parties. This will allow the approvals process to progress without delaying the project while ensuring comments are adequately considered and addressed.

Regards,

Rebekah Byrne | Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road
Alexandria NSW 2015 | PO Box 6099 Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

From: Katrina Stankowski [mailto:Katrina.Stankowski@environment.nsw.gov.au]
Sent: Wednesday, 31 August 2016 1:47 PM
To: Byrne, Rebekah <Rebekah.Byrne@fultonhogan.com.au>; Carole Lynne Kerrigan <Carole-Lynne.Kerrigan@environment.nsw.gov.au>
Cc: Sarah Jane Brazil <SarahJane.Brazil@environment.nsw.gov.au>
Subject: RE: Clarence River crossing at Grafton

Hi Rebekah

Thanks for emailing. I do note that the conditions for the CHMP require consultation with the Heritage Council, which has not yet occurred. If possible it might be better for you to delay your submission for our comments in order for you to meet the Minister's CoA for this.

Can you also advise how any comments we may supply would be incorporated into the CHMP if it has already been submitted to DP&E for endorsement?

Regards,

Katrina Stankowski
Senior Team Leader, Archaeology
Heritage Division

A: Level 6, 10 Valentine Ave, PARRAMATTA NSW 2150
M: Locked Bag 5020, Parramatta, NSW, 2150
E: Katrina.Stankowski@environment.nsw.gov.au

P: 9873 8569

From: Byrne, Rebekah [<mailto:Rebekah.Byrne@fultonhogan.com.au>]
Sent: Wednesday, 31 August 2016 1:00 PM
To: Carole Lynne Kerrigan <Carole-Lynne.Kerrigan@environment.nsw.gov.au>
Cc: Sarah Jane Brazil <SarahJane.Brazil@environment.nsw.gov.au>; Katrina Stankowski <Katrina.Stankowski@environment.nsw.gov.au>
Subject: RE: Clarence River crossing at Grafton

Hi Carole-Lynne,

As discussed, thank you for letting me know about the expected review timeframe of 1-2 weeks. Unfortunately, we are unable to delay the CHMP submission to DP&E by this same timeframe.

Our intention is to submit Revision 4 of the CHMP to DP&E tomorrow. We will advise DP&E at the same time that comments from Heritage Division (OEH) are pending and expected in 1-2 weeks.

Regards,

Rebekah Byrne | Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road
Alexandria NSW 2015 | PO Box 6099 Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

From: Carole Lynne Kerrigan [<mailto:Carole-Lynne.Kerrigan@environment.nsw.gov.au>]
Sent: Wednesday, 31 August 2016 12:36 PM
To: Byrne, Rebekah <Rebekah.Byrne@fultonhogan.com.au>
Cc: Sarah Jane Brazil <SarahJane.Brazil@environment.nsw.gov.au>; Katrina Stankowski <Katrina.Stankowski@environment.nsw.gov.au>
Subject: RE: Clarence River crossing at Grafton

Hi Rebekah

I've had a look at the document and it seems as though it requires inputs from our archaeological team. Katrina Stankowski, Senior Team Leader: Archaeology, has indicated that they will require 1-2 weeks to carry out this work.

Happy to discuss.

Regards

Carole-Lynne

From: Byrne, Rebekah [<mailto:Rebekah.Byrne@fultonhogan.com.au>]
Sent: Wednesday, 31 August 2016 10:59 AM
To: Carole Lynne Kerrigan <Carole-Lynne.Kerrigan@environment.nsw.gov.au>
Subject: RE: Clarence River crossing at Grafton

Hi Carole-Lynne,

Sorry I missed your call – I was in a meeting. Nikka advised that you could not open the CHMP via the email transmittal that she sent. Instead, I have attached the pdf version of the CHMP Revision 4 with 'track changes'. We will also send you a hard copy via post.

Regards,

Rebekah Byrne | Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road
Alexandria NSW 2015 | PO Box 6099 Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

From: Carole Lynne Kerrigan [<mailto:Carole-Lynne.Kerrigan@environment.nsw.gov.au>]
Sent: Wednesday, 31 August 2016 9:11 AM
To: Byrne, Rebekah <Rebekah.Byrne@fultonhogan.com.au>
Subject: RE: Clarence River crossing at Grafton

Hi Rebekah

I've just left you a voice message. Unfortunately I don't have access to Dropbox so hopefully Nikka can get a hardcopy to me. I'll be away from the office and in meetings most of tomorrow.

Regards

Carole-Lynne

From: Byrne, Rebekah [<mailto:Rebekah.Byrne@fultonhogan.com.au>]
Sent: Wednesday, 31 August 2016 7:59 AM
To: Carole Lynne Kerrigan <Carole-Lynne.Kerrigan@environment.nsw.gov.au>
Subject: RE: Clarence River crossing at Grafton

Hi Carole-Lynne,

Sorry, I was out of the office yesterday in Grafton.

The Dropbox link has probably expired since first sent on 3/8/16, so I have organised for our document controller (Nikka Marcial) to send you Revision 4 of the CHMP shortly. Revision 4 is the most current version.

We are in the final stages of submitting the plan to DP&E for approval, so I have asked whether you can please provide your comments by COB tomorrow 1/9/16.

Regards,

Rebekah Byrne | **Environment Advisor – NSW Construction** | **Fulton Hogan** | Level 3, 90 Bourke Road
Alexandria NSW 2015 | PO Box 6099 Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

From: Carole Lynne Kerrigan [<mailto:Carole-Lynne.Kerrigan@environment.nsw.gov.au>]
Sent: Tuesday, 30 August 2016 11:10 AM
To: Byrne, Rebekah <Rebekah.Byrne@fultonhogan.com.au>
Subject: Clarence River crossing at Grafton

Hi Rebekah

Are you able to provide me with a hardcopy of the Construction Heritage Management Plan, *Additional Crossing of the Clarence River at Grafton Revision 3*, please. I am unable to download it from the Dropbox.

Regards

Carole-Lynne Kerrigan | Senior Heritage Assessment Officer
Conservation | Heritage Division | Office of Environment and Heritage
Locked Bag 5020 PARRAMATTA NSW 2124
Level 6, 10 Valentine Ave, PARRAMATTA NSW 2150
T: 02 9873 8525

W www.environment.nsw.gov.au | www.environment.nsw.gov.au/cultureandheritage.htm

Byrne, Rebekah

From: Byrne, Rebekah
Sent: Wednesday, 3 August 2016 9:52 AM
To: Michael.young@planning.nsw.gov.au; David Morrison (David.Morrison@clarence.nsw.gov.au); Rosalie.neve@environment.nsw.gov.au; gn1alc@bigpond.com; heritage@heritage.nsw.gov.au
Cc: Kliger, Irina; john.o'donnell@rms.nsw.gov.au; NASH Gregory D; Johnson, Brendon; LAWRENCE Scott B; fh_crb@au.itwocx.com; SHEEHAN Jason L; Simon Williams; Craig Dunk
Subject: Grafton Bridge: CHMP Rev3 - for your review and comment

Hi Michael, David, Rosalie, Brett and the Heritage Division (OEH),

Re: Additional Crossing of the Clarence River at Grafton

Revision 3 of the Construction Heritage Management Plan (CHMP) is ready for your review and comment. Due to the size of the plan (15MB), it is available at the following link:

<https://app.box.com/s/lh7rxzpp0z6c57p8rvlp69l95dfck7oo>

For those of you who are not aware, Fulton Hogan has adopted the RMS Template Construction Environmental Management Plan (CEMP), which is supported by the Department of Planning and Environment. All changes made to the RMS Template are shown in 'Track Changes'. This approach has been adopted so that agencies familiar with the RMS Template can focus on reviewing only those parts of the Template that have changed and thereby, promote the timely review of the plans.

Please provide your comments by Wednesday 17 August 2016.

Should you have any queries, please do not hesitate to contact me.

Regards,

Rebekah Byrne | Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road
Alexandria NSW 2015 | PO Box 6099 Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

CHMP

Grafton Ngerrie Local Aboriginal Land Council

Byrne, Rebekah

From: Byrne, Rebekah
Sent: Monday, 22 August 2016 10:30 AM
To: 'gnlalc@bigpond.com'
Cc: Johnson, Brendon; 'jvg@kistudio.com.au'; 'john.o'donnell@rms.nsw.gov.au'; 'LAWRENCE Scott B'; 'NASH Gregory D'; 'fh_crb@au.itwocx.com'; Kliger, Irina; Santos, Roger; Leigh, Sam
Subject: Grafton Bridge - Members Meeting 23/08/16 cancelled

Hi Brett,

I just wanted to let you know that I received a phone call from a lady in your office to advise that the Members Meeting scheduled for tomorrow night, Tuesday 23 August, has been cancelled. Thanks for letting me know. I have advised everyone from our end.

I'll chat to you tomorrow once you're back in the office about next steps.

Regards,

Rebekah Byrne | Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road
Alexandria NSW 2015 | PO Box 6099 Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

From: Byrne, Rebekah
Sent: Thursday, 18 August 2016 1:45 PM
To: gnlalc@bigpond.com
Cc: Johnson, Brendon <Brendon.Johnson@fultonhogan.com.au>; jvg@kistudio.com.au; john.o'donnell@rms.nsw.gov.au; LAWRENCE Scott B <Scott.LAWRENCE@rms.nsw.gov.au>; NASH Gregory D <Gregory.NASH@rms.nsw.gov.au>; fh_crb@au.itwocx.com; Kliger, Irina <Irina.Kliger@fultonhogan.com.au>; Santos, Roger <Roger.Santos@fultonhogan.com.au>; Leigh, Sam <Sam.Leigh@fultonhogan.com.au>
Subject: Grafton Bridge - Aboriginal participation, HIP, CHMP, training

Hi Brett,

Irina, Sam Leigh (the Grafton Bridge Environmental Manager) and I just stopped by your office. We spoke to Rachel and she advised that you are away this week.

We were hoping to talk to you about Aboriginal participation, the Heritage Interpretation Plan, the Construction Heritage Management Plan and "Train the Trainer" training.

Could you please give me a call once you're back to organise a meeting? We look forward to catching up with you soon.

Regards,

Rebekah Byrne | Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road
Alexandria NSW 2015 | PO Box 6099 Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

From: Byrne, Rebekah
Sent: Friday, 5 August 2016 11:22 AM
To: gnlalc@bigpond.com
Cc: Johnson, Brendon <Brendon.Johnson@fultonhogan.com.au>; jvg@kistudio.com.au; john.o'donnell@rms.nsw.gov.au; LAWRENCE Scott B <Scott.LAWRENCE@rms.nsw.gov.au>; NASH Gregory D <Gregory.NASH@rms.nsw.gov.au>; fh_crb@au.itwocx.com; Kliger, Irina <Irina.Kliger@fultonhogan.com.au>
Subject: Grafton Bridge - Heritage Interpretation Plan (HIP) - Next Members Meeting

Hi Brett,

I just left a message on your mobile and thought I'd follow up with this email. As discussed at your office on Tuesday 3/8/16 (2:20-2:30pm) – another way that we could capture Grafton Ngerrie LALC's ideas for heritage interpretation is for Judy Van Gelderen (KI Studio) to attend your next Members Meeting. This way, Judy could hear the ideas of Grafton Ngerrie LALC members firsthand and respond accordingly within the Heritage Interpretation Plan (which forms part of the Urban Design and Landscape Management Plan).

I understand that your next members meeting is going to be on either 16 or 23 August 2016. Last time we spoke, the date was to be confirmed that night (3/8) at the members meeting.

Could you please confirm the date of the next members meeting and that it is still OK for Judy to attend? We will need to know by Thursday 11 August 2016, so that we can prepare and organise travel arrangements in advance.

We look forward to hearing from you.

Regards,

Rebekah Byrne | Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road
Alexandria NSW 2015 | PO Box 6099 Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

From: Byrne, Rebekah

Sent: Friday, 29 July 2016 5:16 PM

To: gnlalc@bigpond.com

Cc: john.o'donnell@rms.nsw.gov.au; Johnson, Brendon; Klinger, Irina; LAWRENCE Scott B; NASH Gregory D;
fh_crb@au.itwocx.com; Inkster, Matthew

Subject: Grafton - Heritage Interpretation Plan (HIP) - Request for feedback

Hi Brett,

Fulton Hogan has been trying to contact you regarding Aboriginal participation on the Grafton Bridge Project. One issue we'd like to discuss is Ngerrie LALC involvement in the Heritage Interpretation Plan we spoke about in the meeting on 21/7 with KI Studio (Judy Van Geldren). In preparing this plan we would like to hear from the Grafton Ngerrie LALC members, and be informed by what is important to them, especially in relation to the Golden Eel site/story.

It would be appreciated if you could ask the Grafton Ngerrie LALC members what they would like interpreted, and how . i.e. which stories are OK to share and what are their ideas for story lines. We would like to talk to anyone who is interested in providing input to the story line. We would also like to know if there is any interest in preparing images, paintings, old photos and the like.

We attach a couple of landscape plans for Grafton Ngerrie LALC members for interest - the Bridge area with both abutments, and the southern approach plan.

We understand if Ngerrie LALC does not wish to participate but we would like you to know that the Urban Design and Landscape Management Plan, including elements of the Heritage Interpretation, will go on public display in September 2016. Prior to going on display, the plan will go through a review and commenting process with RMS, Council and the various environmental agencies. If the Ngerrie LALC is interested in participating in the Heritage Interpretation Plan we would need your comments/feedback by 19 August 2016.

Should you have any queries, feel free to call Judy from KI Studio (02 9571 7900) or me to discuss.

Regards,

Rebekah Byrne | Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road
Alexandria NSW 2015 | PO Box 6099 Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

Byrne, Rebekah

From: Byrne, Rebekah
Sent: Wednesday, 3 August 2016 9:52 AM
To: Michael.young@planning.nsw.gov.au; David Morrison (David.Morrison@clarence.nsw.gov.au); Rosalie.neve@environment.nsw.gov.au; gn1alc@bigpond.com; heritage@heritage.nsw.gov.au
Cc: Kliger, Irina; john.o'donnell@rms.nsw.gov.au; NASH Gregory D; Johnson, Brendon; LAWRENCE Scott B; fh_crb@au.itwocx.com; SHEEHAN Jason L; Simon Williams; Craig Dunk
Subject: Grafton Bridge: CHMP Rev3 - for your review and comment

Hi Michael, David, Rosalie, Brett and the Heritage Division (OEH),

Re: Additional Crossing of the Clarence River at Grafton

Revision 3 of the Construction Heritage Management Plan (CHMP) is ready for your review and comment. Due to the size of the plan (15MB), it is available at the following link:

<https://app.box.com/s/lh7rxzpp0z6c57p8rvlp69l95dfck7oo>

For those of you who are not aware, Fulton Hogan has adopted the RMS Template Construction Environmental Management Plan (CEMP), which is supported by the Department of Planning and Environment. All changes made to the RMS Template are shown in 'Track Changes'. This approach has been adopted so that agencies familiar with the RMS Template can focus on reviewing only those parts of the Template that have changed and thereby, promote the timely review of the plans.

Please provide your comments by Wednesday 17 August 2016.

Should you have any queries, please do not hesitate to contact me.

Regards,

Rebekah Byrne | Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road
Alexandria NSW 2015 | PO Box 6099 Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

Meeting:	Meeting with Grafton Ngerrie LALC to discuss induction training, Construction Heritage Management Plan (CHMP), Heritage Interpretation Plan (HIP) and Aboriginal participation
Project	Additional Crossing of the Clarence River at Grafton
Date & time:	Thursday 21 July 2016, 1:40pm – 3:30pm.
Location:	RMS Regional Office, 76 Victoria Street Grafton NSW 2460, The Bruxner Tender Room – Level 2
Minute taker:	Rebekah Byrne
Attendees:	Grafton Ngerrie LALC: Brett Tibbet (BT). Fulton Hogan (FH): Rebekah Byrne (RB), Irina Kliger (IK), Brendon Johnson (BJ), Matthew Inkster (MI). kiStudio: Judy van Gelderen (JV) RMS: Greg Nash (GN), Scott Lawrence (SL)
Distribution:	Above, Karen Williams (FH), John O'Donnell (RMS), Jason Sheehan (RMS), Roger Santos (RS), Sam Leigh (FH)

Discussion item		Action by
1. Induction training		
1.1	IK explained the content of the four proposed heritage induction slides (Attachment 1), including no-go areas, the incident and emergency flowchart, signage and stop work processes. IK noted that the cultural heritage induction will form part of the overall environmental induction that runs for approximately 3 hours. Inductions are typically carried out 3 times per week commencing at 6am. Fulton Hogan provided BT with a hardcopy of the four induction slides.	Note
1.2	BT advised that there is quite a bit of heritage on the south side. When the EIS process first began, Brett said that 3 stipulations came out from the initial members meeting: <ol style="list-style-type: none"> 1) Erection of a human-proof fence to prevent access to the Golden Eel site 2) Interpretative signage to promote the importance of the Golden Eel site 3) Involvement of Aboriginal Site Officers. BT acknowledged that the fence has been installed. RB advised that interpretative signage would be covered in the HIP. BT advised that John O'Donnell advised him that there would be no Aboriginal Site Officers on the Project. BT said he would have to go back to the members meeting to advise them of the same.	Note
1.3	BT advised that the workers need to know what scarred trees are. Don't include photos of the actual grinding stones at the site in the induction training.	Note
1.4	IK explained that Fulton Hogan has "Green rules" and one of these is – no work outside the project boundary. The project boundary will be clearly delineated.	Note
1.5	BT advised that the main concern is about <i>machinery</i> in the vicinity of the grinding stones.	Note
1.6	BT asked about the possibility of Grafton Ngerrie LALC having some kind of involvement in induction training. IK advised that induction training is carried out 3 times per week at 6am. It was agreed that a one off 'Train the Trainer' session would be undertaken between the relevant FH personnel (e.g. Environmental Manager, Environmental Officer) and a member of Grafton Ngerrie LALC to ensure that the person delivering the induction is aware of all the issues and culturally sensitive information is managed appropriately. FH will organise this with Grafton Ngerrie LALC once the Project Environmental Manager starts working on the project.	FH
2. CHMP (Revision 2)		
2.1	The CHMP was sent to BT for review and comment on 15/07/2016. The CHMP focuses on the sites within 200m of the project, including Carr's Creek campsite, the Golden Eel, a scarred tree and grinding stones. Key mitigation measures are exclusion fencing, induction training, unexpected finds procedure, the Heritage Interpretation Plan and pedestrian-proof fencing. BT advised that he would take the CHMP to the members during the members meeting next week. BT to advise RB of any feedback on the CHMP after the members meeting on 27/07/16.	BT
3. Heritage Interpretation Plan (HIP)		
3.1	JV advised that the HIP will be integrated with the Urban Design and Landscape Management Plan (UDLMP). The HIP will involve summarising the EIS material and preparing a sketch of the main areas where interpretation will be provided and how. In South Grafton - the Golden Eel, the old wharf. In North Grafton-two heritage houses and the Old Grafton Bridge.	Note
3.2	BT explained the significance of the Golden Eel.	Note
3.3	JV to liaise with BT about what stories can be interpreted and then he can take it to the Elders for feedback.	JV

Discussion item		Action by
4. Aboriginal participation		
4.1	MI advised that FH looks forward to meeting its obligations under the <i>NSW Government's Aboriginal Participation in Construction Guidelines</i> (1 May 2015). FH would like to meet the guidelines and also Grafton Ngerrie LALC's expectations with regard to engaging with the community. FH would be looking to get some guidance from BT as to how FH can get involved. The Project is a Category 2 project. This means a targeted project spend of 1.5% of the total estimated contract value to support Aboriginal participation. This equates to approximately \$2.15 million.	Note
4.2	BT to provide MI with a list of Aboriginal businesses in the area. BJ advised that there are not many services that FH would not need in one form or another. For example, fencing contractors; machinery – diggers, trucks; cleaning; tree planting.	BT
4.3	BT confirmed receipt of the Gerringong Upgrade heritage training video. BT advised that he would be showing it at the next members meeting. BT said he thought it was a good way to deliver the message.	Note

Attachments:

No.	Description
1	Proposed heritage induction slides

Attachment 1

Cultural Heritage

Key risk: unauthorised impact/damage to environmentally sensitive areas

‘No-go’ areas are to exclude works in the following environmentally sensitive areas:

- Endangered Ecological Communities
- Threatened Species Habitat
- Protected trees
- Heritage sites both Aboriginal and European

‘No-go’ areas are shown on the **Sensitive Areas Plans**



Cultural Heritage

Key risk: damage to significant Aboriginal or European heritage items

- Both significant *Aboriginal* and *European* heritage items are present on this project
- Destroying heritage items without permits **is an offence** under the *National Parks and Wildlife Act 1979*
- In the event that a potential heritage item or human remains are discovered **STOP WORK**, secure the areas and notify Foreman and Environmental Manger
- Site staff to undergo a cultural heritage briefing when working in these areas.

Cultural Heritage

Objects, places or sites of cultural heritage significance may include:



Scarred Trees



Aboriginal Mounds



Ground-Edge Axes



Stone Arrangements



Fresh water and Coastal Shell Middens



Flaked Stone Artefacts and Surface Scatters



Grinding Stones



Aboriginal Quarries

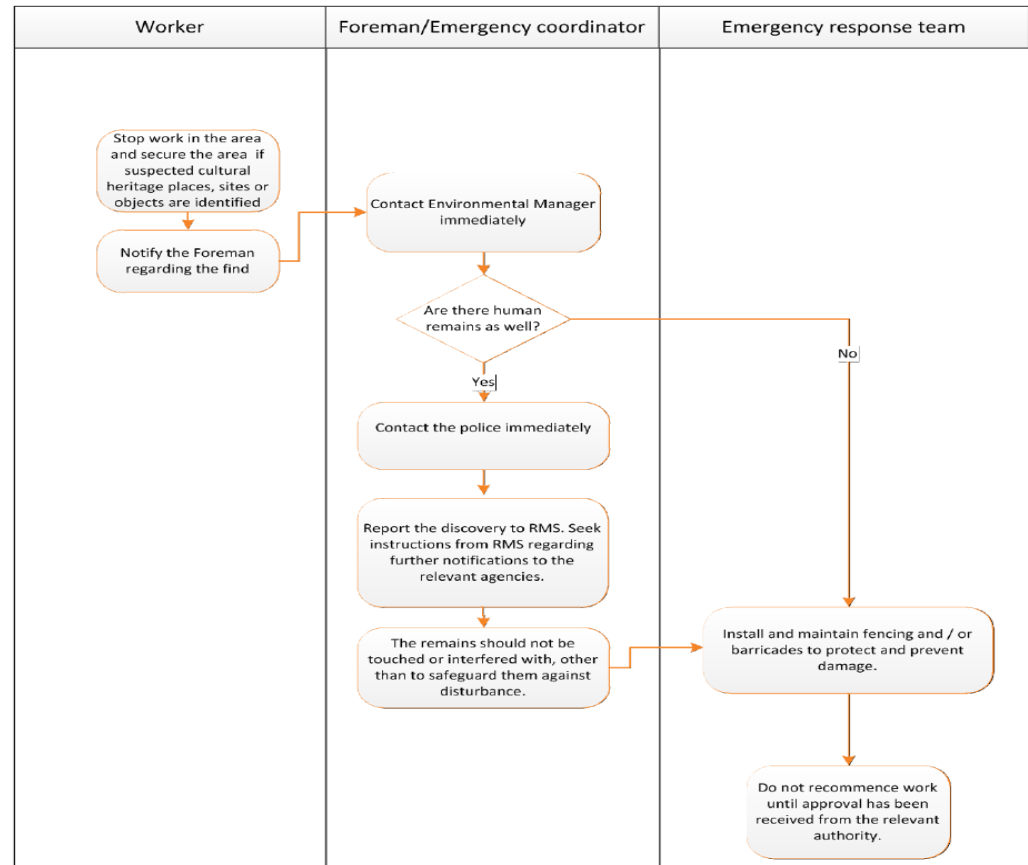


Rock Painting

Cultural Heritage


Fulton Hogan Incident and Emergency Response Flowchart
 Encountering Cultural Heritage Sites and/or human remains

Encountering Cultural Heritage Sites



Byrne, Rebekah

From: Byrne, Rebekah
Sent: Thursday, 28 July 2016 5:32 PM
To: gnlalc@bigpond.com; Johnson, Brendon; Kliger, Irina; Inkster, Matthew; jvg@kistudio.com.au; NASH Gregory D; LAWRENCE Scott B; fh_crb@au.itwocx.com
Cc: Williams, Karen; Leigh, Sam; SHEEHAN Jason L; Santos, Roger; john.o'donnell@rms.nsw.gov.au
Subject: Grafton - Meeting Minutes - Meeting with Grafton Ngerrie LALC
Attachments: Grafton Ngerrie LALC Meeting minutes 280716.pdf

Hi everyone,

Please find attached the Meeting Minutes from our meeting held on 21/07/16.

Regards,

Rebekah Byrne | Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road
Alexandria NSW 2015 | PO Box 6099 Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

-----Original Appointment-----

From: Byrne, Rebekah
Sent: Tuesday, 28 June 2016 4:21 PM
To: Byrne, Rebekah; 'gnlalc@bigpond.com'; john.o'donnell@rms.nsw.gov.au; LAWRENCE Scott B; SHEEHAN Jason L; NASH Gregory D; Johnson, Brendon; Kliger, Irina; Inkster, Matthew; PURCELL Graham (Graham.PURCELL@rms.nsw.gov.au)
Cc: jvg@kistudio.com.au; Santos, Roger
Subject: Meeting with Grafton Ngerrie LALC - Induction training, CHMP, HIP, Aboriginal participation
When: Thursday, 21 July 2016 10:00 AM-12:00 PM (UTC+10:00) Canberra, Melbourne, Sydney.
Where: Grafton Ngerrie LALC

Hi Brett,

Thanks for your time today, it was great to meet you. As discussed, RMS and Fulton Hogan would like to meet with you again on 21/7/16 to discuss the following items in more detail:

- 1) Induction training
- 2) Construction Heritage Management Plan (CHMP)
- 3) Heritage Interpretation Plan (HIP), and
- 4) Aboriginal participation

As discussed in the meeting, I will send you a copy of the video that we developed for the Gerringong Upgrade to see whether you would like to consider something similar for induction training for the Project.

In addition, we will send you a copy of the CHMP once it has been prepared. We are aiming to send it to you at least a week before the meeting so that you have time to review it.

We look forward to working with you in the future.

Regards,

Rebekah Byrne | Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road Alexandria NSW
2015 | PO Box 6099 Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

Byrne, Rebekah

From: Byrne, Rebekah
Sent: Friday, 15 July 2016 3:13 PM
To: gn1alc@bigpond.com
Cc: O'DONNELL John; LAWRENCE Scott B; SHEEHAN Jason L; NASH Gregory D; Johnson, Brendon; Kliger, Irina; Inkster, Matthew; PURCELL Graham (Graham.PURCELL@rms.nsw.gov.au)
Subject: Grafton Bridge Project - CHMP
Attachments: CHMP_Grafton_Rev2 150716.pdf

Hi Brett,

Please find attached the Grafton Project Construction Heritage Management Plan (CHMP) for your review and comment.

We look forward to discussing this plan with you during our meeting next week on 21/7/16.

Regards,

Rebekah Byrne | Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road
Alexandria NSW 2015 | PO Box 6099 Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

From: Byrne, Rebekah
Sent: Monday, 4 July 2016 8:55 AM
To: gn1alc@bigpond.com
Cc: 'O'DONNELL John'; LAWRENCE Scott B; SHEEHAN Jason L; NASH Gregory D; Johnson, Brendon; Kliger, Irina; Inkster, Matthew; PURCELL Graham (Graham.PURCELL@rms.nsw.gov.au)
Subject: Grafton - Request for list of Aboriginal businesses

Hi Brett,

Following on from our impromptu meeting on 28/6, could you also please provide us with a list of the Aboriginal businesses in the area?

Thank you,

Rebekah Byrne | Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road Alexandria NSW
2015 | PO Box 6099 Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

From: Byrne, Rebekah [<mailto:Rebekah.Byrne@fultonhogan.com.au>]
Sent: Wednesday, 29 June 2016 2:13 PM
To: gn1alc@bigpond.com
Cc: O'DONNELL John; LAWRENCE Scott B; SHEEHAN Jason L; NASH Gregory D; Johnson, Brendon; Kliger, Irina; Inkster, Matthew; PURCELL Graham
Subject: Video - Gerringong Upgrade heritage induction training

Hi Brett,

As promised, the video is available for your review and comment via the following drop box link:
<https://fultonhogan.sharefile.com/d-s410b6760b194329b> It's 1.4GB, so it might take a while to download.

The video was created in collaboration with Boolarng Nangamai Aboriginal Art and Culture Studio for induction training on the Gerringong Upgrade (GU) project. We found the video to be an engaging and effective way to communicate the key messages for Aboriginal heritage.

If you would like to do something similar for induction training on the Grafton project, we would be happy for you to table this at your board meeting next week as you suggested.

We look forward to hearing the outcome/ receiving your feedback.

Regards,

Rebekah Byrne | Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road Alexandria NSW 2015 | PO Box 6099 Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

-----Original Appointment-----

From: Byrne, Rebekah

Sent: Tuesday, 28 June 2016 4:21 PM

To: Byrne, Rebekah; gnlalc@bigpond.com; john.o'donnell@rms.nsw.gov.au; LAWRENCE Scott B; SHEEHAN Jason L; NASH Gregory D; Johnson, Brendon; Kliger, Irina; Inkster, Matthew; PURCELL Graham (Graham.PURCELL@rms.nsw.gov.au)

Subject: Meeting with Grafton Ngerrie LALC - Induction training, CHMP, HIP, Aboriginal participation

When: Thursday, 21 July 2016 10:00 AM-12:00 PM (UTC+10:00) Canberra, Melbourne, Sydney.

Where: Grafton Ngerrie LALC

Hi Brett,

Thanks for your time today, it was great to meet you. As discussed, RMS and Fulton Hogan would like to meet with you again on 21/7/16 to discuss the following items in more detail:

1. Induction training
2. Construction Heritage Management Plan (CHMP)
3. Heritage Interpretation Plan (HIP), and
4. Aboriginal participation

As discussed in the meeting, I will send you a copy of the video that we developed for the Gerringong Upgrade to see whether you would like to consider something similar for induction training for the Project.

In addition, we will send you a copy of the CHMP once it has been prepared. We are aiming to send it to you at least a week before the meeting so that you have time to review it.

We look forward to working with you in the future.

Regards,

Rebekah Byrne | Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road Alexandria NSW 2015 | PO Box 6099 Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

This email message and any attachments are confidential and may be privileged in which case neither is intended to be waived. This email is for use only by the intended recipient.

CFFMP

Department of Primary Industries Fisheries

Byrne, Rebekah

From: James Sakker on iTWOcx/FH_CRB <FH_CRB@au.itwocx.com>
Sent: Monday, 5 September 2016 1:01 PM
To: Byrne, Rebekah
Subject: GEN#0023: CFFMP Rev2 – in response to your comments [K3.1.1#4B2ED3.4F9D86]



Hi Rebekah,
[James Sakker](#) has issued you this [General Correspondence](#).
Reply to this email to post a comment on the document or click the respond button for more options.
[Show me how](#)

[Respond](#)

PROJECT NO FH_CRB

PHONE 02 8346 9400

PROJECT Additional Crossing of the Clarence River at Grafton

FAX 02 8346 9444

COMPANY Fulton Hogan

REF [GEN#0023](#)

General Correspondence

STATUS **OPEN**

ISSUED 5-September-16 10:52 AM

DUE 26-September-16 10:47 AM

AUTHOR

COMPANY

Nikka Marcial

Fulton Hogan

COLLABORATORS ACTION

[James Sakker](#)

[DPI Fisheries](#)

[Peter Higgs](#)

[EPA - Environmental Protection Agency](#)

INFO

Craig Dunk

EPA - Environmental Protection Agency

stuart murphy

EPA - Environmental Protection Agency

Brendon Johnson

Fulton Hogan

Irina Kliger

Fulton Hogan

Rebekah Byrne

Fulton Hogan

Simon Williams

Geolink

Gregory Nash

Roads and Maritime Services of NSW

Jason Sheehan

Roads and Maritime Services of NSW

John O'Donnell

Roads and Maritime Services of NSW

CFFMP Rev2 – in response to your comments

Comment

Hi James, Peter,

Thank you for your comments with respect to Revision 1 of the Construction Flora and Fauna Management Plan (CNVMP). In response, please find attached:

- 1) Revision 2 of the CFFMP with all changes shown in 'track changes'
- 2) Annexure I – Nest Box Management Plan
- 3) Annexure K – Bat Management Plan
- 4) Annexure L - *TTSTS Construction Management Plan (May 2016)* (attached, for completeness of the CFFMP submission only. This document is not for review and comment because it has already been reviewed and approved by the Australian Government Department of the Environment).
- 5) Fulton Hogan's responses to your comments (within the pdf document file name '*App A2 Stakeholder and agency CEMP consultation - for CFFMP only 050916*')

All other annexures (A-H, J, M) are included within the CFFMP Word document.

Following review, could you please confirm whether Revision 2 of the CFFMP satisfactorily addresses your comments. It would be greatly appreciated if you could please respond today/tomorrow.

Regards,

Rebekah Byrne iEnvironment Advisor – NSW Construction i **Fulton Hogan** i Level 3, 90 Bourke Road
Alexandria NSW 2015iPO Box 6099 Alexandria NSW 2015 i Phone +61 2 8346 9400 i Fax +61 2 8346 9444

Sent By:

Nikka Amiel Marcial | **Fulton Hogan** | Level 3, 90 Bourke Road, Alexandria, NSW, 2015 | P.O. Box 6099,
Alexandria, NSW, 2015, Australia | Nikka.Marcial@fultonhogan.com.au |

ATTACHMENTS



- Attached file: [34762434_ANNEXURE I NBMP 170816.PDF\(2.9Mb\)](#)
[34762434_ANNEXURE L TTSTS CONSTRUCTION MANAGEMENT PLAN MAY 2016.PDF\(3.7Mb\)](#)
[34762434_ANNEXURE K BAT MP 170816.PDF\(1.1Mb\)](#)
[34762434_APP A2 STAKEHOLDER AND AGENCY CEMP CONSULTATION - FOR CFFMP ONLY 050916.PDF\(38k\)](#)
[34762434_CFFMP_GRAFTON_REV2 050916.DOCX\(7.3Mb\)](#)

[Download all attachments in one zip](#)

COMMENTS

James Sakker (DPI-JS) OPEN
5-September-16 12:59 PM
Hi Nikka The changes look good, I've got no further comments regards James

Nikka Marcial (FH-NM) OPEN
5-September-16 10:52 AM
CFFMP Rev2 – in response to your comments Issued to MANY

Byrne, Rebekah

From: James Sakker on iTWOcx/FH_CRB <FH_CRB@au.itwocx.com>
Sent: Monday, 29 August 2016 1:05 PM
To: Byrne, Rebekah
Subject: TX#0160: CFFMP Rev1 - for your review and comment [K3.1.1#4A0E73.5018EB]



Hi Rebekah,
[James Sakker](#) has issued you this [Transmittal](#).
Reply to this email to post a comment on the document or click the respond button for more options.
[Show me how](#)

Respond

PROJECT NO FH_CRB

PROJECT Additional Crossing of the Clarence River at Grafton

COMPANY Fulton Hogan

PHONE 02 8346 9400

FAX 02 8346 9444

REF [TX#0160](#)

Transmittal

STATUS **CLOSED**

ISSUED 19-August-16 09:35 AM

DUE

AUTHOR	COMPANY	PHONE	MOBILE
Nikka Marcial	Fulton Hogan	02 8346 9400	

COLLABORATORS ACTION

Craig Dunk	EPA - Environmental Protection Agency		0427 237 154
David Morrison	Clarence Valley Council		0408 296 365
James Sakker	DPI Fisheries		0419 185 378
Michael Young	Department of Planning	02 9228 6437	
Peter Higgs	EPA - Environmental Protection Agency		0402 149 302

INFO

Brendan Keane	Roads and Maritime Services of NSW	1800 633 332	0450 692 719
Brendon Johnson	Fulton Hogan	02 8346 9400	+61 404 486 348
Gregory Nash	Roads and Maritime Services of NSW	1800 633 332	0412 254 640
Irina Kliger	Fulton Hogan	02 8346 9400	0488 264 613
Jason Sheehan	Roads and Maritime Services of NSW	1800 633 332	0422 003 460
John O'Donnell	Roads and Maritime Services of NSW	1800 633 332	0401 474 615

Peter Felsch	Roads and Maritime Services of NSW	0435 168 081
Rebekah Byrne	Fulton Hogan	02 8346 9400
Scott Lawrence	Roads and Maritime Services of NSW	1800 633 332 0419 248 583
Simon Williams	Geolink	
Stella Wilson	Arcadis/App	02 8907 9000 0418 770 380
stuart murphy	EPA - Environmental Protection Agency	
Themis Prodromakis	Arcadis/App	02 8907 9000

CFFMP Rev1 - for your review and comment

SENT FOR REV:Review

Hi everyone,

Re: Additional Crossing of the Clarence River at Grafton

Please find attached Revision 1 of the Construction Flora and Fauna Management Plan (CFFMP) for your review and comment, including:

1. CFFMP Word document with all changes shown in 'Track Changes'.
2. Annexure I – Nest Box Management Plan
3. Annexure K – Bat Management Plan

Annexure L - *TTSTS Construction Management Plan* (May 2016) has also been attached, for completeness of the CFFMP submission only. This document is not for review and comment because it has already been reviewed and approved by the Australian Government Department of the Environment.

All other annexures (A-H, J, M) are included within the CFFMP Word document.

Please provide your comments by 2 September 2016.

Should you have any queries, please do not hesitate to contact me.

Regards,

Rebekah Byrne | Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road Alexandria
NSW 2015 | PO Box 6099 Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

Sent By:

Nikka Amiel Marcial | **Fulton Hogan** | Level 3, 90 Bourke Road, Alexandria, NSW, 2015 | P.O. Box 6099, Alexandria,
NSW, 2015, Australia | Nikka.Marcial@fultonhogan.com.au |

ATTACHMENTS



~wrd000.jpg

Attached file:

19-August-16 33883745_~WRD000.jpg(823b)

[Download all attachments in one zip](#)

FILE	NAME	REV	DATE	DESCRIPTION	FMT	STATUS
Download all files in zip (14.98Mb)						
1	754-CRB-CFFMP.ANNEX.L	May 2016	19-August-16	Title: TTSTS Construction Management Plan File: Annexure L TTSTS Construction Management Plan May 2016.pdf	PDF 3.7Mb	REV
2	ANNEXURE I NBMP 170816	-	19-August-16	No title provided. File: Annexure I NBMP 170816.pdf	PDF 2.9Mb	REV
3	ANNEXURE K BAT MP 170816	-	19-August-16	No title provided. File: Annexure K Bat MP 170816.pdf	PDF 1.1Mb	REV
4	CFFMP_GRAFTON_REV1 170816	-	19-August-16	No title provided. File: CFFMP_Grafton_Rev1 170816.docx	DOCX 7.3Mb	REV

[Download all files in zip \(14.98Mb\)](#)

Status Legend: 100% - Final Design, 15% - Developed Concept Design, 85% - Substantial Detailed Design, APR - Approved, CERT - Certification, IFC - Issued for Construction, INF - Information, P-IFC - Pre-Issued for Construction, REV - Review

COMMENTS

James Sakker (DPI-JS)

CLOSED

29-August-16 01:05 PM

Hi
can you please add this in to the fauna handling and rescue and delete the reference to placing aquatic fauna in plastic bags
Thanks James

Dewatering procedure and aquatic fauna relocation

Where necessary, aquatic fauna shall be relocated in accordance with the following steps:

- 1) Ensure all aquatic fauna relocation works are supervised by a suitably qualified aquatic ecologist.
- 2) Prior to the commencement of pumping, advice should be sought from the aquatic ecologist on pumping methods and the extent of drawdown.
- 3) The water level should be pumped down to a level that will allow the safe and effective implementation of capture methods, such as seine nets, dip nets and electrofishing.
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- 10) Aquatic ecologist will prepare a report on the relocation, detail the source of the fish, the number and species of fish released and euthanased .

Nikka Marcial (FH-NM)

19-August-16 10:35 AM

General revisions.

Nikka Marcial (FH-NM)

19-August-16 10:30 AM

General revisions.

Craig Dunk (EPA-CD)

CLOSED

19-August-16 09:52 AM

Thanks you. Peter Higgs will review and provide comments on this document.

Regards

Craig Dunk

Coordinator Pacific Highway Upgrade Team – North Coast Region

North Branch, NSW Environment Protection Authority

+61 2 6640 2514 +61 427 237 154

craig.dunk@epa.nsw.gov.au www.epa.nsw.gov.au  @EPA_NSW

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Please Note: The EPA has introduced an electronic document management system. Please electronically submit all letters and documents for the EPA's Grafton office to email address: north.coast@epa.nsw.gov.au. If you wish to submit a larger document (i.e. more than 5mb in size) please provide an electronic copy via an alternative download method; or on a USB memory stick or DVD to: "EPA, PO Box 498, Grafton NSW 2460".

Attached file: [33883745_~WRD000.jpg\(823b\)](#)

Nikka Marcial (FH-NM)

CLOSED

19-August-16 09:35 AM

Transmittal Issued

CFFMP

Environment Protection Authority - Biodiversity

Byrne, Rebekah

From: Peter Higgs on iTWOcx/FH_CRB <FH_CRB@au.itwocx.com>
Sent: Monday, 5 September 2016 2:19 PM
To: Byrne, Rebekah
Subject: GEN#0023: CFFMP Rev2 – in response to your comments [K3.1.1#4B2ED3.4FB896]



Hi Rebekah,
[Peter Higgs](#) has issued you this [General Correspondence](#).
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Respond

PROJECT NO FH_CRB

PHONE 02 8346 9400

PROJECT Additional Crossing of the Clarence River at Grafton

FAX 02 8346 9444

COMPANY Fulton Hogan

REF [GEN#0023](#)

General Correspondence

STATUS **OPEN**

ISSUED 5-September-16 10:52 AM

DUE 26-September-16 10:47 AM

AUTHOR

COMPANY

Nikka Marcial

Fulton Hogan

COLLABORATORS ACTION

James Sakker

DPI Fisheries

[Peter Higgs](#)

[EPA - Environmental Protection Agency](#)

INFO

Craig Dunk

EPA - Environmental Protection Agency

stuart murphy

EPA - Environmental Protection Agency

Brendon Johnson

Fulton Hogan

Irina Kliger

Fulton Hogan

Rebekah Byrne

Fulton Hogan

Simon Williams

Geolink

Gregory Nash

Roads and Maritime Services of NSW

Jason Sheehan

Roads and Maritime Services of NSW

John O'Donnell

Roads and Maritime Services of NSW

CFFMP Rev2 – in response to your comments

Comment

Hi James, Peter,

Thank you for your comments with respect to Revision 1 of the Construction Flora and Fauna Management Plan (CNVMP). In response, please find attached:

- 1) Revision 2 of the CFFMP with all changes shown in 'track changes'
- 2) Annexure I – Nest Box Management Plan
- 3) Annexure K – Bat Management Plan
- 4) Annexure L - *TTSTS Construction Management Plan (May 2016)* (attached, for completeness of the CFFMP submission only. This document is not for review and comment because it has already been reviewed and approved by the Australian Government Department of the Environment).
- 5) Fulton Hogan's responses to your comments (within the pdf document file name '*App A2 Stakeholder and agency CEMP consultation - for CFFMP only 050916*')

All other annexures (A-H, J, M) are included within the CFFMP Word document.

Following review, could you please confirm whether Revision 2 of the CFFMP satisfactorily addresses your comments. It would be greatly appreciated if you could please respond today/tomorrow.

Regards,

Rebekah Byrne iEnvironment Advisor – NSW Construction i **Fulton Hogan** i Level 3, 90 Bourke Road
Alexandria NSW 2015iPO Box 6099 Alexandria NSW 2015 i Phone +61 2 8346 9400 i Fax +61 2 8346 9444

Sent By:

Nikka Amiel Marcial | **Fulton Hogan** | Level 3, 90 Bourke Road, Alexandria, NSW, 2015 | P.O. Box 6099,
Alexandria, NSW, 2015, Australia | Nikka.Marcial@fultonhogan.com.au |

ATTACHMENTS



- Attached file: [34762434_ANNEXURE I NBMP 170816.PDF\(2.9Mb\)](#)
[34762434_ANNEXURE L TTSTS CONSTRUCTION MANAGEMENT PLAN MAY 2016.PDF\(3.7Mb\)](#)
[34762434_ANNEXURE K BAT MP 170816.PDF\(1.1Mb\)](#)
[34762434_APP A2 STAKEHOLDER AND AGENCY CEMP CONSULTATION - FOR CFFMP ONLY 050916.PDF\(38k\)](#)
[34762434_CFFMP_GRAFTON_REV2 050916.DOCX\(7.3Mb\)](#)

[Download all attachments in one zip](#)

COMMENTS

Peter Higgs (EPA-PH)
5-September-16 02:18 PM

OPEN

Hi Nikka,

The EPA are comfortable with the included reference to the TTSTS MP in table 7-2., and have no further comment regarding this.

The EPA support the DPE comment that some reference to risk assessment for turtles and dolphins be included in the document, and notice that none has been included in this revised document. I have mentioned this in ERG meetings to date, and would suggest a similar risk assessment be made for Osprey, at the least by the ecologist once they are appointed.

Happy to discuss this if necessary.

Regards

Peter

James Sakker (DPI-JS)

OPEN

5-September-16 12:59 PM

Hi Nikka The changes look good, I've got no further comments regards James

Nikka Marcial (FH-NM)

OPEN

5-September-16 10:52 AM

CFMP Rev2 – in response to your comments Issued to MANY

Byrne, Rebekah

From: Peter Higgs on iTWOcx/FH_CRB <FH_CRB@au.itwocx.com>
Sent: Friday, 2 September 2016 4:01 PM
To: Byrne, Rebekah
Subject: TX#0160: CFFMP Rev1 - for your review and comment [K3.1.1#4A0E73.557FBD]



Hi Rebekah,
[Peter Higgs](#) has issued you this [Transmittal](#).
Reply to this email to post a comment on the document or click the respond button for more options.
[Show me how](#)

Respond

PROJECT NO FH_CRB

PROJECT Additional Crossing of the Clarence River at Grafton

COMPANY Fulton Hogan

PHONE 02 8346 9400

FAX 02 8346 9444

REF [TX#0160](#)

Transmittal

STATUS **CLOSED**

ISSUED 19-August-16 09:35 AM

DUE

AUTHOR	COMPANY	PHONE	MOBILE
Nikka Marcial	Fulton Hogan	02 8346 9400	

COLLABORATORS ACTION

Craig Dunk	EPA - Environmental Protection Agency		0427 237 154
David Morrison	Clarence Valley Council		0408 296 365
James Sakker	DPI Fisheries		0419 185 378
Michael Young	Department of Planning	02 9228 6437	
Peter Higgs	EPA - Environmental Protection Agency		0402 149 302

INFO

Brendan Keane	Roads and Maritime Services of NSW	1800 633 332	0450 692 719
Brendon Johnson	Fulton Hogan	02 8346 9400	+61 404 486 348
Gregory Nash	Roads and Maritime Services of NSW	1800 633 332	0412 254 640
Irina Kliger	Fulton Hogan	02 8346 9400	0488 264 613
Jason Sheehan	Roads and Maritime Services of NSW	1800 633 332	0422 003 460
John O'Donnell	Roads and Maritime Services of NSW	1800 633 332	0401 474 615

Peter Felsch	Roads and Maritime Services of NSW	0435 168 081	
Rebekah Byrne	Fulton Hogan	02 8346 9400	
Scott Lawrence	Roads and Maritime Services of NSW	1800 633 332	0419 248 583
Simon Williams	Geolink		
Stella Wilson	Arcadis/App	02 8907 9000	0418 770 380
stuart murphy	EPA - Environmental Protection Agency		
Themis Prodromakis	Arcadis/App	02 8907 9000	

CFFMP Rev1 - for your review and comment

SENT FOR REV:Review

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3. Annexure K – Bat Management Plan

Annexure L - *TTSTS Construction Management Plan* (May 2016) has also been attached, for completeness of the CFFMP submission only. This document is not for review and comment because it has already been reviewed and approved by the Australian Government Department of the Environment.

All other annexures (A-H, J, M) are included within the CFFMP Word document.

Please provide your comments by 2 September 2016.

Should you have any queries, please do not hesitate to contact me.

Regards,

Rebekah Byrne | Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road Alexandria
NSW 2015 | PO Box 6099 Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

Sent By:

Nikka Amiel Marcial | **Fulton Hogan** | Level 3, 90 Bourke Road, Alexandria, NSW, 2015 | P.O. Box 6099, Alexandria,
NSW, 2015, Australia | Nikka.Marcial@fultonhogan.com.au |





ATTACHMENTS



Attached file:

- 19-August-16 [33883745_~WRD000.jpg\(823b\)](#)
- 30-August-16 [34423585_~WRD000.jpg\(823b\)](#)
- 30-August-16 [34423585_DPE Comments 2016 08 30 - CFFMP.docx\(25k\)](#)
- 2-September-16 [34723425_Grafton Bridge Construction Flora and Fauna Management Plan.doc\(52k\)](#)

[Download all attachments in one zip](#)

FILE	NAME	REV	DATE	DESCRIPTION	FMT	STATUS
	Download all files in zip (14.98Mb)					
1	 754-CRB-CFFMP.ANNEX.L	May 2016	19-August-16	Title: TTSTS Construction Management Plan File: Annexure L TTSTS Construction Management Plan May 2016.pdf	PDF 3.7Mb	REV
2	 ANNEXURE I NBMP 170816	-	19-August-16	No title provided. File: Annexure I NBMP 170816.pdf	PDF 2.9Mb	REV
3	 ANNEXURE K BAT MP 170816	-	19-August-16	No title provided. File: Annexure K Bat MP 170816.pdf	PDF 1.1Mb	REV
4	 CFFMP_GRAFTON_REV1 170816	-	19-August-16	No title provided. File: CFFMP_Grafton_Rev1 170816.docx	DOCX 7.3Mb	REV

[Download all files in zip \(14.98Mb\)](#)

Status Legend: 100% - Final Design, 15% - Developed Concept Design, 85% - Substantial Detailed Design, APR - Approved, CERT - Certification, IFC - Issued for Construction, INF - Information, P-IFC - Pre-Issued for Construction, REV - Review

COMMENTS

Peter Higgs (EPA-PH)

CLOSED

2-September-16 04:00 PM

Hi Nikka,

The EPA appreciates the opportunity to review the Grafton Bridge Construction Flora and Fauna Management Plan.

On the whole this is a well developed management plan. The EPA have only one real area of concern, which concerns the temporary fencing requirements/approach for the three toed snake toothed skink (TTSTS).

Our comment regarding this is attached.

Happy to discuss this if needed.

Regards

Peter

Attached file: [34723425_Grafton Bridge Construction Flora and Fauna Management Plan.doc\(52k\)](#)

Michael Young (DPE-MY)

CLOSED

30-August-16 10:54 AM

Hi Nikka

I have attached the Department's comments on the Construction Flora and Fauna Management Plan. Please call me should you wish to discuss.

Regards

Michael

Attached file: [34423585_~WRD000.jpg\(823b\)](#)

James Sakker (DPI-JS)

CLOSED

29-August-16 01:05 PM

Hi
can you please add this in to the fauna handling and rescue and delete the refernce to placing aquatic fauna in plastic bags
Thanks James

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Nikka Marcial (FH-NM)

19-August-16 10:35 AM

General revisions.

Nikka Marcial (FH-NM)

19-August-16 10:30 AM

General revisions.

Craig Dunk (EPA-CD)

CLOSED

19-August-16 09:52 AM

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Regards

Craig Dunk

Coordinator Pacific Highway Upgrade Team – North Coast Region

North Branch, NSW Environment Protection Authority

+61 2 6640 2514 +61 427 237 154

craig.dunk@epa.nsw.gov.au www.epa.nsw.gov.au  @EPA_NSW

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Attached file: [33883745_~WRD000.jpg\(823b\)](#)

Nikka Marcial (FH-NM)

CLOSED

19-August-16 09:35 AM

Transmittal Issued

CFFMP
Clarence Valley Council

Byrne, Rebekah

From: David Morrison <David.Morrison@clarence.nsw.gov.au>
Sent: Monday, 5 September 2016 9:35 AM
To: Byrne, Rebekah
Subject: Grafton Bridge - CFFMP

Hi Rebekah

Council's ecologist has reviewed the Construction Flora and Fauna Management Plan for the Grafton Bridge project and has no objection or comment.

Thanks

Dave Morrison

David Morrison
Manager Strategic & Economic Planning
Clarence Valley Council
Locked Bag 23, GRAFTON NSW 2460
P: (02) 6643 0204
F: (02) 6642 7647
M: 0408 296 365
www.clarence.nsw.gov.au



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CFFMP

Department of Planning and Environment

Additional Crossing of the Clarence River at Grafton Project (SSI-6103)

Document		Construction Flora and Fauna Management Plan	
Version No.		Revision 1 August 2016	
Agency Name		Department of Planning & Environment	
Date		30 August 2016	
Item	Condition No/ Report Reference	Department's Comment	RMS Response
1.	D46(e) The Plan shall be prepared by a suitably qualified and experienced ecologist ...	Please provide details of the qualifications and experience of the ecologist who prepared the CFFMP and include the ecologist's comments in Appendix C of the CFFMP.	
2.	D46(e)(iv) rehabilitation and revegetation details, including objectives, identification of flora species and sources, measures for the management and maintenance of rehabilitated areas, and timeframes and responsibilities for revegetation and rehabilitation	The Plan states that this requirement would be addressed in the permanent Revegetation Strategy which will be included in the Urban Design and Landscape Management Plan required by condition D42. However, as the levee upgrade works would be completed within 4 weeks of commencement, the CFFMP must provide details of the landscaping/rehabilitation of the levees and the levee upgrade stockpile sites following completion of the works. This should be addressed in section 7 of the CFFMP.	
3.	Table of Contents	Check the accuracy of tables listed in the Table of contents (duplication/missing tables/non-existent tables).	
4.	Glossary	<ul style="list-style-type: none"> • DP&E – correct name is Department of Planning and Environment. • Update reference to DSEWPaC – now the Department of the Environment. 	
5.	Section 6.2.3	This section should discuss potential impacts to the Green Turtle (and other river turtles) and Dolphins during river based construction and the	

		erection of structures in the waterway, including silt curtains, and potential entanglement of these species. Proposed mitigation measures should be included in Table 7-1.	
6.	Table 7-1	Vegetation clearing B5 – the 4 th dot point states pre-clearing surveys will be carried out for the Three-toed Snake-tooth Skink in suitable areas not yet surveyed (ancillary sites and houses to be demolished) before demolition and construction works. Section 6.3 of the CFFMP states that surveys of missing lots were undertaken and the Three-toed Snake-tooth Skink was found. It is unclear whether pre-clearing surveys would be undertaken by the ecologist for the Three-toed Snake-tooth Skink prior to the commencement of clearing and demolition of houses. Will pre-clearing surveys be conducted for the levee upgrade works? The mitigation measures must be consistent with the measures in the Three-toed Snake-tooth Skink Construction Management Plan.	
	Appendix L	Three-toed Snake Tooth Skink Construction Management Plan	
7.	Section 3.3.2	It is unclear when the TTSTS exclusion fence would be installed – prior to clearing and grubbing or prior to excavation. The location of the exclusion fence should be shown in Figure 3-1.	
8.	Section 3.7	At sites where temporary construction works are less than 28 days duration, captured TTSTS would be retained and held in captivity until works are completed. Details of the capture, hold and release of the TTSTS must be provided in the TTSTSCMP. This includes details of: <ul style="list-style-type: none"> • Transport to and from the capture site • Captivity site and how the reptiles are held in captivity • Duration of captivity • Monitoring of TTSTS health and food resources of the captivity site 	
9.	Section 4.0 and Table 4-1	Details of monitoring of the health and condition of TTSTS at the captivity sites must be included in the TTSTSCMP.	

Byrne, Rebekah

From: Michael Young on iTWOcx/FH_CRB <FH_CRB@au.itwocx.com>
Sent: Tuesday, 30 August 2016 10:55 AM
To: Byrne, Rebekah
Subject: TX#0160: CFFMP Rev1 - for your review and comment [K3.1.1#4A0E73.50EC7E]



Hi Rebekah,
[Michael Young](#) has issued you this [Transmittal](#).
Reply to this email to post a comment on the document or click the respond button for more options.
[Show me how](#)

Respond

PROJECT NO FH_CRB

PROJECT Additional Crossing of the Clarence River at Grafton

COMPANY Fulton Hogan

PHONE 02 8346 9400

FAX 02 8346 9444

REF [TX#0160](#)

Transmittal

STATUS **CLOSED**

ISSUED 19-August-16 09:35 AM

DUE

AUTHOR	COMPANY	PHONE	MOBILE
Nikka Marcial	Fulton Hogan	02 8346 9400	

COLLABORATORS ACTION

Craig Dunk	EPA - Environmental Protection Agency		0427 237 154
David Morrison	Clarence Valley Council		0408 296 365
James Sakker	DPI Fisheries		0419 185 378
Michael Young	Department of Planning	02 9228 6437	
Peter Higgs	EPA - Environmental Protection Agency		0402 149 302

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Brendon Johnson	Fulton Hogan	02 8346 9400	+61 404 486 348
Gregory Nash	Roads and Maritime Services of NSW	1800 633 332	0412 254 640
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Jason Sheehan	Roads and Maritime Services of NSW	1800 633 332	0422 003 460
John O'Donnell	Roads and Maritime Services of NSW	1800 633 332	0401 474 615

Peter Felsch	Roads and Maritime Services of NSW	0435 168 081	
Rebekah Byrne	Fulton Hogan	02 8346 9400	
Scott Lawrence	Roads and Maritime Services of NSW	1800 633 332	0419 248 583
Simon Williams	Geolink		
Stella Wilson	Arcadis/App	02 8907 9000	0418 770 380
stuart murphy	EPA - Environmental Protection Agency		
Themis Prodromakis	Arcadis/App	02 8907 9000	

CFFMP Rev1 - for your review and comment

SENT FOR REV:Review

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Please provide your comments by 2 September 2016.

Should you have any queries, please do not hesitate to contact me.

Regards,

Rebekah Byrne | Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road Alexandria
NSW 2015 | PO Box 6099 Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

Sent By:

Nikka Amiel Marcial | **Fulton Hogan** | Level 3, 90 Bourke Road, Alexandria, NSW, 2015 | P.O. Box 6099, Alexandria,
NSW, 2015, Australia | Nikka.Marcial@fultonhogan.com.au |





ATTACHMENTS



Attached file:

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- 30-August-16 [34423585_DPE Comments 2016 08 30 - CFFMP.docx\(25k\)](#)

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FILE	NAME	REV	DATE	DESCRIPTION	FMT	STATUS
Download all files in zip (14.98Mb)						
1	 754-CRB-CFFMP.ANNEX.L	May 2016	19-August-16	Title: TTSTS Construction Management Plan File: Annexure L TTSTS Construction Management Plan May 2016.pdf	PDF 3.7Mb	REV
2	 ANNEXURE I NBMP 170816	-	19-August-16	No title provided. File: Annexure I NBMP 170816.pdf	PDF 2.9Mb	REV
3	 ANNEXURE K BAT MP 170816	-	19-August-16	No title provided. File: Annexure K Bat MP 170816.pdf	PDF 1.1Mb	REV
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COMMENTS

Michael Young (DPE-MY)

CLOSED

30-August-16 10:54 AM

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James Sakker (DPI-JS)

CLOSED

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Nikka Marcial (FH-NM)

19-August-16 10:35 AM

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Nikka Marcial (FH-NM)

19-August-16 10:30 AM

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Craig Dunk (EPA-CD)

CLOSED

19-August-16 09:52 AM

Thanks you. Peter Higgs will review and provide comments on this document.

Regards

Craig Dunk

Coordinator Pacific Highway Upgrade Team – North Coast Region

North Branch, NSW Environment Protection Authority

+61 2 6640 2514 +61 427 237 154

craig.dunk@epa.nsw.gov.au www.epa.nsw.gov.au  [@EPA NSW](#)

Report pollution and environmental incidents 131 555 (NSW only) or +61 2 9995 5555



Please Note: The EPA has introduced an electronic document management system. Please electronically submit all letters and documents for the EPA's Grafton office to email address: north.coast@epa.nsw.gov.au. If you wish to submit a larger document (i.e. more than 5mb in size) please provide an electronic copy via an

CFMP

Department of Planning and Environment

Byrne, Rebekah

From: Michael.Young@planning.nsw.gov.au
Sent: Thursday, 18 August 2016 2:49 PM
To: FH_CRB@au.itwocx.com
Cc: Byrne, Rebekah; LAWRENCE Scott B (Scott.LAWRENCE@rms.nsw.gov.au); Gregory.NASH@rms.nsw.gov.au
Subject: RE: TX#0157: CFMP Rev3 - for your review and comment [K3.1.1#49DAAD.475E16]
Attachments: DPE Comments 2016 08 18 - Appendix B8 CFMP.docx

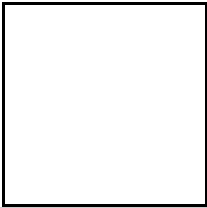
Hi Nikka

I have attached the Department's comments on the Construction Flood Management Plan. Please call me should you wish to discuss.

Regards

Michael

From: Nikka Marcial on iTWOcx/FH_CRB [mailto:FH_CRB@au.itwocx.com]
Sent: Wednesday, 17 August 2016 11:20 AM
To: Michael Young (DPE-DIPNR) <Michael.Young@planning.nsw.gov.au>
Subject: TX#0157: CFMP Rev3 - for your review and comment [K3.1.1#49DAAD.475E16]



Hi Michael,
[Nikka Marcial](#) has issued you this [Transmittal](#).
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Respond

PROJECT NO FH_CRB

PROJECT Additional Crossing of the Clarence River at Grafton

COMPANY Fulton Hogan

PHONE 02 8346 9400

FAX 02 8346 9444

REF [TX#0157](#)

Transmittal

STATUS CLOSED

ISSUED 17-August-16 11:19 AM

DUE

	AUTHOR	COMPANY	PHONE	MOBILE
	Nikka Marcial	Fulton Hogan	02 8346 9400	
COLLABORATORS	ACTION		PHONE	mobile
	Craig Dunk	EPA		0427 237 154
	David Morrison	Clarence Valley Council		0408 296 365
	Michael Stubbs	NSW State Emergency Service	02 6641 6903	0413 385 949
	Michael Young	Department of Planning	02 9228 6437	
	Themis Prodromakis	Arcadis/App	02 8907 9000	
	Toong Chin	Office of Environment and Heritage- Alstonville	(02) 6627 0233	
	INFO	COMPANY	PHONE	mobile
	Brendan Keane	Roads and Maritime Services of NSW	1800 633 332	0450 692 719
	Brendon Johnson	Fulton Hogan	02 8346 9400	+61 404 486 348
	Gregory Nash	Roads and Maritime Services of NSW	1800 633 332	0412 254 640
	Irina Kliger	Fulton Hogan	02 8346 9400	0488 264 613
	Jason Sheehan	Roads and Maritime Services of NSW	1800 633 332	0422 003 460
	John O'Donnell	Roads and Maritime Services of NSW	1800 633 332	0401 474 615
	Kieran McAndrew	Clarence Valley Council	P: (02) 6640 3526	
	Peter Felsch	Roads and Maritime Services of NSW	0435 168 081	
	Rebekah Byrne	Fulton Hogan	02 8346 9400	
	Scott Lawrence	Roads and Maritime Services of NSW	1800 633 332	0419 248 583
	Simon Williams	Geolink		
	Stella Wilson	Arcadis/App	02 8907 9000	0418 770 380
	stuart murphy	EPA		

CFMP Rev3 - for your review and comment

SENT FOR REV:Review

Hi Craig, David, Kieran, Michael S, Michael Y, Themis,

Re: Additional Crossing of the Clarence River at Grafton

Please find attached Revision 3 of the Construction Flood Management Plan (CFMP) for your review and comment.

For those of you who are not aware, Fulton Hogan and RMS met with SES (Michael Stubbs) and CVC (Kieran McAndrew) about the CFMP on 21/07/16 . CVC and SES came back with some comments of which have now been addressed in Revision 3. We wanted to make sure that the CFMP was consistent with the overall planned response strategies for Grafton before sending it out for wider comment.

Please provide your comments by 31 August 2016.

Hi Michael S, Kieran – We acknowledge that you have already seen the CFMP on more than one occasion, so if you have no comments we would appreciate it if you could send a quick email to say the same.

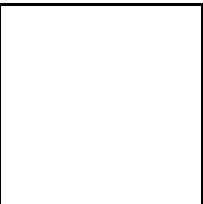
Should you have any queries, please do not hesitate to contact me.

Regards,

Rebekah Byrne Environment Advisor – NSW Construction | Fulton Hogan | Level 3, 90 Bourke Road Alexandria NSW 2015 | PO Box 6099 Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

Sent by:

Nikka Amiel Marcial | Fulton Hogan | Level 3, 90 Bourke Road, Alexandria, NSW, 2015 | P.O. Box 6099, Alexandria, NSW, 2015, Australia | Nikka.Marcial@fultonhogan.com.au |

FILE	NAME	REV	DATE	DESCRIPTION	FMT	STATUS	
1		CFMP_GRAFTON_REV3 120816	-	17-August-16	No title provided. File: CFMP_Grafton_Rev3 120816.docx	DOCX 6.7Mb	REV

Status Legend: 100% - Final Design, 15% - Developed Concept Design, 85% - Substantial Detailed Design, APR - Approved, CERT - Certification, IFC - Issued for Construction, INF - Information, P-IFC - Pre-Issued for Construction, REV - Review

COMMENTS

Additional Crossing of the Clarence River at Grafton Project (SSI-6103)

Document		Construction Flood Management Plan	
Version No.		Revision 3 July 2016	
Agency Name		Department of Planning & Environment	
Date		18 August 2016	
Item	Condition No/ Report Reference	Department's Comment	RMS Response
1.	CoA D46(f)(v) consideration of the flood management objectives described in condition D23(b)	The Construction Flood Management Plan has not addressed this requirement. Information about how the Plan addresses flood height, duration, velocity and direction must be provided.	
2.	Section 4.1	Please provide details of the qualifications and experience of the hydrologist consulted during the preparation of the Flood Management Plan. The comments of the hydrologist and agencies consulted and the RMS/Fulton Hogan responses should be provided to the Department.	
3.	Section 6.1	This section should reference the Hydrological Mitigation Report (KBR 7 June 2016) and the flood mitigation works recommended by the report. The report was approved by the Secretary on 6 July 2016.	
4.	Section 7.2	What is the expected timeframe between the issue of a flood warning and the flood peak occurring? This information should be provided in this section.	
5.	Section 7.2.1	The third dot point refers to the Severe Weather Event Evacuation Procedure where a barge is in the river. A copy of the procedure should be appended to the Construction Flood Management Plan, and provided to the Department for review.	
6.	Annexure A	This annexure contains the Grafton Sector Response Strategy – the Strategy was not appended to the draft Flood Management Plan.	
7.			

CFMP
State Emergency Services

Byrne, Rebekah

From: Michael Stubbs on iTWOcx/FH_CRB <FH_CRB@au.itwocx.com>
Sent: Wednesday, 17 August 2016 12:31 PM
To: Byrne, Rebekah
Subject: TX#0157: CFMP Rev3 - for your review and comment [K3.1.1#49DAAD.4780BB]



Hi Rebekah,
[Michael Stubbs](#) has issued you this [Transmittal](#).
Reply to this email to post a comment on the document or click the respond button for more options.
[Show me how](#)

Respond

PROJECT NO FH_CRB

PROJECT Additional Crossing of the Clarence River at Grafton

COMPANY Fulton Hogan

PHONE 02 8346 9400

FAX 02 8346 9444

REF [TX#0157](#)

Transmittal

STATUS **CLOSED**

ISSUED 17-August-16 11:19 AM

DUE

AUTHOR	COMPANY	PHONE	MOBILE
Nikka Marcial	Fulton Hogan	02 8346 9400	

COLLABORATORS ACTION

Craig Dunk	EPA		0427 237 154
David Morrison	Clarence Valley Council		0408 296 365
Michael Stubbs	NSW State Emergency Service	02 6641 6903	0413 385 949
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Should you have any queries, please do not hesitate to contact me.

Regards,

Rebekah Byrne | Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road Alexandria NSW
2015 | PO Box 6099 Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

Sent by:

Nikka Amiel Marcial | **Fulton Hogan** | Level 3, 90 Bourke Road, Alexandria, NSW, 2015 | P.O. Box 6099, Alexandria, NSW,
2015, Australia | Nikka.Marcial@fultonhogan.com.au |

FILE	NAME	REV	DATE	DESCRIPTION	FMT	STATUS
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COMMENTS

Michael Stubbs (SES-MS)

CLOSED

17-August-16 12:30 PM

SES comfortable with Evacuation Details contained within CFMP Rev3. Only comment reporting of flood modelling 50yr,100yr PMF heights slightly diferent to heights shown in SES Flood Safe Gudies. Very minor anomaly will not affect warning notifications.

Nikka Marcial (FH-NM)

CLOSED

17-August-16 11:19 AM

Transmittal Issued

Byrne, Rebekah

From: Byrne, Rebekah
Sent: Wednesday, 27 July 2016 10:47 AM
To: Kliger, Irina; michael.stubbs@one.ses.nsw.au; Johnson, Brendon; Hicks, David; NASH Gregory D (Gregory.NASH@rms.nsw.gov.au); Jason.L.SHEEHAN@rms.nsw.gov.au; Brendan.Keane@rms.nsw.gov.au; Kieran McAndrew; Williams, Karen; john.o'donnell@rms.nsw.gov.au; fh_crb@au.itwocx.com
Subject: Grafton - Meeting Minutes - Meeting with SES & CVC to discuss Construction Flood Management Plan (CFMP)
Attachments: SES & CVC Meeting minutes 270716 incl Attachments.pdf

Hi everyone,

Please find attached the Meeting Minutes from our meeting held on 21/07/16.

A special thanks to Michael and Kieran for all the information and insights provided. We are working through revising the CFMP and will likely be in contact again next week.

Regards,

Rebekah Byrne | Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road
Alexandria NSW 2015 | PO Box 6099 Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

-----Original Appointment-----

From: Kliger, Irina
Sent: Friday, 15 July 2016 3:17 PM
To: Kliger, Irina; michael.stubbs@one.ses.nsw.au; Byrne, Rebekah; Johnson, Brendon; Hicks, David; NASH Gregory D (Gregory.NASH@rms.nsw.gov.au); Jason.L.SHEEHAN@rms.nsw.gov.au; Brendan.Keane@rms.nsw.gov.au
Cc: Michael Stubbs; Kieran McAndrew
Subject: Meeting with SES to discuss Flood Management Plan
When: Thursday, 21 July 2016 12:00 PM-1:00 PM (UTC+10:00) Canberra, Melbourne, Sydney.
Where: SES Office 26 Induna Street South Grafton

Hi Michael,

Thank you so much for agreeing to meet with us at such short notice. I've attached a copy of the draft Flood Management Plan for your perusal - please note that this is a draft only and is not for wider distribution.

Please let me know if you have any queries or require more information prior to our meeting.

Kind regards,

Irina

<< File: CFMP Rev0 240616.pdf >>

Irina Kliger | NSW/ACT Environmental Manager | **Fulton Hogan** | Level 3, 90 Bourke Road, Alexandria, NSW, 2015 | P.O. Box 6099, Alexandria, NSW, 2015, Australia | Phone +61 2 8346 9434 | Fax +61 2 8346 9444 | Mobile +61 488 264 613 | Web www.fultonhogan.com

Meeting:	Meeting with SES & Clarence Valley Council (CVC) to discuss the Construction Flood Management Plan (CFMP)
Project	Additional Crossing of the Clarence River at Grafton
Date & time:	Thursday 21 July 2016, 12:00 – 1pm.
Location:	SES Office 26 Induna Street South Grafton NSW 2460
Minute taker:	Rebekah Byrne
Attendees:	SES: Michael Stubbs (MS). Clarence Valley Council: Kieran McAndrew (KM). Fulton Hogan (FH): Rebekah Byrne (RB), Irina Kliger (IK), Brendon Johnson (BJ). RMS: Greg Nash (GN), Brendan Keane (BK).
Distribution:	Above, Karen Williams (FH), John O'Donnell (RMS), Jason Sheehan (RMS)

Discussion item		Status/ Action by
1. Introduction		
1.1	MS highlighted the critical role that KM (Emergency Management Officer) plays on behalf of Clarence Valley Council (CVC) in the emergency management of floods. This includes planning for floods.	Note
1.2	BJ advised that FH is aiming for the CFMP to be consistent with SES and CVC procedures.	Note
2. Comments from SES and CVC with respect to CFMP (Revision 0)		
2.1	SES advised that the following plans should be referenced: <ul style="list-style-type: none"> Grafton and Maclean Flood Levee Overtopping study. SES advised that this is available on the website. The Grafton Annexure from the <i>Clarence Valley Council Local Flood Plan</i> (refer to Attachments 1 and 2). SES Grafton and South Grafton Community FloodSafe Guide (refer to Attachment 3). 	Note
2.2	SES advised that the Grafton Annexure from the <i>Clarence Valley Council Local Flood Plan</i> outlines the evacuation strategy and the location of evacuation points. SES specifically raised this point because the CFMP (under “Existing environment”) indicates that people will be evacuated to the north, to Junction Hill, which is not in accordance with the overall CVC evacuation strategy. Evacuation should be to South Grafton. Also refer to the evacuation routes in the FloodSafe Guide.	Note
2.3	SES advised that in relation to levy overtopping (under “Existing environment”), the CFMP says that this will begin at about 8m on the Prince Street gauge. SES/CVC advised that overtopping begins in North Grafton at about 8m and South Grafton a bit later, at about 8.1m.	Note
2.4	SES questioned the logic behind the use of the gauge reference locations (under “Existing environment”), including Prince Street; Existing Grafton bridge; Grafton: Alamy Creek near North Street; South Grafton: intersection of Abbott Street and Vere Street. RMS advised that these locations were adopted during the EIS phase and have been carried through all flood modelling.	Note
2.5	CVC advised that (under “Existing environment”) <i>Table 3-2 Existing peak flood depths</i> could be incorporated into <i>Table 3-1 Existing peak flood levels</i> , with ground heights.	Note
2.6	CVC advised that (under “Preparation of the site”) it is not clear whether these preparation actions are “Flood Warning” actions or “Flood Watch” actions. In the Clarence River area, there is a big difference between the two. Usually different actions would occur depending on the level of flood warning; that is, a Minor, Moderate or Major flood warning.	Note
2.7	SES advised that the “Flood Watch” comes out days before the rainfall arrives. For example, there could be 3-4 days of rain in the upper catchment, before it actually comes down to the site. It could be a matter of going from a minor flood level of 2m, to the levy overtopping at 8m, with the Clarence River rising about 6m. There are a number of actions that could occur during “Flood Watch”, before the “Flood Warning” comes out. It is preferable to take action when it is dry during “Flood Watch”.	Note
2.8	SES highlighted that the CFMP does not talk about anything on the South side of Grafton. Alipou Creek gets flooded well before the levy is overtopped. At levels of a moderate flood (about 5.5m) the area around Alipou Creek is inundated, so equipment in this area would need to be relocated well before the levy overtops.	Note

Discussion item		Status/ Action by
2.9	SES provided BJ with a hardcopy of: <ul style="list-style-type: none"> Annex K – Clarence Valley Sector/Community Response Annex, <i>Clarence Valley Local Flood Plan</i> (July 2012), Page K-1 to K-6 (Attachment 1) Map 2 - Grafton Sector, <i>Clarence Valley Local Flood Plan</i>, Page L-2 (Attachment 2) SES Grafton and South Grafton Community FloodSafe Guide (Attachment 3) CFMP Revision 0, including comments in red (Attachment 4) 	Note
2.10	FH to go away and consider the comments provided by SES and CVC, including those provided in hardcopy (refer to Attachment 3), liaise with CVC as necessary and update the CFMP.	FH
3. Other items raised		
3.1	FH will remove the deck off the jetty at a particular flood level and secure barges in an area of reduced velocity (e.g. inside of the bend).	Note
3.2	CVC confirmed that the Prince Street gauge is in AHD.	Note
3.3	CVC asked about who would be the contact person on the Emergency Planning Committee (EPC). BJ advised that this would be the Fulton Hogan Project Director.	Note
3.4	SES mentioned how flooding was handled at the Kalang River with respect to flood warning times, as an example.	Note
3.5	SES asked about river access during flooding. FH advised that there will be 2 navigation channels open at all times. Also the new bridge piers will be directly in-line with the piers of the existing bridge. SES advised that this is the kind of information that the emergency management committee will interested in knowing (refer to item 3.6 below).	Note
3.6	CVC suggested that once the CFMP is finalised that FH deliver a presentation to the local emergency management committee i.e. police and supporting agencies. Next meeting is on 31 October 2016. 10-15 minute presentation.	Note
3.7	IK queried the SES flood notification service via email. CVC clarified that FH would need to provide SES with a non-personal email address (such as Graftonbridge@fultonhogan.com.au) to which all notifications would be sent. It would then be up to FH to create its own Outlook rules.	Note
3.8	CVC advised that the majority of floods occur in January.	Note
3.9	RMS provided SES with a copy of the final Hydrological Mitigation Report that has been approved by the Department of Planning and Environment.	Note
3.10	RMS advised that FH's design has resulted in reduced afflux due to the bridge. This in turn has required a shorter length of levee works. The length of levee works is currently at about 5.6km.	Note

Attachments:

No.	Description
1	Annex K – Clarence Valley Sector/Community Response Annex, <i>Clarence Valley Local Flood Plan</i> (July 2012), Page K-1 to K-6.
2	Map 2 - Grafton Sector, <i>Clarence Valley Local Flood Plan</i> , Page L-2
3	SES Grafton and South Grafton Community FloodSafe Guide
4	CFMP Revision 0, including comments in red

Attachment 1

ANNEX K - CLARENCE VALLEY

SECTOR/COMMUNITY RESPONSE ANNEX

This annex provides further detail of the planned response strategies within Clarence Valley Community.

N.B Some of the following information in this Annex is based on the 2010 Grafton Maclean Overtopping Study, of which the levee survey height was determined to be incorrect. The levee has been re-surveyed and is being incorporated into the revised levee overtopping study (due 2012). On completion of this study, this Annex will be revised accordingly.

K1. GRAFTON SECTOR RESPONSE

This annex provides further detail of the planned response strategies within Grafton Sector. The associated maps for each sector evacuation plan are provided in Annex L.

Grafton Sector See Map Attached			
Sector Description	This sector covers Alamy Creek, Carrs Creek, Carrs Island, Carrs Peninsula, Eatonsville, Great Marlow, North Grafton, Seelands, South Grafton, Southampton, Waterview and Waterview Heights. Areas of this sector are protected by a system of levees which will over top at different heights.		
Hazard	Clarence River Riverine Flooding		
Flood Affect Classification	North Grafton is a low flood island during extreme floods. South Grafton is classified as Rising Road Access to South Grafton Hill.		
At risk properties	North Grafton 3748 South Grafton 921	Total number of properties	North Grafton 4089 South Grafton 2529
Population	North Grafton 9954 (2006 Census)*	South Grafton 2017(2006 Census)	
Sector Control	The Grafton Unit Controller will control evacuations in this sector. The SES will conduct evacuations in this sector with assistance from NSW Police, Fire and Rescue NSW, and RFS volunteers.		
Key Warning Gauge Name: Prince Street	Minor: 2.10m	Moderate: 3.60m	Major: 5.40m
General Strategy	<ul style="list-style-type: none"> • Evacuation of at risk population. • Self-evacuation to friends/family outside of the impact area. • Establishment of an Assembly Area at South Grafton High School auditorium (Tyson Street), where evacuees are able to gather while flood situation is monitored. • Where a major levee overtopping and/or failure occurs, evacuees will either remain at the South Grafton High School or be transported to Coffs Harbour. 		

Key Risks / Consequences	<ul style="list-style-type: none"> • Overtopping and/or failure of Grafton and/or South Grafton levees resulting in inundation behind the levees. • Potential loss of life from rapid and potentially high velocity inundation in levee overtopping/failure scenario. • Potential isolation of thousands of people estimated to be for a number of days.
Information and Warnings	<ul style="list-style-type: none"> • Flood Watch • Flood Bulletins • Evacuation Warning • Evacuation Order • Sequenced door knocking of evacuation sectors • Media announcements • Emergency Alert SEWS (SMS, Landlines)
Property Protection	<p>Specific property protection measures:</p> <ul style="list-style-type: none"> • Monitoring rising flood waters. • Relocation of livestock. • Relocation of farm machinery and valuable goods • Control of surface water through sandbagging measures. • Assist in the lifting of furniture to residents in need. • Monitoring integrity of dwellings surrounded by flood waters. • Monitoring integrity of existing levee system. • Control of surface water inside levee. <p>Protection of essential infrastructure:</p> <ul style="list-style-type: none"> • No identified essential infrastructure requiring protection below 1% flood height of 8.36m on the Prince St Gauge. • Grafton's potable water supply reservoir is located on high ground 5km south of Grafton above the PMF. • Country Energy substation on the western end of North Street is also flood free below the 1% flood height. (Prince St Gauge 8.36 metres). • Selected sewer pump stations will be switched off upon levee overtopping • The Telstra exchange for Grafton is located on Pound Street, between Prince and Queen Streets. This exchange is powered by mains electricity. If electricity was lost during a flood then the generator (located above PMF height) will automatically start. The generator will last between 24-48 hours before refuelling is required.
Evacuation and/or Isolation Triggers	<p>The key evacuation triggers based on Bureau of Meteorology flood height predictions at the Grafton Prince St gauge:</p> <ol style="list-style-type: none"> 1. Prediction to reach and/or exceed 4.4m Carrs Island Bridge closes isolating residents on island. (Approximately 5 properties). 2. Prediction to reach and/or exceed 5.4m Flood waters enter Alipou Creek area starting to pond around

	<p>rural properties (Approximately 5 properties). Pacific Highway closes at Alipou Creek alternate route high level bypass Via Centenary Drive and Lilypool Road.</p> <p>3. Prediction to reach and/or exceed 5.7m Lawrence Road and Great Marlow Road cut near Butterfactory Lane isolating properties in the Alummy Creek and surrounding areas (approximately 30 properties). Water enters low lying areas of Glenwood Tourist Park.</p> <p>4. Prediction to reach and/or exceed 7.8 Targeted Evacuation Warning issued for Grafton Sector A including owners of livestock to relocate livestock outside of the impact area.</p> <p>5. Prediction of between 7.9m to 8.0m Based on monitoring and assessment of levee condition, a Targeted Evacuation Order will be issued for Sector A Dovedale and Northmeadow (area bordered by Clarence Street, Bacon Street, Prince Street and the Clarence River) and other low lying areas.</p> <p>Another 70 houses and some other buildings in the Back Lane, Carr street, Summerland Way and Lawrence Road areas could be isolated, along with the Gateway Caravan Park.</p> <p>Targeted Evacuation Warning issued for Grafton Sectors B,C,D</p> <p>6. Prediction to reach and/or exceed 8.2m Targeted Evacuation Order issued for Sectors B, C, D and all low lying areas in North and South Grafton.</p>
<p>Sequencing of evacuation</p>	<p>For Prediction 5, the areas of Dovedale and Northmeadow in Sector A will be systematically evacuated.</p> <p>For Prediction 6, North Grafton will be divided into Sectors B and C, while South Grafton becomes Sector D. Evacuation will commence with Sector B. Sectors C and D will follow.</p> <p>Grafton: Order for Sectors is A, B, then C.</p> <ul style="list-style-type: none"> • Sector A: Clarence Street, Bacon Street, Prince St including Dovedale, North meadow, • Sector B: west of Clarence Street, Bacon Street, Prince Street to Turf St. • Sector C: west of Turf St, including Westlawn, and Back Lane, Carr St, Marlow St, and Summerland Way to Junction Hill. <p>South Grafton:</p> <ul style="list-style-type: none"> • Sector D: Low-lying areas of South Grafton including Bent,

	<p>Ryan, Cowan, Abbott, Spring, Through, Skinner, Wharf, Armidale, Beetson, Bligh, Edward, James, Kelly, Kennedy, New, Orr, and Vere Sts).</p> <p>Evacuation of vulnerable facilities (Eg: Aged care facilities, schools, child care facilities) will require higher priority.</p>
<p>Evacuation Routes</p>	<p>Sector A: Clarence St, Bent St and Tyson St.</p> <p>Sector B: Route 1 Dobie St, Prince St, Pound St, Clarence St, Bent St, and Tyson St. Route 2 Oliver St, Prince St, Fitzroy St, Craig St, Bent St and Tyson St.</p> <p>Sector C: Route 1 Marlow St, North St, Cranworth St, Oliver St, Prince St, Pound St, Clarence St, Bent St, and Tyson St. Route 2 Turf St, Dobie St, Prince St, Fitzroy St, Craig St, Bent St, and Tyson St.</p> <p>Sector D: Bent St, Tyson St.</p> <p>See attached map.</p> <p>It is likely that the Pacific Highway south to Coffs Harbour will remain open to all vehicles, via Lilypool Road but this could be limited if flooding is widespread.</p>
<p>Evacuation Route Closures</p>	<p>Road closures affecting the sequenced evacuation of sectors A,B,C,D:</p> <ul style="list-style-type: none"> • There is uncertainty when local roads inside the Grafton levee will close, the closure will be dependent on local rainfall conditions. • Craig Street approach to the Grafton Bridge closes (8.25m Prince Street Gauge) • The Cross Roads South Grafton remain open beyond the 1% flood height of (8.36m at the Prince St Gauge). • The Railway line is immune to a possible maximum flood height (PMF). <p>Other known road closures include:</p> <ul style="list-style-type: none"> • Pacific Highway Closes (5.4m Prince Street gauge) at Alipou Creek, Alternate route high level bypass Centenary Drive. • Lawrence Road Closes (5.7m Prince Street gauge). Alternate route Summerland Way. • Orara Way Closes at Bluff Bridge at (5.8m on the Glenreagh Gauge). Alternate route Pacific Hwy. <p>Other roads where closure is dependent on local rainfall and events (e.g. landslips) include :</p> <ul style="list-style-type: none"> • Summerland Way closes on Grafton levee overtopping at

	<p>(8.34m on the Prince Street gauge).</p> <ul style="list-style-type: none"> • Gwydir Highway (road susceptible to land slippage) • Armidale Road
Method of Evacuation	<ul style="list-style-type: none"> • Primarily self-evacuation by private transport before road closures. • Public transport to the Assembly Area on South Grafton Hill will be available to members of the community without private vehicles. An estimate of 10% of evacuees will not have private transport. (20 Buses are estimated for transport.) Agreements to be in place with private bus operators. • Buses could also operate around South Hill picking people up from their parked cars to take them to assembly area or evacuation centre. Car parking capability unlimited. • Grafton Bridge will be closed by Police to North bound traffic ensuring maximum expedience of traffic flow over the bridge and access for emergency vehicles. • If the Cross Roads South Grafton are cut, railway transport becomes the main method of evacuation. Evacuation access to the railway is via the Grafton Railway Yard platform and the South Grafton Railway Station. A temporary platform can be erected at the corner of Federation and Ryan Street, (the Tin Bridge) South Grafton for an evacuation route up George Street to Bent Street and onto South Grafton High School.
Evacuation Centre/Assembly Point	<ul style="list-style-type: none"> • People should be encouraged to stay with friends/relatives in high areas such as South Hill, Clarenza, Junction Hill or Waterview Heights. Note some of these areas may become isolated with further river rises. • Where this is not possible the nominated assembly area is the South Grafton High School Auditorium, Tyson Street. This can be used as an assembly point in the short term, but could also double as an evacuation centre should the need arise. • There are a number of other schools located in flood free areas in South Grafton and Clarenza which are available for use as Evacuation Centres. These schools will be nominated by Family and Community Services as the need arises.
Large scale evacuations	In the event that evacuee numbers exceed the South Grafton evacuation centre capacity, evacuees will either be transported to alternative evacuation centres or transported by bus, rail or private transport to Coffs Harbour, dependent on road closures and local flooding.
Rescue	The Grafton and Copmanhurst SES Units will undertake all Flood Rescue Operations as per the Flood Rescue Operations Policy.
Resupply	<ul style="list-style-type: none"> • Resupply will be provided by the SES through the 132500 call out system. • The Grafton Base Hospital and Grafton Correctional Centre will be resupplied if required. The hospital floor begins to be

	inundated when flood waters exceed 8.36m on Prince Street Gauge.
Aircraft Management	<p>Helicopter Landing Zones</p> <ul style="list-style-type: none"> • Grafton Airport (S29° 45' 30.56", E153° 1' 45.45") • EOC Junction Hill (S29° 38' 37.43", E 152° 55' 12.73") • SES Region Headquarters (S29° 43' 24.53", E 152° 56' 37.78") • Grafton Base Hospital (S29° 40' 31.89", E 152° 56' 27.66")
Other	<p>Special considerations relating to the evacuation:</p> <ul style="list-style-type: none"> • Closure of Schools - coordinated through the Department of Education and Training, District Office, Grafton. • Closure of Licensed Premises. All hotels and licensed clubs will be closed. • Evacuation of residential institutions, nursing homes and age care facilities will occur where these are threatened by predicted flood waters. • The Grafton Base Hospital will only be evacuated in extenuating circumstances. • Rail Transport. Suspension of normal transport Operations through Grafton would be required, in anticipation of the deployment of rail operations to assist with evacuees. • Security. Police patrols to be established to maintain law and order after evacuation has occurred. • The SES will use flood boats and helicopters to monitor safety of individuals. • Grafton has three peak seasons with potential for a 10% population increase: <ul style="list-style-type: none"> • (1) July Race Carnival – early July • (2) Jacaranda Festival – late Oct. / early Nov. • (3) Bridge to Bridge Ski Race – Oct long weekend. <p>These arrangements will stay in place until the ALL CLEAR is provided by the SES to residents to return to their premises.</p>

*2006 census data will need to be updated with 2011 census data.

Attachment 2

Attachment 3

When flooding is likely

A Flood Watch is issued by the Bureau of Meteorology for possible flooding. A Flood Warning is issued when flooding is likely.

RESIDENTS AND BUSINESSES:

- ✓ Listen to your local radio station for information, updates and advice
- ✓ Locate and check your emergency kit and follow your Home Emergency Plan or Business FloodSafe Plan
- ✓ Check on your neighbours and make sure they are aware of possible flooding
- ✓ Prepare to move pets, including agisted animals to high ground
- ✓ Make preparations to raise or relocate possessions, stores, records, furniture and equipment
- ✓ Plan to leave well before evacuation routes may become closed

RURAL PROPERTY OWNERS:

- ✓ Relocate livestock and farm equipment, including pumps, to high ground
- ✓ Check sheds and outbuildings. Raise equipment, feed and chemicals above predicted flood levels or to higher ground



During a flood

A Flood Warning is issued by the Bureau of Meteorology when flooding is about to happen and may be updated during floods. A Flood Warning provides a predicted flood level on a river gauge and a time at which the river is expected to reach that level.

During a flood, there are some simple things you can do to help protect your life, family, possessions and property:

- ⚠ Never drive, ride or walk through floodwater
- ✓ Keep listening to your local radio station for further information, updates and advice
- ✓ Keep in contact with your neighbours
- ✓ Be prepared to evacuate if necessary

If evacuation is necessary

NSW SES evacuates people whose lives are at risk from floods. It is important to follow all advice given to you by emergency services. Being prepared now will allow you to respond quickly.

How you may be advised of an evacuation:

Evacuation Warnings and Evacuation Orders are issued to residents and businesses that are likely to become inundated or possibly isolated if floodwater reaches levels predicted by the Bureau of Meteorology. Residents may receive these warnings via the media, door knocking and/or a voice or text message to your phones.

Your Assembly Area:

South Grafton High School, Tyson St, South Grafton

Once you have registered with staff at the Assembly Area, you can stay with friends or family, or accommodation may be arranged.

Preparing to evacuate:

- Locate important papers, valuables and mementos and put them in your emergency kit
- Turn off the electricity and gas at the mains and turn off and secure any gas bottles
- Stack possessions, records, stock or equipment on benches and tables, placing electrical items on top
- Secure objects that are likely to float and cause damage
- Relocate waste containers, chemicals and poisons well above floor level

When you evacuate:

- Stay with friends or relatives away from the flood
- Take your emergency kit with you
- Take your pets with you
- Act early before roads and evacuation routes close

After a flood

Do not return to a flood affected area until emergency services advise it is safe to do so. These areas can be dangerous for the health and safety of you and your family.

Follow safety advice when cleaning up after floods. Discard all food items that have come into contact with floodwater. Clean, sanitise and properly dry belongings.

Update your Home Emergency Plan or Business FloodSafe Plan with what you have learnt from the flood.

A local recovery centre, staffed by representatives from a range of agencies and services, may be established after a flood. This centre may be able to provide financial, insurance, housing, counselling and welfare assistance and advice.

Local FloodSafe contacts

Emergency phone numbers

NSW SES 132 500
Life-threatening emergencies 000 (triple zero)

Phone numbers

NSW SES Information Line 1800 201 000
Police Assistance Line 131 444
Clarence Valley Council 6643 0200
Roads and Maritime Services (Live Traffic) 132 701
Local Land Services 1300 795 299
Department of Primary Industries 1800 814 647
Disaster Welfare Assistance Line 1800 018 444
Essential Energy 132 391
Telstra 132 203

Local broadcast radio stations

ABC North Coast	94.5 FM	738 AM
2GF Grafton	103.9 FM	1206 AM
Clarence Coast FM	104.7 FM	
2TLC	100.3 FM	

Websites

NSW SES www.ses.nsw.gov.au
Bureau of Meteorology www.bom.gov.au
Clarence Valley Council www.clarence.nsw.gov.au
Major roads - Live Traffic www.livetraffic.com
Local Roads www.myroadinfo.com.au

Facebook pages

NSW SES and NSW SES Clarence Nambucca Region

Free smartphone apps

NSW SES apps are available at your app store. Search for FloodSafe and StormSafe



FOR EMERGENCY HELP IN
FLOODS AND STORMS CALL

132 500

For more information visit: www.floodsafe.com.au



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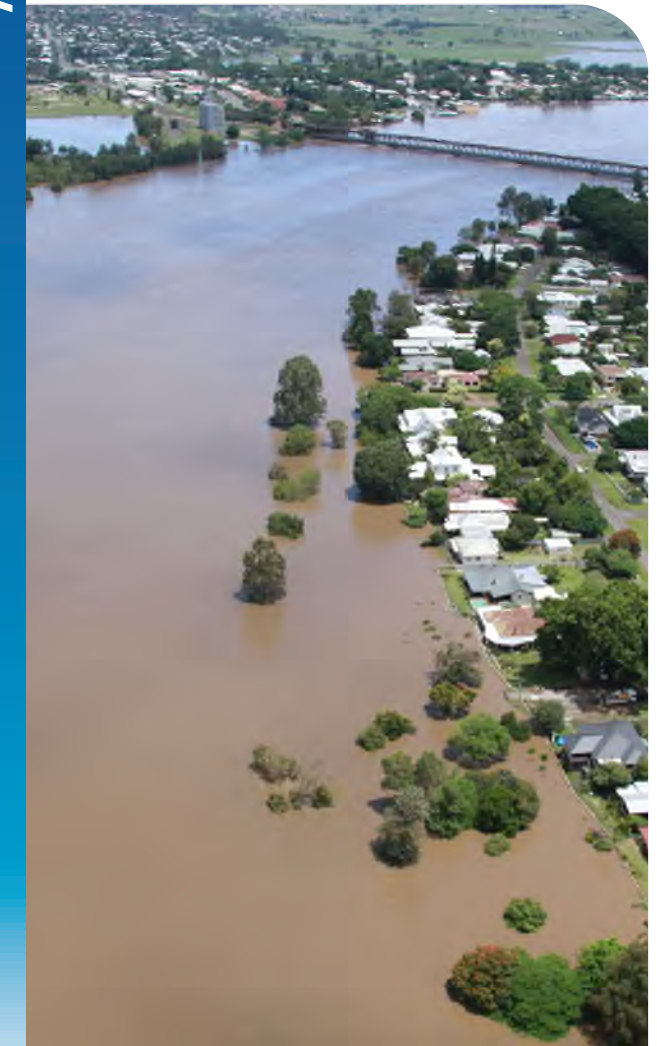


Front cover: Grafton and South Grafton, January 2013.

Community Floodsafe



Grafton and
South Grafton



Are you at risk from floods?

The Clarence River is the largest coastal river in New South Wales in terms of both catchment area and discharge. It has a long history of regular flooding.

In January 2013 the Clarence Valley experienced extensive flooding. This was a flood of record at numerous locations including Grafton. Significant flooding has also occurred in 1890, 1950, 1954, 1963, 1967, 2001 and more recently in 2009 and 2011.

Grafton and South Grafton have a series of levees built over the past four decades. In most years, flooding will occur outside this levee system affecting farm properties, some homes and businesses. The current levee system is designed to protect Grafton and South Grafton properties for a flood similar to that experienced in January 2013. This flood resulted in minor overtopping of low points on the levee.

Floods in excess of the levels reached in 2013 are possible and have the potential to cause major impacts on the community including large-scale evacuations. Localised heavy rainfall may cause stormwater ponding in low-lying areas within the current levee system. This is not associated with riverine flooding and is not dependent on the Clarence River being in flood.

During times of flood the local road network may experience disruption and access routes may be closed. These closures can include the Pacific Highway, Gwydir Highway, Orara Way, Summerland Way and other local roads.

How NSW SES can help

NSW SES is responsible for the emergency management of floods in NSW. This includes planning for floods and engaging with communities to prepare themselves and their property.

During floods, NSW SES will provide flood information and safety advice and may arrange for the delivery of essential supplies to communities isolated by floodwater. NSW SES also warns communities of the need to evacuate and provides emergency help where required.

How you may be advised of floods

Flood information including flood forecasts, road closures and advice on evacuations and property protection will be broadcast on ABC and local radio stations.

Bureau of Meteorology weather forecasts and flood predictions including river height information are available at www.bom.gov.au

Emergency services personnel may door knock your area or you may receive a voice or text message to your phones.

What happens in Grafton and South Grafton floods?

- 9.70 **Highest possible flood.**
- 8.36 1% AEP (Annual Exceedance Probability) flood level - meaning there is a 1 in 100 chance of this level occurring each year. A flood of this height would require large-scale evacuations of Grafton and low-lying parts of South Grafton.
- 8.25 Residents and businesses from **all remaining areas of Grafton must be evacuated** well before this height is reached, as all evacuation routes will be closed.
- 8.08 **Highest flood on record** - 29 January 2013. During this flood, parts of Dovedale and Northmeadow were evacuated.
- 8.00 For floods predicted to reach this height, residents and businesses in **remaining low-lying areas of Grafton and South Grafton** need to prepare for possible evacuation.
- 7.95 Estimated height at which Grafton Levee may show signs of overtopping.
- 7.89 March 1890: Peak height.
- 7.80 For floods predicted to reach this height, residents and businesses in **low-lying areas of Dovedale and Northmeadow** need to prepare for possible evacuation.
- 7.75 10 March 2001: Peak height.
- 7.64 12 January 2011: Peak height.
- 7.42 23 May 2009: Peak height.
- 6.20 Pacific Highway may close north of Grafton at Swan Creek. An alternate route north from Grafton is available on Summerland Way.
- 5.90 Pacific Highway may close south of Grafton at Alipou Creek. A high level route south of Grafton is available via Bom Bom State Forest.
- 5.45 Floodwater may start to inundate low-lying land outside the levees to the north and south of Grafton. Properties at Lawrence Road, Great Marlow, Alamy Creek and Alipou Creek may become isolated.
- 5.40 **Major Flood Level** - causes extensive flooding and/or isolation of properties, villages and towns. Pacific Highway may close north of Grafton at Alipou Creek. An high level bypass to the north is available via Centenary Drive.

Continued on the next panel...

What happens in Grafton and South Grafton floods?

- 4.40 **Carrs Island** may become isolated
- 3.60 **Moderate Flood Level** - causes flooding of low-lying areas including main roads and may require the evacuation of some areas.
- 2.10 **Minor Flood Level** - causes inconvenience, closes minor roads and low-level bridges. Rural property owners should raise pumps and equipment and relocate livestock.

Key heights in metres at the Grafton Prince Street Gauge.



If isolation is likely

If your property is likely to be isolated by floodwater, evacuating well before access is cut is your safest option. Deciding to remain at home when it is surrounded by floodwater can be dangerous.

During floods, isolated properties can lose power, water, phone lines, sewerage services and become a refuge for spiders, snakes and other animals.

If evacuation is not possible, stock at least seven days supply of non-perishable foods, medications, drinking water, fuel and feed for your animals and pets. Some properties may be isolated for longer periods and therefore require additional supplies.

Talk with your local council who can provide you with information on floods specific to your property and plan now so that you can act early when flooding occurs.

8 TIPS

YOU CAN DO NOW TO PREPARE FOR FLOODS

1 KNOW YOUR RISK



2 KNOW WHERE TO GO



3 KNOW WHO TO CALL



4 KNOW YOUR PLAN



5 GET YOUR KIT TOGETHER



6 PREPARE NOW TO ACT EARLY



7 CHECK YOUR INSURANCE

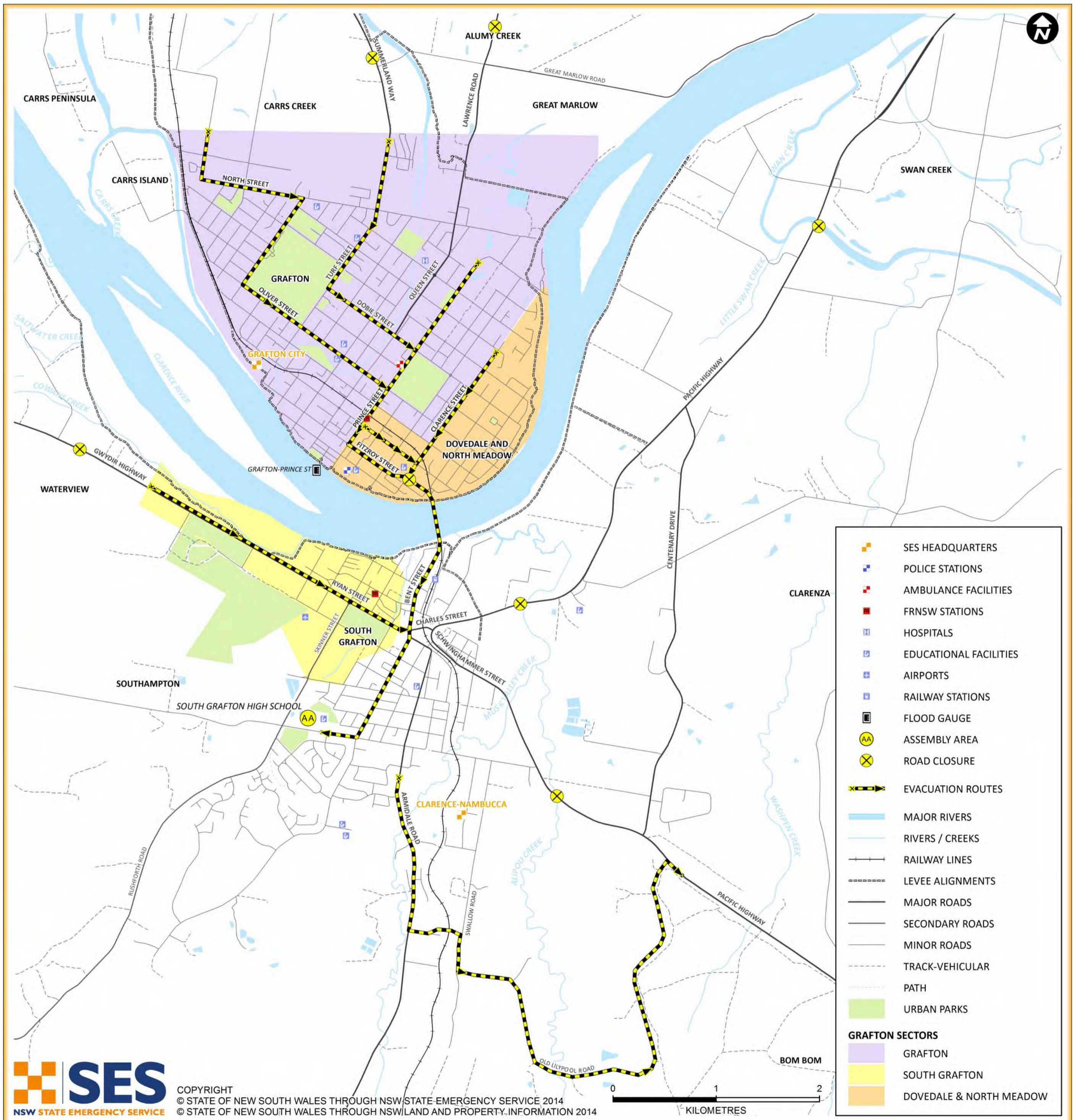


8 LISTEN TO LOCAL RADIO



For more information visit www.floodsafe.com.au

Evacuation Routes and Assembly Area for Grafton and South Grafton



Attachment 4

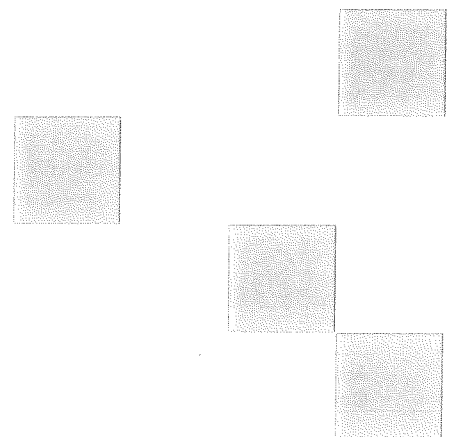


Transport
Roads & Maritime
Services

APPENDIX B8

Construction Flood Management Plan Additional Crossing of the Clarence River at Grafton

JUNE 2016



Document control

File name	CFMP Rev0 240616
Report name	Construction Flood Management Plan Additional Crossing of the Clarence River at Grafton
Revision number	Rev0

Plan approved by:

<i>[signed]</i>	<i>[signed]</i>	<i>[signed]</i>
<i>Name</i>	<i>Name</i>	<i>Name</i>
Fulton Hogan Project Director	Fulton Hogan Environment Manager	RMS representative

Revision history

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Distribution of controlled copies

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1		
2		
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5		

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Glossary / Abbreviations

100-year event	flood	A 100-year flood is the flood that will occur or be exceeded on average once every 100 years. It has 1% probability of occurring in any given year. The same principle applies to other flooding events, such as 10 year, 20-year and 50-year flood events).
AHD		Australian height datum - This is the standard datum that most flood levels are measured from. Its value is equivalent to mean sea level.
ARI		Average Recurrence Interval - The long-term average number of years between the occurrence of a flood larger than the selected event.
BOM		Bureau of Meteorology
CEMP		Construction Environmental Management Plan
CFMP		Construction Flood Management Plan
CoA		Condition of Approval
CVC		Clarence Valley Council
DECC		Department of Environment and Climate Change
DECCW		The Department of Environment, Climate Change and Water
DP&E		Department of Planning & Environment
DPI Water		Department of Primary Industries Water
EIS		Environmental Impact Statement
EEC		Endangered Ecological Community
EPA		Environment Protection Authority
EP&A Act		<i>Environmental Planning and Assessment Act 1979</i>
EPC		Fulton Hogan Emergency Planning Committee
EWMS		Environmental Work Method Statements
LEP		Local Environmental Plan
OEH		Office of Environment and Heritage
PMF		Probable Maximum Flood - The largest flood that could conceivably occur (a worst-case flood event). It is typically estimated from probable maximum precipitation coupled with the worst flood-producing catchment conditions. The PMF extent defines the floodplain and incorporates all flood-prone land. The PMF is a very rare and improbable flood.
Project, the		Additional Crossing of the Clarence River at Grafton
RMS		NSW Roads and Maritime Services
SES		NSW State Emergency Service
SSI		The state significant infrastructure as generally described in Schedule 1 (SSI-6103) of the Infrastructure Approval.

1 Introduction

1.1 Context

This Construction Flood Management Plan (CFMP) forms part of the Construction Environmental Management Plan (CEMP) for the Additional Crossing of the Clarence River at Grafton (the Project).

This CFMP has been prepared to address the requirements of:

- the Minister's conditions of approval for the Project (CoAs)
- the environmental management measures listed in the *Additional Crossing of the Clarence River at Grafton Environmental Impact Statement* (ARUP, August 2014) (EIS) as amended by the *Additional Crossing of the Clarence River at Grafton Submissions Report* (RMS, October 2014) (Submissions Report), and
- all applicable legislation.

1.2 Background

The EIS assessed the impacts of construction and operation of the Project on flooding and hydrology.

As part of the EIS development, a detailed flood and hydrology assessment was prepared to address the Director-General's Requirements for the Project, issued by the Department of Planning and Environment. The flood and hydrology assessments were included in the EIS as Appendix E – *Technical Paper: Flooding and Hydrology Assessment*.

1.3 Structure of this CFMP

This CFMP is part of Fulton Hogan's environmental management framework for the Project, as described in Section 1.3 of the CEMP.

Mitigation measures identified in this CFMP will be incorporated into relevant site or activity specific Environmental Work Method Statements (EWMS). EWMS will be developed and signed off by environment and management representatives prior to the commencement of the associated works. Construction personnel will be required to undertake works in accordance with the mitigation measures identified in the EWMS.

Used together, the CEMP, issue-specific plans, procedures and EWMS form management guides that clearly identify the environmental management actions required to be implemented by Fulton Hogan personnel and contractors.

The review and document control processes for this CFMP are described in Chapters 12 and 13 of the CEMP.

1.4 Consultation for preparation of this CFMP

In accordance with CoA D46(f), this CFMP has been prepared in consultation with a suitably qualified and experienced hydrologist, the NSW Environment Protection Agency (EPA), the NSW State Emergency Service (SES) and Clarence Valley Council.

A summary of consultation undertaken during the preparation of this CFMP is provided in Appendix A2 of the CEMP.

2 Legal and other environmental requirements

2.1 Legislation

Legislation relevant to flooding and hydrology management includes:

- *Environmental Planning and Assessment Act 1979* (EP&A Act)
- *Protection of the Environment Operations Act 1997* (POEO Act)
- *State Emergency and Rescue Management Act 1989* (SERM Act)
- *State Emergency Service Act 1989*
- *Water Management Act 2000* (WM Act)
- *Water Act 1912* (Water Act), and
- Clarence Valley Local Environmental Plan (LEP), 2011.

Relevant provisions of the above legislation are explained in the register of legal and other requirements included in Appendix A1 of the CEMP.

2.2 Guidelines and standards

The main guidelines, specifications and policy documents relevant to this CFMP include:

- RMS Specification D&C G36 – Environmental Protection (Management System) (G36)
- New South Wales State Emergency Management Plan (EMPLAN, December 2012)
- New South Wales State Flood Plan (a sub-plan of EMPLAN) (March 2015)
- New South Wales State Emergency Management Plan – Evacuation Management Guidelines (March 2014)
- New South Wales Flood Prone Land Policy (May 2005)
- Floodplain Development Manual (OEH)
- Floodplain Risk Management Guideline (OEH)
- Australian Rainfall and Runoff (Institution of Engineers, Australia)
- Grafton and Lower Clarence Floodplain Risk Management Plan (CVC, 2007)
- Lower Clarence River Flood Study (PWD, 1986), and
- Clarence Valley Local Flood Plan (SES, 2012).

2.3 Minister's Conditions of Approval

The CoAs relevant to this CFMP are listed in Table 2-1. A cross reference is also included to indicate where the condition is addressed in this CFMP or other project/ environmental management documents.

Table 2-1 Conditions of Approval relevant to this CFMP

ID	Condition requirement	Document reference
CoA D26	The proposed Grafton and South Grafton levee flood mitigation measures shall be implemented prior to construction commencing in the Clarence River, including pier/pile construction and the installation of temporary in-river rock platforms, unless otherwise agreed by the Secretary.	Section 4.1
Construction Environmental Management Plan		
CoA D46(f)	As part of the Construction Environment Management Plan for the SSI, the Proponent shall prepare and implement a Construction Flood Management Plan to detail how construction impacts on hydrology and flooding from works on the flood levee and within the Clarence River and its floodplain will be minimised and managed and that any significant adverse impacts to people and property are avoided. The Plan shall be prepared in consultation with a suitably qualified and experienced hydrologist, EPA, SES and Council, and shall include, but not necessarily be limited to:	This CFMP Chapter 5 Section 1.4
	(i) an assessment of the probabilities and consequences of flood damages and personnel safety over the likely construction period including for possible extensions to this period;	Section 4.1 Appendix A3 of CEMP
	(ii) details of works and activities, including structures within the Clarence River, which may be impacted by a flood during construction and associated risks;	Section 4.1
	(iii) details of measures to ensure work sites and plant and equipment are secure during flooding events and do not become flood debris or impact on property and the environment;	Section 5.3
	(iv) management measures and procedures that would be implemented prior to a flooding event, including timeframes for securing work sites and moving plant and equipment,	Section 5.2
	(v) consideration of the flood management objectives described in condition D23(b) (i.e. flood level (height), duration, velocity and direction, and flood evacuation at affected properties);	Section 4.1 <i>Hydrological Mitigation Report (CoA D23)</i> to be provided separately to this CFMP.
	(vi) monitoring of the work sites during flood events; and	Section 6.1
	(vii) mechanisms for the monitoring, review and amendment of this Plan.	Section 7

2.4 Environmental management measures

Relevant revised environmental management measures (EMMs) from the Submissions Report are listed in Table 2-2. This includes the timing of when the EMM applies, and a cross reference as to where the measure is addressed in this CFMP or other project/ environmental management documents.

Table 2-2 Environmental management measures relevant to this CFMP

ID	Environmental management measure	Timing	Document reference
EMM FH1	Flood monitoring and response measures will be included as part of the CEMP. These measures will include protocols to monitor the forecast of large rainfall and flood events in the project area	Pre-construction	Section 5 <i>Community Communication Strategy (CoA C1)</i> to be provided

ID	Environmental management measure	Timing	Document reference
	<p>and protocols to minimise the risk of damage to infrastructure and equipment during a large flood or rainfall event and will include but not limited to:</p> <ul style="list-style-type: none"> • Methods of monitoring rising water and where possible, notification from upstream; • A register of all materials stored in work areas within the banks of the Clarence River and within the levee system; • Methods and responsibilities for removal of all materials safely from work areas during a flood event; and • Notification and consultation with relevant stakeholders. 		separately to this CFMP.
EMM FH2	NSW State Emergency Services will be notified of any partial or total road closures during construction.	Pre-construction	<i>Community Communication Strategy (CoA C1)</i> to be provided separately to this CFMP.
EMM FH3	Roads and Maritime will consult with affected landowners during detailed design and construction regarding flooding impacts on properties, residences and other structures.	Pre-construction	<i>Community Communication Strategy (CoA C1)</i> to be provided separately to this CFMP.
EMM FH4	Detailed flood modelling will be carried out to further refine the levee raising mitigation measures proposed for the project and to further consider the need to raise any house not protected by the existing levee which would be affected by increased flood levels within the river.	Pre-construction of bridge	<i>Hydrological Mitigation Report (CoA D23)</i> to be provided separately to this CFMP.
EMM FH5	<p>Property specific flood risk will be assessed for each property identified as being affected by residual impact from the project, based on the results of the floor level survey.</p> <p>Flood mitigation options will be developed and implemented in consultation with property owners and Clarence Valley Council.</p>	Pre-construction of bridge	<i>Hydrological Mitigation Report (CoA D23)</i> to be provided separately to this CFMP.
EMM FH6	Flood mitigation works will be staged to ensure no worsening of the existing flood regimes during construction.	Pre-construction of bridge	Section 4.1

3 Existing environment

This chapter describes the existing flood regime within the Project area, based on the information contained in Section 8 and Appendix E of the EIS.

3.1 Existing flood regime

The Clarence River is a major coastal river with lower floodplain areas subject to frequent and extensive flood inundation. The river catchment covers about 20,000 km² upstream of Grafton. During times of major flooding, a floodplain of about 500 km² downstream of Grafton may also become inundated.

The flooding behaviour of the lower Clarence River is dominated by runoff generated in the large catchment area upstream of Grafton. The upstream catchment typically contributes 80 to 90% of the total volume of floodwater that enters the lower floodplains during main river flood events. Clarence River floods typically occur from low rainfall intensity events that last several days, or even weeks.

Minor tributaries within the lower floodplain of the Clarence River also have the potential to cause flooding issues.

3.2 Flood levels in Grafton and South Grafton

Grafton and South Grafton have a long history of flooding. The towns are protected by a ring levee system as shown in Figure 5-1. The existing levee system provides flood immunity for around a 20-year average recurrence interval (ARI) event, that is, there is around 5% chance that the levee may be overtopped in any given year. Overtopping begins when flood levels are at, or close to, 8 m on the Prince Street gauge (refer Figure 5-1). After the levee overtops, large areas of Grafton and South Grafton are inundated by floodwater.

North Grafton at around 8m, South Grafton a little later, around 8.1m

Peak flood levels and depths for the Clarence River at Grafton are presented in Table 3-1 and Table 3-2 respectively. The tables show that significant overtopping of the levee system occurs during floods above the 20-year ARI.

Flood protection is also provided by natural high ground and the embankments for the railway and Pacific Highway.

Table 3-1 Existing peak flood levels

Flood Event ARI	Peak Flood Levels (m AHD)			
	Prince Street gauge	Existing Grafton bridge	Grafton: Alummy Creek near North Street	South Grafton: intersection of Abbott Street and Vere Street
20-year	7.95	7.60	No flooding	No flooding
50-year	8.27	7.90	6.40	3.83
100-year	8.35	7.96	7.05	5.86
Probable Maximum Flood (PMF)	9.78	9.29	9.27	10.01

Why these locations chosen? I think there could be some better locations chosen. Like Bent/Ryan & Prince/Pound)

Where are they lat/long?

ps. upon further reading i understand these are gauge locations on map.

Table 3-2 depths could easily be incorporated into this table with ground heights. No essential but that would be my preference.

Table 3-2 Existing peak flood depths

Flood Event ARI	Grafton: Alumy Creek near North Street	South Grafton: intersection of Abbott Street and Vere Street
20-year	No flooding	No flooding
50-year	1.8 m	0.66 m
100-year	2.45 m	2.68 m
Probable Maximum Flood (PMF)	4.66 m	6.63 m

3.3 Flood extents

The extents of inundation for the 20, 50 and 100-year ARI flood events and the probable maximum floods (PMF) in Grafton and South Grafton are shown in Figure 3-2 .

The figure indicates that flooding is a significant issue as:

- under a 100 year ARI flood, most of the land inside the levee system would be inundated; and **I think the word "under" could be confusing, suggest it be changed.**
- under the PMF (the worst-case scenario), the entire township of Grafton would be inundated. **not covered in Figure 3-2**

Due to these factors, flooding poses a significant risk to the residents in Grafton and lower lying areas in South Grafton. Inundation of individual properties may result in damage to buildings and belongings. Local businesses would also be impacted due to a loss of trade and income, and damage to property and goods.

3.4 Emergency response and evacuation

The NSW State Emergency Services (SES) has developed a flood evacuation plan for Grafton, documented in the *Clarence Valley Council Local Flood Plan* (SES, 2012). The flood plan defines the following information:

- evacuation sectors;
- evacuation trigger levels, defining sector-specific evacuation actions relating to a range of flood levels at Prince Street gauge;
- vulnerable community groups requiring special consideration or help during an evacuation;
- evacuation routes; and
- evacuation centres;

The plan defines three main evacuation routes out of Grafton (Figure 5-1): **Should be 3-1**

- two routes to the north, to Junction Hill; and **This is not the strategy - should be revised to South**
- one route across the existing Grafton bridge to South Grafton.

During a large flood, overtopping of the Grafton levee system results in ponding in the floodplain between Grafton and **Junction Hill**, cutting off the evacuation routes to the north. When this occurs, the efficiency of flood evacuation within Grafton is constrained as the only flood-free route available for evacuation is via the existing Grafton bridge to South Grafton. Therefore, the efficiency of flood evacuation in Grafton is largely constrained by traffic movement across the existing bridge.

3.5 Floodplain risk management plan

The *Grafton and Lower Clarence Floodplain Risk Management Plan* (CVC, 2007) recognises the flood risk to Grafton and South Grafton and identifies mitigation work that focuses on the

maintenance and augmentation of the levee system. The Plan notes that any work to increase the levee height has the potential to increase inundation to areas not protected by the levees.

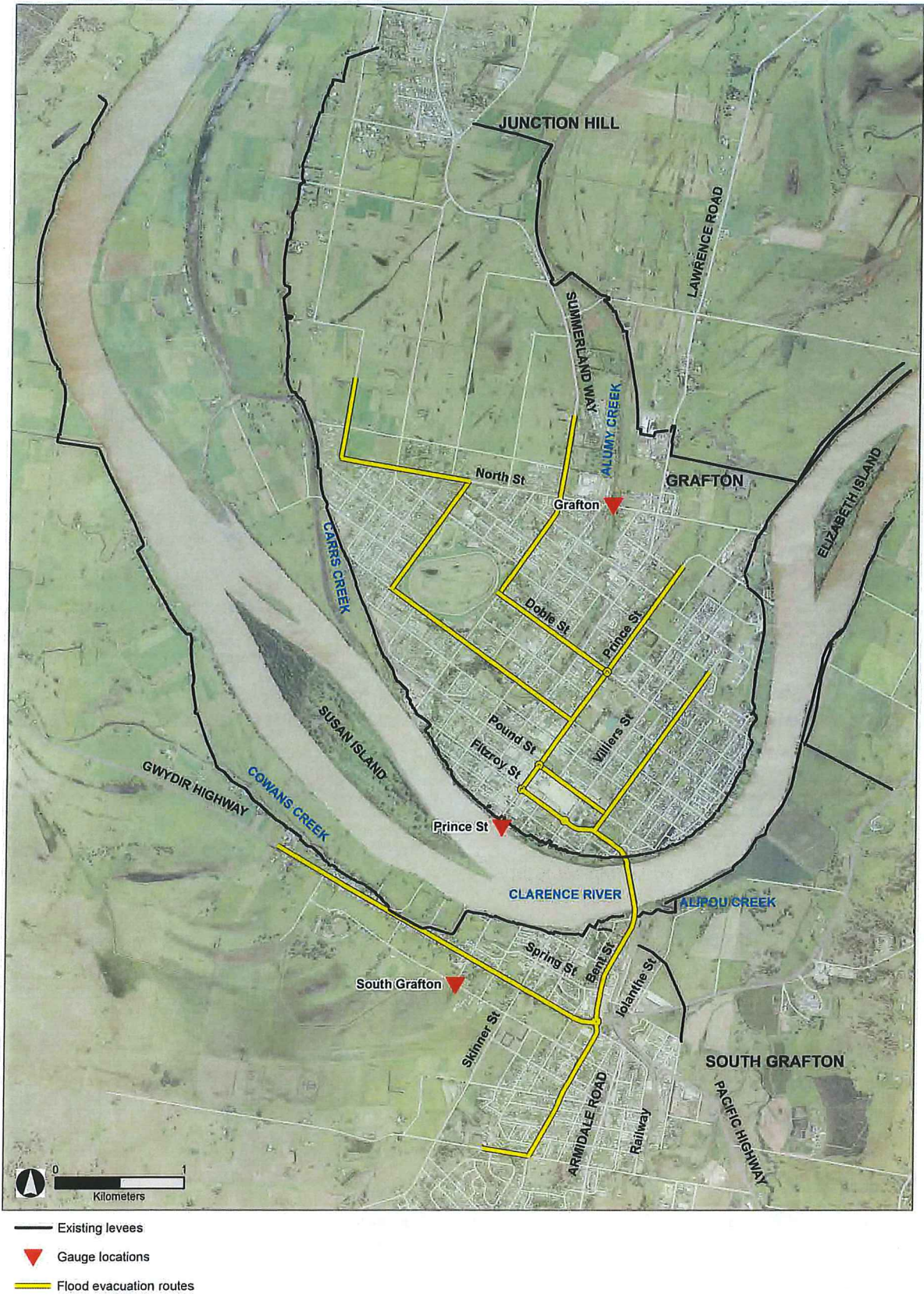


Figure 3-1 Existing levee system and flood evacuation routes

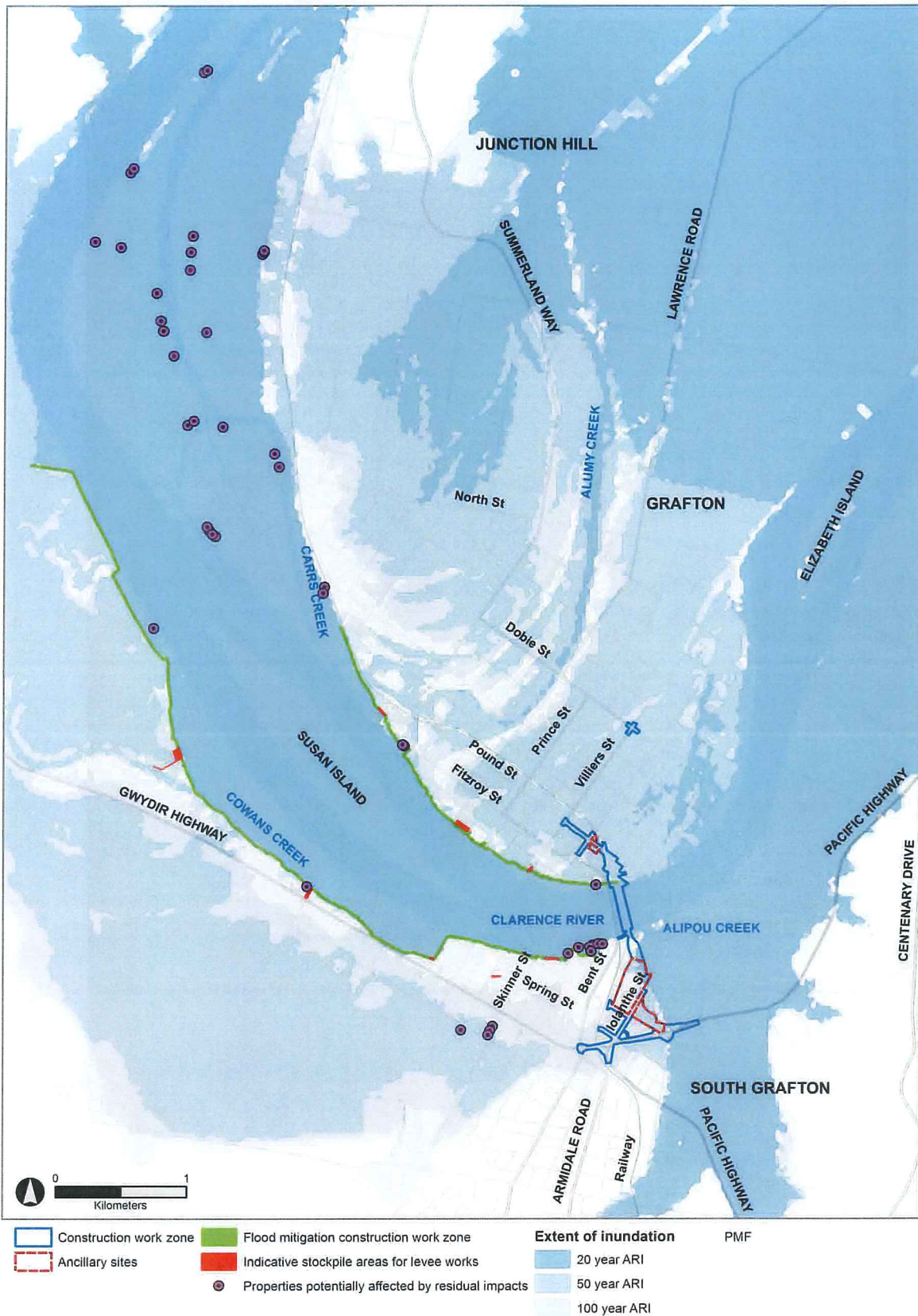


Figure 3-2 Approximate extents of inundation without the Project

4 Environmental aspects and impacts

4.1 Construction activities

Flood mitigation works will be implemented to ensure no worsening of the existing flood regimes during construction. Key aspects of the Project that could result in flooding and hydrology impacts include:

- bulk earthworks and stockpiling of materials
- placement of construction ancillary facilities within the 20 year ARI flood plain, and
- bridge construction, including construction of embankments, bridge piers and temporary structures, such as barges.

The key construction activities and the associated potential impacts to flooding and hydrology were identified through a risk management approach. The consequence and likelihood of each activity's impact on the environment was assessed to prioritise its significance. The results of this risk assessment are included in Appendix A3 of the CEMP.

4.2 Project flooding and hydrology impacts

4.2.1 Potential impacts of flooding on the Project

Flood events above the 20-year ARI flood event have the potential to impact construction ancillary facilities and construction work zones and to disrupt construction activities. Flooding may also increase the risk of soil erosion and sedimentation.

With the exception of a small portion of the South Grafton ancillary facility site and construction work zone, all ancillary facilities and construction work zones for the bridge and approaches would be protected by the existing levee system in a 20-year flood event.

In Grafton, there is potential for the construction work zone near the Pound Street rail viaduct to flood. There is an existing low point in this area which normally drains to the river during a local rainfall event. When the Clarence River is in flood the raised river level prevents local storm water from draining to the river and water can pond across Pound Street.

4.2.2 Potential impacts of construction on the Project flood regime

Construction activities within the levee system and outside the levee system would have a negligible impact on the existing flood regime. Activities outside the levee system would include project preliminaries and site establishment activities such as property acquisition and adjustments, detailed surveys, site establishment work, fencing and signage, and installation of environmental controls.

Due to the extensive length of the Grafton and South Grafton levees, slight changes in flood level within the Clarence River (even as little as one centimetre) have the potential to alter the volume of water overtopping the levee. The introduction of additional structures on the floodplain and river such as bridge piers, embankments and temporary construction structures (such as the proposed jetty for barge launching) would have a progressive and gradual impact on the existing flood regime upstream of the proposed bridge. However, flood modelling shows no impacts are predicted downstream of the proposed bridge as a result of the Project.

4.2.3 Changes to emergency response and evacuation

Key factors that influence how the proposed bridge would impact evacuation operations include:

- **Evacuation route contingency:** As shown in Figure 5-1, evacuation routes currently converge within the business district of Grafton.

- **Evacuation route flood immunity:** An evacuation route is compromised if it is inundated by flood water. Grafton is affected by flooding in flood events greater than the 20-year ARI event. Due to this local flood behaviour, where possible, the elevation of flood evacuation routes should be greater than surrounding land and avoid traversing drainage depressions which may prematurely compromise the evacuation route.
- **Provision of services:** Flooding within the Lower Clarence Valley can last for prolonged periods (several days to weeks). Due to this flood behaviour, it is important that evacuated residents have access to services and shelter following evacuation from Grafton. South Grafton represents the primary place large enough to provide for these needs.
- **Vulnerable community groups:** SES resourcing needs to accommodate for vulnerable community groups that may require special consideration and/or assistance during an evacuation.

Construction activities would not have a significant impact on existing evacuation routes. The SES would be notified in advance of any partial or total road closures during construction.

5 Environmental mitigation measures

Specific mitigation measures to address impacts on hydrology and minimise flooding impacts are outlined in Table 5-1 and throughout this Chapter.

Table 5-1 Flooding and hydrology mitigation measures

ID	Environmental Mitigation Measure	Timing		Responsibility
		PC ¹	C ²	
CFMM1.	Ensure all site personnel, including sub-contractors and visitors, attend the Project induction and familiarise themselves with emergency response procedures.		✓	Foreman Project / Site Engineer
CFMM2.	Locate stockpiles in accordance with the <i>Stockpile management protocol</i> included in Annexure E of the CSWQMP so as to minimise loss of material in flood or rainfall events.		✓	Foreman Project / Site Engineer
CFMM3.	Monitor the Bureau of Meteorology (BoM) Flood Warning Service daily to determine whether rainfall in the catchment is predicted to cause elevated river levels at construction work zones or ancillary facilities.		✓	Foreman Project / Site Engineer
CFMM4.	Notify NSW State Emergency Services of any partial or total road closures which may arise during construction.		✓	Construction Manager
CFMM5.	Implement flood mitigation works to ensure no worsening of the existing flood regimes during construction.		✓	Construction Manager
CFMM6.	Where feasible, do not undertake works in the Clarence River during periods of predicted high rainfall.		✓	Foreman Project / Site Engineer Superintendent
CFMM7.	Maintain a register of all hazardous materials stored in work areas within the banks of the Clarence River and levee system.		✓	Foreman Project / Site Engineer
CFMM8.	Store chemicals, fuel and lubricants in suitably located and bunded areas with an impermeable floor to minimise the impact of any spillage or contamination. The bunded area must be able to contain 120% of the volume of the largest single stored volume within the bund.		✓	Foreman Project / Site Engineer
CFMM9.	In the event of an impending flood event, convene the Project's Emergency Planning Committee (EPC) and commence implementing the recommended actions stipulated in Section 5.2 and Section 5.5 of this CFMP.		✓	Project Director
CFMM10.	A site evacuation notice may be issued by the EPC following the receipt of sufficient and reliable information from the Flood Warning Services, emergency services or on-site rainfall intensity monitoring. In the event of an evacuation, the process described in Section 5.3.2 is to be followed.		✓	EPC

¹ PC means pre-construction

² C means construction

5.1 Monitor flood warning services

The BoM Flood Warning Service Program, whose primary function is the provision of an effective flood forecasting and warning service, will be consulted daily to ascertain if any flood warnings have been issued. This service is provided in co-operation with other government agencies such as State emergency management agencies, water authorities and local Councils, coordinated through Flood Warning Consultative Committees and established cooperative working arrangements in each State/Territory.

In each State, Flood Warnings, Watches and River Height Bulletins are available via some or all of the following:

- Local Response Organisations: these include the Council, Police, and State Emergency Service in the local area
- Bureau of Meteorology: Flood Warnings, Flood Watches and general information are available directly from the Bureau of Meteorology, including:
 - On the web at: www.bom.gov.au/australia/warnings;
 - Through the Telephone weather warnings service. Flood Warnings and Flood Watches in most States are available on the Bureau of Meteorology's recorded message service, 1300 659 218 (charges apply), and
- Radio: Radio stations, particularly local ABC and local commercial stations broadcast flood warning information as part of their new bulletins, or whenever practicable.

Monitoring of the BoM Flood Warning Service is to continue prior to and during a flooding event.

5.2 Measures to be implemented prior to a flooding event

Apart from flash floods, most other floods allow some warning and preparation time. Being prepared for a flood emergency will help manage the risk and reduce potential loss of life and damage to construction works, equipment, property and the environment. Preventing panic during the emergency can be mitigated through proper education, notification and communication of information to enable well informed decisions to be made and executed during the emergency.

[How can the EPC link to the LEMC/SES?](#)

Prior to a flooding event, the Project's Emergency Planning Committee (EPC) will be mobilised to co-ordinate the preparation of the site, communicate and notify site personnel and emergency services and potentially evacuate the site if deemed necessary. The personnel comprising the EPC are identified in Table 5-2.

Table 5-2 Emergency Planning Committee Members

EPC Member	Discipline : Focus Area
Project Director	All disciplines : Entire site
Construction Manager	Construction : Entire Site
Superintendent	Plant, equipment & materials : Entire site
Safety Representative	Site personnel : Entire site
Environmental Officer	Environment : Entire site

5.2.1 Preparation of the site

Are these "Flood Warning" actions, or "Flood Watch" actions? I think this plan needs to clarify these two terms.

Ancillary facilities will be situated predominantly outside the 20-year ARI flood extent as indicated in Figure 3-2. To prepare the site for a flood emergency the following should be considered, as a minimum:

- Inform all site staff well in advance of a predicted flood event and confirm flood emergency procedures
- Ensure no materials are stockpiled in areas of concentrated overland flow
- Where feasible, hazardous materials are to be removed from site in anticipation of a flood event. Where this is not feasible, all efforts should be made to raise the storage container above the 20-year ARI and ensure the storage container is secured
- All plant and equipment, including earthworks plant and cranes, is to be moved and parked in areas outside the 20-year ARI flood extent (as shown in Figure 3-2), or higher depending on information from the Flood Warning Service, and encircled with a wall of sandbags
- Silt curtains or other in-river environmental controls are to be removed to a location outside the 20-yr ARI
- If feasible, in-river work platforms, such as jetty platforms, are to be removed from the river and stored outside the 20-y ARI; alternatively in-river work platforms must be secured to avoid causing damage to property
- Barges are to be secured
- Back-up all computer files and network information off-site
- Store sandbags on site to place at site office doors and equipment shed doors to impede the ingress of floodwaters into the buildings; when a flood is predicted to exceed the 20-year ARI, and
- Store geofabric (or similar) to place around material stockpiles that cannot be located outside of the 20-year ARI flood extent, to prevent erosion and loss of material.

It is anticipated that there will be permanent staff as well as sub-contractors and visitors on site during construction. All site personnel (permanent staff, sub-contractors and visitors) will be briefed on emergency procedures in their project induction and periodically during toolbox talks to ensure they are prepared for a flood event. Should evacuation of the site be ordered, it is essential site personnel on site are familiar with the evacuation procedure and routes described in this CFMP.

does that mean an SES order?

5.3 Measures to be implemented during a flooding event

The SES is the designated Agency for dealing with floods and is responsible for coordinating the evacuation and welfare of affected communities (SES Act 1989; EMPLAN, 2012). In response to a flood event, SES will operate a 24 hours a day, 7 days a week "Operations Centre" to manage the Emergency Assistance telephone number (132 500) and co-ordinate their activities.

During a flood, BoM Flood Warning Service will continue to be monitored as well as the rainfall intensity being experienced on the project site.

5.3.1 Protect and Secure

During a flood the following actions are advised if they were unable to be carried out/completed prior to a predicted flood event:

- Secure all items in ancillary facilities that may become hazardous and cause damage if moved by flood water
- Ensure all utilities (e.g. gas, electricity water) connected to the site office have been put to the OFF position and main valves closed
- Observe any in-river barges or work platforms to ensure they are effectively secured/tethered

items that have been secured/tethered have washed away many times, what method will be used for tethering to ensure this does not happen?

- Relocate chemicals that react with water to give off heat or form explosive or toxic gases and poisons to the highest level. Include any substances that could contaminate flood waters, and
- Tie down timber, drums and other loose, buoyant items to prevent them from being carried away by flood water or battered against other items or structures.

5.3.2 Evacuate

This follows the receipt of sufficient and reliable information from the Flood Warning Services, emergency services or on-site rainfall intensity monitoring, which prompts a decision to evacuate. The evacuation process to be followed is outlined in Figure 5-1 and is explained in more detail thereafter.

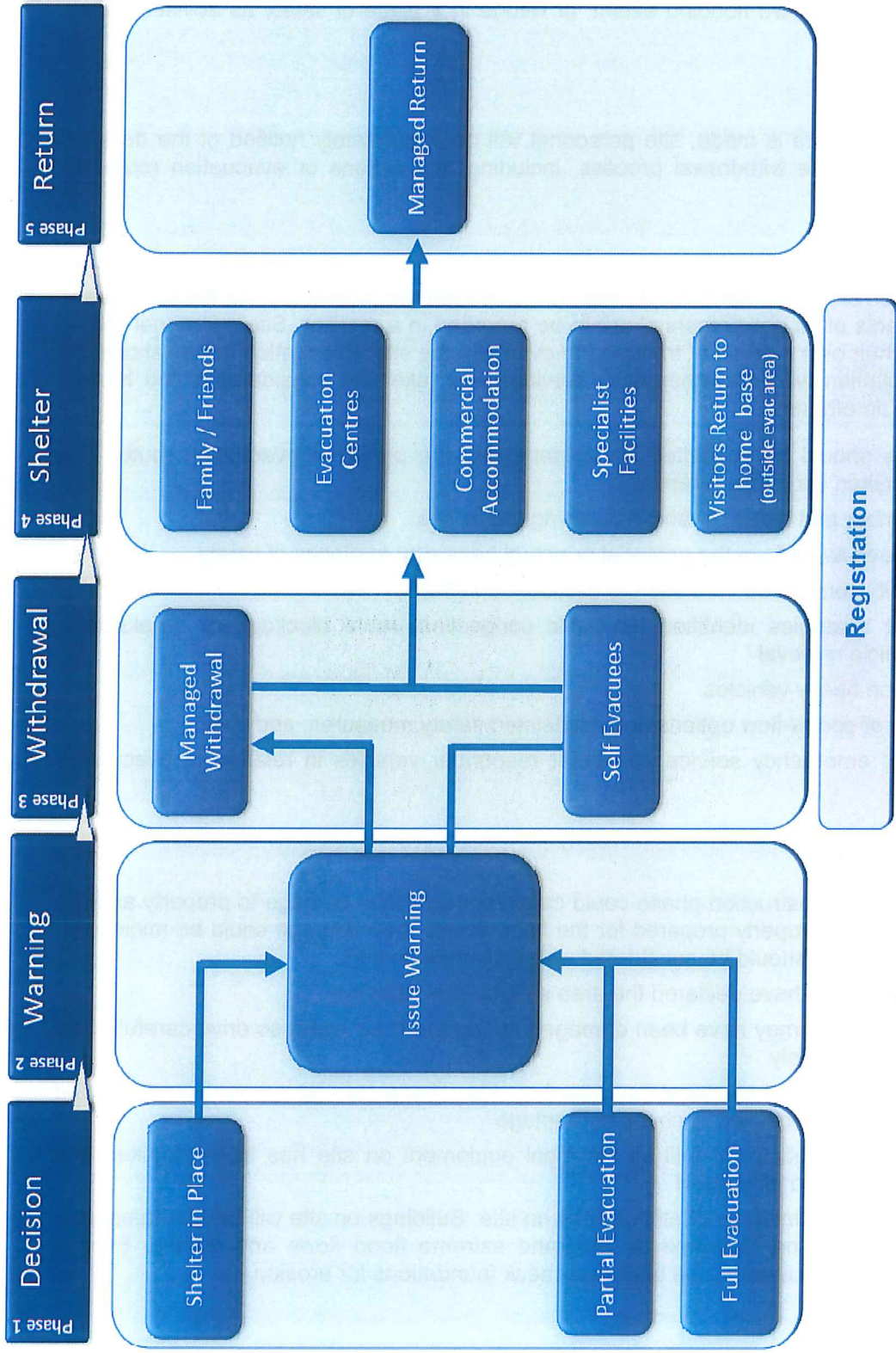


Figure 5-1 The evacuation process
 (Source: NSW State Emergency Management Plan - Evacuation Management Guidelines, March 2014)

5.3.2.1 The Decision

The decision by the EPC to advise or direct people to evacuate should be considered whenever there is a potential need to move people to a safer place. The decision process of the EPC should take into consideration where an evacuation has already been instigated, whether by an emergency service, members of the public or site personnel self-evacuating. During a flood event, the site office will serve as an emergency assembly area where workers will gather before an evacuation order is issued. The site office is protected by the levee.

If insufficient time is available for a full evacuation, secondary strategies may need to be considered such as a partial evacuation (safety of personnel is paramount), refuge in South Grafton above the 100-year ARI flooding extent, or refuge in a place of safety as advised by the emergency services.

5.3.2.2 Warning

Once a decision to evacuate is made, site personnel will be immediately notified of the decision and provided advice on the withdrawal process, including any actions or evacuation routes to follow.

5.3.2.3 Withdrawal

Withdrawal is to be an orderly, potentially phased, removal from the project site via the site access points. The movements of all site personnel are to be recorded in a register. Site personnel will be encouraged to use their own method of transport to evacuate the site. Evacuation routes should be developed in consultation with the emergency services and take into consideration the hazard threat and available timeframes.

Emergency services should be consulted when identifying the preferred evacuation route. The following should be taken into consideration:

- Potential number and types of vehicles utilising the routes
- Direct evacuees away from the potential or actual hazard(s) to places of safety
- Route capacity considered in relation to available timeframe
- Management strategies identified for traffic congestion, route blockage or breakdowns including vehicle removal
- Restrictions on heavy vehicles
- Identification of contra-flow options and associated safety measures, and
- Movement of emergency service and other responder vehicles in relation to evacuation route(s).

5.4 Flood recovery

A flood event during the construction phase could cause considerable damage to property and the environment. If the site is properly prepared for the flood event, then damage could be minimised. The following list of actions should be considered when returning to site:

- Wait until authorities have declared the area safe before entering
- Access roads to site may have been damaged during the flood event so drive carefully and approach the site safely
- Check power boxes and electrical equipment on site. These may have been inundated and require a qualified electrician to check for damage
- Do not turn power back on until all electrical equipment on site has been checked and certified by a qualified electrician
- Check the structural integrity of all buildings on site. Buildings on site will be of a temporary nature so may not be designed to withstand extreme flood flows and depths. Even if floodwaters have not entered the buildings check foundations for erosion

- Check to see if any equipment has been moved by flood waters and relocate equipment back to a safe position/location
- Check material stockpiles for erosion and losses
- Check water and waste water systems on site. Water systems may need to be flushed or repaired following the flood event. Clean up any ponded water around site to prevent the spread of waterborne disease
- Prepare an incident report on the flood event. Include information on how the site was evacuated and document the resulting flood depths and damage to the site, and
- EPC to re-open site only when it is deemed safe to continue work.

Only once the flood has receded and the site has been re-opened should in-river environmental controls, equipment or platforms be re-established.

5.5 Communication and notification

Timely and accurate warning information is vital during emergencies and is integral to minimising panic and ensuring suitable actions can be taken to minimise risk to life and property.

When heavy rainfall is being experienced and throughout the implementation of this CFMP, communication with, and monitoring of the organisations stipulated in Table 5-3 must be undertaken continuously.

Table 5-3 Relevant contacts in relation to flood emergency

Organisation Contact	Number	Website
State Emergency Services (SES)	132 500	www.ses.nsw.gov.au
Bureau of Meteorology (BOM)	1300 659 218	www.bom.gov.au/nsw/warnings
Clarence Valley Council	(02) 6643 0200	www.clarence.nsw.gov.au
NSW Police (Grafton)	(02) 6642 0222	www.police.nsw.gov.au
NSW Fire and Rescue (Grafton)	(02) 6643 3491	www.fire.nsw.gov.au
Fulton Hogan Project Director: (Name)		
Fulton Hogan Construction Manager: (Name)		
Fulton Hogan Superintendent: (Name)		

Communication and the distribution of information to site personnel leading up to, and throughout a flood event, must be implemented. Following any decision to evacuate, site personnel and emergencies services must be notified of the following:

- The decision to evacuate;
- Type of evacuation (full, partial or shelter in place);
- The stages of withdrawal (if applicable);
- Evacuation routes and any heavy or oversized equipment to be removed from site; and
- Location of any potential hazardous materials and how these have been secured or protected.

6 Compliance management

6.1 Roles and responsibilities

The Fulton Hogan Project Team's organisational structure and overall roles and responsibilities are outlined in Section 4.1 of the CEMP. Specific responsibilities for the implementation of environmental management measures are detailed in Chapter 7 of this CFMP.

6.2 Training

All employees, contractors and utility staff working on site will undergo site induction training relating to flooding and hydrology management issues. The induction training will address elements related to flood management including:

- the existence and requirements of this CFMP;
- relevant legislation;
- roles and responsibilities associated with this CFMP;
- flood management measures, before and during a flood event;
- flood monitoring requirements, and
- specific responsibilities for the protection of construction works and facilities during flooding.

Further details regarding staff induction and training are outlined in Chapter 5 of the CEMP.

6.3 Monitoring and inspections

General requirements and responsibilities in relation to monitoring and inspections are documented in Section 8.2 of the CEMP. Monitoring of weather conditions and flood warning services is outlined in Section 7.1.

6.4 Non-conformances

Non-conformances will be dealt with and documented in accordance with Section 11.1 of the CEMP.

6.5 Complaints

Complaints will be recorded and addressed in accordance with Section 6.3 of the CEMP and the Community Communication Strategy (CCS).

6.6 Auditing

Audits (both internal and external) will be undertaken to assess the effectiveness of environmental controls, compliance with this CFMP, CoA for the Project and other relevant approvals, licenses and guidelines.

Audit requirements are detailed in Chapter 10 of the CEMP.

6.7 Reporting

Reporting requirements and responsibilities are documented in Chapter 11 of the CEMP.

7 Review and improvement of CFMP

This CFMP will be reviewed annually to ensure compliance with legislative requirements and its suitability and effectiveness for the Project.

The review may be in the form of:

- a formal management review
- a second party audit, and/or
- an inclusion as a separate item at a site meeting.

The Environmental Manager may review and update the CFMP more regularly where:

- significant changes in construction activities occur
- where targets are not being achieved, or
- in response to audits and non-conformity reports.

Any revisions to the CFMP will be in accordance with the process outlined in Section 1.7 of the CEMP.

CFMP
Clarence Valley Council

Byrne, Rebekah

From: Kieran McAndrew <Kieran.McAndrew@clarence.nsw.gov.au>
Sent: Tuesday, 23 August 2016 4:14 PM
To: Byrne, Rebekah
Subject: RE: CFMP Rev3 - email to confirm comments satisfactorily addressed

Hi Rebekah,

Sorry about delay.

From an emergency management perspective your current CFMP is much more comprehensive than the initial draft. I am satisfied that these improvements will allow Fulton Hogan to better manage a flood event during construction.

Regards,

Kieran.

Kieran McAndrew
Water Cycle Project Coordinator
Clarence Valley Council
Locked Bag 23, GRAFTON NSW 2460
P: (02) 6640 3526
F: (02) 6642 7647
M: 0417 690 543
www.clarence.nsw.gov.au



From: Byrne, Rebekah [mailto:Rebekah.Byrne@fultonhogan.com.au]
Sent: Thursday, 18 August 2016 4:30 PM
To: Kieran McAndrew
Subject: CFMP Rev3 - email to confirm comments satisfactorily addressed

Hi Kieran,

We had our monthly Environment Review Group meeting with DP&E, RMS, CVC (David Morrison) and the agencies today. In that meeting, we agreed that I would send an email out to the various agencies in the final review stage of each plan to ask the agencies to confirm that their comments have been satisfactorily addressed. This is to assist DP&E with the review process.

So, could I please ask you to confirm that Revision 3 of the CFMP satisfactorily addresses your comments?

Many thanks,

Rebekah Byrne | Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road
Alexandria NSW 2015 | PO Box 6099 Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

From: Byrne, Rebekah
Sent: Wednesday, 17 August 2016 4:21 PM

To: 'Kieran McAndrew' <Kieran.McAndrew@clarence.nsw.gov.au>

Subject: RE: TX#0157: CFMP Rev3 - for your review and comment [K3.1.1#49DAAD.475E1B]

Hi Kieran,

Ok, thanks. Just so you know, the changes to the plan were minor and include:

1. Date and rev changes in doc control etc.
2. Added one mitigation measure to Table 7-2 i.e. ID CFMM6 *'The barge operator will prepare a Severe Weather Event Evacuation Procedure prior to commencement of the barge works. Implementation of the Severe Weather Event Evacuation Procedure is to be considered in preparation of the site in the event of a "Flood Warning" being issued.'*
3. Updated dot points in section 7.1.2; and
4. Updated dot point in section 7.2.1.

Regards,

Rebekah Byrne | Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road
Alexandria NSW 2015 | PO Box 6099 Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

From: Kieran McAndrew [mailto:Kieran.McAndrew@clarence.nsw.gov.au]

Sent: Wednesday, 17 August 2016 3:34 PM

To: Byrne, Rebekah <Rebekah.Byrne@fultonhogan.com.au>

Subject: RE: TX#0157: CFMP Rev3 - for your review and comment [K3.1.1#49DAAD.475E1B]

Thanks Rebekah, I just took a quick skim read and couldn't really see many changes, but I'm sure you've covered everything well.

Regards,

Kieran.

Kieran McAndrew

Water Cycle Project Coordinator

Clarence Valley Council

Locked Bag 23, GRAFTON NSW 2460

P: (02) 6640 3526

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From: Byrne, Rebekah [mailto:Rebekah.Byrne@fultonhogan.com.au]

Sent: Wednesday, 17 August 2016 2:05 PM

To: Kieran McAndrew

Subject: FW: TX#0157: CFMP Rev3 - for your review and comment [K3.1.1#49DAAD.475E1B]

Hi Kieran,

Sorry that I missed your call. I thought I would forward you the attached document via email. Hopefully you receive it this time.

If you have any issues, let me know and I can bring it up to Grafton on a USB tomorrow, as I'll be in town.

Regards,

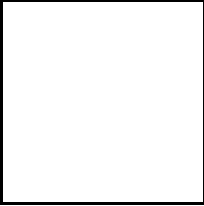
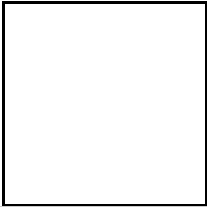
Rebekah Byrne | Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road
Alexandria NSW 2015 | PO Box 6099 Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

From: Nikka Marcial on iTWOcx/FH_CRB [mailto:FH_CRB@au.itwocx.com]

Sent: Wednesday, 17 August 2016 11:20 AM

To: Byrne, Rebekah <Rebekah.Byrne@fultonhogan.com.au>

Subject: TX#0157: CFMP Rev3 - for your review and comment [K3.1.1#49DAAD.475E1B]



Hi Rebekah,
 Nikka Marcial has issued you this [Transmittal](#).
 Reply to this email to post a comment on the document or click the respond button for more options.
[Show me how](#)

[Respond](#)

PROJECT NO FH_CRB

PROJECT Additional Crossing of the Clarence River at Grafton

COMPANY Fulton Hogan

PHONE 02 8346 9400

FAX 02 8346 9444

REF [TX#0157](#)

Transmittal

STATUS **CLOSED**

ISSUED 17-August-16 11:19 AM

DUE

AUTHOR COMPANY
 Nikka Marcial Fulton Hogan

PHONE MOBILE
 02 8346 9400

COLLABORATORS

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David Morrison Clarence Valley Council		0408 296 365
Michael Stubbs NSW State Emergency Service	02 6641 6903	0413 385 949
Michael Young Department of Planning	02 9228 6437	
Themis Prodromakis Arcadis/App	02 8907 9000	
Toong Chin Office of Environment and Heritage- Alstonville	(02) 6627 0233	

INFO	COMPANY	PHONE	MOBILE
Brendan Keane	Roads and Maritime Services of NSW	1800 633 332	0450 692 719
Brendon Johnson	Fulton Hogan	02 8346 9400	+61 404 486 348
Gregory Nash	Roads and Maritime Services of NSW	1800 633 332	0412 254 640
Irina Kliger	Fulton Hogan	02 8346 9400	0488 264 613
Jason Sheehan	Roads and Maritime Services of NSW	1800 633 332	0422 003 460

John O'Donnell	Roads and Maritime Services of NSW	1800 633 332	0401 474 615
Kieran McAndrew	Clarence Valley Council	P: (02) 6640 3526	
Peter Felsch	Roads and Maritime Services of NSW	0435 168 081	
Rebekah Byrne	Fulton Hogan	02 8346 9400	
Scott Lawrence	Roads and Maritime Services of NSW	1800 633 332	0419 248 583
Simon Williams	Geolink		
Stella Wilson	Arcadis/App	02 8907 9000	0418 770 380
stuart murphy	EPA		

CFMP Rev3 - for your review and comment

SENT FOR REV:Review

Hi Craig, David, Kieran, Michael S, Michael Y, Themis,

Re: Additional Crossing of the Clarence River at Grafton

Please find attached Revision 3 of the Construction Flood Management Plan (CFMP) for your review and comment.

For those of you who are not aware, Fulton Hogan and RMS met with SES (Michael Stubbs) and CVC (Kieran McAndrew) about the CFMP on 21/07/16 . CVC and SES came back with some comments of which have now been addressed in Revision 3. We wanted to make sure that the CFMP was consistent with the overall planned response strategies for Grafton before sending it out for wider comment.

Please provide your comments by 31 August 2016.

Hi Michael S, Kieran – We acknowledge that you have already seen the CFMP on more than one occasion, so if you have no comments we would appreciate it if you could send a quick email to say the same.

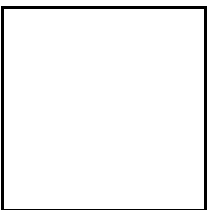
Should you have any queries, please do not hesitate to contact me.

Regards,

Rebekah Byrne | Environment Advisor – NSW Construction | Fulton Hogan | Level 3, 90 Bourke Road Alexandria NSW
2015 | PO Box 6099 Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

Sent by:

Nikka Amiel Marcial | Fulton Hogan | Level 3, 90 Bourke Road, Alexandria, NSW, 2015 | P.O. Box 6099, Alexandria, NSW,
2015, Australia | Nikka.Marcial@fultonhogan.com.au |

FILE	NAME	REV	DATE	DESCRIPTION	FMT	STATUS	
1		CFMP_GRAFTON_REV3 120816	-	17-August-16	No title provided. File: CFMP_Grafton_Rev3 120816.docx	DOCX 6.7Mb	REV

Status Legend: 100% - Final Design, 15% - Developed Concept Design, 85% - Substantial Detailed Design, APR - Approved, CERT - Certification, IFC - Issued for Construction, INF - Information, P-IFC - Pre-Issued for Construction, REV - Review

COMMENTS

Nikka Marcial (FH-NM)

CLOSED

17-August-16 11:19 AM

Transmittal Issued

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Byrne, Rebekah

From: Byrne, Rebekah
Sent: Wednesday, 27 July 2016 10:47 AM
To: Kliger, Irina; michael.stubbs@one.ses.nsw.au; Johnson, Brendon; Hicks, David; NASH Gregory D (Gregory.NASH@rms.nsw.gov.au); Jason.L.SHEEHAN@rms.nsw.gov.au; Brendan.Keane@rms.nsw.gov.au; Kieran McAndrew; Williams, Karen; john.o'donnell@rms.nsw.gov.au; fh_crb@au.itwocx.com
Subject: Grafton - Meeting Minutes - Meeting with SES & CVC to discuss Construction Flood Management Plan (CFMP)
Attachments: SES & CVC Meeting minutes 270716 incl Attachments.pdf

Hi everyone,

Please find attached the Meeting Minutes from our meeting held on 21/07/16.

A special thanks to Michael and Kieran for all the information and insights provided. We are working through revising the CFMP and will likely be in contact again next week.

Regards,

Rebekah Byrne | Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road
Alexandria NSW 2015 | PO Box 6099 Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

-----Original Appointment-----

From: Kliger, Irina
Sent: Friday, 15 July 2016 3:17 PM
To: Kliger, Irina; michael.stubbs@one.ses.nsw.au; Byrne, Rebekah; Johnson, Brendon; Hicks, David; NASH Gregory D (Gregory.NASH@rms.nsw.gov.au); Jason.L.SHEEHAN@rms.nsw.gov.au; Brendan.Keane@rms.nsw.gov.au
Cc: Michael Stubbs; Kieran McAndrew
Subject: Meeting with SES to discuss Flood Management Plan
When: Thursday, 21 July 2016 12:00 PM-1:00 PM (UTC+10:00) Canberra, Melbourne, Sydney.
Where: SES Office 26 Induna Street South Grafton

Hi Michael,

Thank you so much for agreeing to meet with us at such short notice. I've attached a copy of the draft Flood Management Plan for your perusal - please note that this is a draft only and is not for wider distribution.

Please let me know if you have any queries or require more information prior to our meeting.

Kind regards,

Irina

<< File: CFMP Rev0 240616.pdf >>

Irina Kliger | NSW/ACT Environmental Manager | **Fulton Hogan** | Level 3, 90 Bourke Road, Alexandria, NSW, 2015 | P.O. Box 6099, Alexandria, NSW, 2015, Australia | Phone +61 2 8346 9434 | Fax +61 2 8346 9444 | Mobile +61 488 264 613 | Web www.fultonhogan.com

Meeting:	Meeting with SES & Clarence Valley Council (CVC) to discuss the Construction Flood Management Plan (CFMP)
Project	Additional Crossing of the Clarence River at Grafton
Date & time:	Thursday 21 July 2016, 12:00 – 1pm.
Location:	SES Office 26 Induna Street South Grafton NSW 2460
Minute taker:	Rebekah Byrne
Attendees:	SES: Michael Stubbs (MS). Clarence Valley Council: Kieran McAndrew (KM). Fulton Hogan (FH): Rebekah Byrne (RB), Irina Kliger (IK), Brendon Johnson (BJ). RMS: Greg Nash (GN), Brendan Keane (BK).
Distribution:	Above, Karen Williams (FH), John O'Donnell (RMS), Jason Sheehan (RMS)

Discussion item		Status/ Action by
1. Introduction		
1.1	MS highlighted the critical role that KM (Emergency Management Officer) plays on behalf of Clarence Valley Council (CVC) in the emergency management of floods. This includes planning for floods.	Note
1.2	BJ advised that FH is aiming for the CFMP to be consistent with SES and CVC procedures.	Note
2. Comments from SES and CVC with respect to CFMP (Revision 0)		
2.1	SES advised that the following plans should be referenced: <ul style="list-style-type: none"> Grafton and Maclean Flood Levee Overtopping study. SES advised that this is available on the website. The Grafton Annexure from the <i>Clarence Valley Council Local Flood Plan</i> (refer to Attachments 1 and 2). SES Grafton and South Grafton Community FloodSafe Guide (refer to Attachment 3). 	Note
2.2	SES advised that the Grafton Annexure from the <i>Clarence Valley Council Local Flood Plan</i> outlines the evacuation strategy and the location of evacuation points. SES specifically raised this point because the CFMP (under “Existing environment”) indicates that people will be evacuated to the north, to Junction Hill, which is not in accordance with the overall CVC evacuation strategy. Evacuation should be to South Grafton. Also refer to the evacuation routes in the FloodSafe Guide.	Note
2.3	SES advised that in relation to levy overtopping (under “Existing environment”), the CFMP says that this will begin at about 8m on the Prince Street gauge. SES/CVC advised that overtopping begins in North Grafton at about 8m and South Grafton a bit later, at about 8.1m.	Note
2.4	SES questioned the logic behind the use of the gauge reference locations (under “Existing environment”), including Prince Street; Existing Grafton bridge; Grafton: Alamy Creek near North Street; South Grafton: intersection of Abbott Street and Vere Street. RMS advised that these locations were adopted during the EIS phase and have been carried through all flood modelling.	Note
2.5	CVC advised that (under “Existing environment”) <i>Table 3-2 Existing peak flood depths</i> could be incorporated into <i>Table 3-1 Existing peak flood levels</i> , with ground heights.	Note
2.6	CVC advised that (under “Preparation of the site”) it is not clear whether these preparation actions are “Flood Warning” actions or “Flood Watch” actions. In the Clarence River area, there is a big difference between the two. Usually different actions would occur depending on the level of flood warning; that is, a Minor, Moderate or Major flood warning.	Note
2.7	SES advised that the “Flood Watch” comes out days before the rainfall arrives. For example, there could be 3-4 days of rain in the upper catchment, before it actually comes down to the site. It could be a matter of going from a minor flood level of 2m, to the levy overtopping at 8m, with the Clarence River rising about 6m. There are a number of actions that could occur during “Flood Watch”, before the “Flood Warning” comes out. It is preferable to take action when it is dry during “Flood Watch”.	Note
2.8	SES highlighted that the CFMP does not talk about anything on the South side of Grafton. Alipou Creek gets flooded well before the levy is overtopped. At levels of a moderate flood (about 5.5m) the area around Alipou Creek is inundated, so equipment in this area would need to be relocated well before the levy overtops.	Note

Discussion item		Status/ Action by
2.9	SES provided BJ with a hardcopy of: <ul style="list-style-type: none"> Annex K – Clarence Valley Sector/Community Response Annex, <i>Clarence Valley Local Flood Plan</i> (July 2012), Page K-1 to K-6 (Attachment 1) Map 2 - Grafton Sector, <i>Clarence Valley Local Flood Plan</i>, Page L-2 (Attachment 2) SES Grafton and South Grafton Community FloodSafe Guide (Attachment 3) CFMP Revision 0, including comments in red (Attachment 4) 	Note
2.10	FH to go away and consider the comments provided by SES and CVC, including those provided in hardcopy (refer to Attachment 3), liaise with CVC as necessary and update the CFMP.	FH
3. Other items raised		
3.1	FH will remove the deck off the jetty at a particular flood level and secure barges in an area of reduced velocity (e.g. inside of the bend).	Note
3.2	CVC confirmed that the Prince Street gauge is in AHD.	Note
3.3	CVC asked about who would be the contact person on the Emergency Planning Committee (EPC). BJ advised that this would be the Fulton Hogan Project Director.	Note
3.4	SES mentioned how flooding was handled at the Kalang River with respect to flood warning times, as an example.	Note
3.5	SES asked about river access during flooding. FH advised that there will be 2 navigation channels open at all times. Also the new bridge piers will be directly in-line with the piers of the existing bridge. SES advised that this is the kind of information that the emergency management committee will interested in knowing (refer to item 3.6 below).	Note
3.6	CVC suggested that once the CFMP is finalised that FH deliver a presentation to the local emergency management committee i.e. police and supporting agencies. Next meeting is on 31 October 2016. 10-15 minute presentation.	Note
3.7	IK queried the SES flood notification service via email. CVC clarified that FH would need to provide SES with a non-personal email address (such as Graftonbridge@fultonhogan.com.au) to which all notifications would be sent. It would then be up to FH to create its own Outlook rules.	Note
3.8	CVC advised that the majority of floods occur in January.	Note
3.9	RMS provided SES with a copy of the final Hydrological Mitigation Report that has been approved by the Department of Planning and Environment.	Note
3.10	RMS advised that FH's design has resulted in reduced afflux due to the bridge. This in turn has required a shorter length of levee works. The length of levee works is currently at about 5.6km.	Note

Attachments:

No.	Description
1	Annex K – Clarence Valley Sector/Community Response Annex, <i>Clarence Valley Local Flood Plan</i> (July 2012), Page K-1 to K-6.
2	Map 2 - Grafton Sector, <i>Clarence Valley Local Flood Plan</i> , Page L-2
3	SES Grafton and South Grafton Community FloodSafe Guide
4	CFMP Revision 0, including comments in red

Attachment 1

ANNEX K - CLARENCE VALLEY

SECTOR/COMMUNITY RESPONSE ANNEX

This annex provides further detail of the planned response strategies within Clarence Valley Community.

N.B Some of the following information in this Annex is based on the 2010 Grafton Maclean Overtopping Study, of which the levee survey height was determined to be incorrect. The levee has been re-surveyed and is being incorporated into the revised levee overtopping study (due 2012). On completion of this study, this Annex will be revised accordingly.

K1. GRAFTON SECTOR RESPONSE

This annex provides further detail of the planned response strategies within Grafton Sector. The associated maps for each sector evacuation plan are provided in Annex L.

Grafton Sector See Map Attached			
Sector Description	This sector covers Alamy Creek, Carrs Creek, Carrs Island, Carrs Peninsula, Eatonsville, Great Marlow, North Grafton, Seelands, South Grafton, Southampton, Waterview and Waterview Heights. Areas of this sector are protected by a system of levees which will over top at different heights.		
Hazard	Clarence River Riverine Flooding		
Flood Affect Classification	North Grafton is a low flood island during extreme floods. South Grafton is classified as Rising Road Access to South Grafton Hill.		
At risk properties	North Grafton 3748 South Grafton 921	Total number of properties	North Grafton 4089 South Grafton 2529
Population	North Grafton 9954 (2006 Census)*	South Grafton 2017(2006 Census)	
Sector Control	The Grafton Unit Controller will control evacuations in this sector. The SES will conduct evacuations in this sector with assistance from NSW Police, Fire and Rescue NSW, and RFS volunteers.		
Key Warning Gauge Name: Prince Street	Minor: 2.10m	Moderate: 3.60m	Major: 5.40m
General Strategy	<ul style="list-style-type: none"> • Evacuation of at risk population. • Self-evacuation to friends/family outside of the impact area. • Establishment of an Assembly Area at South Grafton High School auditorium (Tyson Street), where evacuees are able to gather while flood situation is monitored. • Where a major levee overtopping and/or failure occurs, evacuees will either remain at the South Grafton High School or be transported to Coffs Harbour. 		

Key Risks / Consequences	<ul style="list-style-type: none"> • Overtopping and/or failure of Grafton and/or South Grafton levees resulting in inundation behind the levees. • Potential loss of life from rapid and potentially high velocity inundation in levee overtopping/failure scenario. • Potential isolation of thousands of people estimated to be for a number of days.
Information and Warnings	<ul style="list-style-type: none"> • Flood Watch • Flood Bulletins • Evacuation Warning • Evacuation Order • Sequenced door knocking of evacuation sectors • Media announcements • Emergency Alert SEWS (SMS, Landlines)
Property Protection	<p>Specific property protection measures:</p> <ul style="list-style-type: none"> • Monitoring rising flood waters. • Relocation of livestock. • Relocation of farm machinery and valuable goods • Control of surface water through sandbagging measures. • Assist in the lifting of furniture to residents in need. • Monitoring integrity of dwellings surrounded by flood waters. • Monitoring integrity of existing levee system. • Control of surface water inside levee. <p>Protection of essential infrastructure:</p> <ul style="list-style-type: none"> • No identified essential infrastructure requiring protection below 1% flood height of 8.36m on the Prince St Gauge. • Grafton's potable water supply reservoir is located on high ground 5km south of Grafton above the PMF. • Country Energy substation on the western end of North Street is also flood free below the 1% flood height. (Prince St Gauge 8.36 metres). • Selected sewer pump stations will be switched off upon levee overtopping • The Telstra exchange for Grafton is located on Pound Street, between Prince and Queen Streets. This exchange is powered by mains electricity. If electricity was lost during a flood then the generator (located above PMF height) will automatically start. The generator will last between 24-48 hours before refuelling is required.
Evacuation and/or Isolation Triggers	<p>The key evacuation triggers based on Bureau of Meteorology flood height predictions at the Grafton Prince St gauge:</p> <ol style="list-style-type: none"> 1. Prediction to reach and/or exceed 4.4m Carrs Island Bridge closes isolating residents on island. (Approximately 5 properties). 2. Prediction to reach and/or exceed 5.4m Flood waters enter Alipou Creek area starting to pond around

	<p>rural properties (Approximately 5 properties). Pacific Highway closes at Alipou Creek alternate route high level bypass Via Centenary Drive and Lilypool Road.</p> <p>3. Prediction to reach and/or exceed 5.7m Lawrence Road and Great Marlow Road cut near Butterfactory Lane isolating properties in the Alummy Creek and surrounding areas (approximately 30 properties). Water enters low lying areas of Glenwood Tourist Park.</p> <p>4. Prediction to reach and/or exceed 7.8 Targeted Evacuation Warning issued for Grafton Sector A including owners of livestock to relocate livestock outside of the impact area.</p> <p>5. Prediction of between 7.9m to 8.0m Based on monitoring and assessment of levee condition, a Targeted Evacuation Order will be issued for Sector A Dovedale and Northmeadow (area bordered by Clarence Street, Bacon Street, Prince Street and the Clarence River) and other low lying areas.</p> <p>Another 70 houses and some other buildings in the Back Lane, Carr street, Summerland Way and Lawrence Road areas could be isolated, along with the Gateway Caravan Park.</p> <p>Targeted Evacuation Warning issued for Grafton Sectors B,C,D</p> <p>6. Prediction to reach and/or exceed 8.2m Targeted Evacuation Order issued for Sectors B, C, D and all low lying areas in North and South Grafton.</p>
<p>Sequencing of evacuation</p>	<p>For Prediction 5, the areas of Dovedale and Northmeadow in Sector A will be systematically evacuated.</p> <p>For Prediction 6, North Grafton will be divided into Sectors B and C, while South Grafton becomes Sector D. Evacuation will commence with Sector B. Sectors C and D will follow.</p> <p>Grafton: Order for Sectors is A, B, then C.</p> <ul style="list-style-type: none"> • Sector A: Clarence Street, Bacon Street, Prince St including Dovedale, North meadow, • Sector B: west of Clarence Street, Bacon Street, Prince Street to Turf St. • Sector C: west of Turf St, including Westlawn, and Back Lane, Carr St, Marlow St, and Summerland Way to Junction Hill. <p>South Grafton:</p> <ul style="list-style-type: none"> • Sector D: Low-lying areas of South Grafton including Bent,

	<p>Ryan, Cowan, Abbott, Spring, Through, Skinner, Wharf, Armidale, Beetson, Bligh, Edward, James, Kelly, Kennedy, New, Orr, and Vere Sts).</p> <p>Evacuation of vulnerable facilities (Eg: Aged care facilities, schools, child care facilities) will require higher priority.</p>
<p>Evacuation Routes</p>	<p>Sector A: Clarence St, Bent St and Tyson St.</p> <p>Sector B: Route 1 Dobie St, Prince St, Pound St, Clarence St, Bent St, and Tyson St. Route 2 Oliver St, Prince St, Fitzroy St, Craig St, Bent St and Tyson St.</p> <p>Sector C: Route 1 Marlow St, North St, Cranworth St, Oliver St, Prince St, Pound St, Clarence St, Bent St, and Tyson St. Route 2 Turf St, Dobie St, Prince St, Fitzroy St, Craig St, Bent St, and Tyson St.</p> <p>Sector D: Bent St, Tyson St.</p> <p>See attached map.</p> <p>It is likely that the Pacific Highway south to Coffs Harbour will remain open to all vehicles, via Lilypool Road but this could be limited if flooding is widespread.</p>
<p>Evacuation Route Closures</p>	<p>Road closures affecting the sequenced evacuation of sectors A,B,C,D:</p> <ul style="list-style-type: none"> • There is uncertainty when local roads inside the Grafton levee will close, the closure will be dependent on local rainfall conditions. • Craig Street approach to the Grafton Bridge closes (8.25m Prince Street Gauge) • The Cross Roads South Grafton remain open beyond the 1% flood height of (8.36m at the Prince St Gauge). • The Railway line is immune to a possible maximum flood height (PMF). <p>Other known road closures include:</p> <ul style="list-style-type: none"> • Pacific Highway Closes (5.4m Prince Street gauge) at Alipou Creek, Alternate route high level bypass Centenary Drive. • Lawrence Road Closes (5.7m Prince Street gauge). Alternate route Summerland Way. • Orara Way Closes at Bluff Bridge at (5.8m on the Glenreagh Gauge). Alternate route Pacific Hwy. <p>Other roads where closure is dependent on local rainfall and events (e.g. landslips) include :</p> <ul style="list-style-type: none"> • Summerland Way closes on Grafton levee overtopping at

	<p>(8.34m on the Prince Street gauge).</p> <ul style="list-style-type: none"> • Gwydir Highway (road susceptible to land slippage) • Armidale Road
Method of Evacuation	<ul style="list-style-type: none"> • Primarily self-evacuation by private transport before road closures. • Public transport to the Assembly Area on South Grafton Hill will be available to members of the community without private vehicles. An estimate of 10% of evacuees will not have private transport. (20 Buses are estimated for transport.) Agreements to be in place with private bus operators. • Buses could also operate around South Hill picking people up from their parked cars to take them to assembly area or evacuation centre. Car parking capability unlimited. • Grafton Bridge will be closed by Police to North bound traffic ensuring maximum expedience of traffic flow over the bridge and access for emergency vehicles. • If the Cross Roads South Grafton are cut, railway transport becomes the main method of evacuation. Evacuation access to the railway is via the Grafton Railway Yard platform and the South Grafton Railway Station. A temporary platform can be erected at the corner of Federation and Ryan Street, (the Tin Bridge) South Grafton for an evacuation route up George Street to Bent Street and onto South Grafton High School.
Evacuation Centre/Assembly Point	<ul style="list-style-type: none"> • People should be encouraged to stay with friends/relatives in high areas such as South Hill, Clarenza, Junction Hill or Waterview Heights. Note some of these areas may become isolated with further river rises. • Where this is not possible the nominated assembly area is the South Grafton High School Auditorium, Tyson Street. This can be used as an assembly point in the short term, but could also double as an evacuation centre should the need arise. • There are a number of other schools located in flood free areas in South Grafton and Clarenza which are available for use as Evacuation Centres. These schools will be nominated by Family and Community Services as the need arises.
Large scale evacuations	In the event that evacuee numbers exceed the South Grafton evacuation centre capacity, evacuees will either be transported to alternative evacuation centres or transported by bus, rail or private transport to Coffs Harbour, dependent on road closures and local flooding.
Rescue	The Grafton and Copmanhurst SES Units will undertake all Flood Rescue Operations as per the Flood Rescue Operations Policy.
Resupply	<ul style="list-style-type: none"> • Resupply will be provided by the SES through the 132500 call out system. • The Grafton Base Hospital and Grafton Correctional Centre will be resupplied if required. The hospital floor begins to be

	inundated when flood waters exceed 8.36m on Prince Street Gauge.
Aircraft Management	<p>Helicopter Landing Zones</p> <ul style="list-style-type: none"> • Grafton Airport (S29° 45' 30.56", E153° 1' 45.45") • EOC Junction Hill (S29° 38' 37.43", E 152° 55' 12.73") • SES Region Headquarters (S29° 43' 24.53", E 152° 56' 37.78") • Grafton Base Hospital (S29° 40' 31.89", E 152° 56' 27.66")
Other	<p>Special considerations relating to the evacuation:</p> <ul style="list-style-type: none"> • Closure of Schools - coordinated through the Department of Education and Training, District Office, Grafton. • Closure of Licensed Premises. All hotels and licensed clubs will be closed. • Evacuation of residential institutions, nursing homes and age care facilities will occur where these are threatened by predicted flood waters. • The Grafton Base Hospital will only be evacuated in extenuating circumstances. • Rail Transport. Suspension of normal transport Operations through Grafton would be required, in anticipation of the deployment of rail operations to assist with evacuees. • Security. Police patrols to be established to maintain law and order after evacuation has occurred. • The SES will use flood boats and helicopters to monitor safety of individuals. • Grafton has three peak seasons with potential for a 10% population increase: <ul style="list-style-type: none"> • (1) July Race Carnival – early July • (2) Jacaranda Festival – late Oct. / early Nov. • (3) Bridge to Bridge Ski Race – Oct long weekend. <p>These arrangements will stay in place until the ALL CLEAR is provided by the SES to residents to return to their premises.</p>

*2006 census data will need to be updated with 2011 census data.

Attachment 2

Attachment 3

When flooding is likely

A Flood Watch is issued by the Bureau of Meteorology for possible flooding. A Flood Warning is issued when flooding is likely.

RESIDENTS AND BUSINESSES:

- ✓ Listen to your local radio station for information, updates and advice
- ✓ Locate and check your emergency kit and follow your Home Emergency Plan or Business FloodSafe Plan
- ✓ Check on your neighbours and make sure they are aware of possible flooding
- ✓ Prepare to move pets, including agisted animals to high ground
- ✓ Make preparations to raise or relocate possessions, stores, records, furniture and equipment
- ✓ Plan to leave well before evacuation routes may become closed

RURAL PROPERTY OWNERS:

- ✓ Relocate livestock and farm equipment, including pumps, to high ground
- ✓ Check sheds and outbuildings. Raise equipment, feed and chemicals above predicted flood levels or to higher ground



During a flood

A Flood Warning is issued by the Bureau of Meteorology when flooding is about to happen and may be updated during floods. A Flood Warning provides a predicted flood level on a river gauge and a time at which the river is expected to reach that level.

During a flood, there are some simple things you can do to help protect your life, family, possessions and property:

- ⚠ Never drive, ride or walk through floodwater
- ✓ Keep listening to your local radio station for further information, updates and advice
- ✓ Keep in contact with your neighbours
- ✓ Be prepared to evacuate if necessary

If evacuation is necessary

NSW SES evacuates people whose lives are at risk from floods. It is important to follow all advice given to you by emergency services. Being prepared now will allow you to respond quickly.

How you may be advised of an evacuation:

Evacuation Warnings and Evacuation Orders are issued to residents and businesses that are likely to become inundated or possibly isolated if floodwater reaches levels predicted by the Bureau of Meteorology. Residents may receive these warnings via the media, door knocking and/or a voice or text message to your phones.

Your Assembly Area:

South Grafton High School, Tyson St, South Grafton

Once you have registered with staff at the Assembly Area, you can stay with friends or family, or accommodation may be arranged.

Preparing to evacuate:

- Locate important papers, valuables and mementos and put them in your emergency kit
- Turn off the electricity and gas at the mains and turn off and secure any gas bottles
- Stack possessions, records, stock or equipment on benches and tables, placing electrical items on top
- Secure objects that are likely to float and cause damage
- Relocate waste containers, chemicals and poisons well above floor level

When you evacuate:

- Stay with friends or relatives away from the flood
- Take your emergency kit with you
- Take your pets with you
- Act early before roads and evacuation routes close

After a flood

Do not return to a flood affected area until emergency services advise it is safe to do so. These areas can be dangerous for the health and safety of you and your family.

Follow safety advice when cleaning up after floods. Discard all food items that have come into contact with floodwater. Clean, sanitise and properly dry belongings.

Update your Home Emergency Plan or Business FloodSafe Plan with what you have learnt from the flood.

A local recovery centre, staffed by representatives from a range of agencies and services, may be established after a flood. This centre may be able to provide financial, insurance, housing, counselling and welfare assistance and advice.

Local FloodSafe contacts

Emergency phone numbers

NSW SES 132 500
Life-threatening emergencies 000 (triple zero)

Phone numbers

NSW SES Information Line 1800 201 000
Police Assistance Line 131 444
Clarence Valley Council 6643 0200
Roads and Maritime Services (Live Traffic) 132 701
Local Land Services 1300 795 299
Department of Primary Industries 1800 814 647
Disaster Welfare Assistance Line 1800 018 444
Essential Energy 132 391
Telstra 132 203

Local broadcast radio stations

ABC North Coast	94.5 FM	738 AM
2GF Grafton	103.9 FM	1206 AM
Clarence Coast FM	104.7 FM	
2TLC	100.3 FM	

Websites

NSW SES www.ses.nsw.gov.au
Bureau of Meteorology www.bom.gov.au
Clarence Valley Council www.clarence.nsw.gov.au
Major roads - Live Traffic www.livetraffic.com
Local Roads www.myroadinfo.com.au

Facebook pages

NSW SES and NSW SES Clarence Nambucca Region

Free smartphone apps

NSW SES apps are available at your app store. Search for FloodSafe and StormSafe



FOR EMERGENCY HELP IN
FLOODS AND STORMS CALL

132 500

For more information visit: www.floodsafe.com.au



#NSWSES



/NSWSES



/NSWSES

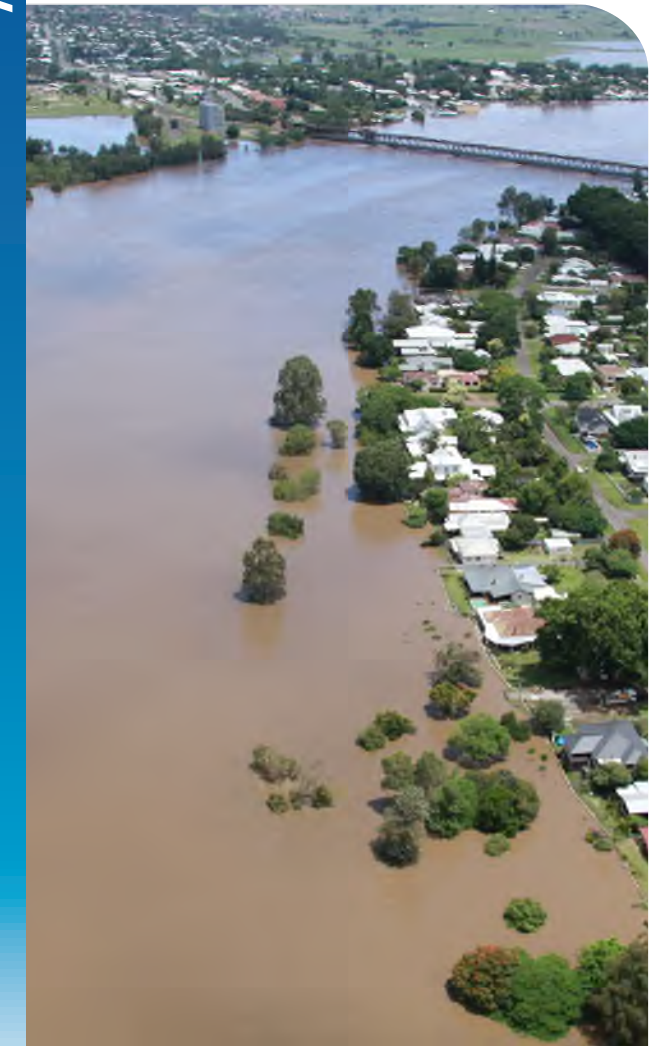


Front cover: Grafton and South Grafton, January 2013.

Community Floodsafe



Grafton and
South Grafton



Are you at risk from floods?

The Clarence River is the largest coastal river in New South Wales in terms of both catchment area and discharge. It has a long history of regular flooding.

In January 2013 the Clarence Valley experienced extensive flooding. This was a flood of record at numerous locations including Grafton. Significant flooding has also occurred in 1890, 1950, 1954, 1963, 1967, 2001 and more recently in 2009 and 2011.

Grafton and South Grafton have a series of levees built over the past four decades. In most years, flooding will occur outside this levee system affecting farm properties, some homes and businesses. The current levee system is designed to protect Grafton and South Grafton properties for a flood similar to that experienced in January 2013. This flood resulted in minor overtopping of low points on the levee.

Floods in excess of the levels reached in 2013 are possible and have the potential to cause major impacts on the community including large-scale evacuations. Localised heavy rainfall may cause stormwater ponding in low-lying areas within the current levee system. This is not associated with riverine flooding and is not dependent on the Clarence River being in flood.

During times of flood the local road network may experience disruption and access routes may be closed. These closures can include the Pacific Highway, Gwydir Highway, Orara Way, Summerland Way and other local roads.

How NSW SES can help

NSW SES is responsible for the emergency management of floods in NSW. This includes planning for floods and engaging with communities to prepare themselves and their property.

During floods, NSW SES will provide flood information and safety advice and may arrange for the delivery of essential supplies to communities isolated by floodwater. NSW SES also warns communities of the need to evacuate and provides emergency help where required.

How you may be advised of floods

Flood information including flood forecasts, road closures and advice on evacuations and property protection will be broadcast on ABC and local radio stations.

Bureau of Meteorology weather forecasts and flood predictions including river height information are available at www.bom.gov.au

Emergency services personnel may door knock your area or you may receive a voice or text message to your phones.

What happens in Grafton and South Grafton floods?

- 9.70 **Highest possible flood.**
- 8.36 1% AEP (Annual Exceedance Probability) flood level - meaning there is a 1 in 100 chance of this level occurring each year. A flood of this height would require large-scale evacuations of Grafton and low-lying parts of South Grafton.
- 8.25 Residents and businesses from **all remaining areas of Grafton must be evacuated** well before this height is reached, as all evacuation routes will be closed.
- 8.08 **Highest flood on record** - 29 January 2013. During this flood, parts of Dovedale and Northmeadow were evacuated.
- 8.00 For floods predicted to reach this height, residents and businesses in **remaining low-lying areas of Grafton and South Grafton** need to prepare for possible evacuation.
- 7.95 Estimated height at which Grafton Levee may show signs of overtopping.
- 7.89 March 1890: Peak height.
- 7.80 For floods predicted to reach this height, residents and businesses in **low-lying areas of Dovedale and Northmeadow** need to prepare for possible evacuation.
- 7.75 10 March 2001: Peak height.
- 7.64 12 January 2011: Peak height.
- 7.42 23 May 2009: Peak height.
- 6.20 Pacific Highway may close north of Grafton at Swan Creek. An alternate route north from Grafton is available on Summerland Way.
- 5.90 Pacific Highway may close south of Grafton at Alipou Creek. A high level route south of Grafton is available via Bom Bom State Forest.
- 5.45 Floodwater may start to inundate low-lying land outside the levees to the north and south of Grafton. Properties at Lawrence Road, Great Marlow, Alamy Creek and Alipou Creek may become isolated.
- 5.40 **Major Flood Level** - causes extensive flooding and/or isolation of properties, villages and towns. Pacific Highway may close north of Grafton at Alipou Creek. An high level bypass to the north is available via Centenary Drive.

Continued on the next panel...

What happens in Grafton and South Grafton floods?

- 4.40 **Carrs Island** may become isolated
- 3.60 **Moderate Flood Level** - causes flooding of low-lying areas including main roads and may require the evacuation of some areas.
- 2.10 **Minor Flood Level** - causes inconvenience, closes minor roads and low-level bridges. Rural property owners should raise pumps and equipment and relocate livestock.

Key heights in metres at the Grafton Prince Street Gauge.



If isolation is likely

If your property is likely to be isolated by floodwater, evacuating well before access is cut is your safest option. Deciding to remain at home when it is surrounded by floodwater can be dangerous.

During floods, isolated properties can lose power, water, phone lines, sewerage services and become a refuge for spiders, snakes and other animals.

If evacuation is not possible, stock at least seven days supply of non-perishable foods, medications, drinking water, fuel and feed for your animals and pets. Some properties may be isolated for longer periods and therefore require additional supplies.

Talk with your local council who can provide you with information on floods specific to your property and plan now so that you can act early when flooding occurs.

8 TIPS

YOU CAN DO NOW TO PREPARE FOR FLOODS

1 KNOW YOUR RISK



2 KNOW WHERE TO GO



3 KNOW WHO TO CALL



4 KNOW YOUR PLAN



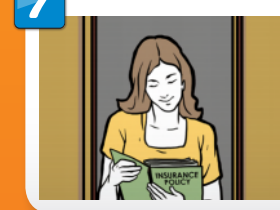
5 GET YOUR KIT TOGETHER



6 PREPARE NOW TO ACT EARLY



7 CHECK YOUR INSURANCE

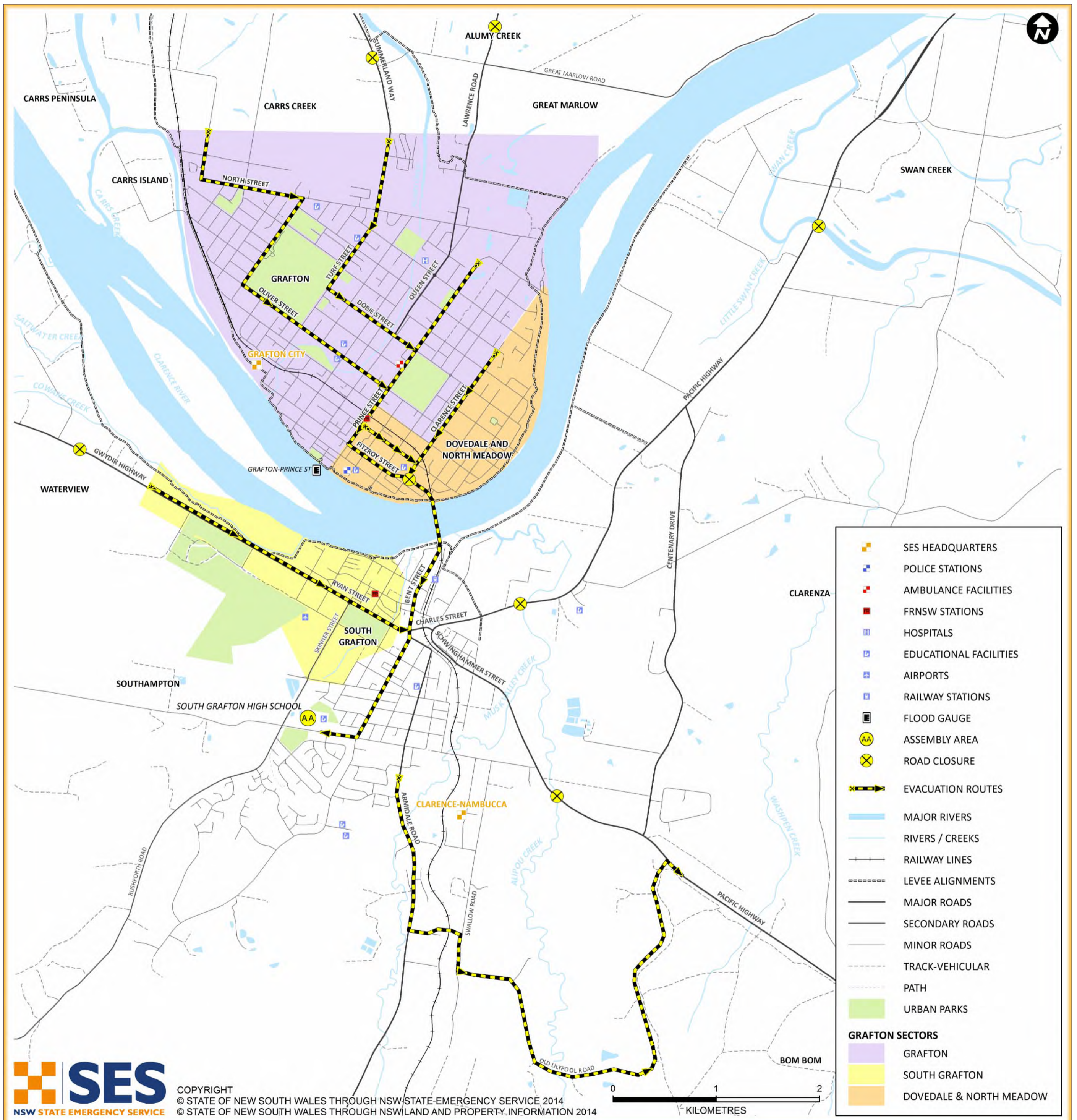


8 LISTEN TO LOCAL RADIO



For more information visit www.floodsafe.com.au

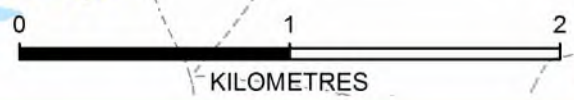
Evacuation Routes and Assembly Area for Grafton and South Grafton



- SES HEADQUARTERS
 - POLICE STATIONS
 - AMBULANCE FACILITIES
 - FRNSW STATIONS
 - HOSPITALS
 - EDUCATIONAL FACILITIES
 - AIRPORTS
 - RAILWAY STATIONS
 - FLOOD GAUGE
 - ASSEMBLY AREA
 - ROAD CLOSURE
 - EVACUATION ROUTES
 - MAJOR RIVERS
 - RIVERS / CREEKS
 - RAILWAY LINES
 - LEVEE ALIGNMENTS
 - MAJOR ROADS
 - SECONDARY ROADS
 - MINOR ROADS
 - TRACK-VEHICULAR
 - PATH
 - URBAN PARKS
- GRAFTON SECTORS**
- GRAFTON
 - SOUTH GRAFTON
 - DOVEDALE & NORTH MEADOW



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Attachment 4

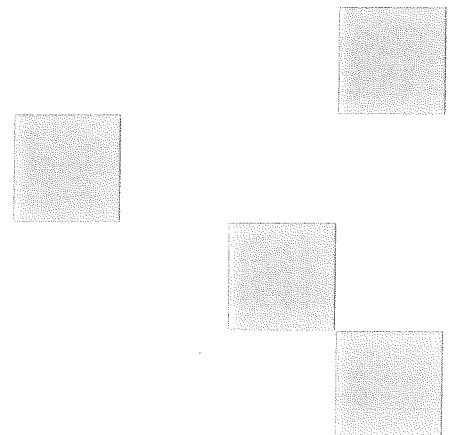


Transport
Roads & Maritime
Services

APPENDIX B8

Construction Flood Management Plan Additional Crossing of the Clarence River at Grafton

JUNE 2016



Document control

File name	CFMP Rev0 240616
Report name	Construction Flood Management Plan Additional Crossing of the Clarence River at Grafton
Revision number	Rev0

Plan approved by:

<i>[signed]</i>	<i>[signed]</i>	<i>[signed]</i>
Name	Name	Name
Fulton Hogan Project Director	Fulton Hogan Environment Manager	RMS representative

Revision history

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0	24/06/16	Draft for RMS and ER review	

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2		
3		
4		
5		

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Glossary / Abbreviations

100-year event	flood	A 100-year flood is the flood that will occur or be exceeded on average once every 100 years. It has 1% probability of occurring in any given year. The same principle applies to other flooding events, such as 10 year, 20-year and 50-year flood events).
AHD		Australian height datum - This is the standard datum that most flood levels are measured from. Its value is equivalent to mean sea level.
ARI		Average Recurrence Interval - The long-term average number of years between the occurrence of a flood larger than the selected event.
BOM		Bureau of Meteorology
CEMP		Construction Environmental Management Plan
CFMP		Construction Flood Management Plan
CoA		Condition of Approval
CVC		Clarence Valley Council
DECC		Department of Environment and Climate Change
DECCW		The Department of Environment, Climate Change and Water
DP&E		Department of Planning & Environment
DPI Water		Department of Primary Industries Water
EIS		Environmental Impact Statement
EEC		Endangered Ecological Community
EPA		Environment Protection Authority
EP&A Act		<i>Environmental Planning and Assessment Act 1979</i>
EPC		Fulton Hogan Emergency Planning Committee
EWMS		Environmental Work Method Statements
LEP		Local Environmental Plan
OEH		Office of Environment and Heritage
PMF		Probable Maximum Flood - The largest flood that could conceivably occur (a worst-case flood event). It is typically estimated from probable maximum precipitation coupled with the worst flood-producing catchment conditions. The PMF extent defines the floodplain and incorporates all flood-prone land. The PMF is a very rare and improbable flood.
Project, the		Additional Crossing of the Clarence River at Grafton
RMS		NSW Roads and Maritime Services
SES		NSW State Emergency Service
SSI		The state significant infrastructure as generally described in Schedule 1 (SSI-6103) of the Infrastructure Approval.

1 Introduction

1.1 Context

This Construction Flood Management Plan (CFMP) forms part of the Construction Environmental Management Plan (CEMP) for the Additional Crossing of the Clarence River at Grafton (the Project).

This CFMP has been prepared to address the requirements of:

- the Minister's conditions of approval for the Project (CoAs)
- the environmental management measures listed in the *Additional Crossing of the Clarence River at Grafton Environmental Impact Statement* (ARUP, August 2014) (EIS) as amended by the *Additional Crossing of the Clarence River at Grafton Submissions Report* (RMS, October 2014) (Submissions Report), and
- all applicable legislation.

1.2 Background

The EIS assessed the impacts of construction and operation of the Project on flooding and hydrology.

As part of the EIS development, a detailed flood and hydrology assessment was prepared to address the Director-General's Requirements for the Project, issued by the Department of Planning and Environment. The flood and hydrology assessments were included in the EIS as Appendix E – *Technical Paper: Flooding and Hydrology Assessment*.

1.3 Structure of this CFMP

This CFMP is part of Fulton Hogan's environmental management framework for the Project, as described in Section 1.3 of the CEMP.

Mitigation measures identified in this CFMP will be incorporated into relevant site or activity specific Environmental Work Method Statements (EWMS). EWMS will be developed and signed off by environment and management representatives prior to the commencement of the associated works. Construction personnel will be required to undertake works in accordance with the mitigation measures identified in the EWMS.

Used together, the CEMP, issue-specific plans, procedures and EWMS form management guides that clearly identify the environmental management actions required to be implemented by Fulton Hogan personnel and contractors.

The review and document control processes for this CFMP are described in Chapters 12 and 13 of the CEMP.

1.4 Consultation for preparation of this CFMP

In accordance with CoA D46(f), this CFMP has been prepared in consultation with a suitably qualified and experienced hydrologist, the NSW Environment Protection Agency (EPA), the NSW State Emergency Service (SES) and Clarence Valley Council.

A summary of consultation undertaken during the preparation of this CFMP is provided in Appendix A2 of the CEMP.

2 Legal and other environmental requirements

2.1 Legislation

Legislation relevant to flooding and hydrology management includes:

- *Environmental Planning and Assessment Act 1979* (EP&A Act)
- *Protection of the Environment Operations Act 1997* (POEO Act)
- *State Emergency and Rescue Management Act 1989* (SERM Act)
- *State Emergency Service Act 1989*
- *Water Management Act 2000* (WM Act)
- *Water Act 1912* (Water Act), and
- Clarence Valley Local Environmental Plan (LEP), 2011.

Relevant provisions of the above legislation are explained in the register of legal and other requirements included in Appendix A1 of the CEMP.

2.2 Guidelines and standards

The main guidelines, specifications and policy documents relevant to this CFMP include:

- RMS Specification D&C G36 – Environmental Protection (Management System) (G36)
- New South Wales State Emergency Management Plan (EMPLAN, December 2012)
- New South Wales State Flood Plan (a sub-plan of EMPLAN) (March 2015)
- New South Wales State Emergency Management Plan – Evacuation Management Guidelines (March 2014)
- New South Wales Flood Prone Land Policy (May 2005)
- Floodplain Development Manual (OEH)
- Floodplain Risk Management Guideline (OEH)
- Australian Rainfall and Runoff (Institution of Engineers, Australia)
- Grafton and Lower Clarence Floodplain Risk Management Plan (CVC, 2007)
- Lower Clarence River Flood Study (PWD, 1986), and
- Clarence Valley Local Flood Plan (SES, 2012).

2.3 Minister's Conditions of Approval

The CoAs relevant to this CFMP are listed in Table 2-1. A cross reference is also included to indicate where the condition is addressed in this CFMP or other project/ environmental management documents.

Table 2-1 Conditions of Approval relevant to this CFMP

ID	Condition requirement	Document reference
CoA D26	The proposed Grafton and South Grafton levee flood mitigation measures shall be implemented prior to construction commencing in the Clarence River, including pier/pile construction and the installation of temporary in-river rock platforms, unless otherwise agreed by the Secretary.	Section 4.1
Construction Environmental Management Plan		
CoA D46(f)	As part of the Construction Environment Management Plan for the SSI, the Proponent shall prepare and implement a Construction Flood Management Plan to detail how construction impacts on hydrology and flooding from works on the flood levee and within the Clarence River and its floodplain will be minimised and managed and that any significant adverse impacts to people and property are avoided. The Plan shall be prepared in consultation with a suitably qualified and experienced hydrologist, EPA, SES and Council, and shall include, but not necessarily be limited to:	This CFMP Chapter 5 Section 1.4
	(i) an assessment of the probabilities and consequences of flood damages and personnel safety over the likely construction period including for possible extensions to this period;	Section 4.1 Appendix A3 of CEMP
	(ii) details of works and activities, including structures within the Clarence River, which may be impacted by a flood during construction and associated risks;	Section 4.1
	(iii) details of measures to ensure work sites and plant and equipment are secure during flooding events and do not become flood debris or impact on property and the environment;	Section 5.3
	(iv) management measures and procedures that would be implemented prior to a flooding event, including timeframes for securing work sites and moving plant and equipment,	Section 5.2
	(v) consideration of the flood management objectives described in condition D23(b) (i.e. flood level (height), duration, velocity and direction, and flood evacuation at affected properties);	Section 4.1 <i>Hydrological Mitigation Report (CoA D23)</i> to be provided separately to this CFMP.
	(vi) monitoring of the work sites during flood events; and	Section 6.1
	(vii) mechanisms for the monitoring, review and amendment of this Plan.	Section 7

2.4 Environmental management measures

Relevant revised environmental management measures (EMMs) from the Submissions Report are listed in Table 2-2. This includes the timing of when the EMM applies, and a cross reference as to where the measure is addressed in this CFMP or other project/ environmental management documents.

Table 2-2 Environmental management measures relevant to this CFMP

ID	Environmental management measure	Timing	Document reference
EMM FH1	Flood monitoring and response measures will be included as part of the CEMP. These measures will include protocols to monitor the forecast of large rainfall and flood events in the project area	Pre-construction	Section 5 <i>Community Communication Strategy (CoA C1)</i> to be provided

ID	Environmental management measure	Timing	Document reference
	<p>and protocols to minimise the risk of damage to infrastructure and equipment during a large flood or rainfall event and will include but not limited to:</p> <ul style="list-style-type: none"> • Methods of monitoring rising water and where possible, notification from upstream; • A register of all materials stored in work areas within the banks of the Clarence River and within the levee system; • Methods and responsibilities for removal of all materials safely from work areas during a flood event; and • Notification and consultation with relevant stakeholders. 		separately to this CFMP.
EMM FH2	NSW State Emergency Services will be notified of any partial or total road closures during construction.	Pre-construction	<i>Community Communication Strategy (CoA C1)</i> to be provided separately to this CFMP.
EMM FH3	Roads and Maritime will consult with affected landowners during detailed design and construction regarding flooding impacts on properties, residences and other structures.	Pre-construction	<i>Community Communication Strategy (CoA C1)</i> to be provided separately to this CFMP.
EMM FH4	Detailed flood modelling will be carried out to further refine the levee raising mitigation measures proposed for the project and to further consider the need to raise any house not protected by the existing levee which would be affected by increased flood levels within the river.	Pre-construction of bridge	<i>Hydrological Mitigation Report (CoA D23)</i> to be provided separately to this CFMP.
EMM FH5	<p>Property specific flood risk will be assessed for each property identified as being affected by residual impact from the project, based on the results of the floor level survey.</p> <p>Flood mitigation options will be developed and implemented in consultation with property owners and Clarence Valley Council.</p>	Pre-construction of bridge	<i>Hydrological Mitigation Report (CoA D23)</i> to be provided separately to this CFMP.
EMM FH6	Flood mitigation works will be staged to ensure no worsening of the existing flood regimes during construction.	Pre-construction of bridge	Section 4.1

3 Existing environment

This chapter describes the existing flood regime within the Project area, based on the information contained in Section 8 and Appendix E of the EIS.

3.1 Existing flood regime

The Clarence River is a major coastal river with lower floodplain areas subject to frequent and extensive flood inundation. The river catchment covers about 20,000 km² upstream of Grafton. During times of major flooding, a floodplain of about 500 km² downstream of Grafton may also become inundated.

The flooding behaviour of the lower Clarence River is dominated by runoff generated in the large catchment area upstream of Grafton. The upstream catchment typically contributes 80 to 90% of the total volume of floodwater that enters the lower floodplains during main river flood events. Clarence River floods typically occur from low rainfall intensity events that last several days, or even weeks.

Minor tributaries within the lower floodplain of the Clarence River also have the potential to cause flooding issues.

3.2 Flood levels in Grafton and South Grafton

Grafton and South Grafton have a long history of flooding. The towns are protected by a ring levee system as shown in Figure 5-1. The existing levee system provides flood immunity for around a 20-year average recurrence interval (ARI) event, that is, there is around 5% chance that the levee may be overtopped in any given year. Overtopping begins when flood levels are at, or close to, 8 m on the Prince Street gauge (refer Figure 5-1). After the levee overtops, large areas of Grafton and South Grafton are inundated by floodwater.

North Grafton at around 8m, South Grafton a little later, around 8.1m

Peak flood levels and depths for the Clarence River at Grafton are presented in Table 3-1 and Table 3-2 respectively. The tables show that significant overtopping of the levee system occurs during floods above the 20-year ARI.

Flood protection is also provided by natural high ground and the embankments for the railway and Pacific Highway.

Table 3-1 Existing peak flood levels

Flood Event ARI	Peak Flood Levels (m AHD)				
	Prince Street gauge	Existing Grafton bridge	Grafton: Alummy Creek near North Street	South Grafton: intersection of Abbott Street and Vere Street	
20-year	7.95	7.60	No flooding	No flooding	
50-year	8.27	7.90	6.40	3.83	
100-year	8.35	7.96	7.05	5.86	
Probable Maximum Flood (PMF)	9.78	9.29	9.27	10.01	

Why these locations chosen? I think there could be some better locations chosen. Like Bent/Ryan & Prince/Pound)

Where are they lat/long?

ps. upon further reading i understand these are gauge locations on map.

Table 3-2 depths could easily be incorporated into this table with ground heights. No essential but that would be my preference.

Table 3-2 Existing peak flood depths

Flood Event ARI	Grafton: Alamy Creek near North Street	South Grafton: intersection of Abbott Street and Vere Street
20-year	No flooding	No flooding
50-year	1.8 m	0.66 m
100-year	2.45 m	2.68 m
Probable Maximum Flood (PMF)	4.66 m	6.63 m

3.3 Flood extents

The extents of inundation for the 20, 50 and 100-year ARI flood events and the probable maximum floods (PMF) in Grafton and South Grafton are shown in Figure 3-2 .

The figure indicates that flooding is a significant issue as:

- under a 100 year ARI flood, most of the land inside the levee system would be inundated; and **I think the word "under" could be confusing, suggest it be changed.**
- under the PMF (the worst-case scenario), the entire township of Grafton would be inundated. **not covered in Figure 3-2**

Due to these factors, flooding poses a significant risk to the residents in Grafton and lower lying areas in South Grafton. Inundation of individual properties may result in damage to buildings and belongings. Local businesses would also be impacted due to a loss of trade and income, and damage to property and goods.

3.4 Emergency response and evacuation

The NSW State Emergency Services (SES) has developed a flood evacuation plan for Grafton, documented in the *Clarence Valley Council Local Flood Plan* (SES, 2012). The flood plan defines the following information:

- evacuation sectors;
- evacuation trigger levels, defining sector-specific evacuation actions relating to a range of flood levels at Prince Street gauge;
- vulnerable community groups requiring special consideration or help during an evacuation;
- evacuation routes; and
- evacuation centres;

The plan defines three main evacuation routes out of Grafton (Figure 5-1): **Should be 3-1**

- two routes to the north, to Junction Hill; and **This is not the strategy - should be revised to South**
- one route across the existing Grafton bridge to South Grafton.

During a large flood, overtopping of the Grafton levee system results in ponding in the floodplain between Grafton and **Junction Hill**, cutting off the evacuation routes to the north. When this occurs, the efficiency of flood evacuation within Grafton is constrained as the only flood-free route available for evacuation is via the existing Grafton bridge to South Grafton. Therefore, the efficiency of flood evacuation in Grafton is largely constrained by traffic movement across the existing bridge.

3.5 Floodplain risk management plan

The *Grafton and Lower Clarence Floodplain Risk Management Plan* (CVC, 2007) recognises the flood risk to Grafton and South Grafton and identifies mitigation work that focuses on the

maintenance and augmentation of the levee system. The Plan notes that any work to increase the levee height has the potential to increase inundation to areas not protected by the levees.

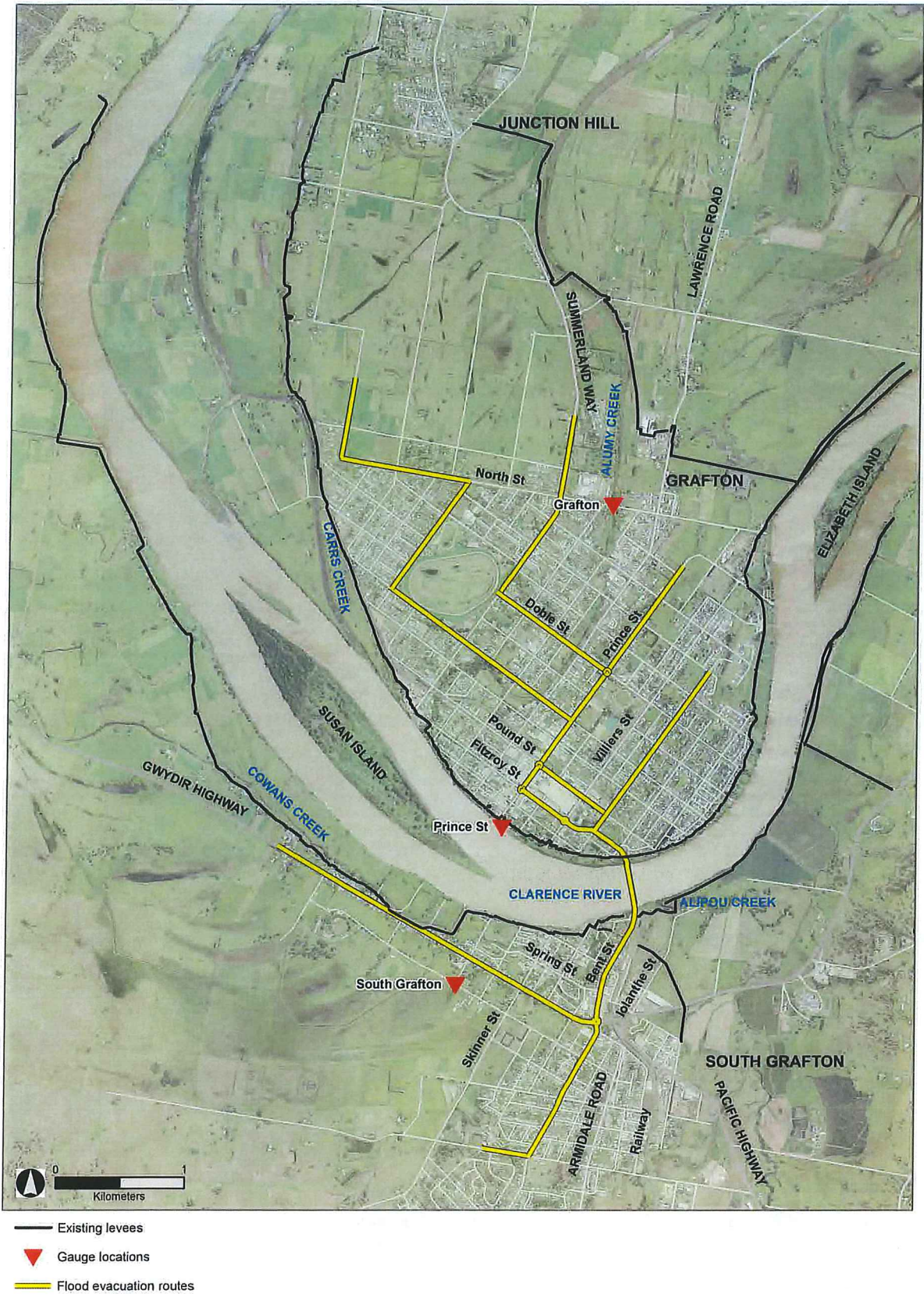


Figure 3-1 Existing levee system and flood evacuation routes

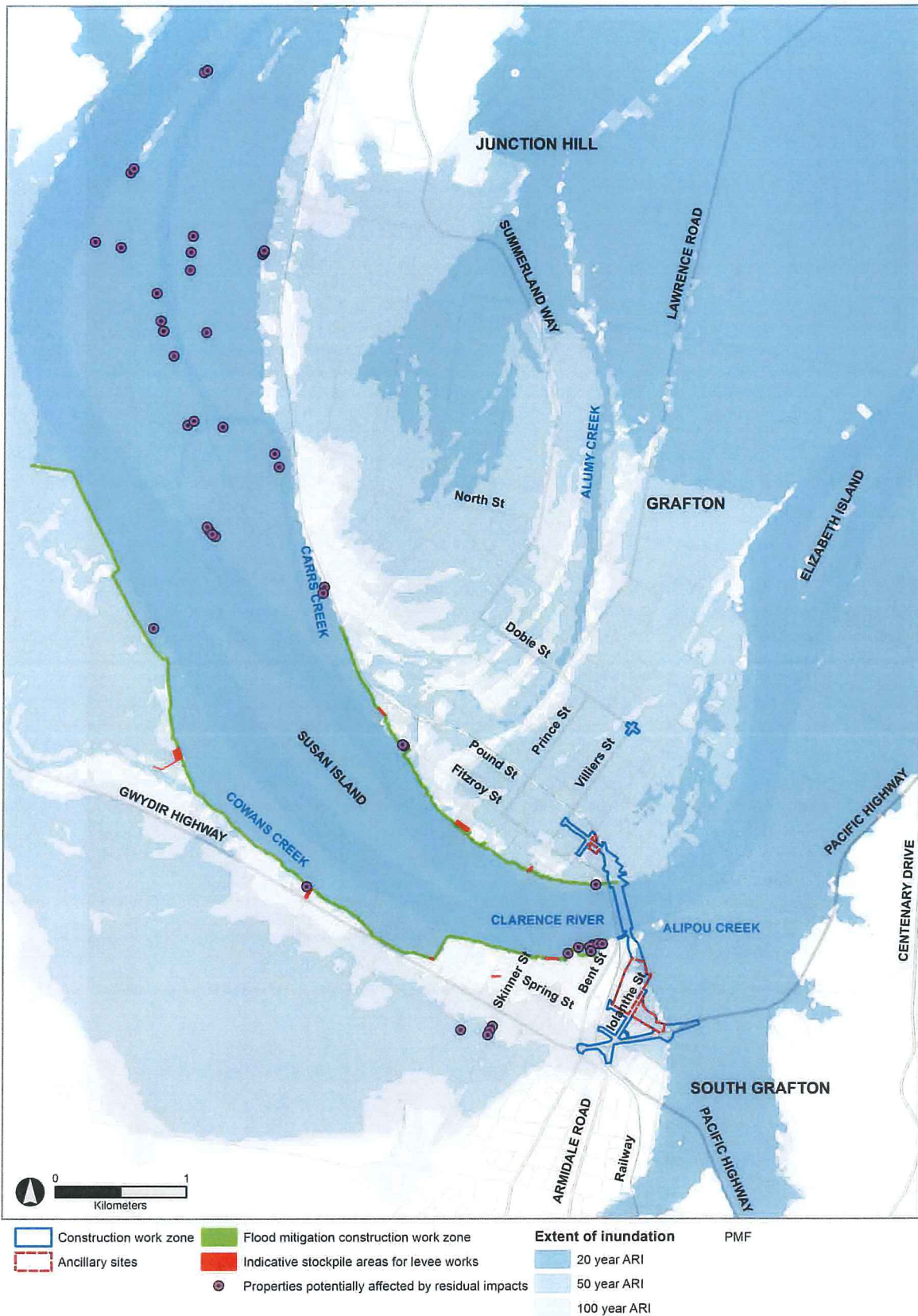


Figure 3-2 Approximate extents of inundation without the Project

4 Environmental aspects and impacts

4.1 Construction activities

Flood mitigation works will be implemented to ensure no worsening of the existing flood regimes during construction. Key aspects of the Project that could result in flooding and hydrology impacts include:

- bulk earthworks and stockpiling of materials
- placement of construction ancillary facilities within the 20 year ARI flood plain, and
- bridge construction, including construction of embankments, bridge piers and temporary structures, such as barges.

The key construction activities and the associated potential impacts to flooding and hydrology were identified through a risk management approach. The consequence and likelihood of each activity's impact on the environment was assessed to prioritise its significance. The results of this risk assessment are included in Appendix A3 of the CEMP.

4.2 Project flooding and hydrology impacts

4.2.1 Potential impacts of flooding on the Project

Flood events above the 20-year ARI flood event have the potential to impact construction ancillary facilities and construction work zones and to disrupt construction activities. Flooding may also increase the risk of soil erosion and sedimentation.

With the exception of a small portion of the South Grafton ancillary facility site and construction work zone, all ancillary facilities and construction work zones for the bridge and approaches would be protected by the existing levee system in a 20-year flood event.

In Grafton, there is potential for the construction work zone near the Pound Street rail viaduct to flood. There is an existing low point in this area which normally drains to the river during a local rainfall event. When the Clarence River is in flood the raised river level prevents local storm water from draining to the river and water can pond across Pound Street.

4.2.2 Potential impacts of construction on the Project flood regime

Construction activities within the levee system and outside the levee system would have a negligible impact on the existing flood regime. Activities outside the levee system would include project preliminaries and site establishment activities such as property acquisition and adjustments, detailed surveys, site establishment work, fencing and signage, and installation of environmental controls.

Due to the extensive length of the Grafton and South Grafton levees, slight changes in flood level within the Clarence River (even as little as one centimetre) have the potential to alter the volume of water overtopping the levee. The introduction of additional structures on the floodplain and river such as bridge piers, embankments and temporary construction structures (such as the proposed jetty for barge launching) would have a progressive and gradual impact on the existing flood regime upstream of the proposed bridge. However, flood modelling shows no impacts are predicted downstream of the proposed bridge as a result of the Project.

4.2.3 Changes to emergency response and evacuation

Key factors that influence how the proposed bridge would impact evacuation operations include:

- **Evacuation route contingency:** As shown in Figure 5-1, evacuation routes currently converge within the business district of Grafton.

- **Evacuation route flood immunity:** An evacuation route is compromised if it is inundated by flood water. Grafton is affected by flooding in flood events greater than the 20-year ARI event. Due to this local flood behaviour, where possible, the elevation of flood evacuation routes should be greater than surrounding land and avoid traversing drainage depressions which may prematurely compromise the evacuation route.
- **Provision of services:** Flooding within the Lower Clarence Valley can last for prolonged periods (several days to weeks). Due to this flood behaviour, it is important that evacuated residents have access to services and shelter following evacuation from Grafton. South Grafton represents the primary place large enough to provide for these needs.
- **Vulnerable community groups:** SES resourcing needs to accommodate for vulnerable community groups that may require special consideration and/or assistance during an evacuation.

Construction activities would not have a significant impact on existing evacuation routes. The SES would be notified in advance of any partial or total road closures during construction.

5 Environmental mitigation measures

Specific mitigation measures to address impacts on hydrology and minimise flooding impacts are outlined in Table 5-1 and throughout this Chapter.

Table 5-1 Flooding and hydrology mitigation measures

ID	Environmental Mitigation Measure	Timing		Responsibility
		PC ¹	C ²	
CFMM1.	Ensure all site personnel, including sub-contractors and visitors, attend the Project induction and familiarise themselves with emergency response procedures.		✓	Foreman Project / Site Engineer
CFMM2.	Locate stockpiles in accordance with the <i>Stockpile management protocol</i> included in Annexure E of the CSWQMP so as to minimise loss of material in flood or rainfall events.		✓	Foreman Project / Site Engineer
CFMM3.	Monitor the Bureau of Meteorology (BoM) Flood Warning Service daily to determine whether rainfall in the catchment is predicted to cause elevated river levels at construction work zones or ancillary facilities.		✓	Foreman Project / Site Engineer
CFMM4.	Notify NSW State Emergency Services of any partial or total road closures which may arise during construction.		✓	Construction Manager
CFMM5.	Implement flood mitigation works to ensure no worsening of the existing flood regimes during construction.		✓	Construction Manager
CFMM6.	Where feasible, do not undertake works in the Clarence River during periods of predicted high rainfall.		✓	Foreman Project / Site Engineer Superintendent
CFMM7.	Maintain a register of all hazardous materials stored in work areas within the banks of the Clarence River and levee system.		✓	Foreman Project / Site Engineer
CFMM8.	Store chemicals, fuel and lubricants in suitably located and bunded areas with an impermeable floor to minimise the impact of any spillage or contamination. The bunded area must be able to contain 120% of the volume of the largest single stored volume within the bund.		✓	Foreman Project / Site Engineer
CFMM9.	In the event of an impending flood event, convene the Project's Emergency Planning Committee (EPC) and commence implementing the recommended actions stipulated in Section 5.2 and Section 5.5 of this CFMP.		✓	Project Director
CFMM10.	A site evacuation notice may be issued by the EPC following the receipt of sufficient and reliable information from the Flood Warning Services, emergency services or on-site rainfall intensity monitoring. In the event of an evacuation, the process described in Section 5.3.2 is to be followed.		✓	EPC

¹ PC means pre-construction

² C means construction

5.1 Monitor flood warning services

The BoM Flood Warning Service Program, whose primary function is the provision of an effective flood forecasting and warning service, will be consulted daily to ascertain if any flood warnings have been issued. This service is provided in co-operation with other government agencies such as State emergency management agencies, water authorities and local Councils, coordinated through Flood Warning Consultative Committees and established cooperative working arrangements in each State/Territory.

In each State, Flood Warnings, Watches and River Height Bulletins are available via some or all of the following:

- Local Response Organisations: these include the Council, Police, and State Emergency Service in the local area
- Bureau of Meteorology: Flood Warnings, Flood Watches and general information are available directly from the Bureau of Meteorology, including:
 - On the web at: www.bom.gov.au/australia/warnings;
 - Through the Telephone weather warnings service. Flood Warnings and Flood Watches in most States are available on the Bureau of Meteorology's recorded message service, 1300 659 218 (charges apply), and
- Radio: Radio stations, particularly local ABC and local commercial stations broadcast flood warning information as part of their new bulletins, or whenever practicable.

Monitoring of the BoM Flood Warning Service is to continue prior to and during a flooding event.

5.2 Measures to be implemented prior to a flooding event

Apart from flash floods, most other floods allow some warning and preparation time. Being prepared for a flood emergency will help manage the risk and reduce potential loss of life and damage to construction works, equipment, property and the environment. Preventing panic during the emergency can be mitigated through proper education, notification and communication of information to enable well informed decisions to be made and executed during the emergency.

[How can the EPC link to the LEMC/SES?](#)

Prior to a flooding event, the Project's Emergency Planning Committee (EPC) will be mobilised to co-ordinate the preparation of the site, communicate and notify site personnel and emergency services and potentially evacuate the site if deemed necessary. The personnel comprising the EPC are identified in Table 5-2.

Table 5-2 Emergency Planning Committee Members

EPC Member	Discipline : Focus Area
Project Director	All disciplines : Entire site
Construction Manager	Construction : Entire Site
Superintendent	Plant, equipment & materials : Entire site
Safety Representative	Site personnel : Entire site
Environmental Officer	Environment : Entire site

5.2.1 Preparation of the site

Are these "Flood Warning" actions, or "Flood Watch" actions? I think this plan needs to clarify these two terms.

Ancillary facilities will be situated predominantly outside the 20-year ARI flood extent as indicated in Figure 3-2. To prepare the site for a flood emergency the following should be considered, as a minimum:

- Inform all site staff well in advance of a predicted flood event and confirm flood emergency procedures
- Ensure no materials are stockpiled in areas of concentrated overland flow
- Where feasible, hazardous materials are to be removed from site in anticipation of a flood event. Where this is not feasible, all efforts should be made to raise the storage container above the 20-year ARI and ensure the storage container is secured
- All plant and equipment, including earthworks plant and cranes, is to be moved and parked in areas outside the 20-year ARI flood extent (as shown in Figure 3-2), or higher depending on information from the Flood Warning Service, and encircled with a wall of sandbags
- Silt curtains or other in-river environmental controls are to be removed to a location outside the 20-yr ARI
- If feasible, in-river work platforms, such as jetty platforms, are to be removed from the river and stored outside the 20-y ARI; alternatively in-river work platforms must be secured to avoid causing damage to property
- Barges are to be secured
- Back-up all computer files and network information off-site
- Store sandbags on site to place at site office doors and equipment shed doors to impede the ingress of floodwaters into the buildings; when a flood is predicted to exceed the 20-year ARI, and
- Store geofabric (or similar) to place around material stockpiles that cannot be located outside of the 20-year ARI flood extent, to prevent erosion and loss of material.

It is anticipated that there will be permanent staff as well as sub-contractors and visitors on site during construction. All site personnel (permanent staff, sub-contractors and visitors) will be briefed on emergency procedures in their project induction and periodically during toolbox talks to ensure they are prepared for a flood event. Should evacuation of the site be ordered, it is essential site personnel on site are familiar with the evacuation procedure and routes described in this CFMP.

does that mean an SES order?

5.3 Measures to be implemented during a flooding event

The SES is the designated Agency for dealing with floods and is responsible for coordinating the evacuation and welfare of affected communities (SES Act 1989; EMPLAN, 2012). In response to a flood event, SES will operate a 24 hours a day, 7 days a week "Operations Centre" to manage the Emergency Assistance telephone number (132 500) and co-ordinate their activities.

During a flood, BoM Flood Warning Service will continue to be monitored as well as the rainfall intensity being experienced on the project site.

5.3.1 Protect and Secure

During a flood the following actions are advised if they were unable to be carried out/completed prior to a predicted flood event:

- Secure all items in ancillary facilities that may become hazardous and cause damage if moved by flood water
- Ensure all utilities (e.g. gas, electricity water) connected to the site office have been put to the OFF position and main valves closed
- Observe any in-river barges or work platforms to ensure they are effectively secured/tethered

items that have been secured/tethered have washed away many times, what method will be used for tethering to ensure this does not happen?

- Relocate chemicals that react with water to give off heat or form explosive or toxic gases and poisons to the highest level. Include any substances that could contaminate flood waters, and
- Tie down timber, drums and other loose, buoyant items to prevent them from being carried away by flood water or battered against other items or structures.

5.3.2 Evacuate

This follows the receipt of sufficient and reliable information from the Flood Warning Services, emergency services or on-site rainfall intensity monitoring, which prompts a decision to evacuate. The evacuation process to be followed is outlined in Figure 5-1 and is explained in more detail thereafter.

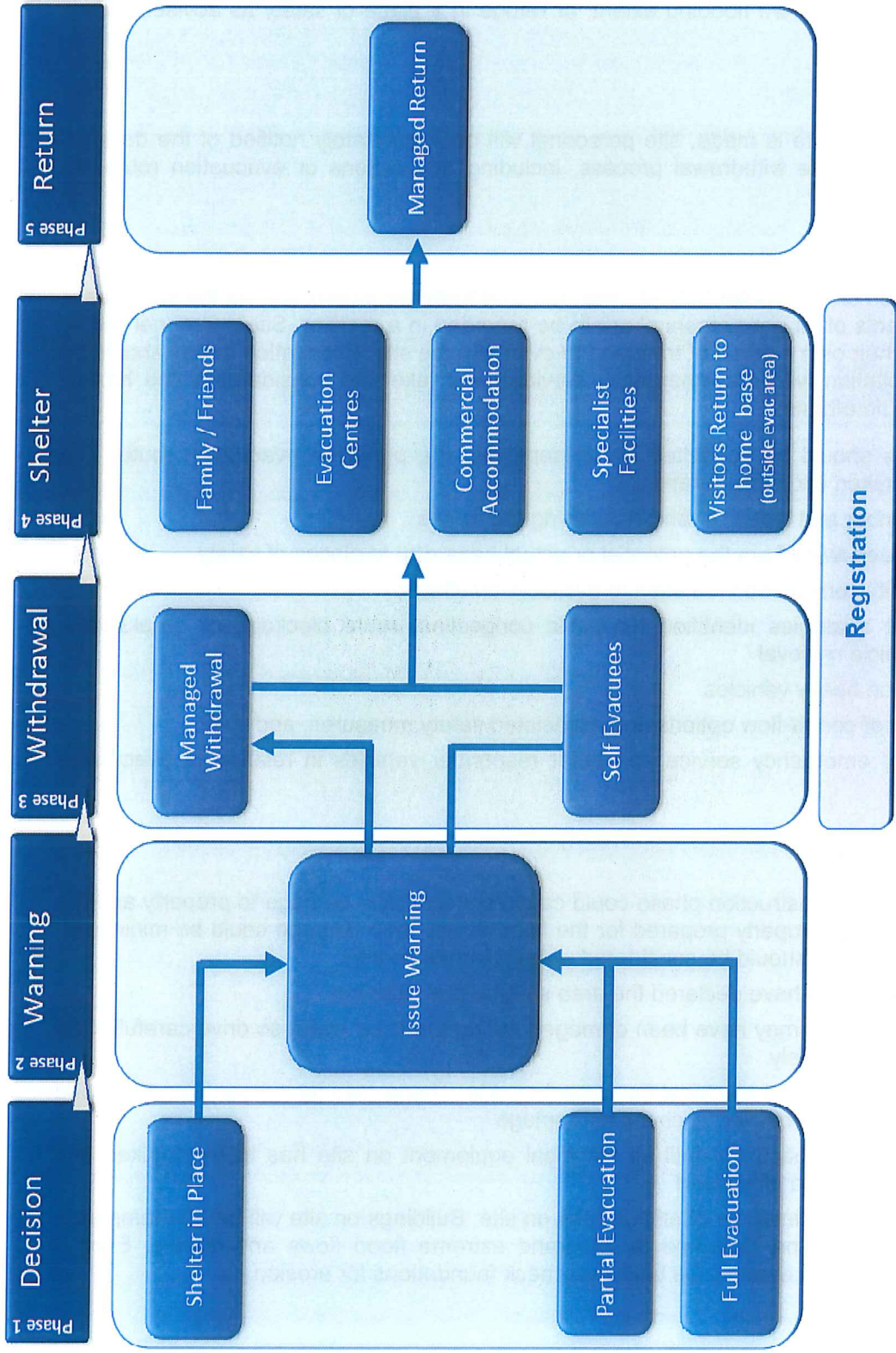


Figure 5-1 The evacuation process
 (Source: NSW State Emergency Management Plan - Evacuation Management Guidelines, March 2014)

5.3.2.1 The Decision

The decision by the EPC to advise or direct people to evacuate should be considered whenever there is a potential need to move people to a safer place. The decision process of the EPC should take into consideration where an evacuation has already been instigated, whether by an emergency service, members of the public or site personnel self-evacuating. During a flood event, the site office will serve as an emergency assembly area where workers will gather before an evacuation order is issued. The site office is protected by the levee.

If insufficient time is available for a full evacuation, secondary strategies may need to be considered such as a partial evacuation (safety of personnel is paramount), refuge in South Grafton above the 100-year ARI flooding extent, or refuge in a place of safety as advised by the emergency services.

5.3.2.2 Warning

Once a decision to evacuate is made, site personnel will be immediately notified of the decision and provided advice on the withdrawal process, including any actions or evacuation routes to follow.

5.3.2.3 Withdrawal

Withdrawal is to be an orderly, potentially phased, removal from the project site via the site access points. The movements of all site personnel are to be recorded in a register. Site personnel will be encouraged to use their own method of transport to evacuate the site. Evacuation routes should be developed in consultation with the emergency services and take into consideration the hazard threat and available timeframes.

Emergency services should be consulted when identifying the preferred evacuation route. The following should be taken into consideration:

- Potential number and types of vehicles utilising the routes
- Direct evacuees away from the potential or actual hazard(s) to places of safety
- Route capacity considered in relation to available timeframe
- Management strategies identified for traffic congestion, route blockage or breakdowns including vehicle removal
- Restrictions on heavy vehicles
- Identification of contra-flow options and associated safety measures, and
- Movement of emergency service and other responder vehicles in relation to evacuation route(s).

5.4 Flood recovery

A flood event during the construction phase could cause considerable damage to property and the environment. If the site is properly prepared for the flood event, then damage could be minimised. The following list of actions should be considered when returning to site:

- Wait until authorities have declared the area safe before entering
- Access roads to site may have been damaged during the flood event so drive carefully and approach the site safely
- Check power boxes and electrical equipment on site. These may have been inundated and require a qualified electrician to check for damage
- Do not turn power back on until all electrical equipment on site has been checked and certified by a qualified electrician
- Check the structural integrity of all buildings on site. Buildings on site will be of a temporary nature so may not be designed to withstand extreme flood flows and depths. Even if floodwaters have not entered the buildings check foundations for erosion

- Check to see if any equipment has been moved by flood waters and relocate equipment back to a safe position/location
- Check material stockpiles for erosion and losses
- Check water and waste water systems on site. Water systems may need to be flushed or repaired following the flood event. Clean up any ponded water around site to prevent the spread of waterborne disease
- Prepare an incident report on the flood event. Include information on how the site was evacuated and document the resulting flood depths and damage to the site, and
- EPC to re-open site only when it is deemed safe to continue work.

Only once the flood has receded and the site has been re-opened should in-river environmental controls, equipment or platforms be re-established.

5.5 Communication and notification

Timely and accurate warning information is vital during emergencies and is integral to minimising panic and ensuring suitable actions can be taken to minimise risk to life and property.

When heavy rainfall is being experienced and throughout the implementation of this CFMP, communication with, and monitoring of the organisations stipulated in Table 5-3 must be undertaken continuously.

Table 5-3 Relevant contacts in relation to flood emergency

Organisation Contact	Number	Website
State Emergency Services (SES)	132 500	www.ses.nsw.gov.au
Bureau of Meteorology (BOM)	1300 659 218	www.bom.gov.au/nsw/warnings
Clarence Valley Council	(02) 6643 0200	www.clarence.nsw.gov.au
NSW Police (Grafton)	(02) 6642 0222	www.police.nsw.gov.au
NSW Fire and Rescue (Grafton)	(02) 6643 3491	www.fire.nsw.gov.au
Fulton Hogan Project Director: (Name)		
Fulton Hogan Construction Manager: (Name)		
Fulton Hogan Superintendent: (Name)		

Communication and the distribution of information to site personnel leading up to, and throughout a flood event, must be implemented. Following any decision to evacuate, site personnel and emergencies services must be notified of the following:

- The decision to evacuate;
- Type of evacuation (full, partial or shelter in place);
- The stages of withdrawal (if applicable);
- Evacuation routes and any heavy or oversized equipment to be removed from site; and
- Location of any potential hazardous materials and how these have been secured or protected.

6 Compliance management

6.1 Roles and responsibilities

The Fulton Hogan Project Team's organisational structure and overall roles and responsibilities are outlined in Section 4.1 of the CEMP. Specific responsibilities for the implementation of environmental management measures are detailed in Chapter 7 of this CFMP.

6.2 Training

All employees, contractors and utility staff working on site will undergo site induction training relating to flooding and hydrology management issues. The induction training will address elements related to flood management including:

- the existence and requirements of this CFMP;
- relevant legislation;
- roles and responsibilities associated with this CFMP;
- flood management measures, before and during a flood event;
- flood monitoring requirements, and
- specific responsibilities for the protection of construction works and facilities during flooding.

Further details regarding staff induction and training are outlined in Chapter 5 of the CEMP.

6.3 Monitoring and inspections

General requirements and responsibilities in relation to monitoring and inspections are documented in Section 8.2 of the CEMP. Monitoring of weather conditions and flood warning services is outlined in Section 7.1.

6.4 Non-conformances

Non-conformances will be dealt with and documented in accordance with Section 11.1 of the CEMP.

6.5 Complaints

Complaints will be recorded and addressed in accordance with Section 6.3 of the CEMP and the Community Communication Strategy (CCS).

6.6 Auditing

Audits (both internal and external) will be undertaken to assess the effectiveness of environmental controls, compliance with this CFMP, CoA for the Project and other relevant approvals, licenses and guidelines.

Audit requirements are detailed in Chapter 10 of the CEMP.

6.7 Reporting

Reporting requirements and responsibilities are documented in Chapter 11 of the CEMP.

7 Review and improvement of CFMP

This CFMP will be reviewed annually to ensure compliance with legislative requirements and its suitability and effectiveness for the Project.

The review may be in the form of:

- a formal management review
- a second party audit, and/or
- an inclusion as a separate item at a site meeting.

The Environmental Manager may review and update the CFMP more regularly where:

- significant changes in construction activities occur
- where targets are not being achieved, or
- in response to audits and non-conformity reports.

Any revisions to the CFMP will be in accordance with the process outlined in Section 1.7 of the CEMP.

CFMP

Environment Protection Authority

Byrne, Rebekah

From: Craig Dunk <Craig.Dunk@epa.nsw.gov.au>
Sent: Wednesday, 31 August 2016 3:52 PM
To: Byrne, Rebekah
Subject: RE: CFMP Rev5 – in response to your comments

Hi Rebekah,

I have reviewed the response to comments provided by the EPA and have no further comments at this time.

Regards

Craig Dunk

Coordinator Pacific Highway Upgrade Team – North Coast Region

North Branch, NSW Environment Protection Authority

+61 2 6640 2514 +61 427 237 154

craig.dunk@epa.nsw.gov.au www.epa.nsw.gov.au [info@EPA_NSW](mailto:info@epa.nsw.gov.au)

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From: Byrne, Rebekah [mailto:Rebekah.Byrne@fultonhogan.com.au]

Sent: Wednesday, 31 August 2016 3:47 PM

To: Craig Dunk <Craig.Dunk@epa.nsw.gov.au>

Subject: CFMP Rev5 – in response to your comments

Hi Craig,

I hope you are well. In regard to the correspondence below, could you please confirm whether Revision 5 of the CFMP satisfactorily addresses your comments?

I know we have been sending you a number of emails, so thought I'd better check in to make sure this one has not been accidentally missed.

Kind regards,

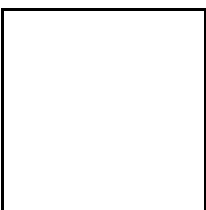
Rebekah Byrne | Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road
Alexandria NSW 2015 | PO Box 6099 Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

From: Nikka Marcial on iTWOcx/FH_CRB [mailto:FH_CRB@au.itwocx.com]

Sent: Monday, 29 August 2016 9:01 AM

To: Byrne, Rebekah <Rebekah.Byrne@fultonhogan.com.au>

Subject: GEN#0014: CFMP Rev5 – in response to your comments [K3.1.1#4A8F54.4CB5EA]



Hi Rebekah,
[Nikka Marcial](#) has issued you this [General Correspondence](#).
Reply to this email to post a comment on the document or click the respond button for more options.
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Respond

PROJECT NO FH_CRB

PROJECT Additional Crossing of the Clarence River at Grafton

COMPANY Fulton Hogan

PHONE 02 8346 9400

FAX 02 8346 9444

REF [GEN#0014](#)

General Correspondence

STATUS **OPEN**

ISSUED 29-August-16 09:00 AM

DUE 19-September-16 08:55 AM

AUTHOR

Nikka Marcial

COMPANY

Fulton Hogan

COLLABORATORS ACTION

[Craig Dunk](#)

[EPA - Environmental Protection Agency](#)

INFO

CONTACT

stuart murphy

EPA - Environmental Protection Agency

Brendon Johnson

Fulton Hogan

Irina Kliger

Fulton Hogan

Rebekah Byrne

Fulton Hogan

Simon Williams

Geolink

Gregory Nash

Roads and Maritime Services of NSW

Jason Sheehan

Roads and Maritime Services of NSW

John O'Donnell

Roads and Maritime Services of NSW

Scott Lawrence

Roads and Maritime Services of NSW

CFMP Rev5 – in response to your comments

Comment

Hi Craig,

Thank you for your comments with respect to Revision 3 of the Construction Flood Management Plan (CFMP). In response, please find attached:

- 1) Revision 5 of the CFMP with all changes shown in 'track changes'
- 2) Annexure B *Probabilities and consequences of flood damages and personnel safety*
- 3) Annexure C *Grafton Sector Response Strategy*
- 4) Fulton Hogan responses to your comments (within the pdf document file name '*App A2 Stakeholder and agency CEMP consultation - for CFMP only 290816*')

Annexure A is already included within the CFMP Word document.

Following review, could you please confirm whether Revision 5 of the CFMP satisfactorily addresses your comments.

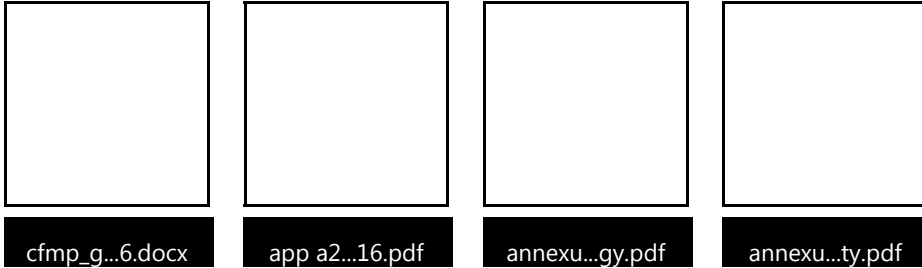
Regards,

Rebekah Byrne – Environment Advisor – NSW Construction – Fulton Hogan – Level 3, 90 Bourke Road
Alexandria NSW 2015 – PO Box 6099 Alexandria NSW 2015 – Phone +61 2 8346 9400 – Fax +61 2 8346 9444

Sent by:

Nikka Amiel Marcial | Fulton Hogan | Level 3, 90 Bourke Road, Alexandria, NSW, 2015 | P.O. Box 6099, Alexandria, NSW, 2015, Australia | Nikka.Marcial@fultonhogan.com.au |

ATTACHMENTS



Attached file: [34345417_ANNEXURE B PROBABILITIES AND CONSEQUENCES OF FLOOD DAMAGES AND PERSONNEL SAFETY.PDF\(152k\)](#)
[34345417_ANNEXURE C GRAFTON SECTOR RESPONSE STRATEGY.PDF\(244k\)](#)
[34345417_APP A2 STAKEHOLDER AND AGENCY CEMP CONSULTATION - FOR CFMP ONLY 290816.PDF\(243k\)](#)
[34345417_CFMP_GRAFTON_REV5 290816.DOCX\(6.7Mb\)](#)

[Download all attachments in one zip](#)

COMMENTS

Nikka Marcial (FH-NM)

OPEN

29-August-16 09:00 AM

CFMP Rev5 – in response to your comments Issued to EPA

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Byrne, Rebekah

From: Craig Dunk on iTWOcx/FH_CRB <FH_CRB@au.itwocx.com>
Sent: Thursday, 25 August 2016 10:07 AM
To: Byrne, Rebekah
Subject: TX#0157: CFMP Rev3 - for your review and comment [K3.1.1#49DAAD.4E6ECA]



Hi Rebekah,
[Craig Dunk](#) has issued you this [Transmittal](#).
Reply to this email to post a comment on the document or click the respond button for more options.
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Respond

PROJECT NO FH_CRB

PROJECT Additional Crossing of the Clarence River at Grafton

COMPANY Fulton Hogan

PHONE 02 8346 9400

FAX 02 8346 9444

REF [TX#0157](#)

Transmittal

STATUS **CLOSED**

ISSUED 17-August-16 11:19 AM

DUE

AUTHOR	COMPANY	PHONE	MOBILE
Nikka Marcial	Fulton Hogan	02 8346 9400	

COLLABORATORS ACTION

Craig Dunk	EPA - Environmental Protection Agency		0427 237 154
David Morrison	Clarence Valley Council		0408 296 365
Michael Stubbs	NSW State Emergency Service	02 6641 6903	0413 385 949
Michael Young	Department of Planning	02 9228 6437	
Themis Prodromakis	Arcadis/App	02 8907 9000	
Toong Chin	Office of Environment and Heritage- Alstonville	(02) 6627 0233	
INFO			
Brendan Keane	Roads and Maritime Services of NSW	1800 633 332	0450 692 719
Brendon Johnson	Fulton Hogan	02 8346 9400	+61 404 486 348
Gregory Nash	Roads and Maritime Services of NSW	1800 633 332	0412 254 640
Irina Kliger	Fulton Hogan	02 8346 9400	0488 264 613
Jason Sheehan	Roads and Maritime Services of NSW	1800 633 332	0422 003 460

John O'Donnell	Roads and Maritime Services of NSW	1800 633 332	0401 474 615
Kieran McAndrew	Clarence Valley Council	P: (02) 6640 3526	
Peter Felsch	Roads and Maritime Services of NSW	0435 168 081	
Rebekah Byrne	Fulton Hogan	02 8346 9400	
Scott Lawrence	Roads and Maritime Services of NSW	1800 633 332	0419 248 583
Simon Williams	Geolink		
Stella Wilson	Arcadis/App	02 8907 9000	0418 770 380
stuart murphy	EPA - Environmental Protection Agency		

CFMP Rev3 - for your review and comment

SENT FOR REV:Review

Hi Craig, David, Kieran, Michael S, Michael Y, Themis,

Re: Additional Crossing of the Clarence River at Grafton

Please find attached Revision 3 of the Construction Flood Management Plan (CFMP) for your review and comment.

For those of you who are not aware, Fulton Hogan and RMS met with SES (Michael Stubbs) and CVC (Kieran McAndrew) about the CFMP on 21/07/16 . CVC and SES came back with some comments of which have now been addressed in Revision 3. We wanted to make sure that the CFMP was consistent with the overall planned response strategies for Grafton before sending it out for wider comment.

Please provide your comments by 31 August 2016.

Hi Michael S, Kieran – We acknowledge that you have already seen the CFMP on more than one occasion, so if you have no comments we would appreciate it if you could send a quick email to say the same.

Should you have any queries, please do not hesitate to contact me.

Regards,

Rebekah Byrne Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road Alexandria NSW
2015 | PO Box 6099 Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

Sent by:

Nikka Amiel Marcial | **Fulton Hogan** | Level 3, 90 Bourke Road, Alexandria, NSW, 2015 | P.O. Box 6099, Alexandria, NSW,
2015, Australia | Nikka.Marcial@fultonhogan.com.au |

ATTACHMENTS



Attached file:

- 18-August-16 [33845010_~WRD000.jpg\(823b\)](#)
- 18-August-16 [33845010_DPE Comments 2016 08 18 - Appendix B8 CFMP.docx\(23k\)](#)
- 25-August-16 [34180810_~WRD000.jpg\(823b\)](#)
- 25-August-16 [34180810_EPA comments_CFMP B8 _Flood Mgt Plan_20160825.doc\(57k\)](#)

[Download all attachments in one zip](#)

FILE	NAME	REV	DATE	DESCRIPTION	FMT	STATUS
1	 754-CRB-CFMP	3	17-August-16	Title: Construction Flood Management Plan File: CFMP_Grafton_Rev3 120816.docx	DOCX	REV 6.7Mb

Status Legend: 100% - Final Design, 15% - Developed Concept Design, 85% - Substantial Detailed Design, APR - Approved, CERT - Certification, IFC - Issued for Construction, INF - Information, P-IFC - Pre-Issued for Construction, REV - Review

COMMENTS

Craig Dunk (EPA-CD)

CLOSED

25-August-16 10:06 AM

Hi Nikka/Rebekah,

The EPA appreciates the opportunity to review and provide comments on the Construction Flood Management Plan for the Grafton Bridge project.

Please see the comments attached in the EPA comments sheet.

Regards

Craig Dunk

Coordinator Pacific Highway Upgrade Team – North Coast Region

North Branch, NSW Environment Protection Authority

+61 2 6640 2514 +61 427 237 154

craig.dunk@epa.nsw.gov.au www.epa.nsw.gov.au  [@EPA_NSW](#)

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Attached file: [34180810_~WRD000.jpg\(823b\)](#)

Attached file: [34180810_EPA comments_CFMP B8 _Flood Mgt Plan_20160825.doc\(57k\)](#)

Michael Young (DPE-MY)

CLOSED

18-August-16 02:49 PM

Hi Nikka

I have attached the Department's comments on the Construction Flood Management Plan. Please call me should you wish to discuss.

Regards

Michael

Attached file: [33845010_~WRD000.jpg\(823b\)](#)

Attached file: [33845010_DPE Comments 2016 08 18 - Appendix B8 CFMP.docx\(23k\)](#)

Nikka Marcial (FH-NM)

17-August-16 01:54 PM

General revisions.

Michael Stubbs (SES-MS)

CLOSED

17-August-16 12:30 PM

SES comfortable with Evacuation Details contained within CFMP Rev3. Only comment reporting of flood modelling 50yr,100yr PMF heights slightly diferent to heights shown in SES Flood Safe Gudies. Very minor anomaly will not affect warning notifications.

Nikka Marcial (FH-NM)

CLOSED

17-August-16 11:19 AM

Transmittal Issued

ENVIRONMENT PROTECTION AUTHORITY - COMMENT SHEET

Project:	Grafton Bridge		
Document title:	CEMP – Appendix B8 – Construction Flood Management Plan		
Revision No.:	Revision 3, 25 July 2016.		
Reviewer name:	Craig Dunk	Review date:	25 August 2016

Thankyou for the opportunity to comment on the Grafton Bridge Construction Noise and Vibration Management Plan (CNVMP). The EPA has reviewed the CNVMP and has comments in the table below:

Reference	EPA Comments	Client Response
Section 7.1.2 Preparation of the site. Dot point 3.	The EPA notes the statement “Where feasible, hazardous materials are to be removed from the site...” The EPA strongly encourages Fulton Hogan to revisit the approach to the storage and management of hazardous materials, and to set up any storage facility in the flood plain so that it can easily be relocated to a suitable site above the predicted flood.	
Section 7.1.2 Preparation of the site. Dot point 3.	The EPA notes the proposal to secure barges by setting an additional anchor... The EPA suggests that the management of barges be reviewed and that a series of actions be established with additional measures being taken for each potential increase in flood height, for example a predicted low flood level may trigger an additional anchor, moderate flood level may trigger movement of the barge to the inside bend of the river and major flooding may trigger relocation of the barge to an alternative location downstream of Grafton. These actions should be discussed with the master in charge of these vessels and should consider the amount and type of debris that is transported during flood events.	

Appendix A – Grafton sector Response Strategy.	The EPA notes that the Grafton sector Response Strategy was not attached at Appendix A.	
General Comment	The EPA highlights the importance of having a documented processes which detail how stockpiled materials and containers holding fuels, chemicals and sewage will be managed during a flood event. The current flood management plan is very general and provides broad direction. Prior to locating any of the above materials on any site associated with the project consideration should be given to not only the flood height but also potential velocities and impacts on debris that may be transported by the flood.	

CFMP
Hydrologist

Aurecon Australasia Pty Ltd
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Brisbane QLD 4000
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Australia

T +61 7 3173 8000
F +61 7 3173 8001
E brisbane@aurecongroup.com
W aurecongroup.com

The Aurecon logo features a small green square above the letter 'a' in the word 'aurecon', which is written in a bold, lowercase, sans-serif font.

24 August 2016

Rebekah Byrne
Environment Advisor – NSW Construction
Fulton Hogan
PO Box 6099
Alexandria NSW 2015

Dear Rebekah

CFMP Consultation

As per your request, the Construction Flood Management Plan (Rev4) for the Additional Crossing of the Clarence River at Grafton Project has been reviewed with respect to the flooding aspects of the plan. In general, the document provides a reasonable management plan in the event that a flood occurs. Comments were provided to further strengthen the document in some areas.

My qualifications in regards to this matter are:

- Bachelor of Environmental Engineering (BEngEnv)
- Master of Emergency Management (MEmergMgt)
- 15 years experience in flood modelling and flood emergency management
- Chartered Professional Engineer (CPEng)
- National Professional Engineering Register (NPER)
- Registered Professional Engineer Queensland (RPEQ)

Yours faithfully

A handwritten signature in black ink, appearing to read 'Talia Guest', written in a cursive style.

Talia Guest
Associate, Infrastructure Services

Byrne, Rebekah

From: Byrne, Rebekah
Sent: Tuesday, 23 August 2016 12:52 PM
To: 'Yannick.Michel@aurecongroup.com'
Cc: Santos, Roger; Johnson, Brendon
Subject: CFMP Rev4 - for your review and comment
Attachments: CFMP_Grafton_Rev4 230816.docx; Annexure B Probabilities and consequences of flood damages and personnel safety.pdf; Annexure C Grafton Sector Response Strategy.pdf

Hi Yannick,

Please find attached CFMP Revision 4, including Annexures B and C. Annexure A is contained within the CFMP Word document.

Our responses to your comments are below in red.

Please advise whether your comments have been satisfactorily addressed.

Regards,

Rebekah Byrne | Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road
Alexandria NSW 2015 | PO Box 6099 Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

From: Yannick Michel [<mailto:Yannick.Michel@aurecongroup.com>]
Sent: Tuesday, 23 August 2016 8:08 AM
To: Santos, Roger <Roger.Santos@fultonhogan.com.au>
Cc: Johnson, Brendon <Brendon.Johnson@fultonhogan.com.au>; Byrne, Rebekah <Rebekah.Byrne@fultonhogan.com.au>; Ken O'Neill <Ken.ONeill@aurecongroup.com>; Grafton Bridge <GraftonBridge@fultonhogan.com.au>; Marcial, Nikka <Nikka.Marcial@fultonhogan.com.au>
Subject: RE: CFMP Rev3 - Qualified hydrologist

Hi Roger,

Our verifier (Talia Guest) has reviewed the CFMP and has made the below comments as part of her review. These comments are not major but would further strengthen the document and put FH in a better position, given the sensitive nature of flooding in that region. As professional engineers in this field it would not be in-line with our obligations as industry experts to not make these comments.

These comments have been provided to FH to review and respond as they see necessary, given their understanding of the context. With an understanding of how FH plan to respond we can finalise the letter of consultation.

- The document focuses mainly on the 20 year ARI event. I understand that this is the event that the levee is designed to and therefore deserves due consideration, however I do not feel that enough consideration of the 100yr ARI event has been made. **The EIS states that floods above the 20-year ARI flood event have the potential to impact construction ancillary sites and construction work zones and to disrupt construction activities (ARUP 2014, Pg 162). Therefore the significance of impact for the Project focuses on this particular flood event and greater. Nevertheless, the triggering for flood preparations in the CFMP are dependent on the issuing of a “flood watch” or “flood warning” by SES (Section 7.2.1). These notifications (flood watch and flood warning) could be issued for any flood event which threatens the region, including a 100-yr flood event. It's worth noting that should a flood event threaten the site, that the actions listed in 7.2.2 and 7.3.1 would have been implemented.**
- Has any flood modelling of interim construction stages occurred? It would be worth considering the impacts of any construction stages which create constrictions to flow or are significantly different to the final design stage. This is the typical approach I would take for this type of project. If modelling isn't being undertaken this could be covered off by a general discussion of likely impacts of certain stages. **The impacts of flooding on**

the construction site (and vice versa) have been considered and reported in the EIS, and are briefly summarised in Section 5.

- Section 5: This section, and the document in general, would be strengthened by consideration of likely warning times in the system. Are there typical warning times between rainfall in certain parts of the catchment and flooding at Grafton? Yes, SES has provided observational/anecdotal timeframes which have been included in Revision 4 of the Plan Section 7.2.1 (runoff in the upper catchments takes approximate 3-4 days before flood impacts in Grafton are experienced). What are the typical travel times between gauges? FH doesn't believe this is applicable. Are there any upstream gauges that are a good indicator of whether the Grafton area will flood? FH will be monitoring flood warning systems that are maintained and monitored by the appropriate emergency authority (SES and Clarence Valley Council). This type of information would give more weight to the planned actions in a flood event and whether or not these are feasible in the likely timeframes. As SES and CVC are the designated emergency authorities responsible for flood response, FH believes it is more appropriate (and cause less confusion) to monitor the systems these authorities have in place rather than establish a separate independent system.
- Section 7.2.2.3: I am not comfortable with the proposed method of developing evacuation routes once an evacuation is planned. I think the number of tasks to be carried out and the timeframes in which to do so will limit the ability of this planning to occur and some consideration of this should be made now. I would prefer to see a basic plan, with comments that it is to be reviewed in light of the actual event. Flood evacuation routes are identified in Figure 5-1, the need to create alternative flood evacuation routes as described in Section 7.3.2.3 would only be necessary if the evacuation routes in Figure 5-1 were compromised. CFMP Revision 4 reflects this.
- Minor point - Section 7.3: Who is able to check structural integrity of buildings? This should be limited to someone with a suitable skillset. Similar comments apply to all the dot points in this section. A suitably qualified professional would check the structural integrity of buildings. 5th dot point under Section 7.4 now reads 'Check the structural integrity of all buildings on site by a suitably qualified professional.' Other dot points that relate to electrical equipment already state that a qualified electrician would carry out this work.

Yannick Michel BEnv Eng (Hon)
Senior Drainage Engineer, Aurecon
T +61 2 94655137
Yannick.Michel@aurecongroup.com

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CFMP

Office of Environment and Heritage (Regional
Operations Group – Alstonville)

Byrne, Rebekah

From: KEANE Brendan <Brendan.Keane@rms.nsw.gov.au>
Sent: Friday, 2 September 2016 5:10 PM
To: Byrne, Rebekah
Cc: O'DONNELL John
Subject: Fwd: Fulton Hogan's Flood Management Plan

Rebekah,
Response from OEH is below.

Regards,
Brendan

Sent from my iPad

Begin forwarded message:

From: Toong Chin <Toong.Chin@environment.nsw.gov.au>
Date: 2 September 2016 3:05:16 pm AEST
To: KEANE Brendan <Brendan.Keane@rms.nsw.gov.au>
Cc: Nicholas Denshire <Nicholas.Denshire@environment.nsw.gov.au>
Subject: RE: Fulton Hogan's Flood Management Plan

Hi Brendan

I apologise for the delayed response.

I've reviewed the Construction Flood Risk Management Plan. I found it well written and have no comments to offer.

Regards
Toong CHIN
Senior Team Leader
Water Floodplain & Coast (North East)
Regional Operations Group
Office of Environment & Heritage
PO Box 856 Alstonville NSW 2477
T: (02) 8289 6312
M: 0477 384 261
W: toong.chin@environment.nsw.gov.au

From: KEANE Brendan [<mailto:Brendan.Keane@rms.nsw.gov.au>]
Sent: Tuesday, 30 August 2016 4:28 PM
To: Toong Chin <Toong.Chin@environment.nsw.gov.au>
Subject: Fulton Hogan's Flood Management Plan

Toong,
As discussed can you review this flood management plan please (see attached). A quick turnaround would be appreciated if possible as the 10 day review period has finished. Would you be able to review it and provide comment tomorrow?

Regards,

Brendan Keane
Project Support Engineer
Pacific Highway Office | Infrastructure Delivery
T 02 6604 9363 M 0450 692 719
www.rms.nsw.gov.au
Every journey matters

Roads and Maritime Services
Level 2, 76 Victoria Grafton NSW 2460



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Byrne, Rebekah

From: Nikka Marcial on iTWOcx/FH_CRB <FH_CRB@au.itwocx.com>
Sent: Wednesday, 17 August 2016 11:20 AM
To: Byrne, Rebekah
Subject: TX#0157: CFMP Rev3 - for your review and comment [K3.1.1#49DAAD.475E1B]



Hi Rebekah,
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PROJECT NO FH_CRB

PROJECT Additional Crossing of the Clarence River at Grafton

COMPANY Fulton Hogan

PHONE 02 8346 9400

FAX 02 8346 9444

REF [TX#0157](#)

Transmittal

STATUS **CLOSED**

ISSUED 17-August-16 11:19 AM

DUE

AUTHOR	COMPANY	PHONE	MOBILE
Nikka Marcial	Fulton Hogan	02 8346 9400	

COLLABORATORS ACTION

Craig Dunk	EPA		0427 237 154
David Morrison	Clarence Valley Council		0408 296 365
Michael Stubbs	NSW State Emergency Service	02 6641 6903	0413 385 949
Michael Young	Department of Planning	02 9228 6437	
Themis Prodromakis	Arcadis/App	02 8907 9000	
Toong Chin	Office of Environment and Heritage- Alstonville	(02) 6627 0233	
INFO			
Brendan Keane	Roads and Maritime Services of NSW	1800 633 332	0450 692 719
Brendon Johnson	Fulton Hogan	02 8346 9400	+61 404 486 348
Gregory Nash	Roads and Maritime Services of NSW	1800 633 332	0412 254 640
Irina Kliger	Fulton Hogan	02 8346 9400	0488 264 613
Jason Sheehan	Roads and Maritime Services of NSW	1800 633 332	0422 003 460

John O'Donnell	Roads and Maritime Services of NSW	1800 633 332	0401 474 615
Kieran McAndrew	Clarence Valley Council	P: (02) 6640 3526	
Peter Felsch	Roads and Maritime Services of NSW	0435 168 081	
Rebekah Byrne	Fulton Hogan	02 8346 9400	
Scott Lawrence	Roads and Maritime Services of NSW	1800 633 332	0419 248 583
Simon Williams	Geolink		
Stella Wilson	Arcadis/App	02 8907 9000	0418 770 380
stuart murphy	EPA		

CFMP Rev3 - for your review and comment

SENT FOR REV:Review

Hi Craig, David, Kieran, Michael S, Michael Y, Themis,

Re: Additional Crossing of the Clarence River at Grafton

Please find attached Revision 3 of the Construction Flood Management Plan (CFMP) for your review and comment.

For those of you who are not aware, Fulton Hogan and RMS met with SES (Michael Stubbs) and CVC (Kieran McAndrew) about the CFMP on 21/07/16 . CVC and SES came back with some comments of which have now been addressed in Revision 3. We wanted to make sure that the CFMP was consistent with the overall planned response strategies for Grafton before sending it out for wider comment.

Please provide your comments by 31 August 2016.

Hi Michael S, Kieran – We acknowledge that you have already seen the CFMP on more than one occasion, so if you have no comments we would appreciate it if you could send a quick email to say the same.


Should you have any queries, please do not hesitate to contact me.

Regards,

Rebekah Byrne | Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road Alexandria NSW
2015 | PO Box 6099 Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

Sent by:

Nikka Amiel Marcial | **Fulton Hogan** | Level 3, 90 Bourke Road, Alexandria, NSW, 2015 | P.O. Box 6099, Alexandria, NSW,
2015, Australia | Nikka.Marcial@fultonhogan.com.au |

FILE	NAME	REV	DATE	DESCRIPTION	FMT	STATUS
1	 CFMP_GRAFTON_REV3 120816	-	17-August-16	No title provided. File: CFMP_Grafton_Rev3 120816.docx	DOCX	REV 6.7Mb

Status Legend: 100% - Final Design, 15% - Developed Concept Design, 85% - Substantial Detailed Design, APR - Approved, CERT - Certification, IFC - Issued for Construction, INF - Information, P-IFC - Pre-Issued for Construction, REV - Review

COMMENTS

Nikka Marcial (FH-NM)

CLOSED

17-August-16 11:19 AM

Transmittal Issued

CWEMP

Environment Protection Authority

Byrne, Rebekah

From: Craig Dunk <Craig.Dunk@epa.nsw.gov.au>
Sent: Friday, 19 August 2016 8:46 AM
To: Byrne, Rebekah
Subject: RE: CWEMP Rev3 - Request to confirm comments addressed

Hi Rebekah,

The EPA notes the response provided to comments regarding revision 3 of the CWEMP and has no further comments.

Regards

Craig Dunk

Coordinator Pacific Highway Upgrade Team – North Coast Region

North Branch, NSW Environment Protection Authority

+61 2 6640 2514 +61 427 237 154

craig.dunk@epa.nsw.gov.au www.epa.nsw.gov.au [info@EPA_NSW](mailto:info@epa.nsw.gov.au)

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From: Byrne, Rebekah [mailto:Rebekah.Byrne@fultonhogan.com.au]
Sent: Thursday, 18 August 2016 2:22 PM
To: David Morrison (David.Morrison@clarence.nsw.gov.au) <David.Morrison@clarence.nsw.gov.au>; Craig Dunk <Craig.Dunk@epa.nsw.gov.au>
Subject: CWEMP Rev3 - Request to confirm comments addressed

Hi Dave, Craig,

Thanks for coming to the Grafton ERG today. As discussed with Michael, could you please confirm that Revision 3 of the CWEMP satisfactorily addresses your comments.

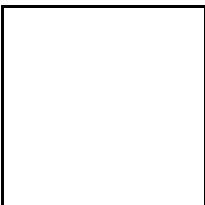
The relevant email and documents are available in the email below sent 15/8.

This is the last step to close the review process for the CWEMP.

Many thanks,

Rebekah Byrne | Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road
Alexandria NSW 2015 | PO Box 6099 Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

From: Nikka Marcial on iTWOcx/FH_CRB [mailto:FH_CRB@au.itwocx.com]
Sent: Monday, 15 August 2016 10:08 AM
To: Byrne, Rebekah <Rebekah.Byrne@fultonhogan.com.au>
Subject: TX#0156: CWEMP Rev3 – in response to your comments [K3.1.1#499C6D.469CB9]



Hi Rebekah,

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PROJECT NO FH_CRB

PROJECT Additional Crossing of the Clarence River at Grafton

COMPANY Fulton Hogan

Transmittal

ISSUED 15-August-16 10:07 AM

	AUTHOR	COMPANY	PHONE
	Nikka Marcial	Fulton Hogan	02 834
COLLABORATORS	ACTION		PHONE
	Craig Dunk	EPA	
	David Morrison	Clarence Valley Council	
	Themis Prodromakis	Arcadis/App	02 890
	INFO	COMPANY	PHONE
	Brendon Johnson	Fulton Hogan	02 834
	Gregory Nash	Roads and Maritime Services of NSW	1800 6
	Irina Kliger	Fulton Hogan	02 834
	Jason Sheehan	Roads and Maritime Services of NSW	1800 6
	John O'Donnell	Roads and Maritime Services of NSW	1800 6
	Rebekah Byrne	Fulton Hogan	02 834
	Scott Lawrence	Roads and Maritime Services of NSW	1800 6
	Simon Williams	Geolink	
	Stella Wilson	Arcadis/App	02 890
	stuart murphy	EPA	

CWEMP Rev3 – in response to your comments

SENT FOR REV:Review

Hi Craig, David,

Thank you for your constructive comments with respect to Revision 2 of the Construction Waste and Energy Management Plan (CWEMP).

- 1) Revision 3 of the CWEMP with 'track changes', and
- 2) Fulton Hogan's responses to your comments.

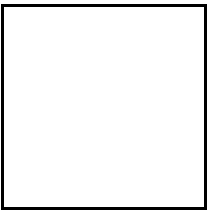
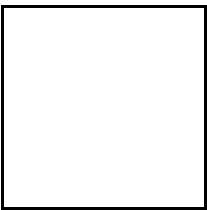
Following review, could you please confirm whether Revision 3 of the CWEMP satisfactorily addresses your comments.

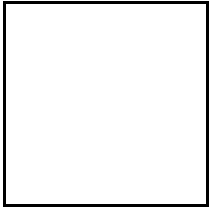
Regards,

Rebekah Byrne | Environment Advisor – NSW Construction | Fulton Hogan | Level 3, 90 Bourke Road Alexandria NSW 2015 | P.O. Box 6099, Alexandria, NSW, 2015
Fax +61 2 8346 9444

Sent By;

Nikka Amiel Marcial | Fulton Hogan | Level 3, 90 Bourke Road, Alexandria, NSW, 2015 | P.O. Box 6099, Alexandria, NSW, 2015, Australia

FILE	NAME	REV	D
1	 ANNEXURE C - GRAFTON REGIONAL LANDFILL REQUIREMENTS FOR THE ACCEPTANCE OF ASBESTOS	-	15-
2	 CWEMP_GRAFTON_REV3 150816	-	15-



Status Legend: 100% - Final Design, 15% - Developed Concept Design, 85% - Substantial Detailed Design, APR - Approved, CERT - Certified

COMMENTS

Nikka Marcial (FH-NM)

15-August-16 10:07 AM

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Byrne, Rebekah

From: Craig Dunk <Craig.Dunk@epa.nsw.gov.au>
Sent: Wednesday, 10 August 2016 11:27 AM
To: Byrne, Rebekah; Michael.Young@planning.nsw.gov.au; David Morrison (David.Morrison@clarence.nsw.gov.au)
Cc: fh_crb@au.itwocx.com; john.o'donnell@rms.nsw.gov.au; NASH Gregory D; Johnson, Brendon; Kliger, Irina; SHEEHAN Jason L; Stuart Murphy
Subject: RE: TRIM: Grafton Bridge: CWEMP Rev2 - for your review and comment
Attachments: EPA comments_CEMP B7 _Waste and Energy Mgt Plan_20160810.doc

Hi Rebekah,

The EPA appreciates the opportunity to review the Construction Waste and Energy Management Plan (CWEMP) prepared by Fulton Hogan for the Grafton bridge project.

The EPA acknowledges the mitigation measures included in the plan to manage potential air quality impacts and provides comments on the CWEMP in the attached comment table.

Regards

Craig Dunk

Coordinator Pacific Highway Upgrade Team – North Coast Region

North Branch, NSW Environment Protection Authority

+61 2 6640 2514 +61 427 237 154

craig.dunk@epa.nsw.gov.au www.epa.nsw.gov.au [@EPA NSW](#)

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From: Byrne, Rebekah [mailto:Rebekah.Byrne@fultonhogan.com.au]
Sent: Wednesday, 3 August 2016 10:48 AM
To: Craig Dunk <Craig.Dunk@epa.nsw.gov.au>; Michael Young (DPE-DIPNR) <Michael.Young@planning.nsw.gov.au>; David Morrison (David.Morrison@clarence.nsw.gov.au) <David.Morrison@clarence.nsw.gov.au>
Cc: fh_crb@au.itwocx.com; john.o'donnell@rms.nsw.gov.au; NASH Gregory D <Gregory.NASH@rms.nsw.gov.au>; Johnson, Brendon <Brendon.Johnson@fultonhogan.com.au>; Kliger, Irina <Irina.Kliger@fultonhogan.com.au>; SHEEHAN Jason L <Jason.L.SHEEHAN@rms.nsw.gov.au>; Stuart Murphy <Stuart.Murphy@epa.nsw.gov.au>
Subject: TRIM: Grafton Bridge: CWEMP Rev2 - for your review and comment

Hi Craig, Michael, David,

Re: Additional Crossing of the Clarence River at Grafton

Please find attached Revision 2 of the Construction Waste and Energy Management Plan (CWEMP) for your review and comment.

All changes to the RMS Template are shown in 'Track Changes'.

Please provide your comments by 17 August 2016.

Should you have any queries, please do not hesitate to contact me.

Regards,

Rebekah Byrne | Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road
Alexandria NSW 2015 | PO Box 6099 Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

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ENVIRONMENT PROTECTION AUTHORITY - COMMENT SHEET

Project:	Grafton Bridge		
Document title:	CEMP – Appendix B7 – Construction Waste and Energy Management Plan		
Revision No.:	Revision 2, 29 July 2016.		
Reviewer name:	Craig Dunk	Review date:	10 August 2016

Thankyou for the opportunity to comment on the Woolgoolga to Ballina Environmental Work Method statement for Temporary Waterway Crossings. The EPA has reviewed the EWMS and has comments in the table below:

Reference	EPA Comments	Client Response
Section 3.1.2 Guidelines and Standards; and Table 6.2	<p>The EPA notes that this section of the document identifies documents relevant to the plan.</p> <p>The EPA highlights that the Mulch exemption and the mulch order 2014 have recently been replaced by “The Mulch order 2016” and “The Mulch exemption 2016” which both came into effect on the 25 July 2016. The EPA suggests checking the EPA website for the most recent versions of exemptions and orders.</p> <p>The EPA also notes that the time for application of raw mulch to land has been defined in the notes to the exemption and now considers that 6 weeks would be the absolute limit in all circumstances.</p>	

CWEMP
Clarence Valley Council

Byrne, Rebekah

From: David Morrison <David.Morrison@clarence.nsw.gov.au>
Sent: Thursday, 18 August 2016 2:32 PM
To: Byrne, Rebekah; Craig Dunk
Subject: RE: CWEMP Rev3 - Request to confirm comments addressed

Thanks Rebekah.

Council is satisfied with Rev 3, in particular in the manner that our comments have been addressed.

Regards

Dave Morrison

David Morrison
Manager Strategic & Economic Planning
Clarence Valley Council
Locked Bag 23, GRAFTON NSW 2460
P: (02) 6643 0204
F: (02) 6642 7647
M: 0408 296 365
www.clarence.nsw.gov.au



From: Byrne, Rebekah [mailto:Rebekah.Byrne@fultonhogan.com.au]
Sent: Thursday, 18 August 2016 2:22 PM
To: David Morrison; Craig Dunk
Subject: CWEMP Rev3 - Request to confirm comments addressed

Hi Dave, Craig,

Thanks for coming to the Grafton ERG today. As discussed with Michael, could you please confirm that Revision 3 of the CWEMP satisfactorily addresses your comments.

The relevant email and documents are available in the email below sent 15/8.

This is the last step to close the review process for the CWEMP.

Many thanks,

Rebekah Byrne | Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road
Alexandria NSW 2015 | PO Box 6099 Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

From: Nikka Marcial on iTWOcx/FH_CRB [mailto:FH_CRB@au.itwocx.com]
Sent: Monday, 15 August 2016 10:08 AM
To: Byrne, Rebekah <Rebekah.Byrne@fultonhogan.com.au>
Subject: TX#0156: CWEMP Rev3 – in response to your comments [K3.1.1#499C6D.469CB9]



Hi Rebekah,

[Nikka Marcial](#) has issued you this [Transmittal](#).

Reply to this email to post a comment on the document or click the respond button for more options.

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PROJECT NO FH_CRB

PROJECT Additional Crossing of the Clarence River at Grafton

COMPANY Fulton Hogan

Transmittal

ST

ISSUED 15-August-16 10:07 AM

AUTHOR	COMPANY	PHONE
Nikka Marcial	Fulton Hogan	02 8346 9400
COLLABORATORS ACTION		PHONE
Craig Dunk	EPA	
David Morrison	Clarence Valley Council	
Themis Prodromakis	Arcadis/App	02 8907 9000
INFO	COMPANY	PHONE
Brendon Johnson	Fulton Hogan	02 8346 9400
Gregory Nash	Roads and Maritime Services of NSW	1800 633 332
Irina Kliger	Fulton Hogan	02 8346 9400
Jason Sheehan	Roads and Maritime Services of NSW	1800 633 332
John O'Donnell	Roads and Maritime Services of NSW	1800 633 332
Rebekah Byrne	Fulton Hogan	02 8346 9400
Scott Lawrence	Roads and Maritime Services of NSW	1800 633 332
Simon Williams	Geolink	
Stella Wilson	Arcadis/App	02 8907 9000
stuart murphy	EPA	

CWEMP Rev3 – in response to your comments

SENT FOR REV:Review

Hi Craig, David,

Thank you for your constructive comments with respect to Revision 2 of the Construction Waste and Energy Management Plan (CWEMP).

- 1) Revision 3 of the CWEMP with 'track changes', and
- 2) Fulton Hogan's responses to your comments.




Following review, could you please confirm whether Revision 3 of the CWEMP satisfactorily addresses your comments.

Regards,

Rebekah Byrne | Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road Alexandria NSW 2015 | P.O. Box 6099, Alexandria, NSW, 2015, Australia | Tel +61 2 8346 9400 | Fax +61 2 8346 9444

Sent By;

Nikka Amiel Marcial | **Fulton Hogan** | Level 3, 90 Bourke Road, Alexandria, NSW, 2015 | P.O. Box 6099, Alexandria, NSW, 2015, Australia

FILE	NAME	REV	DATE
1	 ANNEXURE C - GRAFTON REGIONAL LANDFILL REQUIREMENTS FOR THE ACCEPTANCE OF ASBESTOS	-	15-August-16
2	 CWEMP_GRAFTON_REV3 150816	-	15-August-16
3	 FH RESPONSES TO COMMENTS ON CWEMP REVISION 2	-	15-August-16

Status Legend: 100% - Final Design, 15% - Developed Concept Design, 85% - Substantial Detailed Design, APR - Approved, CERT - Certificate of Environmental Review, P- Information, P-

COMMENTS

Nikka Marcial (FH-NM)

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Byrne, Rebekah

From: David Morrison <David.Morrison@clarencensw.gov.au>
Sent: Friday, 12 August 2016 3:16 PM
To: Byrne, Rebekah
Subject: FW: Grafton Bridge Waste Management Plan
Attachments: Application for the disposal of Asbestos.pdf; Additional Crossing of the Clarence River at Grafton.docx

Hi Rebekah

Please find attached Council's comments on the RMS Construction Waste and Energy Management Plan for the new Grafton Bridge. I have also attached a copy of our criteria for the acceptance of asbestos at the Grafton Landfill that should be included with our comments.

Should you have any further detailed inquiries in regard to these, it would be best to contact :

Ken Wilson
Waste & Sustainability Coordinator
Clarence Valley Council
Locked Bag 23, GRAFTON NSW 2460
P: (02) 6643 0262
F: (02) 6642 7647
M: 0427 257 679
www.clarencensw.gov.au

Hope this helps.

Regards

Dave Morrison

David Morrison
Manager Strategic & Economic Planning
Clarence Valley Council
Locked Bag 23, GRAFTON NSW 2460
P: (02) 6643 0204
F: (02) 6642 7647
M: 0408 296 365
www.clarencensw.gov.au



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Additional Crossing of the Clarence River at Grafton

Appendix B7: Construction Waste & Energy Management Plan

Thank you for the opportunity to comment on the draft waste and energy management plan, it has provided Council with an insight into the quantity and type of waste that is likely to be generated by the project.

Comments:

1. Litter – the draft plan does not make provision for the management of litter. Being a sensitive urban and aquatic site control measures for the prevention of litter and the collection of litter escaping from the site should be incorporated.
2. Energy use (5.2) – The installation of solar electricity generating system at the site depot/office could significantly reduce emissions from electricity & is strongly supported by Council.
3. It is noted at 6.1 that it is unlikely that suitable surplus material will need to be removed from the site as the volume of fill needed is greater than the volume of material excavated.
4. Tyre disposal table 6.1, it should be noted that the EPA has a tracking system for the disposal of tyres known as Waste Locate. Compliance with this system should be included.
5. Mulch Exemption table 6.2, it should be noted that the mulch exemption and mulch order 2014 has been replaced. Current exemption provisions should be applied.
6. Environmental management measures Table 7-1
 - WM2 rubbish bins, Council can arrange for commercial wheeled bin services for residual waste (red lid), recyclable waste (yellow lid) and food/organic waste (green lid) to be provided to the site.
 - WM6 asbestos waste, it should be noted that the Grafton Regional Landfill has strict requirements for the acceptance of asbestos waste. (please refer attached)
 - WM18 demolition waste & CWEMM14, Council encourages the relocation if possible or deconstruction of redundant houses to ensure the greatest reuse of valuable resource is achieved.
 -
7. As a general comment Clarence Valley Council provides a wide range of resource recovery and waste disposal facilities relevant to this project. For the disposal of large quantities or special waste early notification and planning is essential to ensure adequate space resources are available to accept the material.

Procedure - Application for Disposal of Asbestos

Notification of each load for disposal must be lodged with the Grafton Regional Landfill weighbridge no later than 3.00pm on the previous working week day.

Notifications can be lodged by either:

1. Phone: Clarence Waste Solutions on 02 66430 888.
2. Email: cws@clarence.nsw.gov.au

Each application must include the persons name, contact phone number, quantity of waste and expected time of arrival.

WHO NEEDS TO APPLY?

An application for disposal of asbestos, contaminated soil or other special waste must be lodged for all commercial or domestic loads. This also includes state government and Council departments.

HOURS OF ACCEPTANCE FOR DISPOSAL.

Asbestos for disposal will only be completed between the hours of **8.00am & 2.00pm Monday to Friday**. Asbestos disposal will not be permitted on weekends or public holidays.

Asbestos disposal is also subject to weather conditions.

FEES: 2016 / 2017 FINANCIAL YEAR.

Current disposal fees are \$256.00 per tonne for asbestos & \$292.00 per tonne for asbestos pipe. These fees are inclusive of GST and the NSW State Government waste levy. There is a minimum fee of \$20.00 and there is also an after-hours loading of \$35.00 per tonne if disposal needs to be done outside normal acceptance hours.

ASBESTOS HANDLING SAFETY NOTES.

1. Asbestos must be lightly damped down and double wrapped in 200 kg parcels before transporting to the Landfill. The plastic wrapping must not rupture during the disposal process.
2. When wetting down the water spray should be light enough to ensure no fibres dislodge.
3. Appropriate safety equipment should be used during the removal process.
4. Tippers & ro-ro's maximum 4 tonne per load for sheeting. No load limit on soil.

Note 1: Customers with asbestos in an unacceptable condition may be refused entry and the matter referred to Workcover.

Note 2: All asbestos remains the property of the owner until it is deposited in the hole.

WEIGHBRIDGE.

1. Check that time, date and quantity are correct.
2. Enter booking details in weighbridge calendar.
3. Loads will be checked for double bagging & wetting of asbestos.
4. Grafton Regional Landfill does **NOT** provide an unloading service.

NOTE 1: FROM 31/01/2013 ASBESTOS SHEETING MUST BE WRAPPED IN INDIVIDUAL BUNDLES WEIGHING LESS THAN 200KG.

NOTE 2: FROM 31/01/2013 A MAXIMUM LOAD SIZE OF 4 TONNES FOR ASBESTOS SHEETING IN TIPPERS OR RO-RO BINS APPLIES.

NOTE 3: A HI-AB, CRANE OR OTHER LIFTING DEVICE MUST BE USED FOR UNLOADING ASBESTOS PIPE PRODUCTS WITH A DIAMETER GREATER THAN 200MM OR OVER 1.5 METRES IN LENGTH.

CWEMP

Department of Planning and Environment

Byrne, Rebekah

From: Amar.Saini@planning.nsw.gov.au
Sent: Thursday, 11 August 2016 9:41 AM
To: Byrne, Rebekah
Cc: LAWRENCE Scott B; NASH Gregory D; Michael.Young@planning.nsw.gov.au
Subject: RE: Grafton Bridge: CWEMP Rev2 - for your review and comment

Hi Rebekah

The Department notes the “*Error! Reference source not found*” on the following two pages of the Construction Waste and Energy Management Plan:

1. Section 6.2 – last para.
2. Section 8.5 – last para

Please do not hesitate to contact me if you wish to discuss this matter.

Regards,

Amar Saini
Planning Officer
Transport Assessments
Planning Services
NSW Department of Planning and Environment
23-33 Bridge Street, Sydney NSW 2000
GPO Box 39, Sydney NSW 2001
T +61 2 9228 6325
E amar.saini@planning.nsw.gov.au



From: Byrne, Rebekah [mailto:Rebekah.Byrne@fultonhogan.com.au]
Sent: Wednesday, 3 August 2016 10:48 AM
To: Craig Dunk <Craig.Dunk@epa.nsw.gov.au>; Michael Young (DPE-DIPNR) <Michael.Young@planning.nsw.gov.au>; David Morrison (David.Morrison@clarence.nsw.gov.au) <David.Morrison@clarence.nsw.gov.au>
Cc: fh_crb@au.itwocx.com; john.o'donnell@rms.nsw.gov.au; NASH Gregory D <Gregory.NASH@rms.nsw.gov.au>; Johnson, Brendon <Brendon.Johnson@fultonhogan.com.au>; Kliger, Irina <Irina.Kliger@fultonhogan.com.au>; SHEEHAN Jason L <Jason.L.SHEEHAN@rms.nsw.gov.au>; Stuart Murphy <Stuart.Murphy@epa.nsw.gov.au>
Subject: Grafton Bridge: CWEMP Rev2 - for your review and comment

Hi Craig, Michael, David,

Re: Additional Crossing of the Clarence River at Grafton

Please find attached Revision 2 of the Construction Waste and Energy Management Plan (CWEMP) for your review and comment.

All changes to the RMS Template are shown in 'Track Changes'.

Please provide your comments by 17 August 2016.

Should you have any queries, please do not hesitate to contact me.

Regards,

Rebekah Byrne | Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road
Alexandria NSW 2015 | PO Box 6099 Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

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CAQMP

Environment Protection Authority

Byrne, Rebekah

From: Craig Dunk on iTWOcx/FH_CRB <FH_CRB@au.itwocx.com>
Sent: Wednesday, 10 August 2016 9:43 AM
To: Byrne, Rebekah
Subject: EML:FH-MANY#0022: Grafton Bridge: CNVMP Rev2 - for your review and comment [K3.1.1#489039.49D689]



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PROJECT NO FH_CRB

PROJECT Additional Crossing of the Clarence River at Grafton

COMPANY Fulton Hogan Construction

Incoming Email

STA

ISSUED 29-July-16 04:50 PM

AUTHOR

Rebekah Byrne

COMPANY

Fulton Hogan Construction

COLLABORATORS ACTION

[Craig Dunk](#)

EPA

[Michael Young](#)

Department of Planning

[Salar Aga](#)

Fulton Hogan Construction

INFO

Brendon Johnson

Fulton Hogan Construction

C C

Arcadis/App

Gregory Nash

Roads and Maritime Services of NSW

Irina Kliger

Fulton Hogan Construction

Jason Sheehan

Roads and Maritime Services of NSW

John O'Donnell

Roads and Maritime Services of NSW

Scott Lawrence

Roads and Maritime Services of NSW

Simon Williams

Geolink

Grafton Bridge: CNVMP Rev2 - for your review and comment

Email **From:** Byrne, Rebekah[Rebekah.Byrne@fultonhogan.com.au]**Date:** Friday, July 29, 2016 4:50:17 PM**To:** craig.dunk@epa.nsw.gov.au, Michael Irina; john.o'donnell@rms.nsw.gov.au; NASH Gregory D; Johnson, Brendon; LAWRENCE Scott B; Mail Handler; SHEEHAN Jason L; Simon Williams Prodrimakis; Stella.Wilson@arcadis.com**Subject:** Grafton Bridge: CNVMP Rev2 - for your review and comment

Hi Craig, Michael,

Re: Additional Crossing of the Clarence River at Grafton

Revision 2 of the Construction Noise and Vibration Management Plan (CNVMP) is ready for your review and comment. Due to the complexity of the plan, please refer to the following link:<https://app.box.com/s/u163xou724hch2oe9wkfrbovxkq47qte>.

As discussed during the last ERG meeting, all changes to the RMS Template are shown in 'Track Changes'.

Please provide your comments by 12 August 2016.

Should you have any queries, please do not hesitate to contact me.

Regards,

Rebekah Byrne | Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

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ATTACHMENTS



~wrd000.jpg

Attached file:
10-August-16 33372123_~WRD000.jpg(823b)

[Download all attachments in one zip](#)

COMMENTS

Craig Dunk (EPA-CD)
10-August-16 09:42 AM

Hi Rebekah,

The EPA appreciates the opportunity to review the Construction Air Quality Management Plan (CAQMP) prepared by Fulton H

The EPA notes the intention to apply for an EPL for Rail System Activities later in the project and acknowledges the mitigation manage potential air quality impacts.

Regards

Craig Dunk
Coordinator Pacific Highway Upgrade Team – North Coast Region
North Branch, NSW Environment Protection Authority

+61 2 6640 2514 +61 427 237 154

craig.dunk@epa.nsw.gov.au www.epa.nsw.gov.au  @EPA_NSW

Report pollution and environmental incidents 131 555 (NSW only) or +61 2 9995 5555



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Attached file: [33372123_~WRD000.jpg\(823b\)](#)

Salar Aga (FH-SA)

4-August-16 10:22 AM

adding PV to this correspondence.

Rebekah Byrne (FH-RB)

29-July-16 04:50 PM

Initiated: **Grafton Bridge: CNVMP Rev2 - for your review and comment** By email: Rebekah.Byrne@fultonhogan.com.au

LINKED

REF	ACTION	DATE	TITLE
GEN#0003	FH-SA	29-July-16	Hold Point 001 - Commencement of the review period at step 2 to allow regulatory authorities and cou

CAQMP

Department of Planning and Environment

Byrne, Rebekah

From: Amar.Saini@planning.nsw.gov.au
Sent: Thursday, 11 August 2016 9:30 AM
To: Byrne, Rebekah
Cc: LAWRENCE Scott B; NASH Gregory D; Michael.Young@planning.nsw.gov.au
Subject: RE: Grafton Bridge: CAQMP Rev2 - for your review and comment

Hi Rebekah

The Department notes that in Section 6.1.2 – *Demolition Activities*, there is a reference to WorkCover NSW. This reference should be replaced with SafeWork NSW as from 1 September 2015, WorkCover NSW was replaced by three new entities – Insurance and Care NSW (icare), the State Insurance Regulatory Authority (SIRA), and SafeWork NSW.

The Department raises no further comments to the Construction Air Quality Management Plan.

Please do not hesitate to contact me if you wish to discuss this matter.

Regards,

Amar Saini
Planning Officer
Transport Assessments
Planning Services
NSW Department of Planning and Environment
23-33 Bridge Street, Sydney NSW 2000
GPO Box 39, Sydney NSW 2001
T +61 2 9228 6325
E amar.saini@planning.nsw.gov.au



From: Byrne, Rebekah [mailto:Rebekah.Byrne@fultonhogan.com.au]
Sent: Friday, 29 July 2016 12:35 PM
To: David Morrison <David.Morrison@clarence.nsw.gov.au>; Craig Dunk <Craig.Dunk@epa.nsw.gov.au>; Michael Young (DPE-DIPNR) <Michael.Young@planning.nsw.gov.au>
Cc: Kliger, Irina <Irina.Kliger@fultonhogan.com.au>; john.o'donnell@rms.nsw.gov.au; NASH Gregory D <Gregory.NASH@rms.nsw.gov.au>; Johnson, Brendon <Brendon.Johnson@fultonhogan.com.au>; LAWRENCE Scott B <Scott.LAWRENCE@rms.nsw.gov.au>; fh_crb@au.itwocx.com; SHEEHAN Jason L <Jason.L.SHEEHAN@rms.nsw.gov.au>; Simon Williams <SWilliams@geolink.net.au>; Stuart Murphy <Stuart.Murphy@epa.nsw.gov.au>
Subject: Grafton Bridge: CAQMP Rev2 - for your review and comment

Hi David, Craig, Michael,

Re: Additional Crossing of the Clarence River at Grafton

Please find attached Revision 2 of the Construction Air Quality Management Plan (CAQMP) for your review and comment.

As discussed during the last ERG meeting, all changes to the RMS Template are shown in 'Track Changes'.

If you are unsure about how to display tracked changes, click the "Review" tab and then go to the "Tracking" group and select "Final: Show Markup". Should you require any further detail, please refer to the following link:

<https://support.office.com/en-us/article/Show-or-hide-Track-Changes-revision-marks-a4d2241c-a014-4b83-be3b-8dfe8ea23ba7>

Please provide your comments by 12 August 2016.

Regards,

Rebekah Byrne | Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road
Alexandria NSW 2015 | PO Box 6099 Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

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CAQMP
Clarence Valley Council

Byrne, Rebekah

From: David Morrison <David.Morrison@clarence.nsw.gov.au>
Sent: Friday, 12 August 2016 3:19 PM
To: Byrne, Rebekah
Subject: Grafton Bridge - CEMPs - Noise & Vibration, and Air Quality

Rebecca

Council's environmental health staff have reviewed the above CEMPs and have no specific comment. It is assumed that the noise issue would be covered by the Interim Construction Noise Guideline and the Industrial Noise Policy.

Regards

Dave Morrison

David Morrison
Manager Strategic & Economic Planning
Clarence Valley Council
Locked Bag 23, GRAFTON NSW 2460
P: (02) 6643 0204
F: (02) 6642 7647
M: 0408 296 365
www.clarence.nsw.gov.au

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#####

CCLMP

Environment Protection Authority

Byrne, Rebekah

From: Craig Dunk <Craig.Dunk@epa.nsw.gov.au>
Sent: Monday, 5 September 2016 3:34 PM
To: FH_CRB@au.itwocx.com; Byrne, Rebekah
Subject: RE: TRIM: GEN#0009: CCLMP Rev1 - for your review and comment [K3.1.1#4A2F8E.4990F6]

Hi Rebekah,

The EPA appreciates the opportunity to review the Construction Contaminated Land Management Plan (CCLMP). The EPA does not have any comments on the plan at this time.

The EPA looks forward to updates in relation to contamination of the project site as works commence on the project.

Regards

Craig Dunk

Coordinator Pacific Highway Upgrade Team – North Coast Region

North Branch, NSW Environment Protection Authority

+61 2 6640 2514 +61 427 237 154

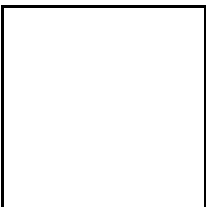
craig.dunk@epa.nsw.gov.au www.epa.nsw.gov.au [@EPA_NSW](#)

Report pollution and environmental incidents 131 555 (NSW only) or +61 2 9995 5555



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From: Nikka Marcial on iTWOcx/FH_CRB [mailto:FH_CRB@au.itwocx.com]
Sent: Monday, 22 August 2016 2:18 PM
To: Craig Dunk <Craig.Dunk@epa.nsw.gov.au>
Subject: TRIM: GEN#0009: CCLMP Rev1 - for your review and comment [K3.1.1#4A2F8E.4990F6]



Hi Craig,

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PROJECT NO FH_CRB

PROJECT Additional Crossing of the Clarence River at Grafton

COMPANY Fulton Hogan

PHONE 02 8346 9400

FAX 02 8346 9444

REF [GEN#0009](#)

General Correspondence

STATUS **OPEN**

ISSUED 22-August-16 02:17 PM

DUE 12-September-16 02:12 PM

AUTHOR

Nikka Marcial

COMPANY

Fulton Hogan

COLLABORATORS ACTION

David Morrison

Clarence Valley Council

Michael Young

Department of Planning

Craig Dunk

EPA - Environmental Protection Agency

INFO

CONTACT

stuart murphy

EPA - Environmental Protection Agency

Brendon Johnson

Fulton Hogan

Irina Kliger

Fulton Hogan

Rebekah Byrne

Fulton Hogan

Simon Williams

Geolink

Gregory Nash

Roads and Maritime Services of NSW

Jason Sheehan

Roads and Maritime Services of NSW

John O'Donnell

Roads and Maritime Services of NSW

Scott Lawrence

Roads and Maritime Services of NSW

CCLMP Rev1 - for your review and comment

Comment

Hi everyone,

Re: Additional Crossing of the Clarence River at Grafton

Please find attached Revision 1 of the Construction Contaminated Land Management Plan (CCLMP) for your review and comment, including:

1. CCLMP Word document with changes shown in 'track changes'
2. Annexure A - Schedule A
3. Annexure B - Figure 1 Ongoing monitoring
4. Annexure D – Areas A-F from the *Contaminated Site Investigation* (October 2015)

Annexure C *Unexpected Discovery of Contaminated Land Procedure* is included within the attached CCLMP Word document. The intention is to delete the *Unexpected Discovery of Contaminated Land Procedure* from the CSWQMP in the next revision, and include it in the CCLMP only to avoid duplication.

If you could please provide your comments by Friday 2 September 2016 that would be much appreciated.

Should you have any queries, please do not hesitate to contact me.

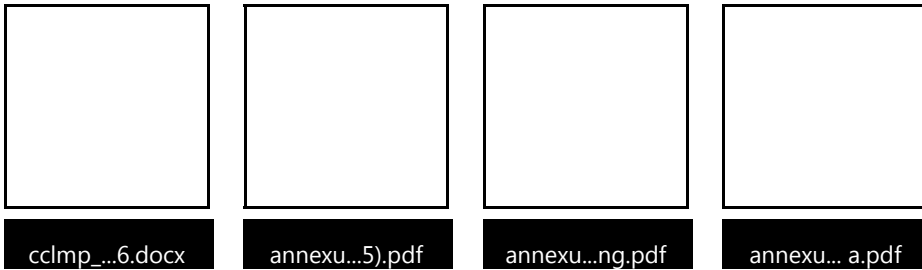
Regards,

Rebekah Byrne | Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road
Alexandria NSW 2015 | PO Box 6099 Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

Sent By:

Nikka Amiel Marcial | **Fulton Hogan** | Level 3, 90 Bourke Road, Alexandria, NSW, 2015 | P.O. Box 6099,
Alexandria, NSW, 2015, Australia | Nikka.Marcial@fultonhogan.com.au |

ATTACHMENTS



Attached file: [33992240_ANNEXURE A - SCHEDULE A.PDF\(276k\)](#)
[33992240_CCLMP_GRAFTON_REV1 220816.DOCX\(300k\)](#)
[33992240_ANNEXURE B - FIGURE 1 ONGOING MONITORING.PDF\(213k\)](#)
[33992240_ANNEXURE D - AREAS A-F FROM THE CONTAMINATED SITE INVESTIGATION \(OCTOBER 2015\).PDF\(815k\)](#)

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COMMENTS

Nikka Marcial (FH-NM)

OPEN

22-August-16 02:17 PM

CCLMP Rev1 - for your review and comment Issued to MANY

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CCLMP

Department of Planning and Environment

Byrne, Rebekah

From: Amar.Saini@planning.nsw.gov.au
Sent: Monday, 29 August 2016 4:00 PM
To: Byrne, Rebekah
Cc: Michael.Young@planning.nsw.gov.au; Glenn.Snow@planning.nsw.gov.au
Subject: FW: GEN#0009: CCLMP Rev1 - for your review and comment [K3.1.1#4A2F8E.4990F5]

Hi Rebekah

On page 6 of the Report, under 5.1 EIS, there seems to be duplication between first and second para.

On page 8 of the Report, there is a mention about the impact of the fill material on the existing Grafton and South Grafton levees. The report however is silent about the proposed 0.2m increase in the levee height along the river and whether these works will impact on contaminated material. It is recommended that the risk associated with increase in levee height along the river and appropriate options to manage and mitigate the impacts on potential contaminated materials should be included in the Report.

The Department raises no further comments to the Construction Contaminated Land Management Plan.

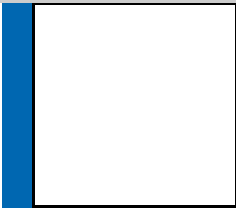
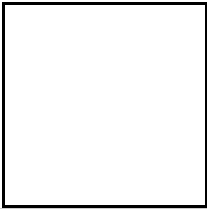
Please do not hesitate to contact me if you wish to discuss this matter.

Regards,

Amar Saini
Planning Officer
Transport Assessments
Planning Services
NSW Department of Planning and Environment
23-33 Bridge Street, Sydney NSW 2000
GPO Box 39, Sydney NSW 2001
T +61 2 9228 6325
E amar.saini@planning.nsw.gov.au



From: Nikka Marcial on iTWOcx/FH_CRB [mailto:FH_CRB@au.itwocx.com]
Sent: Monday, 22 August 2016 2:18 PM
To: Michael Young (DPE-DIPNR) <Michael.Young@planning.nsw.gov.au>
Subject: GEN#0009: CCLMP Rev1 - for your review and comment [K3.1.1#4A2F8E.4990F5]



Hi Michael,
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PROJECT NO FH_CRB

PHONE 02 8346 9400

PROJECT Additional Crossing of the Clarence River at Grafton

FAX 02 8346 9444

COMPANY Fulton Hogan

REF [GEN#0009](#)

General Correspondence

STATUS **OPEN**

ISSUED 22-August-16 02:17 PM

DUE 12-September-16 02:12 PM

AUTHOR

Nikka Marcial

COMPANY

Fulton Hogan

COLLABORATORS ACTION

David Morrison

Clarence Valley Council

Michael Young

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EPA - Environmental Protection Agency

INFO

CONTACT

stuart murphy

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John O'Donnell

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Scott Lawrence

Roads and Maritime Services of NSW

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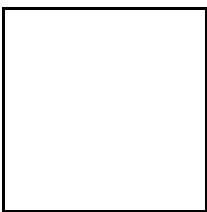
Regards,

Rebekah Byrne | Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90 Bourke Road
Alexandria NSW 2015 | PO Box 6099 Alexandria NSW 2015 | Phone +61 2 8346 9400 | Fax +61 2 8346 9444

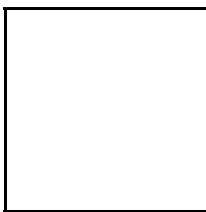
Sent By:

Nikka Amiel Marcial | **Fulton Hogan** | Level 3, 90 Bourke Road, Alexandria, NSW, 2015 | P.O. Box 6099,
Alexandria, NSW, 2015, Australia | Nikka.Marcial@fultonhogan.com.au |

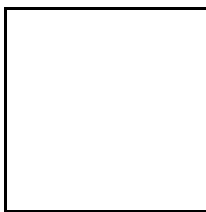
ATTACHMENTS



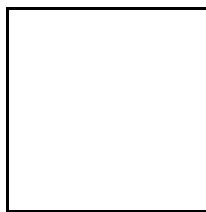
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COMMENTS

Nikka Marcial (FH-NM)

OPEN

22-August-16 02:17 PM

CCLMP Rev1 - for your review and comment Issued to MANY

CCLMP
Clarence Valley Council

Byrne, Rebekah

From: David Morrison <David.Morrison@clarence.nsw.gov.au>
Sent: Thursday, 8 September 2016 8:42 AM
To: Byrne, Rebekah
Subject: Re: Construction Contaminated Land Management plan

Rebekah
Council is satisfied with the responses.
Dave Morrison

Sent from my iPhone

On 07/09/2016, at 4:14 PM, "Byrne, Rebekah" <Rebekah.Byrne@fultonhogan.com.au> wrote:

Hi David,

Thank you for passing on this information. It has been communicated to the project team. Our responses to the issues raised are below:

1. Disturbance to the levee will be minimised where practicable (refer Chapter 7 mitigation measure ID CCLMM9). Should unexpected contamination be identified, the *Unexpected Discovery of Contaminated Land Procedure* included in Annexure C of the CCLMP will be implemented (refer to Chapter 7 mitigation measure ID CCLMM12).
2. 48 Pound Street is located outside the project boundary. That said, should contamination be identified, the *Unexpected Discovery of Contaminated Land Procedure* included in Annexure C of the CCLMP will be implemented (refer to Chapter 7 mitigation measure ID CCLMM12).

Please confirm whether these responses satisfactorily address Council's comments.

Regards,

Rebekah Byrne | Environment Advisor – NSW Construction | **Fulton Hogan** | Level 3, 90
Bourke Road Alexandria NSW 2015 | PO Box 6099 Alexandria NSW 2015 | Phone +61 2 8346 9400
| Fax +61 2 8346 9444

From: David Morrison [<mailto:David.Morrison@clarence.nsw.gov.au>]
Sent: Wednesday, 7 September 2016 3:27 PM
To: Byrne, Rebekah <Rebekah.Byrne@fultonhogan.com.au>
Subject: Construction Contaminated Land Management plan

Rebekah

Council staff have reviewed the Construction Contaminated Land Management Plan.

Issues that may need addressing are:

1. There haven't been any investigations in the northern (Grafton) side levee wall which could require excavation for pylon construction - the issue being the presence of fill of unknown origin with potential for contaminants of concern. For example, a recent redevelopment of a site adjoining the levee in Victoria Street revealed some asbestos in the fill material used for the levee construction.
2. There has also been no investigation on or near the road reserve in the proximity of the former Gas Works at 48 Pound Street (Lot 4 DP 579964) – road widening is proposed in this vicinity.

Regards.

David Morrison

David Morrison
Manager Strategic & Economic Planning
Clarence Valley Council
Locked Bag 23, GRAFTON NSW 2460
P: (02) 6643 0204
F: (02) 6642 7647
M: 0408 296 365
www.clarence.nsw.gov.au

<image001.jpg>

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Appendix A3

Environmental aspects and impacts register

This Environmental Aspects and Impacts Register provided below is based on the environmental risk analysis provided in Chapter 11 of the Additional Crossing of Clarence River at Grafton Project Environmental Impact Statement (EIS). The environmental risk analysis carried out during the EIS:

- identified environmental issues, including key issues in the Director-General’s environmental assessment requirements, and any other issues;
- examined potential impacts and proposed mitigation measures in relation to the identified issues; and
- identified the nature and extent of impacts likely to remain after mitigation measures are applied.

Each potential environmental impact was identified as either high, moderate or low based on the following significance criteria:

Impact	Criteria
High	Impact a major issue. Mitigation measures and detailed design work are unlikely to remove all the effects upon the affected environment.
Medium	Impact moderate. Less significant adverse impacts. Impacts can be easily mitigated by the application of standard environmental management measures.
Low	Minimal or no adverse impacts.

Each potential impact was then assigned an environmental risk category of either ‘key issue’ or ‘other issue’ as described below:

Risk Category	Description
Key issue	High or moderate impact (actual or perceived) requiring further investigation to identify specific management and mitigation measures.
Other issue	Moderate or low impact that can be managed effectively with standard and best practice management and mitigation measures.

The identification of significant construction activities and associated impacts that could eventuate during construction of the Project is central to the selection of appropriate environmental safeguards.

The identification of risks included a review of the proposed works, the CoA and review of the environmental risks identified by the EIS and subsequent Submissions Report.

Aspects and impacts register

Issue	Key Issue in DGRs?	Potential Construction Impact	Risk level prior to mitigation	Indicative Mitigation Measures (to be considered and, where applicable, further developed in associated management documents) and impacts remaining after their application.	Risk level following mitigation	Potential residual impacts	Risk category following analysis	EIS reference
Traffic and transport	Yes	Temporary closures/ disruptions/ delays to local and highway traffic including access to some properties	High	Prepare a Construction TAMP and implement reasonable and feasible traffic management measures to address disruptions/ delays to local and highway traffic and property access impacts. Emergency services to be notified in advance of changes to traffic conditions (e.g. partial or total road closures).	Low	Changes to travel routes for some road users (including pedestrians and cyclists) due to road closures and turn restrictions.	Key issue	Section 8.1
		Temporary increased traffic volumes on sections of the road network, as about 18,700 truck trips would occur during construction	High	Construction deliveries would be timed to occur outside peak traffic periods when feasible and reasonable, to minimise impacts on the road network.	Medium	Increased traffic volumes on sections of the road network.		Section 8.1
		Temporary removal of parking, pedestrian and/or cyclist access	Medium	Prepare a Construction TAMP and implement reasonable and feasible traffic management measures to address temporary removal of parking, pedestrian and cyclist access. Consult and inform the local community of these impacts and communicate the traffic management and mitigation measures.	Low	With mitigation, no potentially significant or moderate residual impacts are expected to remain.		Section 8.1
		Temporary traffic and pedestrian and/or cyclist detours around the construction zone	Medium	Prepare a Construction TAMP and identify how the continuous, safe and efficient movement of traffic for the public and construction workers will be maintained. Site-specific traffic control measures to be provided to manage traffic movements during construction. Access arrangements at construction sites and quarry sites to be clearly detailed, including vehicle ingress / egress movements.	Low	With mitigation, no potentially significant or moderate residual impacts are expected to remain.		Section 8.1
		Temporary disruption to rail services during work on viaduct at Pound Street	Medium	Roads and Maritime will coordinate the placement of the new Pound Street bridge with ARTC to ensure the North Coast Line possession coincides with other works required along the line. North Coast Line users will be notified of impending changes to minimise impacts.	Low	With mitigation, no potentially significant or moderate residual impacts are expected to remain.		Section 8.1
		Temporary closure of mooring areas close to the new bridge and potential relocation of some mooring areas	High	Prepare a Construction Navigation Management Plan (CNMP) as part of the Construction TAMP. The CNMP will outline contractor river procedures to be adopted during construction. A proclaimed Marine Notice will be issued through Roads and Maritime alerting river users of ongoing construction activities. River users will be consulted regarding potential relocation sites for affected mooring areas.	Low	With mitigation, no potentially significant or moderate residual impacts are expected to remain.		Section 8.1

Issue	Key Issue in DGRs?	Potential Construction Impact	Risk level prior to mitigation	Indicative Mitigation Measures (to be considered and, where applicable, further developed in associated management documents) and impacts remaining after their application.	Risk level following mitigation	Potential residual impacts	Risk category following analysis	EIS reference
		Temporary disruption to maritime traffic on the Clarence River	High	Prepare a Construction Navigation Management Plan (CNMP) as part of the Construction TAMP. The CNMP will outline contractor river procedures and impact reduction measures to be adopted during construction. A proclaimed Marine Notice will be issued through Roads and Maritime alerting river users of ongoing construction activities. Temporary aids to navigation will be provided where feasible and reasonable and in accordance with Roads and Maritime advice and requirements (such as lighted buoys to mark exclusion zones).		With mitigation, no potentially significant or moderate residual impacts are expected to remain.		Section 8.1
		Changed traffic patterns likely to cause short-term impacts while road users adjust and become familiar with changed traffic patterns.	Medium	Prepare a Construction TAMP and address impacts on all transport modes, identifying appropriate mitigation measures in accordance with the relevant guidelines and in consultation with relevant parties (i.e. bus operators, local road users and emergency services).	Medium	Changes to travel routes for some road users (including pedestrians and cyclists) due to road closures and turn restrictions. Increased traffic volumes on sections of the road network.		Section 8.1
Flooding and Hydrology	Yes	A large flood in the Clarence River during construction could impact construction work and ancillary sites. A small portion of the South Grafton ancillary site and construction work zone is not protected by a levee	High	Prepare a Construction FMP in consultation with a suitably qualified and experienced hydrologist, EPA, SES and Council and implement reasonable and feasible measures to address potential impacts of flooding on construction works, including flood monitoring and response measures.	Low	With mitigation, no potentially significant or moderate residual impacts are expected to remain.	Key issue	Section 8.2
		A large rainfall event could impact the Pound Street viaduct construction work zone	High	Prepare a Construction FMP in consultation with a suitably qualified and experienced hydrologist, EPA, SES and Council and implement reasonable and feasible measures to address potential impacts of a large rainfall event on the Pound Street viaduct construction work zone.	Low	With mitigation, no potentially significant or moderate residual impacts are expected to remain.		Section 8.2
		Changes may occur to the existing flood regime as bridgework outside the levee system progresses.	Medium	Flood mitigation works to be staged to ensure no worsening of the existing flood regimes during construction.	Low	With mitigation, no potentially significant or moderate residual impacts are expected to remain.		Section 8.2
		Obstruction of SES personnel or emergency response efforts contributing to property damage, compromise of public protection/safety or potential catastrophic incident or fatality	High	Prepare a Construction FMP in consultation with particularly SES and Council (in addition to a suitably qualified and experienced hydrologist and EPA) to ensure that the CFMP is consistent with the overall planned response strategies for Grafton.	Low	With mitigation, no potentially significant or moderate residual impacts are expected to remain.		Section 8.2
Noise and vibration	Yes	Temporary noise impacts on sensitive receivers, particularly in Grafton	High	Prepare a Construction NVMP and implement reasonable and feasible measures to address construction noise impacts.	Medium	Temporary noise exceedances on sensitive receivers, particularly in Grafton.	Key issue	Section 8.4
Biodiversity	Yes	Clearance of a small portion of Freshwater Wetlands on Coastal Floodplains and Subtropical Coastal Floodplain Forest (about 0.31 hectares in total)	High	Prepare revegetation strategy as part of the UDLMP to address revegetation and landscaping efforts along the Clarence River and in the adjoining project area. This will include species consistent with freshwater wetlands on Coastal Floodplain and Subtropical Coastal Floodplain Forest	Low	With mitigation, no potentially significant or moderate residual impacts are expected to remain.	Key issue	Section 8.9

Issue	Key Issue in DGRs?	Potential Construction Impact	Risk level prior to mitigation	Indicative Mitigation Measures (to be considered and, where applicable, further developed in associated management documents) and impacts remaining after their application.	Risk level following mitigation	Potential residual impacts	Risk category following analysis	EIS reference
		Removal of two hollow-bearing trees and five habitat trees	High	Investigate opportunities to retain the two hollow bearing and five habitat trees during detailed design. Prepare a revegetation strategy as part of the UDLMP to revegetate with species suitable for the creation of hollows and foraging resources. Develop strategies to compensate for the loss of hollow bearing/habitat trees, focussing on revegetation and rehabilitation activities along riparian and adjoining areas.	Low	With mitigation, no potentially significant or moderate cumulative residual impacts are expected to remain.		Section 8.9
		Potential weed invasion and edge effects.	High	Weeds to be controlled in accordance with RTA (2011a) – Biodiversity Guidelines Guide 6: Weed Management. Declared noxious weeds will be managed in accordance with the requirements of the Noxious Weeds Act 1993. Weed infested topsoil will be appropriately stockpiled with sediment fencing and as soon as practical, disposed of or treated appropriately to limit potential impacts on nearby areas of native vegetation.	Low	With mitigation, no potentially significant or moderate cumulative residual impacts are expected to remain.		Section 8.9
	Yes	Damage to habitat and/or population of the Three-toed Snake Tooth Skink	High	Prepare and implement the Three-toed Snake Tooth Skink Construction Management Plan	Low	With mitigation, no potentially significant or moderate cumulative residual impacts are expected to remain.		Section 8.9
Aboriginal heritage	Yes	Indirect (visual) impacts on the Golden Eel dreaming and ceremonial site.	High	Avoid further encroachment towards the Golden Eel dreaming site through detailed design and construction staging.	Medium	Indirect (visual) impacts on the Golden Eel dreaming and ceremonial site.	Key issue	Section 8.6
Non-Aboriginal heritage	Yes	Demolition of 10 items of local heritage significance	High	Prepare CHMP as part of the CEMP and implement measures and controls to mitigate construction impacts, including establishment of no-go areas, temporary fencing, procedures for dealing with previously unidentified finds, heritage training and induction processes for construction personnel and procedures and archaeological monitoring (if required) for the duration of the Project.	Low	With mitigation, no potentially significant or moderate cumulative residual impacts are expected to remain.	Key issue	Section 8.5
		Direct impact on the Grafton urban conservation area	High	Prepare a heritage interpretation plan to provide opportunities to enhance understanding and project appreciation of the heritage items, values and themes associated with Grafton. The plan will identify heritage items to be removed and provide opportunities for compensating for these losses.	Medium	Indirect impacts (amenity, noise, visual) on about 66 heritage items, including one State listed item (the existing Grafton bridge) and one regionally listed heritage item (Dunvegan).		Section 8.5
Socio-economic, property and land use	Yes	Partial and total property acquisition	High	Roads and Maritime will continue ongoing timely communication with affected residents on project timing and acquisition processes, deal in an efficient and empathetic manner with residents seeking acquisition on hardship grounds and provide compensation in accordance with the <i>Land Acquisition (Just Terms Compensation) Act 1991</i> and Roads and Maritime policies.	Medium	Some residual impacts on displaced residents as a result of the project property acquisitions.	Key issue	Section 8.7

Issue	Key Issue in DGRs?	Potential Construction Impact	Risk level prior to mitigation	Indicative Mitigation Measures (to be considered and, where applicable, further developed in associated management documents) and impacts remaining after their application.	Risk level following mitigation	Potential residual impacts	Risk category following analysis	EIS reference
		Changes in roads and river access arrangements	High	Prepare construction traffic management measures as part of the TAMP. Consult with Clarence River Sailing Club and other Clarence River event organisers in making alternative river access arrangements during construction.	Medium	Changes to travel routes for some members of the community, reduction in passing trade of businesses in some areas and changes to the existing sailing races route.		Section 8.7
		Temporary amenity impacts (noise, visual).	Medium	Construction impacts, including amenity impacts to be minimised through implementation of traffic, noise, and dust mitigation measures as part of the CTAMP, CNVMP and CSWQMP, respectively.	Low	Impact on amenity in some residential areas (due to increased traffic volumes and visual impacts)		Section 8.7
Visual amenity, built form, urban design	Yes	Impact on the visual amenity of people living near construction zones and construction ancillary sites	Medium	Construction facilities to be contained within the construction work zone and occupy the minimum area practicable. Suitable barriers to be erected to screen views from nearby areas. Work sites to be returned to at least pre-construction state following construction completion, or progressively reinstated throughout the construction process, where possible. Temporary lighting to be screened or diverted to reduce light spill. Material used for temporary land reclamation will be removed once construction is complete.	Low	Impact on the visual amenity of people living near construction zones and construction ancillary sites.	Key issue	Section 8.8
		Impacts on town character due to removal of trees and vegetation.	High	Trees to be retained within construction facilities areas will be identified, protected and maintained.	Medium	Impacts on landscape character due to removal of trees and vegetation.		Section 8.8
Soils, sediments and water	Yes	Soil erosion and sedimentation	High	Erosion and sediment control measures will be implemented in accordance with the Landcom/Department of Housing <i>Managing Urban Stormwater, Soils and Construction Guidelines</i> (the Blue Book)	Low	With mitigation, no potentially significant or moderate cumulative residual impacts are expected to remain.	Key issue	Section 8.10
		Potential exposure and/or disturbance of contaminated soil and acid sulfate soils may result in generation of sulfuric acid and subsequent acidification of waterways and groundwater sources and mobilisation of heavy metals in the environment.	High	Excavation in potential acid sulfate soils areas will proceed according to the CSWQMP (acid sulfate soils section). If acid sulfate soils are disturbed, any acid produced will be neutralised and acid waste prevented from leaving the site in accordance with the applicable guidelines.	Low	With mitigation, no potentially significant or moderate cumulative residual impacts are expected to remain.		Section 8.10
		Increased turbidity and nutrients, and discharge of contaminated material in waterways	High	Prepare CSWQMP and implement construction water quality management measures and controls to protect nearby waterways from construction activities.	Low	With mitigation, no potentially significant or moderate cumulative residual impacts are expected to remain.		Section 8.10
		Risk of identifying unexpected contamination (from unknown contaminated sites)	High	Prepare CCLMP and implement measures to manage known and unexpected contamination during the construction stage.	Low	With mitigation, no potentially significant or moderate cumulative residual impacts are expected to remain.		Section 8.10
		If unmanaged, river-based construction activities have the potential to impact the water quality of the Clarence River.	High	Prepare CSWQMP and implement construction water quality management measures and controls to protect Clarence River from construction activities.	Low	With mitigation, no potentially significant or moderate cumulative residual impacts are expected to remain.		Section 8.10
		Accidental fuel and chemical spills, and contaminated runoff infiltration to groundwater.	High	Prepare CSWQMP and implement construction management measures to minimise the likelihood of accidental fuel and chemical spills, and contaminated runoff	Low	With mitigation, no potentially significant or moderate cumulative residual impacts are expected to remain.		Section 8.10

Issue	Key Issue in DGRs?	Potential Construction Impact	Risk level prior to mitigation	Indicative Mitigation Measures (to be considered and, where applicable, further developed in associated management documents) and impacts remaining after their application.	Risk level following mitigation	Potential residual impacts	Risk category following analysis	EIS reference
				infiltration to groundwater.				
Air Quality	Yes	Temporary generation of dust or particulate emissions.	High	Prepare a Construction AQMP and implement reasonable and feasible measures to manage any increased dust impacts from construction activities.	Low	With mitigation, no potentially significant or moderate cumulative residual impacts are expected to remain.	Key issue	Section 8.12
Greenhouse gases	No	Emission of greenhouse gases from construction plant and equipment, embodied emissions of construction materials, vegetation clearance and construction waste.	Medium	Prepare a Construction WEMP plan as part of the Project CEMP. The WEMP will include a commitment to monitor on-site energy consumption and identify and address on-site energy waste. Vegetation clearance will be minimised, where feasible, in accordance with the approved Project. Fly-ash content within concrete, steel with high recycled content and other recycled content construction materials will be utilised where feasible, and where they are cost, quality and performance competitive. Reuse of excavated road materials will be maximised where feasible to reduce use of materials (with embedded energy). The use of biofuels will be investigated, taking into consideration the capacity of plant and equipment, ongoing maintenance issues and local sources. Works will be planned to minimise fuel use.	Low	With mitigation, no potentially significant or moderate cumulative residual impacts are expected to remain	Other issue	Section 9.1
Utilities and services infrastructure	No	Existing public utilities and services within or close to the project area have the potential to be disrupted or may need to be relocated.	High	Consult relevant service utility providers and owners to verify locations, impacts and any protection, relocation or decommissioning work required. Carry out Dial Before You Dig search to identify the locations of utility services. Conduct a services search within land not covered by the Dial Before You Dig search. Relocate existing services to be potentially impacted by the Project.	Low	With mitigation, no potentially significant or moderate cumulative residual impacts are expected to remain	Other issue	Section 9.2
Resources and waste management	No	Generation of spoil and excavation waste, green waste and demolition waste (including demolition waste contaminated with asbestos).	High	Prepare a Construction WEMP and implement reasonable and feasible measures to minimise and manage spoil and excavation waste, green waste and demolition waste. A resource use management strategy will be prepared as part of the Construction WEMP to identify the hierarchy for sourcing and use of resources. Asbestos surveys will be conducted for structures to be demolished. An asbestos certified disposal service will be engaged for properties identified as having asbestos materials.	Low	With mitigation, no potentially significant or moderate cumulative residual impacts are expected to remain	Other issue	Section 9.3
Cumulative impacts	Yes	Cumulative traffic disruptions to road users	High	The Contractor will identify all other developments and projects occurring in the vicinity of the Project and identify environmental impacts to be monitored during construction which have the potential for cumulative effects to occur. The Contractor will review environmental	Low	With mitigation, no potentially significant or moderate cumulative residual impacts are expected to remain.	Key issue	Section 9.4
		Cumulative demand on resources including mineral resources	High		Low			Section 9.4
		Cumulative impacts on the heritage (Aboriginal and non-Aboriginal) and biodiversity of the Mid North Coast region	High		Low			Section 9.4

Issue	Key Issue in DGRs?	Potential Construction Impact	Risk level prior to mitigation	Indicative Mitigation Measures (to be considered and, where applicable, further developed in associated management documents) and impacts remaining after their application.	Risk level following mitigation	Potential residual impacts	Risk category following analysis	EIS reference
		Cumulative changes to land use and property impacts in the Clarence Valley local government area	High	impacts every six months during construction. Any new impacts identified during construction will be addressed appropriately to reduce cumulative effects and reported as part of the CEMP.	Low			Section 9.4
		Cumulative amount of spoil and waste generated	High		Low			Section 9.4

Appendix A4

Environmental policy

Environmental Policy



Positive overall impact on our environment

Working together to protect and enhance our environment

We will:

- Seek to minimise our environmental footprint through innovation, energy and resource efficient operations focused on reducing, reusing and recycling
- Meet or exceed all legal obligations applicable to our activities
- Recognise that environmental management encompasses diverse aspects including flora, fauna, heritage, water and community interests
- Identify impacts to the environment and implement effective controls
- Set objectives and targets to measure, manage and improve our performance
- Train our people to identify environmental risks and opportunities to help improve our performance
- Work closely with our subcontractors and suppliers to ensure they meet our expectations
- Drive continual improvement through the proactive use of environmental management systems

Our people will be environmental leaders by:

- Caring about the long term environmental impact of our activities
- Planning for and addressing all environmental risks and opportunities
- Pursuing innovative ways to improve our environmental performance

N D Miller
Managing Director

July 2015

Appendix A5

Ancillary facilities assessment criteria

Revision history

Revision	Date	Description	Approval
2	12/08/2016	CEMP revised in response to comments from RMS.	
1	08/08/2016	CEMP revised in response to comments from RMS. No comments from the ER.	
0	12/07/2016	Draft for RMS and ER review	

Table 1: Ancillary facilities assessment criteria CoA D36

	Ancillary Facility 1	Ancillary Facility 2	Ancillary Facility 3	Ancillary Facility 4
Location (chainage)				
Purpose				
Criteria				
a) Is facility located more than 50 m from a waterway, including the Clarence River?				
b) Is facility located within or adjacent to the Project boundary?				
c) Does the facility have ready access to the road network or direct access to the construction corridor?				
d) Is the facility located to minimise the need for heavy vehicles to travel through residential areas?				
e) Is the facility located in areas of low ecological significance and requires no clearing of native vegetation?				
f) Is the facility located on relatively level land?				
g) Is the facility separated from the nearest residences by at least 200 metres (or at least 300 metres for a temporary batching plant)?				
h) Is the facility above the 20 year ARI flood level, unless a contingency plan to manage flooding is prepared and implemented?				
i) Does the facility not unreasonably affect the land use of adjacent properties?				
j) Does the facility provide sufficient area for the storage of material to minimise, to the greatest extent practical, the number of deliveries required outside standard construction hours?				

	Ancillary Facility 1	Ancillary Facility 2	Ancillary Facility 3	Ancillary Facility 4
k) Is the facility located in areas of low heritage conservation significance (including areas identified as being of Aboriginal cultural value) and not impact on heritage sites beyond those already impacted by the Project?				
Are Criteria Met?				
Additional actions/environmental management measures required				

In accordance with the requirements of CoA D36, Fulton Hogan will undertake an assessment of the facility against the above criteria in consultation with the relevant public authority(s) and the Clarence Valley Council.

In accordance with the requirements of CoA D37, ancillary sites that were not assessed in the EIS or the Submissions Report and do not meet the criteria above must be approved by the Environmental Representative (ER) prior to establishment. In obtaining this approval, Fulton Hogan will consult with the relevant public authority(s) and the Clarence Valley Council, and demonstrate to the satisfaction of the ER how the potential environmental impacts can be mitigated and managed to acceptable standards. The outcomes of the assessment will be documented in a report (to be included in this Appendix A5) and include:

- (a) details on the site location and access arrangements;
- (b) a description of the activities to be undertaken including the hours of use and storage of dangerous goods;
- (c) outcomes of the assessment of the site against the locational criteria set out in condition D36;
- (d) an assessment of the environmental impacts on the site and the surrounding environment, including, but not limited to noise, vibration, air quality, traffic and access during site establishment and operation, flora and fauna, heritage, erosion and sedimentation, water quality and light spill;
- (e) details of the mitigation, monitoring and management procedures specific to the ancillary facility that would be implemented to minimise environmental impacts; and
- (f) demonstrated overall consistency with the approved Project (including impacts identified in the EIS, the Submissions Report and the letter from RMS to DP&E dated 1 December 2014).

In accordance with CoA D38, any ancillary facilities that have not been previously identified and assessed in the EIS or the Submissions Report, and which result in additional impacts to biodiversity, heritage, flooding and noise beyond those approved for the Project, must be approved by the Secretary prior to their establishment. Fulton Hogan will undertake an assessment of the ancillary facility in accordance with CoA D37 and forward a copy of the assessment report to the Secretary, as part of the approval submission, at least one month prior to the establishment of the facility. The assessment report will be included in this Appendix A5.

In accordance with CoA D39, Fulton Hogan will rehabilitate all ancillary facilities and access points to at least their pre- construction condition or better, unless otherwise agreed by the landowner where relevant.

In accordance with CoA D40, where changes are made to the boundary or use of an ancillary facility, including facilities identified in the EIS and Submissions Report, Fulton Hogan will assess the facility against the criteria set out in CoA D36. If the ancillary facility site:

- (a) does not meet the criteria set out under CoA D36 Fulton Hogan will seek the approval of the ER in accordance with CoA D37; or
- (b) results in impacts to biodiversity, heritage, flooding and noise beyond those approved for the Project, Fulton Hogan will seek the approval of the Secretary in accordance with CoA D38.

Fulton Hogan will obtain the relevant approval prior to the establishment of the ancillary facility.

In accordance with CoA D41, Fulton Hogan may undertake archaeological investigations at ancillary sites that do not meet the criterion set out in CoA D36, where this is required to assess the potential Aboriginal and non-Aboriginal archaeological impacts of the ancillary facility provided they are undertaken under a methodology prepared to the satisfaction of the Secretary in consultation with OEH


Appendix A6
Sensitive Area Plans

FOR DETAILED DESIGN ENVIRONMENTAL SENSITIVE AREA PLANS DRAWING INDEX






DRAWING	TITLE
EN-0001	ENVIRONMENTAL SENSITIVE AREA PLANS COVER SHEET
EN-0011	ENVIRONMENTAL SENSITIVE AREA PLANS DRAWING INDEX
EN-0021	ENVIRONMENTAL SENSITIVE AREA PLANS LEGEND
EN-0101	ENVIRONMENTAL SENSITIVE AREA PLANS SHEET 1
EN-0102	ENVIRONMENTAL SENSITIVE AREA PLANS SHEET 2
EN-0103	ENVIRONMENTAL SENSITIVE AREA PLANS SHEET 3
EN-0104	ENVIRONMENTAL SENSITIVE AREA PLANS SHEET 4
EN-0105	ENVIRONMENTAL SENSITIVE AREA PLANS SHEET 5
EN-0106	ENVIRONMENTAL SENSITIVE AREA PLANS SHEET 6
EN-0107	ENVIRONMENTAL SENSITIVE AREA PLANS SHEET 7
EN-0108	ENVIRONMENTAL SENSITIVE AREA PLANS SHEET 8
EN-0109	ENVIRONMENTAL SENSITIVE AREA PLANS SHEET 9




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LEGEND








-  PROJECT BOUNDARY
-  HABITAT TREE
-  SENSITIVE RECEIVER
-  WATER QUALITY SAMPLING LOCATION
-  DUST MONITORING GAUGE

- SOILS AND CONTAMINATED LAND**
-  ACID SULFATE SOIL - HIGH RISK 2-4m
 -  ACID SULFATE SOIL HIGH RISK >4m
 -  POTENTIALLY CONTAMINATED LAND

- ABORIGINAL HERITAGE**
-  LOW ARCHAEOLOGICAL POTENTIAL
 -  MODERATE ARCHAEOLOGICAL POTENTIAL
 -  HIGH ARCHAEOLOGICAL POTENTIAL
 -  ABORIGINAL ARCHAEOLOGICAL SITE
 -  ABORIGINAL CULTURAL SITE


- NON-ABORIGINAL HERITAGE**
-  ARCHAEOLOGICAL POTENTIAL LOW
 -  ARCHAEOLOGICAL POTENTIAL MODERATE
 -  ARCHAEOLOGICAL POTENTIAL HIGH
 -  ARCHAEOLOGICAL RESEARCH POTENTIAL LOW
 -  ARCHAEOLOGICAL RESEARCH POTENTIAL HIGH
 -  BUILT HERITAGE ITEM
 -  GRAFTON CONSERVATION AREA (C3)
 -  SOUTH GRAFTON CONSERVATION AREA (C7)

- VEGETATION COMMUNITIES**
-  FRESHWATER WETLANDS ON COASTAL FLOODPLAINS (EEC)
 -  SUBTROPICAL COASTAL FLOODPLAIN FOREST (EEC)
 -  GROUNDWATER DEPENDANT ECOSYSTEMS SUBSURFACE

- THREE-TOED SNAKE TOOTH SKINK (TTSTS)**
-  TTSTS (LEWIS 2016)
 -  TTSTS (BIONET 2016)
 -  HABITAT KNOWN
 -  HABITAT HIGH LIKELIHOOD
 -  HABITAT MODERATE LIKELIHOOD
 -  HABITAT LOW LIKELIHOOD
 -  HABITAT UNLIKELY

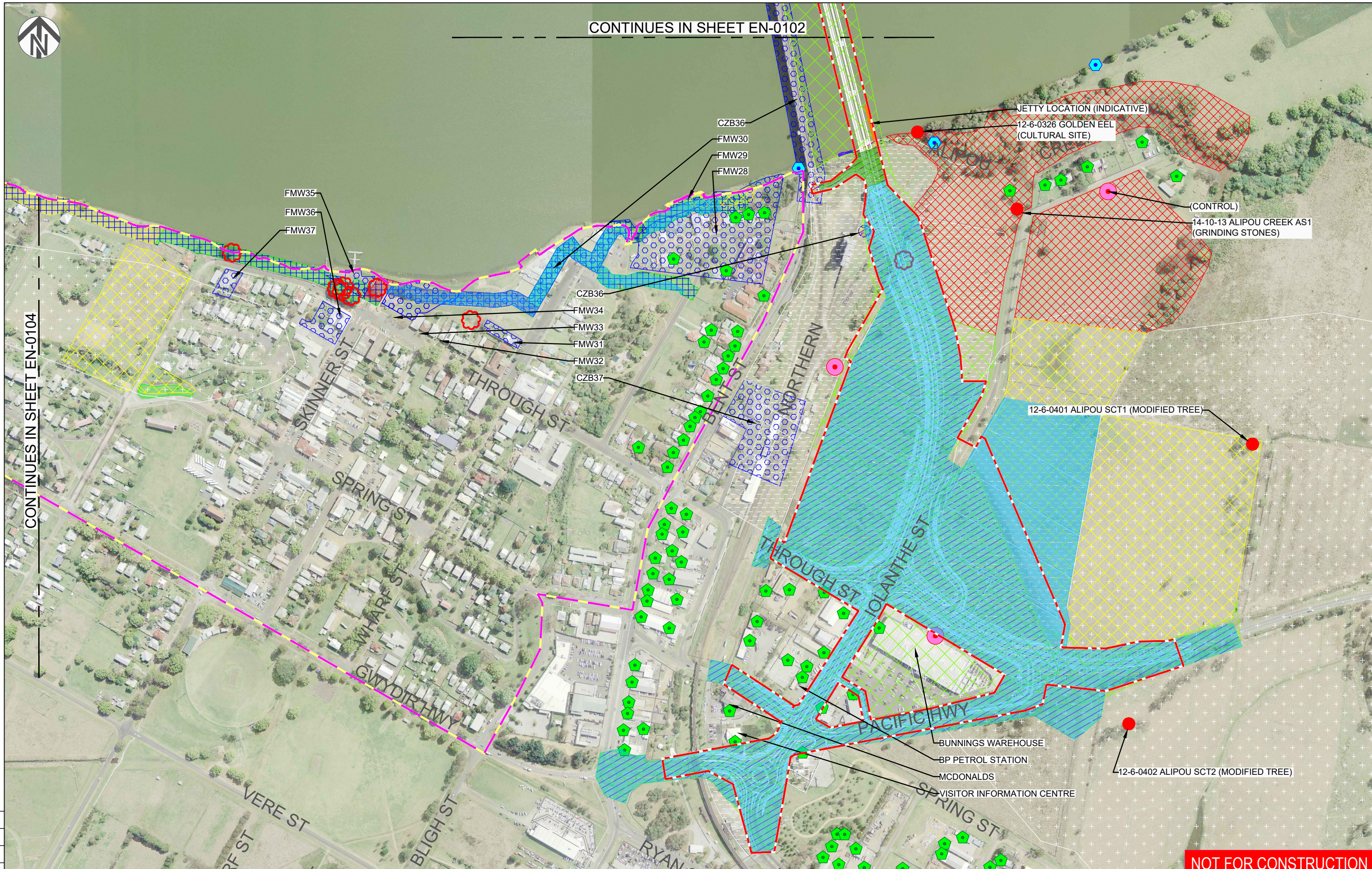
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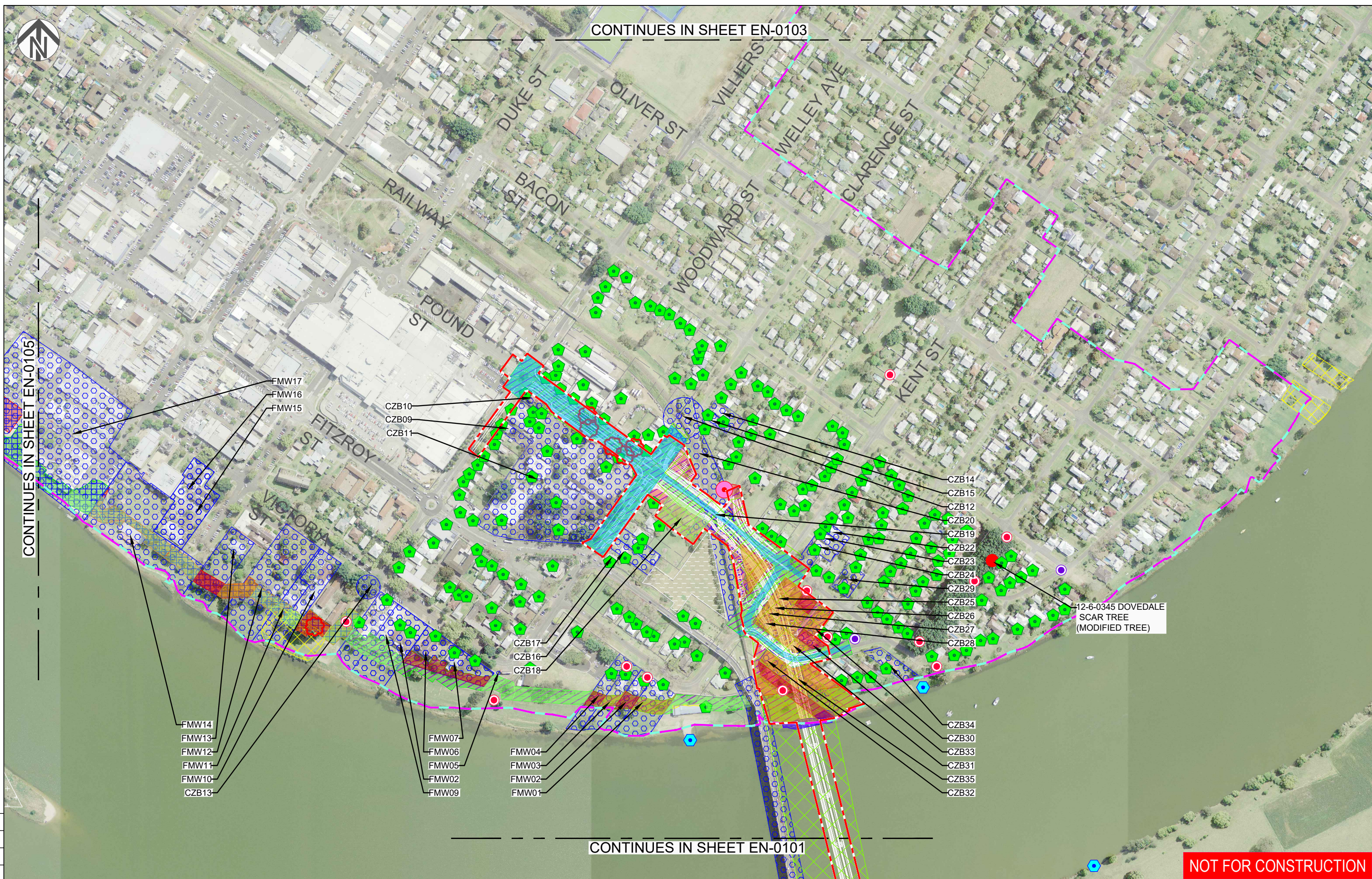
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12-6-0216 GOORIE PARK (MODIFIED TREE)

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COWANS CREEK

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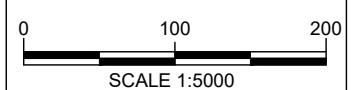
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		C	01.09.2016	ISSUED FOR INFORMATION			DETAILED DESIGN	
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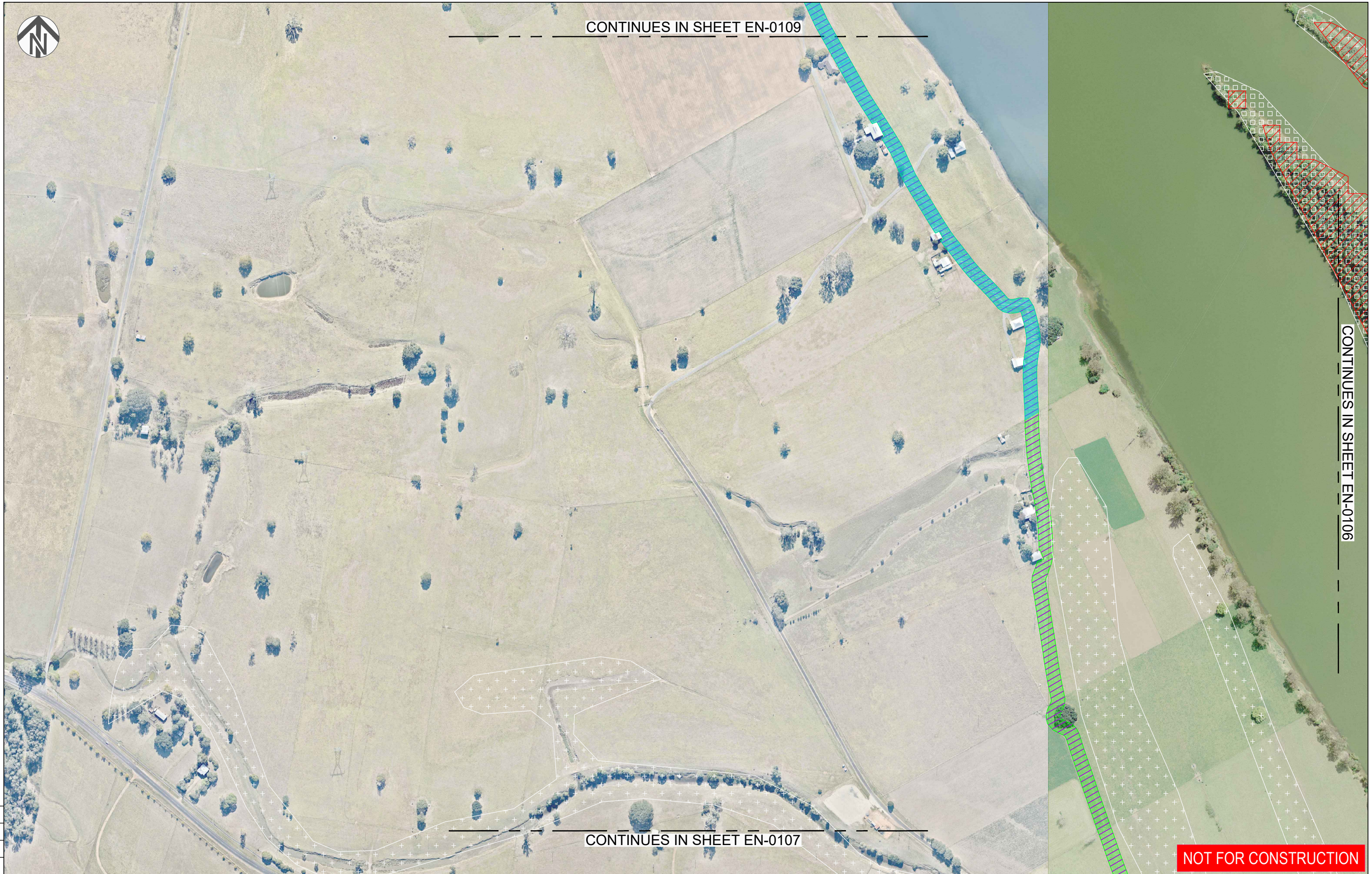
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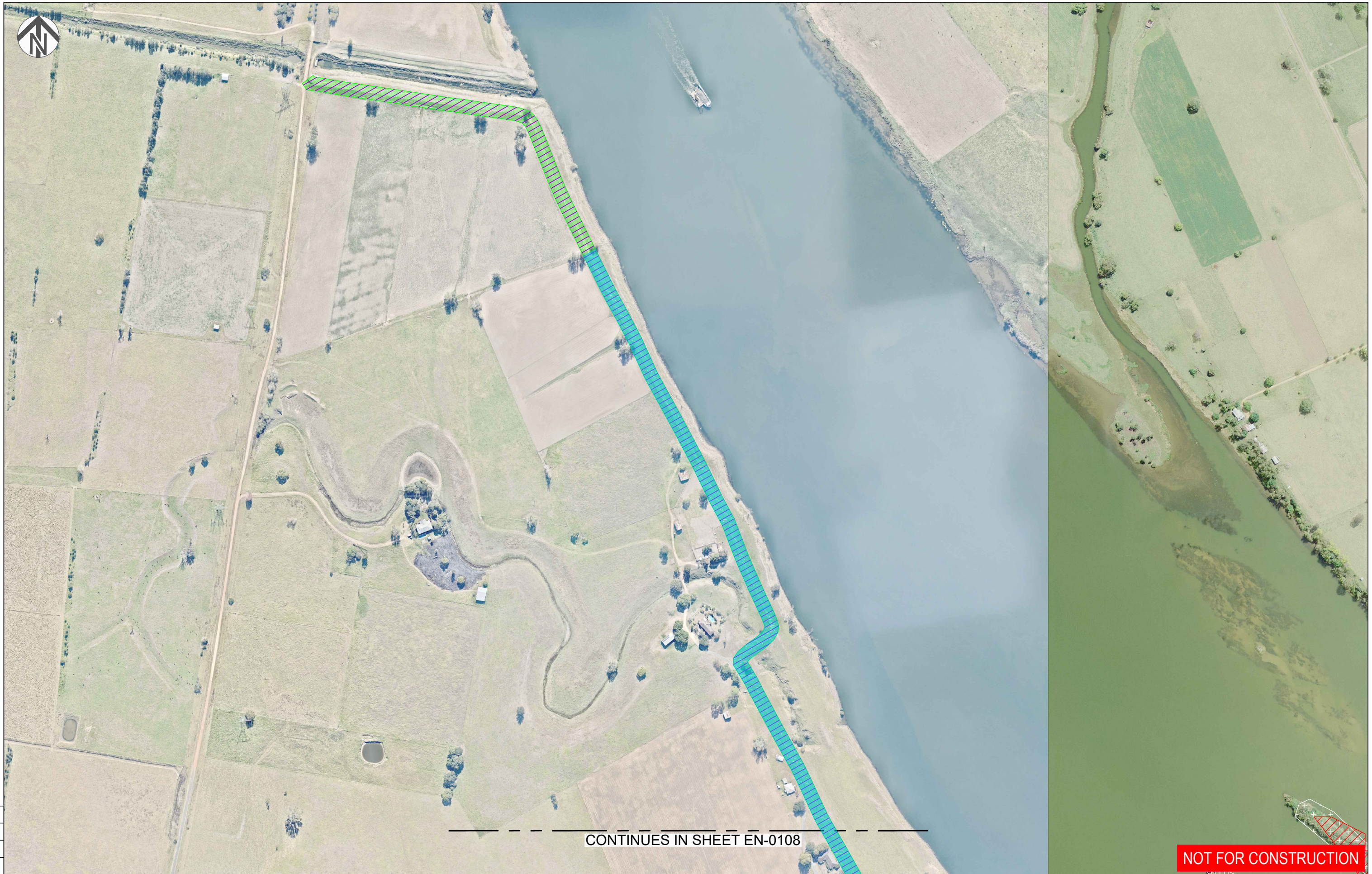
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Appendix A7
Environmental Incident Classification and
Reporting Procedure



Transport
Roads & Maritime
Services

ENVIRONMENTAL INCIDENT CLASSIFICATION AND REPORTING PROCEDURE

February 2016

About this release

Title	Environmental Incident Classification and Reporting Procedure
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Approval and authorisation		Name
Prepared By	Environment Manager Environment Performance Improvement	Sean Hardiman
Approved By	Principal Manager Environment Operations	David Featherston

Document Status		Date
Version 4.10		13 March 2015
Version	Date	Revision Description
1.0	14.11.2007	Classification and Management of Environmental Incidents and Hazards. Environmental incidents classified under two categories.
1.1	22.11.2007	Additional definitions included.
1.2	10.12.2007	Clarified definition of Senior Environmental Officer
2.0	08.02.2008	Title change. New incident category (Cat 3) included.
2.1	14.02.2008	Appendix 1 Environmental Incident Report Form & instructions included.
2.2	11.04.2008	Environmental Incident Report Form & instructions included in Guidance material
2.3	09.07.2008	Minor changes to category 1 incident types; discharge of waters, critical habitat and failure to comply with a REF determination.
3.0	16.06.2011	Sections from Guidance document included in Procedure. Requirement to notify Chief Executive and relevant Directors of significant category 1 incidents. Appendices included.
3.1	22.12.2011	Significant changes to formatting.
4.0	27.04.2012	Title change to Environmental Incident Classification And Reporting Procedure. Update to include Maritime Division. Unexpected threatened species find to be managed in accordance with Biodiversity Guidelines included in reportable events. Significant changes to notification of material harm. Reportable event category included.
4.2	29.05.2012	Changes to reportable events, including unexpected contamination finds. Update to notification of material harm.
4.3	31.08.2013	Legal Branch revision and update following recommendations in "The External Review of Roads and Maritime Services' Handling of Contaminated Material on the Pacific Highway Herons Creek to Stills Road Section" by Brian Gilligan dated February 2013.
4.4	1.10.2013	Update Maritime Division contact and inclusion of document history
4.5	11.11.2013	Update contact positions, edit references to RMS
4.6	10.06.2014	Update contact positions, update incident form.
4.7	06.08.2014	Clarify that unexpected find of asbestos is a reportable event. Update to meet Web Content Accessibility Guidelines version 2.0 (WCAG 2.0)
4.8	16.09.2014	Update Contacts page
4.9	25.09.2014	Clarification on reportable event notification email address
4.10	13.03.2015	Update on report sign off process to ensure Environment Manager signoff and acknowledgement. Reference to RMD incident fact sheet. Priority reference to Part 5.7 incidents. General formatting and editorial amendments
4.11	20.05.2015	Update of the incident form work flow to ensure Project Manager approval and Regional Environment Manager concurrence. Clarification of a Category 2 procedural / administrative/ documentation incident
4.12	05.02.2016	Editorial corrections, amendments to report form, update contact list

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1 BACKGROUND

1.1 Purpose

To ensure that Roads and Maritime Services has processes to classify and report environmental incidents that may occur during Roads and Maritime managed activities and to comply with its statutory obligations to report certain incidents.

1.2 Scope and Coverage

This Procedure is for the use of all Roads and Maritime staff in all regions and divisions where environmental incidents may occur, including where incidents occur during the course of Roads and Maritime's contractors or alliance members undertaking works. The procedure is to clearly define the requirements of Roads and Maritime staff and contractors to report environmental incidents. The procedure does NOT cover environmental incidents caused by traffic accidents or boating accidents nor marine oil and chemical spills covered by the National Plan¹.

The Roads and Maritime Environmental Incident Classification and Reporting Procedure relates to incidents involving Roads and Maritime or its contractor/alliance partners and is for internal reporting processes as outlined in this procedure..

1.3 Responsibilities

All Roads and Maritime staff and contractors are responsible for reporting an environmental incident in accordance with this procedure when they become aware of the incident. Regional Maintenance Delivery (RMD) shall manage environmental incidents in accordance with the RMD Environmental Incident Fact Sheet at this [link](#).

2 CLASSIFICATION, NOTIFICATION AND REPORTING PROCESS

2.1 Environmental Incident Classification

There are three categories of environmental incidents / events that are to be identified and managed as shown in shown in Table 1.

- Category 1 Incidents -- potentially the most serious incidents. They generally reflect breaches of environmental legislation.
- Category 2 Incidents - are generally less environmentally serious and generally have lower maximum penalties. Nevertheless, there are sound policy reasons why these incidents need to be identified and reported, including in order to track potential trends that may lead to Category 1 incidents if not addressed
- Reportable Events - This category captures events that occur outside the scope of reasonable controls and mitigation.

¹ The National Plan to Combat Pollution of the Sea by Oil and Other Noxious and Hazardous Substances

Table I Environmental Incident Classification Categories

Incident Category	Primary Legislative Requirements and offence provisions
<div style="background-color: red; color: white; text-align: center; padding: 10px; writing-mode: vertical-rl; transform: rotate(180deg); font-weight: bold;">Category 1</div> <p>Pollution Incidents Breaches of the <i>Protection of the Environment Operations Act POEO Act (1977)</i> particularly s.148 (notification requirements).</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>Pollution incidents which cause, or threaten to cause, material harm to the environment, that is, actual or potential harm to the health or safety of humans or ecosystems that is not trivial or that results in actual or potential loss or damage over \$10K must be NOTIFIED to the EPA and other relevant authorities.</p> </div>	<p>Discharge of waters from site not in accordance with any applicable Minor Works memo or safeguard / Part 5 determination / approval / licence condition</p> <ul style="list-style-type: none"> ▪ (EP&A Act particularly s.115W, s.76A, s.115W: POEO Act particularly s.64)
	<p>Pollution, or potential pollution, of waters with sediment or chemicals/fuels/oils that travel beyond the site boundary causing or potentially causing adverse impact to the environment, including discharges or spills to waters from the Rozelle Maritime marina or Maritime operated vessels</p> <ul style="list-style-type: none"> ▪ (s.120 POEO Act – water pollution, sediment laden water, chemical/oil spill and sewage/septic overflow)
	<p>Emission of excessive levels of dust, or an offensive odour or noise that travel beyond the site boundary and might impact on nearby land users</p> <ul style="list-style-type: none"> ▪ (s.126 POEO Act - dust exceeding reasonable levels without active management measures in place, s.129 - offensive odour;.s.139 - offensive noise)
	<p>Unauthorised disposal or transport of waste</p> <ul style="list-style-type: none"> ▪ s.143 POEO Act – Unlawful transporting or depositing of waste
	<p>A spill or other incident that causes pollution to land or residual environmental impact.</p> <ul style="list-style-type: none"> ▪ (s.116 POEO Act – spills and leaks generally, s.142 – pollution of land)
<p>Conservation Breaches Breaches of the <i>National Parks & Wildlife Act (1974)</i> NPW Act Fisheries Management Act (1999) FMA Act and the <i>Environment Protection and Biodiversity Conservation Act (1999)</i>. EPBC Act</p>	<p>Unauthorised harm or damage to native vegetation, threatened species, endangered populations, endangered ecological communities or critical habitat.</p> <ul style="list-style-type: none"> ▪ NPW Act particularly s.118A, s.118C and s.118D
	<p>Unauthorised harm to threatened aquatic species and protected marine vegetation or unauthorised dredging or reclamation works within a watercourse.</p> <ul style="list-style-type: none"> ▪ FMA Act (1994) particularly s. 199 and 204A.NPW Act particularly s.118A, s.118C and s.118D.
	<p>A fire that travels beyond the boundary causing or potentially causing adverse impact on the environment or community.</p>

	<p>Heritage Breaches Breaches of the Heritage Act (1977) and NPW Act (1974), EPBC Act (1999)</p>	<p>Unauthorised harm to Aboriginal objects and Aboriginal places.</p> <ul style="list-style-type: none"> ▪ <i>NPW Act</i> particularly s.86 and s.87. <i>EPBC Act 1999 s.15A, B & C</i>
		<p>Unauthorised damage to any State or locally significant relic or Heritage item</p> <ul style="list-style-type: none"> ▪ <i>Heritage Act 1977</i> particularly s. 57, s.119, s.139 and s.156. <i>EPBC Act 1999 s.15A, B & C</i>
	<p>Planning Breaches Breaches of the Environmental Planning & Assessment Act (1979) EP&A Act, Protection of the Environment Operations Act (1977) POEO Act.</p> <p>(also refer Category 2 exception)</p>	<p>Works undertaken outside approved areas, without required approval, without environmental assessment.</p> <ul style="list-style-type: none"> ▪ EP&A Act particularly s.115W, and s.111 ▪ POEO Act particularly s.64
		<p>Failure to comply with a Minor Works memo or safeguard / Part 5 determination / approval or permit/ environment protection licence condition.</p> <ul style="list-style-type: none"> ▪ EP&A Act particularly s.75D, s.76A, s.115 ; ▪ POEO Act s. 64
Category 2	A procedural, administrative or technical breach that relates to the preparation or submission of documents, reports or other correspondence.	
	Failure to implement component of Environment Management Plan or work method statement that does not result in a Category 1 incident.	
	Spills that do not leave a site boundary and are cleaned up without environmental harm or residual environmental impact	
	A fire that is contained on site and does not cause or potentially cause adverse impact to the environment or community	
Reportable Events	Material travelling beyond a site boundary, and where it can be demonstrated that the erosion and sediment controls have been installed and maintained well, and the weather (rain, wind etc) event exceeds the design capacity of controls.	
	An unexpected archaeological and is being managed in accordance with the " Roads and Maritime Standard Management Procedure - Unexpected Archaeological Finds"	
	An unexpected threatened species find that has been discovered and not previously identified during previous environmental assessments and is being managed in accordance with the "Roads and Maritime Biodiversity Guidelines – unexpected threatened species finds procedure"	
	An unexpected find of contaminated soils, asbestos or other potentially hazardous substances.	
	A formal complaint or warning from a regulatory agency	

2.2 Environmental Incident Response

Table 2 details the response to each incident category and Appendix 2 gives information in relation to who is responsible for the various management actions described below. The table provides information of the type of response and whether it is required to be undertaken by Roads and Maritime and/or the Roads and Maritime contractor. Regional Maintenance Delivery (RMD) shall manage environmental incidents in accordance with the RMD Environmental Incident Fact Sheet at this [link](#).

If in doubt, treat all incidents as Category 1 and in consultation with the PME0, a decision can be made to reclassify the category.

Table 2: Environmental Incident Response

Category 1 Incident Response	
1	<p>Stop work in relevant area (if necessary) and take immediate actions to prevent adverse impact to the environment or community.</p> <p>Note that the health and safety of workers is the primary concern, and no action should be taken if it is not safe to do so.</p>
2	<p>For NOTIFIABLE POLLUTION INCIDENTS refer to section 2.4 below.</p> <p>For all other Category 1 incidents immediately advise RMS Project Site Management and relevant RMS Regional Environment Manager who must immediately advise Principal Manager Environment Operations (PME0) by phone.</p>
3	<p>Complete the environmental incident report form 624 and submit to Regional Environment Manager and the Environment Operations mailbox within 3 days of the date of the incident. The RMS Project Manager must approve the incident report and submit to the RMS Regional Environment Manager who will signoff as concurrence of receipt and submit to PME0 and the Environment Operations mailbox by email on the same day of receipt.</p>
Category 2 Incident Response	
1	<p>Stop work in relevant area (if necessary) and take immediate actions to prevent adverse impact to the environment or community.</p> <p>Note that the health and safety of workers is the primary concern, and no action should be taken if it is not safe to do so.</p>
2	<p>Advise relevant RMS Regional Environment Manager (Roads and Maritime contractors to advise Roads and Maritime Project Site Management).</p>
3	<p>Complete the environmental incident report form 624 (and submit to RMS Regional Environment Manager and the Environment Operations mailbox within 3 days of the date of the incident. The Regional Environment Manager will signoff and submit to PME0 and the Environment Operations mailbox by email on the same day of receipt.</p>
Reportable Event Response	
1	<p>RMS Regional Environment Manager to advise Principal Manager Environment Operations by email with copy to the Environment Operations mailbox. Roads and Maritime contractors to advise Roads and Maritime Project Site Management</p>

2.3 Environmental Incident Reporting

It is important that there is consistency in the way that an environmental incident is reported. The incident report form and any subsequent reports must only include factual information. Speculation about the causes and outcomes are not to be included. The completed reports must be forwarded through regional Environment Managers or relevant Project Manager to the Principal Manager Environment Operations.

The following email conventions must be used when emailing and reporting on environmental incidents:

2.1.1 The Environment Incident Report Form

All environmental incidents must be reported by project staff and project managers through the Environment Incident Report Form (refer Appendix 1, Form 624 available here or Form 400 for Regional Maintenance Delivery projects available here).

2.1.2 Environmental Incident Report Form Completion

All parts of the form must be completed

- The form must be signed off by:
 - the person making the report; and
 - the RMS Regional Environment Manager.
- It is the responsibility of the RMS Regional Environment Manager to complete the section regarding the notification of the incident to the EPA and other relevant authorities.

2.1.3 Environment Operations mailbox

The Environment Operations mailbox is envops@rms.nsw.gov.au

2.1.4 Email Subject Line

When emailing an Environmental Incident Report to the Environment Operations mailbox, the subject line must include the incident category level (1 or 2), the project name and date. This will ensure that any subsequent emails relating to the incident may be adequately captured and tracked by Environment Branch. For example, the email subject line convention would be written as "Category 1 – Raleigh Road Upgrade – 1/10/15".

2.1.5 Submitting the Form

All environmental incident report forms must follow the following signoff workflow:

1. preparation and signoff by the person preparing the report (RMS or contractor staff)



2. approval by the RMS Project Manager,



3. signoff concurrence by the relevant RMS Regional Environment Manager and forwarding to the Environment Operations mailbox.

The Regional Environment Manager may also request further information regarding the incident. The Regional Environment Manager should submit the form within timeframes and include DRAFT in the subject line while waiting for the information which must be provided and resubmitted within the timeframes requested.

2.4 Regulatory Agency Notification

There are specific statutory requirements relating to the notification of pollution or environmental incidents to relevant regulatory agencies. These are summarised in table 3 below

Table 3: Environmental Incident Notification Requirements

Legislation	Regulating Authority	Section
POEO Act 1997 (see Section 2.5)	EPA and relevant authorities	Section 148 – requirement to immediately notify pollution incidents occurring during an activity that cause or threaten material harm to the environment.
Heritage Act 1977	EPA	Section 146 – requirement to notify the Heritage Council of the location of the relic once a relic has been discovered or located.
National Parks and Wildlife Act 1974	EPA	Section 89A – requirement to notify the location of an Aboriginal object that is the property of the Crown.
Commonwealth Aboriginal and Torres Strait Islanders Heritage Protection Act, 1984	Department of Environment	Section 20 – requirement to notify the Minister of the discovery of Aboriginal remains.
Contaminated Land Management Act 1997	EPA	Section 60 – requirement to notify if Roads and Maritime activities have contaminated land or if Roads and Maritime owns land that has been contaminated.
Rural Fires Act 1997	NSW Fire Brigades	Section 64 – requirement to notify an appropriate fire officer of the inability to extinguish any fire burning during a bush fire danger.

Should an environmental incident have the potential to impact on a drinking water supply, the relevant water supply authority must also be advised.

It is the responsibility of Environment Managers to liaise with Environment Operations Section prior to notifying regulatory agencies of relevant environmental incidents.

2.5 POEO Act Notification of Material Harm

Under Part 5.7 of the POEO Act, there is a duty to notify each relevant authority (identified below) of a pollution incident, where material harm to the environment is caused or threatened. Material harm includes actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial or that results in actual or potential loss (refer definitions in s147 of POEO Act) or property damage of an amount over \$10,000.

The following notification procedure only relates to pollution incidents.

Conservation, heritage and planning breaches described in Section 2.1 are not included in the definition of a pollution incident with respect to Part 5.7 of the POEO Act.

Roads and Maritime is not responsible for notifying a pollution incident caused by a traffic or vehicle accident where notification has already occurred. Notification is required by the person carrying on the activity “immediately upon becoming aware” of the incident.

IMPORTANT NOTE

- The following procedure is to be followed by all Roads and Maritime staff and contractors.
- Any actual or potential material harm to a person’s health or well being or the environment as a result of a pollution incident must be reported immediately to Principal Manager Environment Operations on (02) 8588 5765.
- Contractors who hold an environment protection licence for their activities are responsible for implementing their compliant Pollution Incident Response Management Plan including notifying EPA and the other relevant authorities in accordance Part 5.7 of the POEO Act **and** any relevant Conditions of their EPL
- Contractors undertaking works without an EPL are responsible for notifying Roads and Maritime, EPA and the relevant authorities in accordance Part 5.7 of the POEO Act.

As soon as a Roads and Maritime employee becomes aware of a **Category 1 pollution incident**, all Roads and Maritime environment officers and project managers are to **immediately** notify Principal Manager Environment Operations on (02) 8588 5765 of all **Category 1 pollution incidents**. RMD staff are to notify according to RMD Environmental Incident Fact Sheet. PME0 will assist in making an assessment of the incident and determine whether or not to formally notify the incident to the EPA and other relevant authorities.

If for any reason that PME0 is not contactable, staff should contact their regional Roads and Maritime Environment Managers (or Regional Maintenance Delivery Environmental Manager for Regional Maintenance Delivery projects) to assist in assessing whether an incident triggers the notification requirement.

If no assistance can be obtained within a reasonable time, you are required to notify the relevant authorities in the order of notification outlined in the table below and provide each agency with the information required in section 2.5 of this procedure. Even if you do not have all the information, you must notify each agency with the information you have at hand and ensure that they are updated as soon as further relevant information becomes available.

In circumstances where there is doubt about the need to notify or the relevance of a particular agency, Roads and Maritime should always err on the side of notification.
When in doubt, communicate!

2.5.1 Relevant Authorities to Notify

Table 4 provides the contact details for the authorities that need to be notified in the event of a material harm pollution incident.

Table 4: Appropriate Authorities for Part 5.7 Incident Notification

Relevant Authority	Contact Number
Fire and Rescue NSW	000 (for pollution incidents that present an immediate threat to human health or property) 1300 729 579 (for pollution incidents that do not present an immediate threat to human health or property)
EPA environment line	131 555
The Ministry of Health	Via the local Public Health Unit see Appendix 3
WorkCover Authority	131 050
The appropriate regulatory authority	Your Local Council or Western Lands Commissioner for the Western Division (except any part of the Western Division within the area of a local council)
Local Council	Please call Division of Local Government on 4428 4100 to find relevant local council contacts or visit their website on http://www.dlg.nsw.gov.au/

The appropriate contact for the relevant local council and Public Health Unit will vary. All necessary contact numbers should be found in advance and stored for immediate access should a pollution incident need to be notified.

Relevant authorities notification order

- **If the incident presents an immediate threat to human health or property, Fire and Rescue NSW, the NSW Police and the NSW Ambulance Service should be contacted first for emergency assistance**
 - call Fire and Rescue NSW on 000 first then
 - EPA environment line
 - The Ministry of Health
 - WorkCover Authority
 - Local Authority (Council)

- **If there is not an immediate threat to human health or property:**
 - call EPA environment line first then
 - Local Authority (Council)
 - The Ministry of Health
 - WorkCover Authority
 - Fire and Rescue NSW on 1300 729 579

All of the above authorities (whether considered relevant or not) must be contacted for each material harm pollution incident to satisfy notification obligations

2.5.2 The relevant information to provide

Section 150 of the POEO Act provides the information that needs to be notified. It is important to avoid speculation on origin, causes or outcomes of a pollution incident in discussions with the authorities. While it is important not to speculate on the causes of an incident, s150 (1) (d) of the POEO Act requires notification of the circumstances in which the incident occurred (including the cause of the incident, if known) and there is an ongoing duty ensure that relevant information be notified after it becomes known.

Section 150 POEO Act - Relevant information to given

1. The relevant information about a pollution incident required under section 148 consists of the following:
 - a. the time, date, nature, duration and location of the incident,
 - b. the location of the place where pollution is occurring or is likely to occur, the nature, the estimated quantity or volume and the concentration of any pollutants involved, if known,
 - c. the circumstances in which the incident occurred (including the cause of the incident, if known),
 - d. the action taken or proposed to be taken to deal with the incident and any resulting pollution or threatened pollution, if known,
 - e. other information prescribed by the regulations.
2. The information required by this section is the information known to the person notifying the incident when the notification is required to be given.

If the information required to be included in a notice of a pollution incident by subsection (1) (c), (d) or (e) is not known to that person when the initial notification is made but becomes known afterwards, that information must be notified in accordance with section 148 immediately after it becomes known.

Note: if a pollution incident occurs, the above information is to be initially communicated verbally to each relevant authority and is to be followed by written notification within 7 days of the date on which the incident occurred (Clause 101 POEO (Gen) Regs).

Complying with these notification requirements does not remove the need to comply with any other obligations for incident notification, for example, those that apply under other environment protection legislation such as an EPL condition or legislation administered by WorkCover.

Should Roads and Maritime receive a request from a regulatory authority for a written report regarding an environmental incident, the relevant Project Manager must immediately contact Environment Branch and Legal Branch for advice. Communications with Legal Branch, for the purpose of obtaining legal advice in relation to incidents, may be subject to legal professional privilege. Documents that may be the subject to legal privilege should be clearly identified and sent to Legal Branch prior to producing them to a regulatory agency. Such documents may not be required to be produced to the agencies under written notices to provide information. Environment Branch will provide advice and will co-ordinate a response with Legal Branch. Environment Branch and Legal Branch will assist in the investigation of incidents, prepare legal advice and assist with the preparation of reports to EPA, OEH and DP&I.

Appendix 1 Environmental Incident Report Form

Form 624 available [here](#) or Form 400 for Regional Maintenance Delivery projects available [here](#)



Environmental Incident Report – 624

Complete this form for all environmental incidents that occur due to Roads and Maritime Services works or on Roads and Maritime worksites. The purpose of this form 624 is to alert Environment Branch to potential environmental incidents. It does not represent the Roads and Maritime final position for any incident reported on this form.

Remember! Complete all fields prior to submitting form. Be succinct, stick to the facts and **do not** make assumptions. Only record information you know to be correct.

Project name:	Region:
Contractor name:	

Incident details	Date	Time	:	am <input type="checkbox"/>	pm <input type="checkbox"/>	Duration	hr:	min
-------------------------	------	------	---	-----------------------------	-----------------------------	----------	-----	-----

Description (provide a brief description of what happened during the incident)	
EXACT location of the incident (include chainage, landmarks, features, nearest cross street, etc to make it easier to identify later) - provide a sketch if appropriate	
Quantity or volume of material escaped or causing incident (provide an estimate if quantity unknown)	
Estimated distance to nearest waterway or sensitive receiver (can include stormwater drains and dry watercourses)	
What activity was being undertaken when the incident occurred?	
How was the incident identified? (e.g. Roads and Maritime employee, Council, community, complaint)	

Potential Category 1 Incident: (may involve one or more of the following – tick category, fill in table over page)

<input type="checkbox"/> Pollution, or potential pollution, of waters with sediment or chemicals/fuels/oils that travel beyond the site boundary causing or potentially causing adverse impact to the environment, including discharges or spills to waters from the Rozelle Maritime marina or Maritime operated vessels.	<input type="checkbox"/> Unauthorised harm or damage to native vegetation, threatened species, endangered populations, endangered ecological communities or critical habitat.
<input type="checkbox"/> Discharge of waters from site not in accordance with any applicable Minor Works memo or safeguard / Part 5 determination / approval / licence condition.	<input type="checkbox"/> Material harm to the environment or persons as per Part 5.7 of POEO Act.
<input type="checkbox"/> Works undertaken outside approved areas, without required approval or environmental assessment.	<input type="checkbox"/> Unauthorised harm or damage to threatened aquatic species and protected marine vegetation or unauthorised dredging or reclamation works within a watercourse.
<input type="checkbox"/> Unauthorised harm to Aboriginal objects and Aboriginal places or damage to any State or locally significant relic or Heritage item.	<input type="checkbox"/> Unauthorised damage or destruction to any State or locally significant relic or Heritage item.
<input type="checkbox"/> A spill or other incident that causes pollution to land or residual environmental impact.	<input type="checkbox"/> Emission of excessive levels of dust, or an offensive odour or noise that travel beyond the site boundary and might impact on nearby land users.
<input type="checkbox"/> Breach of legislation, failure to comply with a Minor Works memo or safeguard / Part 5 determination / approval or permit / environment protection licence condition.	<input type="checkbox"/> Unauthorised disposal or transport of waste.
	<input type="checkbox"/> A fire that travels beyond the boundary causing or potentially causing adverse impact on the environment or community.

Potential Category 2 Incident: (may involve one or more of the following – tick category, fill in table over page)

<input type="checkbox"/> A procedural, administrative or technical breach that relates to the preparation or submission of documents, reports or other correspondence.
<input type="checkbox"/> Failure to implement component of Environment Management Plan or work method statement that does not result in a Category 1 incident.
<input type="checkbox"/> Spills that do not leave the site boundary and are cleaned up without material environmental harm or residual environmental impact.
<input type="checkbox"/> A fire that is contained on site and does not cause or potentially cause adverse impact to the environment or community.

Any other details of the incident (including any information which did not fit in spaces above, as well as any special circumstances of the day or the location):

.....
.....
.....

What immediate actions/control measures were taken to rectify or contain the incident?

.....
.....
.....

What corrective action has been taken to prevent similar incidents recurring?

.....
.....
.....

Sign off (officer making report)

Print name:	Sign:
Position:	Date:

Approval (Roads and Maritime Project Manager)

Sign:	Print name:	Date:
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Notification to EPA and other relevant authorities

To be completed by the relevant Roads and Maritime Environment Manager	
Was EPA notified?	<input type="checkbox"/> Yes <input type="checkbox"/> No - If No, provide reasons for not notifying EPA
Who notified them?	Name: Position:
Notification method:	<input type="checkbox"/> Telephone <input type="checkbox"/> On site Date: Time::..... am <input type="checkbox"/> pm <input type="checkbox"/>
Has there been a EPA Environment Line Complaint?	<input type="checkbox"/> Yes <input type="checkbox"/> No EPA Complaint No.
Were any of the following authorities notified?	<input type="checkbox"/> NSW Fire & Rescue <input type="checkbox"/> Local Government <input type="checkbox"/> WorkCover <input type="checkbox"/> Ministry of Health
Were any other authorities notified and why (eg Department of Planning and Environment, Department of Primary Industries (Fisheries), Sydney Catchment Authority, Office of Environment & Heritage).	
Is there an Environment Protection Licence for the project?	<input type="checkbox"/> Yes <input type="checkbox"/> No
▶ If Yes – was the Pollution Incident Response Management Plan implemented	<input type="checkbox"/> Yes <input type="checkbox"/> No

Concurrence (Roads and Maritime Environment Manager)

Print name:	Sign:	Date:
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Comments

.....

Please submit all completed forms to Environment Branch by email to envops@rms.nsw.gov.au

APPENDIX 2 ROADS AND MARITIME CONTACTS

Position	Location	Phone	Mobile
General Manager Environment	North Sydney	8588 5730	
Principal Manager Environment Operations	North Sydney	8588 5766	0417 652 929
Principal Manager Environment (IDD)	North Sydney	8588 5765	0428 608 758
Principal Manager Environment Policy, Planning and Assessment	North Sydney	8588 5740	0439 595 361
Maritime Division Emergency Planner Officer	Rozelle office	9563 8476	0428 740 520
Senior Environment Specialist – Biodiversity	North Sydney	8588 5756	0439 595 361
Senior Environment Specialist - Heritage	North Sydney	8588 5754	0400 474 405
Environment Manager Motorways	North Sydney	8588 4372	0408 989 693
Environment Manager Sydney	Parramatta	8849 2516	0411 148 513
Environment Manager Western	Parkes	6861 1628	0418 851 454
Environment Manager Southern	Wollongong	6492 9515	0447 443 957
Environment Manager Northern	Grafton	6640 1072	0411 406 519
Environment Manager South-West	Wagga Wagga	6937 1634	0418 496 325
Environment Manager Hunter	Newcastle	4924 0440	0413 483 539
Environment Manager Pacific Highway	Grafton	6640 1375	0419 248 583
Environment Manager Easing Sydney Congestion	Parramatta	8849 2516	0411 148 513
Environment Manager Freight and Regional	Newcastle	4924 0281	0411 126 989
Environment Manager Western Sydney	Parramatta	8849 2165	0476 813 083
Environment Manager Greater Sydney	Parramatta	8588 4372	0408 989 693
A/Environmental Manager Regional Maintenance Delivery	Grafton	6640 1377	0409 079 644

APPENDIX 3 CONTACT DETAILS FOR PUBLIC HEALTH UNITS

Public Health Unit	Contact Details	After Hours Contact
Goulburn Office	Locked Bag 11, Goulburn, 2580 Ph: 02 4824 1840 Fax: 02 4824 1831 / 4822 5038 (s)	Ph: 02 6080 8900 (diverts to Albury Base Hospital) - ask for Public Health Officer on call,
Albury Office	PO Box 3095, Albury, 2640 Ph: 02 6080 8900 Fax: 02 6080 8999	Ph: 02 6080 8900 (diverts to Albury Base Hospital) - ask for Public Health Officer on call,
Broken Hill Office	PO Box 457, Broken Hill, 2880 Ph: 08 8080 1499 Fax: 08 8080 1683 / 1196 (s)	Ph: 08 8080 1333 (Broken Hill Base Hospital) - ask for Public Health Officer on call, if no answer: Mob: 0417 685 259
Dubbo Office	PO Box 739, Dubbo, 2830 Ph: 02 6841 5569 Fax: 02 6841 5571 (s)	Ph: 02 6885 8666 (Dubbo Base Hospital) - ask for Public Health Officer on call, if no answer: Mob: 0418 866 397 - ask for Public Health Officer on call
Bathurst Office	PO Box 143, Bathurst, 2795 Ph: 02 6339 5601 Fax: 02 6339 5173 (s)	Mob: 0428 400 526 - ask for Public Health Officer on call
Newcastle Office	Locked Bag 10, Wallsend, 2287 Ph: 02 4924 6477 Fax: 02 4924 6490 / 4922 3164 (s)	Ph: 02 4924 6477 (diverts to John Hunter Hospital) - ask for Public Health Officer on call
Tamworth Office	Locked Mail Bag 9783, NEMSC 2348 Ph: 02 6764 8000 Fax: 02 6766 3890 (s)	Ph: 02 6764 8000 (diverts to Public Health Officer on call)
Matrville Office	PO Box 150, Matrville 2036 Ph: 02 9311 270 Fax: 02 9700 3747 (s)	Ph: 02 9311 2707
Port Macquarie Office	PO Box 126, Port Macquarie 2444 Ph: 02 6588 2750 Fax: 02 6588 2837	Pager Service: 1300 555 555 Communicable Disease: 48073 Environmental Health: 149 3771f no answer phone: Mob 0417 244 966 or Mob 0407 904 280

Public Health Unit	Contact Details	After Hours Contact
Lismore Office	PO Box 498, Lismore 2480 Ph: 02 6620 7585 Fax: 02 6622 2151 / 6620 2552 (s)	Pager Service: 1300 555 555 Communicable Disease: 48073 Environmental Health: 149 3771f no answer phone: Mob 0417 244 966 or Mob 0407 904 280
Hornsby Office	Hornsby Hospital, Palmerston Rd, Hornsby 2077 Ph: 02 9477 9400 Fax: 02 9482 1650 / 1358 (s)	Ph: 02 9477 9123 (Hornsby Hospital) - ask for Public Health Officer on call
Gosford Office	PO Box 361, Gosford, 2250 Ph: 02 4349 4845 Fax: 02 4349 4850 (s)	Ph: 02 4320 2111 (Gosford Hospital) - ask for Public Health Nurse on call
Randwick Office	Locked Bag 88, Randwick 2031 Ph: 9382 8333 Fax: 02 9382 8334 / 8314 (s)	Ph: 02 9382 2222 (Prince of Wales Hospital) - ask for Public Health Nurse on call
Wollongong Office	Locked Bag 9, Wollongong 2500 Ph: 02 4221 6700 Fax: 02 4221 6759 (s)	Ph: 02 4222 5000 (Wollongong Hospital) - ask for Public Health Officer on call
Eastern Zone(Camperdown Office) For Liverpool Area, please dial the Camperdown office.	PO Box 374, Camperdown 2050 Ph: 02 9515 9420 Fax: 02 9515 9440 Fax: 02 9515 9467 (s)	Ph: 02 9515 6111 (Royal Prince Alfred Hospital) - ask Public Health Officer on call
Penrith Office	PO Box 63, Penrith 2751 Ph: 02 4734 2022 Fax: 02 4734 3300 / 3444 (s)	Ph: 02 9845 5555 (Westmead Hospital) - ask for Public Health Officer on call
Parramatta Office	Locked Bag 7118, Parramatta BC 2150 Ph: 02 9840 3603 Fax: 02 9840 3608 / 3591 (s)	Ph: 02 9845 5555 (Westmead Hospital) - ask for Public Health Officer on call

Appendix A8
Environmental inspection checklist

Weekly Inspection Checklist

conducted for

Sample construction site

Document No.

000021

Audit Title

Sample environmental inspection

Conducted on

2/06/2016, 9:28 AM

Prepared by

J.Bloggs

Location

Sample location

Rainfall in the last 24hrs (mm):

0

Weather:

Sunny

Completed on

2/06/2016, 9:35 AM

Score

40/43 - 93.02%

Disclaimer

The assessors believe the information contained within this risk assessment report to be correct at the time of printing. The assessors do not accept responsibility for any consequences arising from the use of the information herein. The report is based on matters which were observed or came to the attention of the assessors during the day of the assessment and should not be relied upon as an exhaustive record of all possible risks or hazards that may exist or potential improvements that can be made.

Information on the latest workers compensation and OHS / WHS laws can be found at the relevant State WorkCover / WorkSafe Authority.

Confidentiality Statement

In order to maintain the integrity and credibility of the risk assessment processes and to protect the parties involved, it is understood that the assessors will not divulge to unauthorized persons any information obtained during this risk assessment unless legally obligated to do so.

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General Compliance - 4/4 - 100%

Question	Response	Details
General Compliance		Score (1/1) 100%
The site is generally in a tidy condition	Compliant	
All materials and equipment are contained within the project boundary	Compliant	
All works are undertaken within the project boundary	Compliant	
Designated haulage routes and access points are being used	Compliant	

Soil and Water Management - 21/24 - 87.5%

Question	Response	Details
Soil and Water Management		
All clean water is being diverted away from disturbed areas	Compliant	
All clean water diversion drains are stable	Compliant	Great example of stabilised vegetated drain at CH560 western drain
Sediment fence is installed correctly and there are no gaps	Non - Compliant	Sediment fence requires maintenance Action: repair Sed fence
Action risk rating	Medium	Closeout due by: (ENTER DATE)
Disturbed areas where no works are undertaken are properly covered or stabilised	Compliant	
Areas of localised soil erosion have been identified and appropriate preventative measures implemented	N/A	
There are no areas of potential or actual concentrated flow that do not flow to sediment basins/traps	Compliant	
Slope lengths are maintained at appropriate lengths to slow flows down and minimise erosion	Compliant	
Check dams are used within diversion drains where required to slow flows down and minimise erosion within the drains	Compliant	
Geotextile linings (or similar) are used to provide temporary surface protection in areas where appropriate (e.g. batter drains, culvert construction)	Compliant	
Stockpiles are sited in low-hazard areas clear of watercourses and flood prone lands	Compliant	
Cut-off drains on the upslope side and sediment fencing on the downslope side are in place for all stockpile areas within the site	Compliant	


000021

Sample environmental inspection

Score (21/24) 87.5%

Question	Response	Details
Stockpiles are less than 2m in height	Compliant	
Sediment control measures are constructed as close to the potential source of sediment as possible	Compliant	
Shakers, rubble pads or wash down areas have been installed	Non - Compliant	Gate 5 rumble pad requires maintenance Action: muck silt out of pad and re-instate
Action risk rating	Low	Closeout due by: (ENTER DATE)
There is no mud on the roads outside of the project boundary	Non - Compliant	As above checklist item. Action: constant sweeper passes during a day
Action risk rating	Medium	Closeout due by: (ENTER DATE)
Sediment fencing or equivalent is provided downslope of disturbed areas that can't be directed into a designated sediment basin	Compliant	
Sediment basin volume markers intact and clearly visible	Compliant	
Sediment basin inlets and outlets are stable	Compliant	
Accumulated sediment is below 30% of the sediment storage zone	Compliant	
The basins have been emptied since the last rain event and restored to their design capacity (if not, explanation must be provided)	Compliant	
All discharges are undertaken in accordance with Dewatering Permits	Compliant	

Air Quality/Dust Management - 2/2 - 100%

Question	Response	Details
Air Quality/Dust Management		
Dust suppression, i.e. water cart, is being used to minimise dust emissions	Compliant	
No visible dust leaving the Project boundary	Compliant	Water carts in use along fill 7
<div style="display: flex; align-items: flex-start;">  <div style="margin-left: 10px;"> <p>Appendix 1</p> </div> </div>		

Vegetation Management - 5/5 - 100%

Question	Response	Details
Vegetation Management		
Clearing limits and work boundaries are established and well defined	Compliant	
Clearing and grubbing works are undertaken in accordance with Clearing and Grubbing Permits	Compliant	
No materials are stockpiled and no vehicles are parked under trees' drip line	Compliant	
Exclusion fencing around trees and sensitive areas is intact	Compliant	
No visible weed infestation	Compliant	

Heritage Management - 1/1 - 100%

Question	Response	Details
Heritage Management		
Exclusion fencing around heritage protected areas is intact	Compliant	

Waste Management and Storage of Hazardous Materials - 7/7 - 100%

Question	Response	Details
Waste Management and Storage of Hazardous Marerials		
Wastes are segregated in designated containers	Compliant	
Contaminated soil/asbestos storage areas are fenced off and signposted	Compliant	
Concrete washouts are properly set-up and signposted	Compliant	
Fuel/chemicals stored in bunded areas	Compliant	
No oil leaks or spills visible on site	Compliant	
Refuelling in designated areas	Compliant	
Spill kits available in designated areas	Compliant	

Media



Appendix 1