Queensland Hydro

Prepared for Borumba PHES Project

Borumba PHES Project – Exploratory Works Construction Environmental Management Plan for Seqwater Compound Facilities

DOCUMENT NUMBER: BR-NA-NON-EMG-PLN-00005

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Acknowledgement of Country

In the spirit of reconciliation, Queensland Hydro acknowledges the Traditional Custodians of Country throughout Queensland and, in particular the lands, skies and waters on which we operate. We celebrate the diversity of Aboriginal peoples and their ongoing cultures and connections to the lands, skies and waters of Queensland.

Queensland Hydro pays respect to Elders past and present honouring their continuing spiritual and cultural connections to Country.

Document Control

Version	Amendment
A - E	Draft for OCG Review
01	Issued for Use

Project name: Borumba Pumped Hydro Energy Storage (PHES) Project - Exploratory Works

Project location: Bella Creek Road & Borgan Road, Lake Borumba, Queensland

Queensland Hydro Pty Ltd

ABN: 81 661 444 515

Acronyms and abbreviations

Term	Description
ACM	Asbestos containing material
AEP	Annual exceedance probability
BTEX	Benzene, toluene, ethylbenzene, xylene
Borumba PHES Project	Borumba Pumped Hydro Energy Storage Project
CEMP	Construction Environmental Management Plan
CSEP	Communications and Stakeholder Engagement Plan
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DETSI	Department of Environment, Tourism, Science and Innovation
DWATSIPM	Department of Women, Aboriginal and Torres Strait Islander Partnerships and Multiculturalism
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EP Act	*Environmental Protection Act 1994*
EP Regulation	Environmental Protection Regulation 2019
EMS	Environmental management system
ERA	Environmentally relevant activity
ESCP	Erosion and Sediment Control Plan
EWA	Early Works Agreement
EWMS	Environmental work method statements
HRSMP	High Risk Species Management Program
IECA	International Erosion Control Association
ILUA	Indigenous Land Use Agreement
km	Kilometre
m	Metre
ML	Megalitres
MLES	Matters of local environmental significance
MNES	Matters of national environmental significance
MSES	Matters of state environmental significance
OCG	Office of the Coordinator-General
OCP	Organochlorine pesticides
PAH	Polycyclic aromatic hydrocarbons
PCB	Polychlorinated biphenyl
PD	Preliminary documentation
PHES	Pumped Hydro Energy Storage
SDPWO Act	*State Development and Public Works Organisation Act 1971*
TCLP	Toxicity characteristic leaching procedure
TPH	Total petroleum hydrocarbons
WHS Act	*Work Health and Safety Act 2011*

1. Introduction

1.1 Background

Queensland Hydro is the proponent of the Borumba Pumped Hydro Energy Storage (PHES) Project (the Borumba PHES Project), a 2,000 megawatt (MW), 48,000-megawatt hour (MWh), hydroelectric scheme to store, generate, and supply energy through a pumped hydroelectric structure linked to the existing Borumba Dam (Lake Borumba). It is located approximately 13 kilometres (km) southwest of the township of Imbil, 48 km southwest of Gympie, and 180 km northwest of Brisbane, within the Yabba Creek sub catchment of the Mary River Basin.

Queensland Hydro owns/manages approximately 2,360 ha of land southwest of Lake Borumba, secured in the 1980s for a potential future PHES site. As such, most of the properties impacted by the Borumba PHES Project are either held by Queensland Government departments or Queensland Government-owned corporations.

The Borumba PHES Project includes two phases:

- Exploratory Works – geological investigations to inform the development of the Borumba PHES Project and supporting infrastructure and activities required to support these investigations.
- Main Works – the PHES Project, including the power infrastructure (powerhouse, water and access tunnels), an upper reservoir, and a lower reservoir (Lake Borumba).

The purpose of the Exploratory Works is to undertake and facilitate critical geological technical investigations to confirm the suitability of the Borumba PHES Project location and design. Investigations are particularly required in areas where key subsurface Borumba PHES Project infrastructure will be constructed due to the limited technical geological information currently available posing considerable project risk.

The Exploratory Works Project was referred under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) on 1 February 2023. Following consideration of the referral and supporting documentation, on 30 March 2023, a delegate for the Commonwealth Minister for the Environment and Water determined the Project to be a controlled action (EPBC 2023/09461) to be assessed by Preliminary Documentation. The Preliminary Documentation has since been developed and lodged, with the Department of Climate Change, Energy, the Environment and Water (DCCEEW) releasing the Notification of approval decision on 11 December 2025.

The majority of the Exploratory Works activities are incorporated in the referral; however there were a number of activities which were specifically excluded from the referral such as works being delivered by third parties and/or due to minimal impacts on matters of national environmental significance (MNES).

In September 2024, the State Development and Public Works Organisation Regulation 2020 was amended to insert a direction to the proponent and the Coordinator-General in relation to the Borumba PHES Project Exploratory Works – Geotechnical and Investigations (referred to as a Works Regulation). This enables a range of activities such as geotechnical investigations and the building of infrastructure to occur in support of the Exploratory Works.

The Works Regulation applies to the construction and operation of Queensland Hydro's proposed site welfare facilities (temporary site office) on Lot 132 on LX2385, near the existing Seqwater water treatment plant. This Construction Environmental Management Plan (CEMP) has been prepared to support the construction of the facilities, herein referred to as the Seqwater Compound Facilities, and to comply with the requirements of the works regulation. These works were not part of the action (EPBC 2023/09461) and are required to support the current works occurring onsite and mitigate social impacts such as parking and traffic.

This CEMP outlines how impacts were first avoided through the design development, and where avoidance was not possible, identifies management measures to minimise and mitigate impacts on environmental, social, and cultural heritage values. This CEMP will be implemented for the duration of the Seqwater Compound Facilities. The design, construction and operational processes have, and will follow the environmental mitigation hierarchy (i.e. avoid, minimise, mitigate, offset) and align with all relevant Australian standards and environmental legislation and policies.

1.2 Purpose and objectives

The purpose of this CEMP is to describe how Queensland Hydro will manage and/or reduce potential impacts to environmental values from the Seqwater Compound Facilities under the works regulation. The Seqwater Compound Facilities do not trigger assessment under the EPBC Act, as identified through a self-assessment. As such, this CEMP relates to potential impacts to general environmental values and matters of local environmental significance (MLES) only. Impacts to MLES under the Gympie Regional Planning Scheme that are also listed under the EPBC Act or *Nature Conservation Act 1992* will be addressed through implementation of management plans provided as part of the Preliminary Documentation (PD) under the EPBC Act. This includes the PD CEMP and Flora and Fauna Management Plan, which are discussed further in Appendix I.

This CEMP outlines how Queensland Hydro will achieve environmental outcomes for the works by providing a structured approach to ensure appropriate mitigation measures and controls are implemented.

The objectives of this CEMP are to:

- identify potential impacts to environmental values identified within and adjacent to the Seqwater Compound Facilities footprint
- outline key roles and responsibilities throughout implementation of this CEMP
- identify measures to minimise and mitigate the identified potential impacts to environmental values within each relevant sub-plan.

This CEMP is a live document and will be reviewed and updated before and during the activities onsite as necessary. It will also be submitted to the Coordinator-General and agreed prior to commencement of construction.

This CEMP includes:

- requirements associated with statutory approvals and applicable laws
- issue-specific environmental management sub-plans
- roles and responsibilities
- communication requirements
- induction and training requirements
- procedures for monitoring and evaluating environmental performance, and for corrective action
- reporting requirements and record keeping
- procedures for emergency and incident management
- procedures for audit and review.

1.3 Third-party Certification

In accordance with the Office of the Coordinator-General's (OCG's) Management Plans and Third-party Certification Framework, the management plan has been certified by an independent Third-party Certifier prior to submission to the Coordinator-General. Certification was undertaken by a suitably qualified person who has had no prior involvement with Queensland Hydro or their projects.

1.4 Distribution

The Environment Manager will coordinate the preparation, review and distribution, as appropriate, of the environmental documents, including environmental approvals and authorities, management plans (including CEMP and relevant subplans), and other records required under Section 4.14. During construction, environmental documents will be stored at the site office within the Seqwater Compound Facilities and can be accessed on request to the Environment Manager.

The approved CEMP will be made available to all personnel, including Queensland Hydro's Representative, Project Manager and subcontractors by hard copy or through the project document control system. An electronic copy will be available on the Borumba PHES Project website. This document is uncontrolled when printed.

1.5 Revision

Refinements to the Exploratory Works Project activities, including these Seqwater Compound Facilities may occur during detailed design or changed circumstances throughout construction. Design changes or changes in scope will be communicated to the Environment Manager either through formal change processes or via informal communications. This CEMP will be updated where there are any changes in the design, scope or legislative changes. Where CEMP revisions are required, the updated versions will be issued to the OCG for acceptance and subsequently distributed in accordance with Section 1.4, prior to undertaking the works. Updated versions or changes to design, scope or legislation will also be captured in monthly reports to the OCG.

Reflecting the staged nature of the project, this CEMP has been prepared for the Seqwater Compound Facilities which are of a short duration (e.g. 4 week construction period) and will therefore not be subject to annual review. Operation of the facility is anticipated to be approximately 3 years while the Exploratory Works activities are being undertaken. The CEMP will also be reviewed and updated (if necessary) prior to decommissioning, should it be determined that the Main Works will not proceed.

2. Project components

Establishment of these temporary facilities is required for Queensland Hydro to meet its Principal Contractor obligations to provide appropriate facilities for the welfare of existing staff presently working on site. These facilities will assist Queensland Hydro in complying with the relevant obligations outlined in section 3 of the Managing the work environment and facilities Code of Practice 2021 (Workplace Health and Safety Queensland, 2021). This is an approved code of practice under section 274 of the *Work Health and Safety Act 2011* (WHS Act) that provides a guide to achieving the standards of health, safety and welfare required under the WHS Act and the Work Health and Safety Regulation 2011. Given the temporary and remote nature of this facility, elements within the Code of Practice have been adopted where reasonably practicable.

The scope of works is described in further detail below, including a description of the activities required, construction details, general plant / equipment and working hours. Design for the compound is provided in Appendix A, noting that the design may change as a result of geotechnical works, project requirements and/or stakeholder input.

The compound will be constructed in a 'staged' manner as follows:

- **Stage 1**
  - site preparation (surface clearing, compacting and site levelling) for the full extent of the Seqwater Compound Facilities. This may include trimming of surrounding trees, following consultation with Seqwater
  - install erosion and sediment controls
  - establish carparks as per the site layout plan
  - install one (1) 12m x 3m office building and one (1) ablutions facility
  - install perimeter fence and gate
  - undertake relevant service relocation or protection to align with site works
  - install a generator with 1,000 litre self-bunded fuel storage tank
  - establish power, water and wastewater connections
  - transport wastewater off-site to a designated treatment facility
  - scheduled deliveries of drinking water.
- **Stage 2**
  - construct the remaining buildings as discussed below in Section 2.1.

Queensland Hydro has followed the environmental mitigation hierarchy by implementing measures to avoid or reduce potential impacts associated with the Seqwater Compound Facilities. This has included:

- locating works components in previously disturbed (e.g. landscaped areas which are regularly maintained or previous hardstand areas) in the first instance, and avoiding areas where clearing would be required wherever possible
- co-locating infrastructure and activities with existing Seqwater infrastructure including using existing access points
- co-locating infrastructure and activities within the proposed Borumba PHES Project footprint to reduce additional disturbance, wherever possible
- reviewing environmental values for the works area and relocating works components to avoid sensitive values
- restricting the footprint to what is anticipated to be required to undertake the works in a safe and efficient manner.

2.1 Proposed temporary site facilities

The proposed temporary Seqwater Compound Facilities are anticipated to comprise:

- four portable office buildings to support a maximum of 18 people
  - a 12 m x 3 m office building
  - a 12 m x 3 m meeting room
  - a 12 m x 12 m office building
  - a 12 m x 3 m kitchen and lunchroom
- two portable ablution blocks, that are 6 m x 3 m each with capacity for 6 kilolitres (kL) of waste storage

- a 10 kilolitre water tank
- parking for up to 15 light vehicles
- a 12 m x 6 m open shelter (standalone roof supported by 6-8 posts and footings)
- a diesel generator with a 1,000 litre self-bunded fuel storage tank
- power is expected to be provided from the existing electricity network via a builders pole (or similar) with a meter. Where this is not deemed possible, a hybrid generator will be used.
- lighting will be installed as necessary for operational requirements, limited to illumination of the building entrances and carpark.

The buildings will be supplied by a third party contractor and placed on a gravel hardstand surrounded by security (chainwire) fencing.

The temporary facilities will be located within the existing Seqwater compound immediately downstream of Borumba Dam (Figure 1), approximately 500 m upstream from the campground. A photograph showing the proposed location of works and the adjacent Seqwater compound is provided in Figure 2.

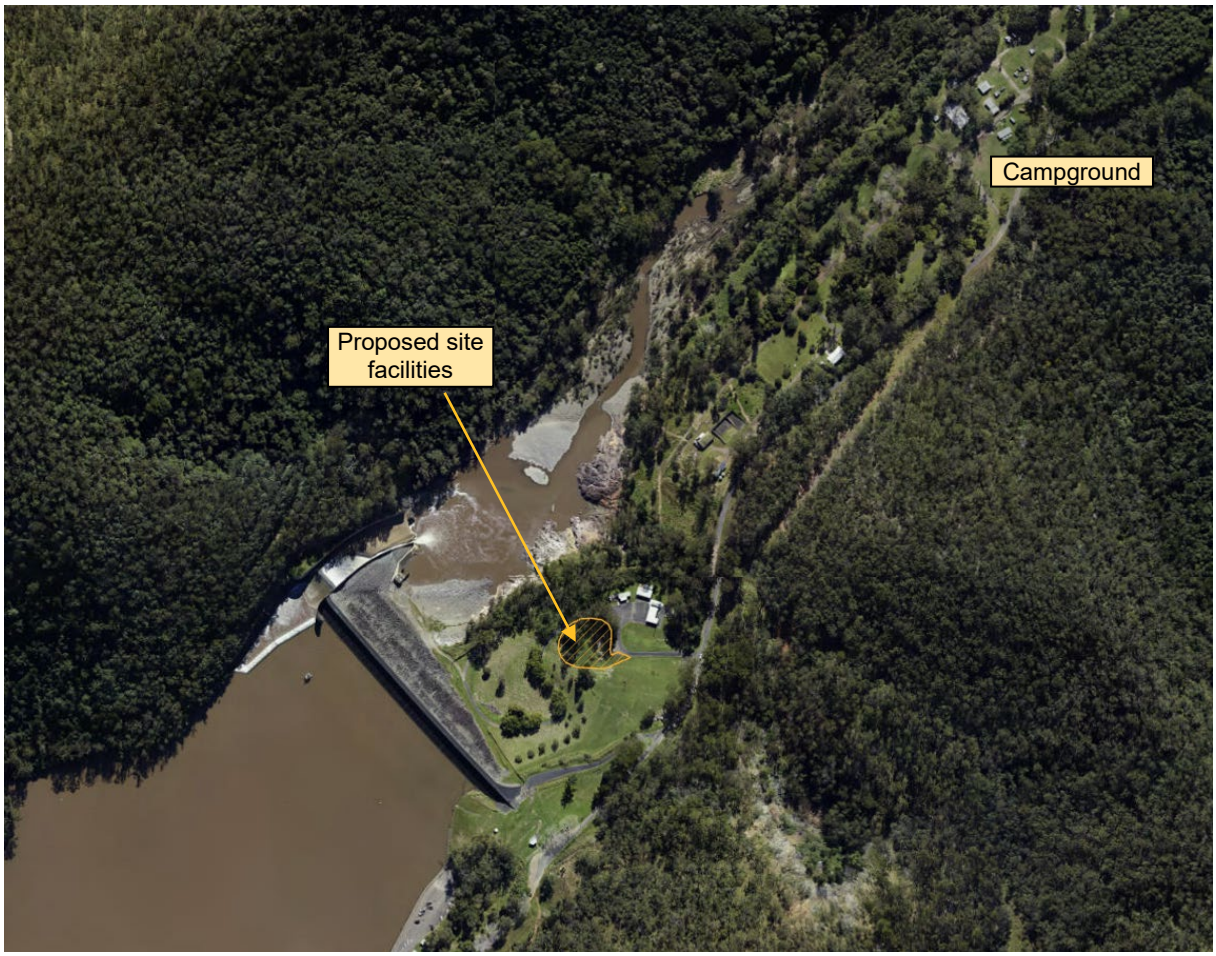

Figure 1: Location of temporary Seqwater Compound Facilities

Figure 2: Proposed location of the compound facilities (red) and the existing Seqwater Compound to the right

2.2 Establishment of facilities

The temporary Seqwater Compound Facilities will be established by:

- removing grass and other organics from the surface over a 1,500 m^2 area (a main pad of approximately 40 x 25 m and another pad approximately 30 x 16 m). Clearing of larger vegetation may be required and will be undertaken in consultation with Seqwater in accordance with the Works and Access Deed. Any native vegetation removed will be mulched and used as a type 3 sediment control
- stripping of topsoil only if necessary to improve the ground to support temporary building structures (e.g. if there is uneven settlement, drainage and grading)
  - if stripping of topsoil occurs, it will be approx. 1,000 m^2 (100 m^3 at 100 mm depth)
  - stripped topsoil will be reused on site or used in safety bunding or drainage diversion
- placing up to 180 m^3 of 19 mm road base across the cleared and stripped area to form a gravel hard stand.
- excavating fence post sites (0.7 m^3 total excavation).
- placing temporary buildings on the gravel hard stand.
- installing a perimeter fence (chainwire fence with barbed wires) to match existing fencing setup at Seqwater facilities.

There will be no spoil generated as a result of the works, only vegetation and topsoil that can be reused on site.

The timeframe to complete the above is approximately 20 business days, subject to weather. This includes approximately 10 business days for stage 1 and 10 business days for stage 2. Works will occur during Queensland Hydro's standard construction working hours (Monday to Sunday, 6:30 am to 6:00 pm).

2.3 Plant and equipment anticipated

To construct the facilities, it is anticipated there will be 12 semi-trailer loads to and from the site. Other plant and equipment required includes:

- grader
- roller
- 20t excavator
- 5t excavator
- skid-steer loader
- watercart.

Traffic and transport impacts have been assessed and will be managed in accordance with the Road-use Management Plan which includes a Traffic Impact Assessment. Once agreed to, these documents will be published on the Queensland Hydro website.

2.4 Owner's consent

Queensland Hydro has executed a Works and Access Deed with Seqwater for the establishment and operation of these facilities. This deed specifies conditions that Queensland Hydro must comply with when establishing and operating the facilities (e.g. legislative compliance requirements, watercourse setbacks, clearing restrictions, building siting and fencing requirements). Queensland Hydro will continue to liaise with, seek consent from, and notify Seqwater of relevant activities as required in this deed. Key management measures required in the Works and Access Deed have been incorporated in the sub-plans contained within this CEMP.

2.5 Operation of facilities

The temporary compound facilities will initially be used by approximately six existing personnel who are currently working on the Queensland Hydro site. Additional personnel are not anticipated to use these facilities until after the EPBC decision is received.

The facilities will primarily operate during standard working hours (Monday to Friday, 7 am to 5 pm) until the broader Exploratory Works commence when they will operate in accordance with the approvals for those works. There may be vehicles arriving before or leaving after these hours. It is intended the facilities will be in place for the majority of the Exploratory Works project period (approximately 3 years), however will be determined as per agreed access arrangements with Seqwater.

2.6 Decommissioning

In the event that the Main Works project does not proceed, the compound will be decommissioned in consultation with Seqwater following completion of the Exploratory Works. Decommissioning would involve removal of relevant facilities installed at the site, and rehabilitation undertaken in accordance with Section 7.2. Should the Main Works proceed, the site may be used to support the Main Works, subject to relevant approvals being obtained, noting this is outside the scope of this management plan.

3. Legislative context

A preliminary register of regulatory and other requirements has been compiled and will be retained as a live register (as per ISO 14001:2015) during the proposed works. The register will be reviewed at regular intervals by Queensland Hydro (for example, during management reviews), and updated with any applicable changes as required.

Any changes made to the regulatory requirements and/or approvals register will be communicated to the works team, including sub-contractors, through toolbox talks and specific training. Regulatory changes that require the CEMP to be revised will be managed as per Section 1.5.

3.1 Commonwealth legislation

The EPBC Act is the central piece of environmental legislation in Australia, designed to protect and manage nationally and internationally significant flora, fauna, ecological communities, and heritage places. Its primary purpose is to ensure the protection of the environment, particularly MNES, such as World Heritage properties, national heritage places, wetlands of international importance, nationally threatened species and ecological communities, migratory species, and marine areas.

The Act establishes a framework for assessing the environmental impacts of an action that has been determined to be a controlled action, promoting the conservation of biodiversity, and ensuring sustainable development. It also provides mechanisms for cooperation between the federal, state, and territory governments and includes provisions for community involvement in environmental decision-making processes.

The Exploratory Works Project was determined to be a controlled action (EPBC 2023/09461) under the EPBC Act on 30 March 2023. Exploratory Works excluded from the existing EPBC controlled action are subject to other approvals and will require decommissioning unless otherwise required, which includes the Seqwater Compound Facilities. Management of this area will be in accordance with this CEMP.

3.2 State legislation

Relevant legislation associated with environmental management for the Seqwater Compound Facilities scope of works is identified within relevant supporting plans. A works regulation has also been made under the SDPWO Act for components of the Exploratory Works Project, as discussed in further detail below.

3.2.1 Regulation works

In September 2024, a works regulation for the Borumba PHES project Exploratory Works was made, directing Queensland Hydro, as a local body, to undertake works, as described in the Borumba Pumped Hydro Energy Storage Project Exploratory Works – Geotechnical and Investigations project report.

The works regulation removed the requirement for approvals to be assessed under the local government planning scheme for relevant Exploratory Works activities. Local planning scheme approvals that were relevant to this scope of works and are not required due to the works regulation and this CEMP are identified in Table 1.

Planning scheme overlays and temporary local planning instruments relevant to the proposed location and that would have been addressed through planning scheme approvals include:

- Temporary local planning instrument – waterways and wetlands. The works are partly within the mapped wetland area, though there are no wetlands present in this area. The proposed site is above the high water mark for Yabba Creek and is not inundated unless the dam overtops, which has not occurred. Additionally, vegetation communities at the site do not reflect mapped wetlands. The works have therefore not considered wetlands to be a potential constraint and general water management measures will be implemented in accordance with Appendix F to manage potential impacts.
- Temporary local planning instrument – priority species habitat. An assessment of the proposed footprint indicates that it is unlikely to provide habitat for priority species as it is primarily grass and no clearing is proposed of the trees which border the facility. The priority species are listed in Table 21. which also identifies which document contains the management measures for these species. Management measures will be put in place to address surrounding vegetation in accordance with Appendix I.
- Overlay – Bushfire. The proposed compound is mapped within the potential impact buffer zone. Bushfire risk associated with the proposed work has been considered, though the facilities do not provide accommodation and

are temporary in nature. The risk has been assessed as low with the surrounding area being actively managed and maintained by Seqwater. As such, the works meet the requirements of the State Planning Policy and Gympie Planning Scheme and the risk is considered acceptable (i.e. an acceptable risk is sufficiently low to require no new treatments or actions to allow communities to live with the risk without further action). Measures consistent with Seqwater's procedures will be implemented to manage bushfire risk in accordance with Appendix E.

To manage potential impacts, supporting management plans are to be submitted to the Coordinator-General, and agreed prior to construction commencing, and published on the Queensland Hydro website.

Table 1: Local planning scheme approvals subject to the works regulation for the Seqwater Compound Facilities

Planning Scheme	Approval	Applicable Works
Gympie Regional Planning Scheme (under *Planning Act 2016*)	Operational works for excavation and fill (predominantly fill for hardstand, carpark, walkways etc. with a maximum of 180 m^3 of fill)	Access tracks, site compound
	Material change of use (due to location within an Environmental Management Zone).	Seqwater Compound Facilities

3.3 Approval, licences and permits

There are no state environmental approvals, licences or permits applicable to the Seqwater Compound Facilities. This includes triggers under the *Environmental Protection Act 1994*, *Fisheries Act 1994*, *Water Act 2000*, *Vegetation Management Act 1999* and *Transport Infrastructure Act 1994*.

Any traffic control requirements on local roads will be discussed with the relevant road authority and managed through the Traffic Impact Assessment and Road Use Management Plan. Works will also be required to comply with the Works and Access Deed executed with Seqwater, as discussed in Section 2.4, as well as the Social Assessment and Management Plan.

While considered unlikely, if any animal breeding places are identified on site, a Species Management Program – High risk of impact (which includes low risk species) is in place for the Exploratory Works Project and encompasses the Seqwater Compound Facilities.

The third-party contractor responsible for construction will obtain any relevant building and plumbing approvals, if required.

3.3.1 Standard, policies and guidelines

Compliance standards, policies and guidelines relevant to the Exploratory Works are detailed in this CEMP and supporting sub-plans. The requirements of these standards have been considered in the preparation of the CEMP and will be considered by sub-contractors during the preparation of any Environmental Work Method Statements and CEMP revisions. A summary of the relevant guidelines, standards and policies noted in the sub-plans is provided below:

- Australian Standard AS1940: The storage and handling of flammable and combustible liquids (Standards Australia, 2017)
- British Standard BS7385-2:1993 Evaluation and measurement for vibration in buildings – Part 2: Guide to damage levels from ground-borne vibration (BSI, 2025)
- Managing contaminated land guideline (Queensland Government, 2024).

4. Environmental management system

4.1 Queensland Hydro environmental policy

The environmental policy will be displayed at the site office within the Seqwater Compound Facilities and communicated to all workers and staff through mandatory environmental induction training. The policy contains Queensland Hydro's commitment to the use of the environmental mitigation hierarchy.

Management measures to avoid and minimise impacts on environmental, social and cultural heritage values will be implemented for all phases of the Exploratory Works Project. The Exploratory Works Project will follow the environmental mitigation hierarchy (i.e. avoid, minimise, mitigate, offset) and align with all relevant standards and environmental legislation and policies, including, but not limited to:

- ISO 14001:2015 – Environmental management systems (international)
- ISO 45001:2018 – Occupational health and safety management systems (international)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth)
- *Environmental Protection Act 1994* (Qld) (EP Act).

4.2 Queensland Hydro environmental management system

Queensland Hydro will utilise an environmental management system (EMS) that aligns with the Australian standard ISO 14001:2015.

All plans will be stored and available for reference as per ISO 14001:2015.

4.3 Sub-contractor management

This CEMP has been prepared to incorporate the relevant licences, permits and approvals for the works once available.

The CEMP identifies the following for sub-contractors:

- regulatory requirements and compliance
- resources, responsibilities and authority
- training and awareness
- monitoring and inspections
- revision of the CEMP and supporting plans
- environmental management actions.

4.4 Environmental objectives and targets

Environmental objectives and targets have been identified for the assessment of environmental performance and/or activities associated with the Exploratory Works Project. These align with the Queensland Hydro environmental policy and will identify the efficacy of management measures identified in this CEMP and supporting plans.

The environmental objectives for the Project include:

- implementing an EMS that is consistent with ISO 14001:2015
- complying with all environmental approvals for the Exploratory Works Project
- improving environmental performance throughout the implementation of the Exploratory Works.

The performance of the works against the objectives and targets will be documented in the construction compliance reports and will be informed by:

- inspections
- compliance reporting
- management reviews
- risk registers

- audits
- incident registers.

4.5 Management plan structure

This CEMP forms the overarching environmental management plan to be implemented for the works and sets out the minimum measures the site team and sub-contractors will need to comply with. As part of this, Queensland Hydro has prepared the following preliminary sub-plans and documents as relevant to this scope of works:

- cultural heritage
- air quality and dust
- noise and vibration
- bushfire management
- water management, including erosion and sediment control
- land management (including contaminated land)
- waste management
- flora and fauna management (including biosecurity).

Additionally, Queensland Hydro has prepared a Social Assessment and Management Plan, Communications and Stakeholder Engagement Plan, Traffic Impact Assessment, Road Use Management Plan to manage traffic impacts. The accepted and current versions of these plans will be published on Queensland Hydro's Website. The rehabilitation requirements specific to this scope of works have been outlined in Section 7.2.

Following engagement of construction sub-contractors, work specific management plans (including a CEMP and sub-plans) must be prepared and approved by Queensland Hydro prior to commencement of works, unless otherwise agreed. Any sub-contractor management plans will sit underneath this overarching CEMP.

4.6 Environmental work method statement and site environmental plan

Any sub-contractors will be required to prepare environmental work method statements (EWMS) for high-risk activities for inclusion within their CEMP. As a minimum, for the Seqwater Compound Facilities these will need to include:

- waste management (ablution facilities)
- fuel storage and handling
- earthworks / erosion and sediment control plan.

The EWMS will provide a high-level summary of the key elements, processes and assumptions for that aspect of the works. The EWMS will be specifically designed to communicate requirements, actions, processes and controls to construction personnel using written instructions including:

- work methodology
- waste storage
- safety, environment and quality
- risk management.

The EWMS will be approved by Queensland Hydro prior to commencement of works. They will also be reviewed and revised as necessary during the implementation of the works.

4.7 Site environmental plans

Environmental constraints maps (hard copy and GIS) will document the location and extent of environmental and socially sensitive areas including vegetation, heritage, sensitive receptors, waterways, etc. The mapping will provide a simple but effective tool to identify key risk areas and to promote ongoing communication to construction personnel throughout the Exploratory Works. Changes to the mapping will be communicated to site personnel through toolbox talks. Hard copies will be reprinted as necessary and kept at the project site. The mapping will be managed separately to this CEMP and therefore, changes to the mapping will not require this CEMP to be updated. An initial copy of the environmental constraints map is provided in Appendix A showing mapped matters of state environmental

significance (MSES) values and threatened species records. Note that the two aquatic records that are outside the watercourse are historical records, not recent data points. Appendix A also includes a map of the matters of local environmental significance as mapped by Gympie Regional Council.

4.8 Roles and responsibilities

Control of review and amendments and authority for CEMP implementation, including maintenance of environmental records, will be the responsibility of the project manager, construction manager, and environment manager.

All personnel will be responsible for environmental compliance during the Seqwater Compound Facilities works.

Environmental responsibilities for roles associated with the works are identified below.

4.8.1 Project manager

The environmental responsibilities of the project manager include (but are not limited to) the following:

- ensuring works comply with regulatory requirements and environmental objectives
- ensuring the CEMP (and supporting plans) can be implemented with allocated resources (i.e. environmental objectives are not placed secondary to works activities)
- ensuring monitoring and corrective actions are implemented
- reviewing and incorporating changes to the CEMP and supporting plans
- ensuring all training requirements are completed
- stopping Exploratory Works activities if a significant impact to the environment is likely from work activities.

4.8.2 Construction manager

The environmental responsibilities of the construction manager include (but are not limited to) the following:

- ensuring the CEMP and supporting plans are fully implemented
- ensuring works comply with regulatory requirements and environmental objectives
- implementing environmental controls with identification of environmental risk (alongside implementing the CEMP and supporting plans)
- providing support to the environment manager to ensure environmental objectives are met
- stopping Exploratory Works activities if a significant impact to environment is likely.

4.8.3 Environment manager

The environmental responsibilities of the environment manager include (but are not limited to):

- providing direction on environmental matters to all relevant parties associated with the works
- producing and maintaining a register of management plans associated with activities (including previous environmental reports)
- ensuring the CEMP and supporting plans are fully implemented
- carrying out weekly inspections of environmental control measures (i.e. erosion and sediment control measures and any implemented no-go zones) during the works
- reviewing the CEMP and supporting plans to identify where environmental performance may be improved and updating plans and/or measures to obtain required performance measure
- preparing monthly compliance reporting that identifies environmental management measures and any improvements undertaken as part of the CEMP and supporting plans review
- preparing and facilitating environmental inductions for site personnel
- providing input to toolbox talks and daily pre-start meetings as required
- stopping Exploratory Works activities if a significant impact to environment is likely from work activities, specifically if works activities have capacity to produce non-conformities with plans
- reporting any environmental incidents.

4.8.4 Project and site engineers

The environmental responsibilities of the Project and site engineers include (but are not limited to):

- ensuring works are carried out in accordance with the CEMP and supporting plans
- implementing environmental controls and identifying additional environmental risk (i.e. alongside implementing the CEMP and supporting plans)
- allocating resources and responding to environmental incidents to enact control measures
- reporting activities where actual or risk of harm is identified and advising the project manager, construction manager or environment manager.

4.8.5 Site supervisor

The environmental responsibilities of the site supervisor include (but are not limited to):

- ensuring all works comply with work statements and records of works are maintained
- ensuring site inductions have been undertaken by all site personnel
- where required, undertaking or liaising with the environment manager to confirm environmental risk assessment of works before commencement
- incorporating and maintaining effective environmental controls
- reporting on activities that may result, or have resulted, in an environmental incident
- ceasing activities where actual or risk of harm is identified and advise the project manager, construction manager or environment manager
- attending, investigating and reporting on environmental incidents.

4.8.6 All personnel (including sub-contractors)

The environmental responsibilities of all personnel (including sub-contractors) include:

- complying with relevant section/s of the CEMP (work statements and controls)
- participating in and complying with environmental management requirements identified during induction, and toolbox and pre-start meetings
- reporting any potential environmental incidents to the site supervisor to limit potential impact and allow corrective measures to be applied
- ceasing activities where actual or risk of harm is identified and advising the project manager, construction manager or environment manager.

4.9 Competence, training and awareness

Environmental training will be provided, principally through a compulsory environmental induction, along with regular toolbox and pre-start meetings.

Coordination of environmental training will be the responsibility of the environment manager (refer to Section 4.8.3).

4.9.1 Environmental induction

All personnel conducting activities on site will be required to attend a compulsory environmental induction before commencing any activities. Facilitation of environmental inductions will be the responsibility of the environment manager and will cover the requirements of activities under the CEMP. At a minimum, the induction will address:

- purpose and objectives of the CEMP and supporting plans
- duty of care
- high-risk activities and identified environmental management measures
- relevant matters of national, state or local environmental significance (MNES will be managed through the EPBC Act processes)
- areas of environmental significance associated with works
- general information regarding environmental constraints

- specific management measures, requirements and responsibilities for implementation
- potential consequences of not meeting environmental responsibilities
- incident responses and reporting requirements.

A record of all staff, sub-contractors and visitors who attend the environment inductions will be maintained and kept on site, including names, dates, trainer and training provided.

As part of ongoing reviews associated with the CEMP, the environment manager may implement amendments to the induction as required. Any amendments to the induction will be forwarded to personnel who have already completed the prior induction. This is expected to be facilitated through updates to site personnel via toolbox or pre-start meetings.

4.9.2 Daily pre-start meetings

During construction, the site supervisor is expected to conduct a daily pre-start meeting with the site workforce before work commences each day. This will include, at minimum:

- planned activities for the day
- relevant environmental management measures
- any work area restrictions (i.e. high risks areas / no-go zones)
- safe work practices.

The environmental component of the daily pre-start meetings will be determined by the site supervisor and environmental personnel and will include any environmental issues that could potentially be impacted by, or impact on, the day's activities. As such, daily pre-start meetings will briefly reiterate any environmental receptors of concern and relevant sections of environmental management measures for the day.

Daily pre-start attendance is considered mandatory (for relevant workforce members) for the duration of the Exploratory Works and attendees will be required to sign an attendance register that is recorded and maintained as part of a compliance register.

4.9.3 Toolbox talks, training and awareness

Toolbox meetings will be used as appropriate to ensure all relevant parties associated with construction will be aware of environmental constraints associated with proposed activities. The toolbox meetings will also allow for continued updates on any relevant changes (upon CEMP or supporting plan revision).

Facilitation of the toolbox meetings is considered the responsibility of the environment manager.

The toolbox meetings will consist of details of plans (namely environmental receptors of concern and incident management). As such, the toolbox meetings will be tailored to relevant activities and site locations relevant to upcoming works.

All personnel working on site will receive training (principally via the environmental induction) to ensure awareness of environment protection requirements for the works. Site-specific training will be provided to personnel engaged in activities or areas of higher risk (e.g. those working in areas of proximity to sensitive flora and fauna receptors).

Informal information notes may also be displayed in worker crib sheds or break facilities.

Relevant environmental issues include (but are not limited to):

- erosion and sedimentation control
- potentially contaminated spoil or land
- emergency and spill response
- Indigenous and non-Indigenous heritage
- flora and fauna, clearing controls and vegetation protection
- weed management
- dust control.

Toolbox talk attendance is considered mandatory for the duration of the works and attendees will be required to sign an attendance register that is recorded and maintained as part of a compliance register.

4.10 Communication

The use of environmental inductions, daily pre-start meetings and toolbox meetings is expected to form most verbal internal communications detailing environmental aspects of the works. As a mandatory component for sub-contractors, these are expected to form the basis of training and information sharing.

Written communication frameworks, when available, including contact numbers and telephone numbers will be provided via inductions.

Internal communication will be maintained throughout all levels and functions (as required) to ensure that environmental management measures are implemented where required. This is expected to be a key driver in achieving environmental outcomes associated with the Exploratory Works.

The daily pre-starts and toolbox meetings are also considered key drivers in providing a platform for formal and informal internal communication between the environment manager and other site personal to review environmental performance, advise on environmental matters and to receive key feedback from site personal directly associated with the works activities.

All internal and external communication with all stakeholders including the public and government agencies will be done in accordance with the Communications and Stakeholder Engagement Plan (CSEP).

4.11 Stakeholder Engagement

Queensland Hydro has maintained engagement with Seqwater and their leaseholders at Borumba Dam since 2022. As the project moves toward Exploratory Works, Queensland Hydro is actively re-engaging with Seqwater and all relevant stakeholders to ensure alignment on the proposed compound, access arrangements, and compliance with land management requirements.

For the Seqwater Compound Facilities, consultation has been undertaken as noted in the Social Assessment and Management Plan published on the Queensland Hydro website, including with Lake Borumba Caravan and Campground, Yabba Creek Rural Fire Brigade and Lake Borumba Fish Stocking Association. Ongoing engagement will be undertaken in accordance with the Social Assessment and Management Plan and CSEP.

4.12 Emergency and incident planning

The Borumba PHES Emergency Response Plan has been updated to include procedures for this scope of work and includes as a minimum:

- the emergency response plan
- key emergency personnel including specific responsibilities and contact number
- external agency contacts
- potential emergencies and incidents (including current management measures)
- classification of environmental incidents, and legal requirements for reports and notifying external agencies.

Control of environmental emergencies and incidents will be coordinated through an incident reporting framework. Incident management is expected to cover the following incidents (if they occur):

- spills of fuels, oils, chemicals and other hazardous materials
- potential contamination of waterways or land
- unauthorised clearing of vegetation
- accidental starting of a fire or a fire breaking out of containment
- unauthorised dumping of waste
- works that occur outside of standard construction hours.

All site personnel will be required to report any environmental incidents or breaches of approvals to Queensland Hydro. They must also report any environmental incidents to the environment manager when becoming aware of the incident. The environment manager will then be required to report, within no later than 24 hours, the incident including the event, its nature and circumstances in which the event happened.

In the instance site personnel are not able to contact the environment manager in a timely manner, the site personnel will be required to provide notice to the Department of Environment, Science, Tourism and Innovation (DETSI). Under

the requirements for the duty to notify of environmental harm (Section 320 of the EP Act), environmental incidents that cause or threaten to cause serious environmental harm or material harm must be reported within 24 hours to DETSI. Notifications can be made to DETSI by email or phone.

Additionally, any incidents or emergencies during construction will be reported to the Office of the Coordinator-General and included in the monthly progress reporting.

4.13 Monitoring and inspections

4.13.1 Environmental inspections

Inspections will be undertaken for work in areas near environmentally sensitive receptors. Inspections will include site preparedness for adverse weather conditions, including adequacy of environmental controls and availability of emergency equipment. Daily visual inspections of dust will be conducted.

Copies of all environmental inspection reports prepared by the environment manager will be kept with the project records and closed out within appropriate timeframes (i.e. replacement of erosion and sediment control as soon as possible). A project register will be developed to track actions and relevant close out.

In addition to weekly environmental inspections, during construction the environment manager will undertake inspections post rainfall. The post-rainfall inspections will be undertaken after more than 25 millimetres (mm) of rain in a 24-hour period (either from the nearest Bureau of Meteorology rainfall station or via onsite rainfall gauging). The inspection and records will follow those of the weekly environmental inspection tracking.

The inspection forms will identify compliance or issues for rectification and include signoff on actioned rectifications. In the instance that rectifications are to be actioned between inspections, adequate recording of when items are to be actioned is expected to be maintained and subsequently actioned.

4.13.2 Environmental monitoring

Monitoring will be undertaken to validate complaints, the impacts predicted for the Seqwater Compound Facilities, and to measure the efficacy of environmental controls and the implementation of this CEMP. The monitoring requirements are included in the relevant environmental management sub-plans and will be undertaken by persons who are suitably trained, qualified and experienced.

Environmental monitoring will be conducted for ongoing activities to ensure objectives within the plans are met. Monitoring requirements for each environmental aspect are detailed in the sub-plans provided in Appendix C through to Appendix I. Monitoring requirements related to environmental aspect other than water will be undertaken in response to valid complaints or incidents only.

4.14 Records and reporting of environmental activities

The environment manager is responsible for maintaining all environmental management documents and records during construction. The documents and records that require maintenance (as relevant) include:

- all site monitoring, inspection and compliance reports/records
- correspondence with regulatory authorities
- environmental induction records
- CEMP and supporting plans (as standalone)
- reportable incidents and non-conformances
- records of reviews and actionable items including review meeting minutes
- minutes of CEMP and EMS review meetings and evidence of any action taken
- environmental work method statements.

4.14.1 Monthly Reports

The OCG's Management Plans and Third-party Certification Framework requests provision of monthly progress reports. Environmental documentation will be collated to support this, potentially in conjunction with other site activities, including the following information:

- the outcomes of monitoring undertaken during the preceding month (including visual monitoring)
- summary of complaints received (e.g. noise) and actions taken to address the complaint
- any reportable incidents and non-conformances that occurred and corrective actions implemented
- results from environmental audits and reviews undertaken.

4.15 CEMP and supporting plan revision

Revision of the plans for the scope of works is to be considered in the following events:

- third party certification review
- identification of new risks
- changes to project description and construction methodology
- instances of non-compliance with plans
- instances of environmental incidents requiring reporting
- complaints.
-

The review process thresholds are in place to ensure the CEMP is appropriate for specific works that are occurring within the site (including but not limited to disturbance footprints).

If the review process identifies sections or supporting plans that require updating, the responsibility lies with the environmental officers to assist in preparing the revised documents. All revisions of this CEMP or supporting plans need to be issued to the project manager and relevant environment staff for approval of changes before the revised CEMP can be implemented.

All environmental plans are live and able to be amended with review processes. Noting this, only the construction environment manager has the authority, with final approval from Queensland Hydro, to change environmental management documentation.

Revisions will be notified to the OCG in monthly reports.

4.16 Non-conformance management

Where non-conformances with environmental management measures are identified, corrective measures will be implemented. Corrective measures include revision of the existing CEMP and/or supporting plans, the implementation of on-ground corrective measures as preventative measures, and/or further implementation of competence, training and awareness measures.

Non-conformances will be principally identified from self-reporting (via onsite workers) or through site inspections conducted by the environmental representatives. The performance indicators and triggers for corrective actions are outlined within the sub-plans provided in Appendix C to Appendix I. Anticipated corrective actions have also been identified, though these will be reviewed and updated as necessary in response to non-conformances.

Site personnel can stop non-conforming activities in consultation with the environment manager or construction manager. Corrective and preventative actions must be implemented if a non-conformance is identified. Non-conformances will be documented by the environment manager including the non-conformance issue, monitoring undertaken (if required) corrective actions, timing of corrective action implementation and ongoing responsibilities. As corrective actions are expected to be completed after the corrective action is proposed, regular review of actionable items is the responsibility of the environment manager. Where non-conformances result in environmental incidents or harm, the respective regulatory authority will be notified.

4.17 Document control and records

Queensland Hydro including sub-contractors shall maintain all records generated because of environmental management for a minimum of seven years unless otherwise specified. These must be made available on request. These shall include:

- training records
- incident reports

- audit and inspection forms
- monitoring results
- non-conformances
- volume of waste to landfill, waste recycled and waste disposed of offsite.

The environment manager will coordinate the preparation, review and distribution, as appropriate, of the environmental documents listed above. During construction, environmental documents will be stored at the site office within the Seqwater Compound Facilities and can be accessed on request to the environment manager.

A document and data control procedure will be implemented to control the flow of documents and data between Queensland Hydro, stakeholders and sub-contractors.

After several changes have been made to a document it will be withdrawn and reissued as a new revision. Data will be issued on a revision basis only. Obsolete documents and data may be kept for contractual or other reasons but will be clearly marked ‘superseded’.

5. Existing Environment

The works are localised to a developed/landscaped area of Lot 132 on LX2385, near the existing Seqwater facilities. Lot 132 on LX2385 which includes the Borumba Dam Wall and the existing Seqwater facilities is zoned as Environmental Management and Conservation under the Gympie Regional Council Planning Scheme.

The site is located within Yabba Creek catchment outside of the main channel (~50 m) and above (~135-140m elevation) the 1% Annual Exceedance Probability (AEP) (AEP - 114m elevation).

The vegetation and habitat mapping within the proposed footprint reflects the current and historic land use in the area with the vegetation mapped as non-remnant. However, terrestrial ecology surveys (Umwelt, 2023) identified the adjacent vegetation between the Seqwater Compound Facilities and Yabba Creek as remnant vegetation under the *Vegetation Management Act 1999*, regional ecosystem 12.3.7.

There are no MSES values within or directly adjacent the footprint, with the nearest mapped MSES values being 70 m to the west (Threatened (endangered or vulnerable) wildlife – White-throated snapping turtle (*Elseya albagula*)) and 70 m to the north (MSES regulated vegetation (category R - GBR riverine)). No threatened or near threatened flora or fauna species under Commonwealth and/or State legislation have been recorded during ecological surveys within or directly adjacent to the proposed footprint.

At a local level the following MLES are applicable to the site. Under Gympie Regional Council Temporary Local Planning Instrument[1] these are mapped as:

- Priority species habitat (refer Appendix I)
- Wetland[2]

Lot 132 on LX2385 is not on the Environmental Management Register or the Contaminated Land Register, however, is identified as potentially contaminated due to the presence of fire stations (indicating a potential for per- and polyfluoroalkyl substances (PFAS)). Soil sampling was undertaken at this location, with the results identifying no PFAS above the laboratory Limit of Reporting (LOR) (Contaminated Land Technical Report (Aurecon, 2024)).

[1] The Temporary Local Planning Instrument is a local categorising instrument under the *Planning Act 2016* which specifies the categories of assessment and sets out assessment benchmarks for assessing development.
[2] wetland is:
• identified on the Biodiversity Overlay map set – Appendix F; or
• areas of permanent or periodic/intermittent inundation, whether natural or artificial, with water that is static or flowing, fresh, brackish or salt, including areas of marine water, the depth of which at low tide does not exceed six metres.

6. Impact assessment

The Seqwater Compound Facilities have been located primarily within previously disturbed areas where a concrete slab from a previous building exists and where landscaping and ongoing maintenance occurs. There will also be minimal earthworks and no removal of vegetation other than groundcover, with portable buildings delivered directly to the site. As a result, potential impacts associated with the Seqwater Compound Facilities are anticipated to be minor.

Potential environmental impacts include:

- clearing and/or lopping of woody vegetation may be required for the installation and maintenance of the fence
- disturbance of the soil associated with vegetation clearing for surface works, including hardstand areas and access tracks
- temporary disturbance to local flora and fauna in the surrounding area, including vehicle strikes
- runoff from works into Yabba Creek
- disturbance of unexpected contaminated material
- accidental release of fuel, oil, waste or other chemicals
- fugitive dust emissions from site activities (e.g. vegetation removal, vehicle movement or construction of access tracks and hardstand areas) causing dust nuisance or human health impacts.

6.1 Risk assessment methodology

The risk assessment methodology for the Project has been adapted from the DCCEEW Environmental Management Guidelines (DCCEEW, 2024). A qualitative risk assessment has been completed for the Seqwater Compound Facilities components and their anticipated impacts on relevant environmental aspects. The risk assessment identifies the likelihood (Table 2) and potential consequence (Table 3) of the impacts and then calculates a final risk rating based on the consequence (Table 4). The risk rating assessment was used to qualify risk pre- and post-management of the potential impacts identified in Table 4.

Table 2: Likelihood rating

Quantitative measure of likelihood*	
Highly likely	Is expected to occur in most circumstances
Likely	Will probably occur during the life of the project
Possible	Might occur during the life of the project
Unlikely	Could occur but considered unlikely or doubtful
Rare	May occur in exceptional circumstances

* How likely will this event / issue occur after control strategies have been put in place

Table 3: Consequence rating

Qualitative measure of consequence*	
Minor	Minor incident of environmental damage that can be reversed
Moderate	Isolated but substantial instance of environmental damage that could be reversed with intensive efforts
High	Substantial instances of environmental damage that could be reversed with intensive effort
Major	Major loss of environmental amenity and real danger of continuing environmental damage
Critical	Severe widespread loss of environmental amenity and irrecoverable environmental damage

* Rating of the consequence/result if this issue does occur

Table 4: Risk rating matrix

Risk	Consequence				
	Minor	Moderate	High	Major	Critical
Highly likely	Medium	High	High	Severe	Severe
Likely	Low	Medium	High	High	Severe
Possible	Low	Medium	Medium	High	Severe
Unlikely	Low	Low	Medium	High	High
Rare	Low	Low	Low	Medium	High

6.2 Risk assessment

The location of a detailed risk assessment and summary of the overall residual risk outcome for each specific environmental aspect is shown in Table 5. With the implementation of mitigation and management measures, the residual risk for all environmental aspects is considered low.

Table 5: Risk assessment locations

Environmental Aspect	Sub-plan Location	Overall residual risk
Cultural heritage and Native Title^	Appendix B	Low
Air quality and dust	Appendix C	Low
Noise and vibration	Appendix D	Low
Bushfire management	Appendix E	Low
Water management (including erosion and sediment control)	Appendix F and Appendix J	Low
Land management (including contamination)	Appendix G	Low
Waste management	Appendix H	Low
Flora and fauna (including biosecurity)	Appendix I	Low

^cultural heritage risks have been assessed elsewhere. There is also an Early Works Agreement in place between Kabi Kabi and Queensland Hydro and an Indigenous Land Use Agreement (ILUA). Early Works Inspections have been undertaken and monitoring will occur during the works, in accordance with the Early Works Agreement.

7. Environmental management measures

The design associated with the Seqwater Compound Facilities has actively sought to avoid, minimise and / or mitigate impacts to environmental values during the design phase. These standard measures to avoid in the first instance have included strategically locating the works in already cleared or degraded areas.

As outlined in Section 2.4, Queensland Hydro has executed a Works and Access Deed with Seqwater which outlined specific conditions which must be complied with, including:

- Seqwater Cultural Heritage Finds Procedure
- Obtain Seqwater's written consent prior to commencing any ground disturbance activities
- Setback all new structures a minimum of 50 m from the watercourse stream order 1 located to the north of the existing rangers hut
- Siting of buildings to avoid clearing of native vegetation within 50 m of the watercourse and be above the 1% AEP flood level (114m elevation).
- Avoid major earthworks within 50 m of the watercourse, on gradients above 15% or below the 1% AEP flood level (114m elevation).
- Storage of all fuels, diesels or hazardous substances must be located above the 1% AEP flood level (114m elevation).

7.1 Mitigation measures

Where impacts were unable to be avoided, a risk assessment undertaken for the Exploratory Works identified a variety of different pathways that may lead to impacts on environmental values. A range of management measures will be employed to mitigate the impacts to these values.

The location of mitigation measures associated with the risks identified in Section 5 are shown in Table 6. Rehabilitation methods are identified in Section 7.2 below and traffic management impacts are to be managed in accordance with the Project's Road Use Management Plan and Social Assessment and Management Plan.

Table 6: Mitigation measure locations

Environmental Aspect	Sub-plan Location
Cultural heritage and Native Title	Appendix B
Air quality and dust	Appendix C
Noise and vibration	Appendix D
Bushfire	Appendix E
Water management (including erosion and sediment control)	Appendix F and Appendix J
Land management (including contaminated land)	Appendix G
Waste	Appendix H
Flora and fauna (including biosecurity)	Appendix I

The risk ratings shown within the supporting sub-plans provide a summary of the revised risk based on the implementation of the mitigation measures. Environmental management actions will be underpinned by ongoing records (identified in Section 4.17) including:

- all site monitoring, inspection and compliance reports/records
- correspondence with regulatory authorities
- environmental induction records
- reportable incidents and non-conformances
- records of reviews and actionable items including review meeting minutes
- minutes of CEMP and EMS review meetings and evidence of any action taken
- environmental work method statements.

7.2 Rehabilitation methods

The overall objective of the rehabilitation activities will be to return the site to as close to pre-construction condition as possible, with consideration of future land use. This will be determined in consultation with the landowner.

Basic steps in the rehabilitation process are likely to be as follows:

1. Undertake a survey of pre-existing conditions (prior to commencing works). Given the previous disturbance at the proposed location of works, vegetation is predominantly non-native grasses.
2. Where practicable, return all areas of temporary disturbance to their original profile or landform and stabilise.
3. Treat and control restricted invasive plants identified under the *Biosecurity Act 2014* present in these areas.
4. Once stabilised and free from restricted invasive plants under the *Biosecurity Act 2014*, reinstate turf or vegetation as per pre-existing conditions.
5. Once these initial stages of rehabilitation works have been completed, the maintenance and monitoring period would begin.
6. The maintenance and monitoring would continue up to the point at which the vegetation cover meets the agreed expectations between Queensland Hydro and Seqwater. The rehabilitation timeframes will be dictated by Seqwater as the landowner.

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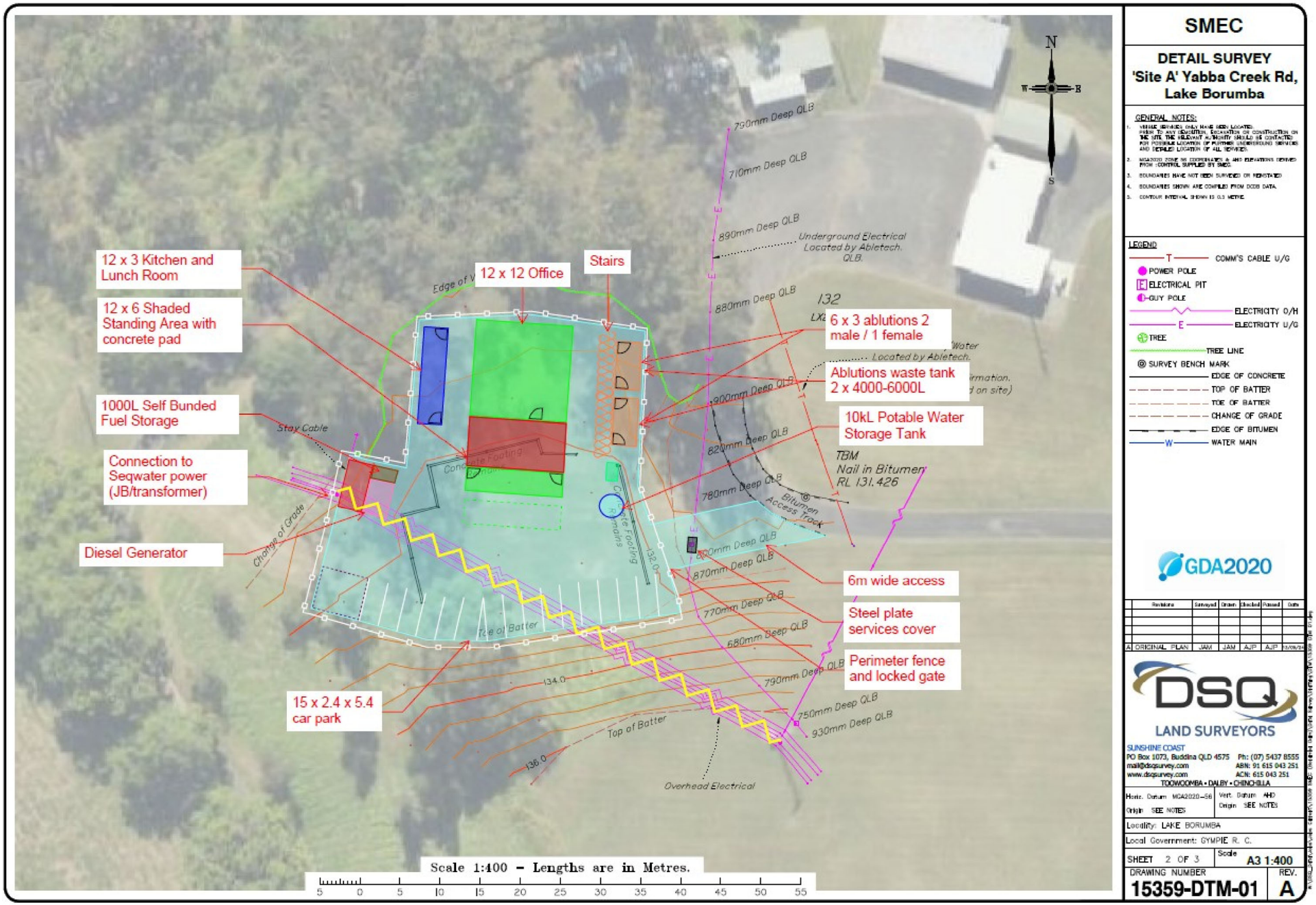
Appendix A – Design plan and draft constraints maps



SMEC

DETAIL SURVEY
'Site A' Yabba Creek Rd, Lake Borumba

GENERAL NOTES:

1. VERGE SERVICES ONLY HAVE BEEN LOCATED. PRIOR TO ANY EXCAVATION, EXCAVATION OR CONSTRUCTION ON THE SITE THE RELEVANT AUTHORITY SHOULD BE CONTACTED FOR POSSIBLE LOCATION OF FURTHER UNDERGROUND SERVICES AND DETAILED LOCATION OF ALL SERVICES.
2. MGA2020 ZONE 56 COORDINATES & AHD ELEVATIONS DERIVED FROM CONTROL SUPPLIED BY SMEC.
3. BOUNDARIES HAVE NOT BEEN SURVEYED OR REINSTATED
4. BOUNDARIES SHOWN ARE COMPILED FROM DCDB DATA.
5. CONTOUR INTERVAL SHOWN IS 0.3 METRE.

LEGEND

- T — COMM'S CABLE U/G
- POWER POLE
- E ELECTRICAL PIT
- GUY POLE
- ELECTRICITY O/H
- E — ELECTRICITY U/G
- TREE
- TREE LINE
- SURVEY BENCH MARK
- EDGE OF CONCRETE
- TOP OF BATTER
- TOE OF BATTER
- CHANGE OF GRADE
- EDGE OF BITUMEN
- W — WATER MAIN

GDA2020

	Revisions	Surveyed	Drawn	Checked	Passed	Date
A	ORIGINAL PLAN	JAM	JAM	AJP	AJP	30/9/20

DSQ LAND SURVEYORS
SUNSHINE COAST
PO Box 1073, Buddina QLD 4575 Ph: (07) 5437 8555
mail@dsqsurvey.com ABN: 91 615 043 251
www.dsqsurvey.com ACN: 615 043 251
TOOWOOMBA • DALBY • CHINCHILLA

Horiz. Datum MGA2020–56 Origin SEE NOTES
Vert. Datum AHD Origin SEE NOTES

Locality: LAKE BORUMBA

Local Government: GYMPIE R. C.

SHEET 2 OF 3 Scale A3 1:400

DRAWING NUMBER 15359-DTM-01 REV. A

Queensland Hydro

N

0 60 m

1:2,500 @ A3

LEGEND

- Watercourse [defined by Water Act 2000]
- Road / Track

Access Roads

- Local road
- Track
- Project Area for Exploratory Works Excluded from EPBC - Current

MSES conservation areas

- MSES protected area [estates]

MSES regulated vegetation

- MSES regulated vegetation [category B - endangered or of concern]
- MSES regulated vegetation [category R- GBR riverine]
- MSES regulated vegetation [essential habitat]

MSES wetland values

- MSES high ecological significance wetlands
- MSES regulated vegetation [defined watercourse]

MSES wilflife habitat

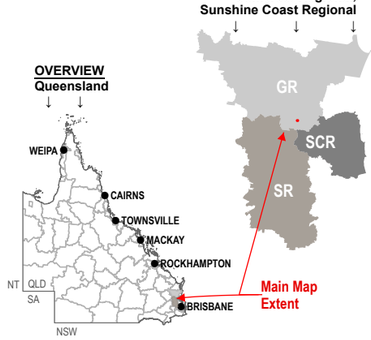
- MSES wildlife habitat [endangered or vulnerable]
- Label

Aquatic Threatened species

- Australian lungfish record
- Mary River cod record
- Mary River turtle record
- White-throated snapping turtle record

OVERVIEW
Gympie Regional, Somerset Regional, Sunshine Coast Regional

OVERVIEW
Queensland



Data Sources:
1. Basemap © World Imagery: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
2. Watercourse © State of Queensland 2023
3. Access Roads © State of Queensland (Department of Resources) 2021
4. Road/Tracks © SMEC
5.MSES © State of Queensland (Department of Environment and Science) 2022.

Disclaimer: While all reasonable care has been taken to ensure the information contained on this map is up to date and accurate, this map contains data from a number of sources - no warranty is given that the information contained on this is free from error or omission. Any reliance placed on such information shall be at the sole risk of the user. Please verify the accuracy of all information prior to using it. This map is not a design document.

Borumba PHES Project
Seqwater Compound Facility CEMP

ENVIRONMENTAL CONSTRAINTS

PROJECT NO:	30034158
CREATED BY:	RS17486
MODIFIED ON:	26/06/2025
VERSION:	A
AMENDED BY:	RS17486

FIGURE A-1

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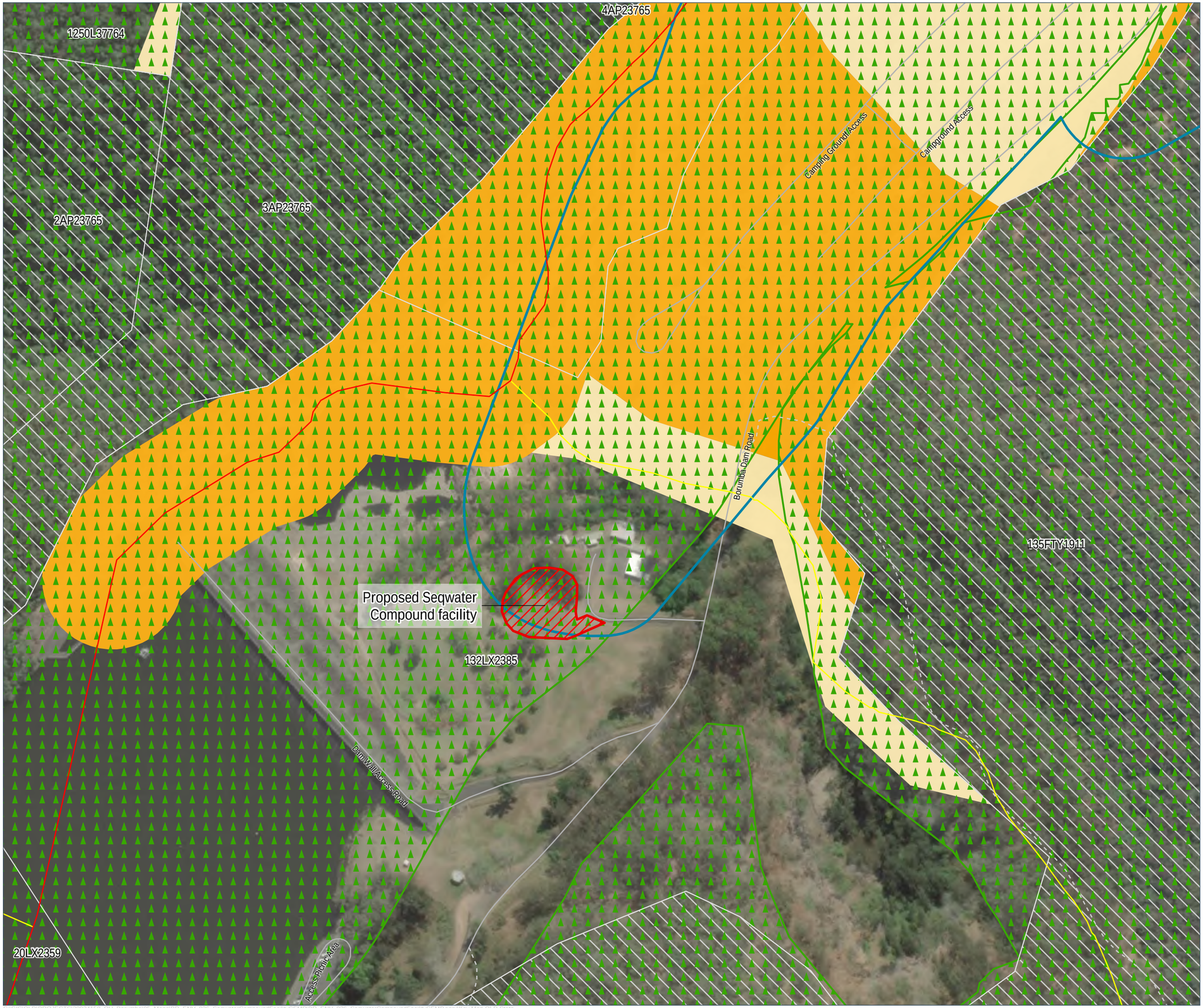

Queensland Hydro

N

0 60 m

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LEGEND

GRC - TLPI - Waterways & Wetlands

Watercourses

- Stream order 1 and 2
- Stream order 5 and above

Wetlands

- Wetlands

GRC - TLPI - Ecological Linkages

Ecological Linkages

- Core Ecological Linkage
- Ecological Linkage
- Protected Areas Queensland

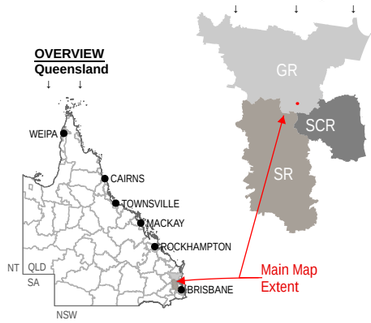
GRC - TLPI - Priority Species Habitat

- GRC - TLPI - Priority Species Habitat
- Project Area for Exploratory Works Excluded from EPBC - Current
- Land parcels (cadastre)

Access Roads

- Local road
- Track

OVERVIEW
Gympie Regional, Somerset Regional, Sunshine Coast Regional



Data Sources:
1. Basemap © Access Roads: © State of Queensland (Department of Resources) 2021
Project Area for Exploratory Works Excluded from EPBC - Current:
World Imagery: Source: Esri, Vantor, Earthstar Geographics, and the GIS User Community
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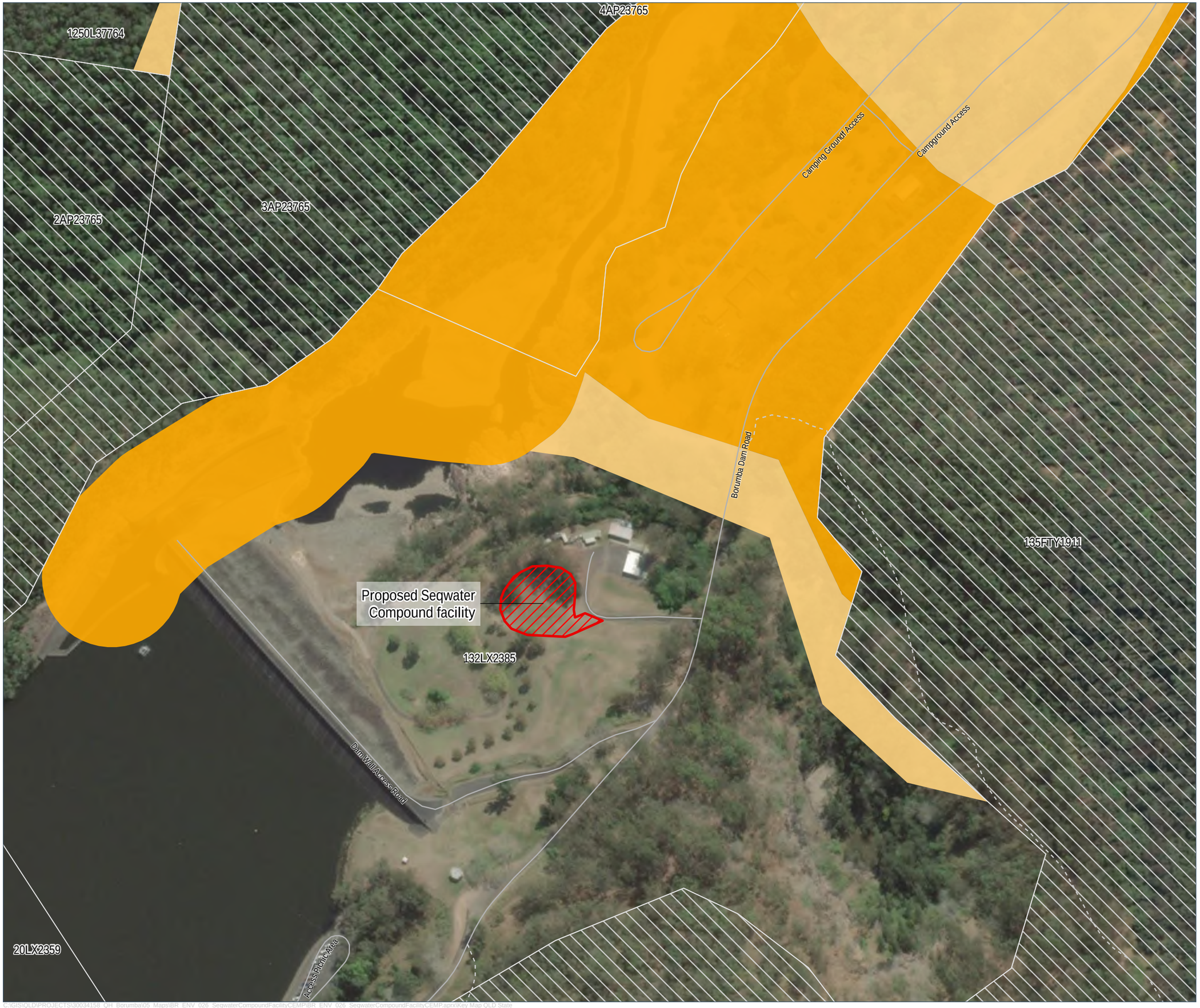
Borumba PHES Project

MATTERS OF LOCAL ENVIRONMENTAL SIGNIFICANCE MAPPING

CREATED BY:	RS17486
MODIFIED ON:	5/02/2026
AMENDED BY:	RS17486
VERSION:	A
MAP ID:	M0005

FIGURE B

C:\GIS\QLD\PROJECTS\30034158_QH_Borumba\05_Maps\BR_ENV_026_SeqwaterCompoundFacilityCEMP\BR_ENV_026_SeqwaterCompoundFacilityCEMP.aprx\Key Map QLD State



Queensland Hydro

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LEGEND

GRC - TLPI - Ecological Linkages

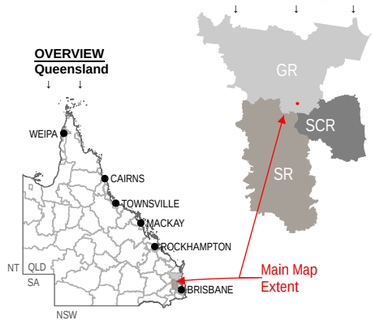
Ecological Linkages

- Core Ecological Linkage
- Ecological Linkage
- Protected Areas Queensland
- Project Area for Exploratory Works Excluded from EPBC - Current
- Land parcels (cadastre)

Access Roads

- Local road
- Track

OVERVIEW
Gympie Regional, Somerset Regional, Sunshine Coast Regional



OVERVIEW
Queensland

Data Sources:
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Project Area for Exploratory Works Excluded from EPBC - Current:
World Imagery: Source: Esri, Vantor, Earthstar Geographics, and the GIS User Community
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Borumba PHES Project

MATTERS OF LOCAL ENVIRONMENTAL SIGNIFICANCE MAPPING

CREATED BY:	RS17486
MODIFIED ON:	5/02/2026
AMENDED BY:	RS17486
VERSION:	A
MAP ID:	M0005

FIGURE B-2

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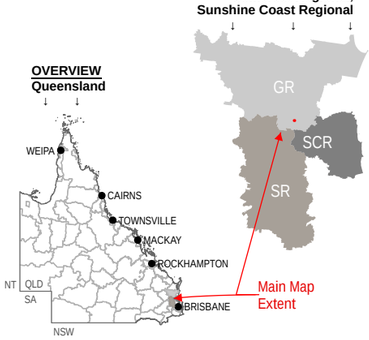
LEGEND

- Project Area for Exploratory Works Excluded from EPBC - Current
- GRC - TLPI - Priority Species Habitat
- Land parcels (cadastre)

Access Roads

- Local road
- Track

OVERVIEW
Gympie Regional, Somerset Regional, Sunshine Coast Regional



OVERVIEW
Queensland

Data Sources:
1. Basemap © Access Roads: © State of Queensland (Department of Resources) 2021
Project Area for Exploratory Works Excluded from EPBC - Current:
World Imagery: Source: Esri, Vantor, Earthstar Geographics, and the GIS User Community
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Borumba PHES Project

MATTERS OF LOCAL ENVIRONMENTAL SIGNIFICANCE MAPPING

CREATED BY:	RS17486
MODIFIED ON:	5/02/2026
AMENDED BY:	RS17486
VERSION:	A
MAP ID:	M0005

FIGURE B-3

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Appendix B – Unexpected finds procedure

B-1 Contaminated land

The Unexpected Finds Procedure for Contamination must be followed where unexpected contamination or asbestos (or suspected contamination) is excavated or otherwise discovered. This is to ensure Queensland Hydro and all personnel are compliant with the General Environmental Duty under the *Environmental Protection Act 1994*. In accordance with environmental management measures, this unexpected find procedure has been prepared with consideration of the *Managing contaminated land guideline* (Queensland Government, 2024).

There are no lots listed on the contaminated land register and three lots are listed on the environmental management register that intersect with the Exploratory Works footprint:

- Lot 3LX2754 is listed for the notifiable activity of mineral processing and livestock dip or spray race
- Lot 1723L37994 is listed for the notifiable activity of livestock dip or spray race
- Lot 16LX1925 is listed for the notifiable activity of livestock dip or spray race
- Lot 135FTY1911 is listed for two notifiable activities:
  - petroleum product or oil storage
  - waste storage, treatment, or disposal.

Potential sources of historical contamination on lots impacted by the Exploratory Works footprint include:

- Lot 3LX2754 – a cattle dip, homestead and two gold mines
- Lot 20LX2359 – two manganese mines
- Lot 1723L37994 – gold mine
- Lot 132 LX2385 – two potential fire stations.

Land parcels containing known and potential contamination are identified in Figure B-1. If any additional notifiable activities are discovered, or any contaminated land encountered during works, QH will coordinate with Seqwater to coordinate reporting requirements with DETSI in accordance with the requirements of the EP Act.

B-1-1 Likelihood of contamination

The following indicates the presence of potentially contaminated material; where material is uncovered which displays some or all these characteristics, stop works and notify the Site Supervisor:

- Unusual odour from soils that are not detected in other similar areas.
- Discolouration or staining of soil or rock.
- Seepage of unusual liquids from soil or rock.
- Unusual odours, sheen or colour on groundwater and/or surface water.
- Unexpected underground storage tanks, buried drums or machinery, etc.
- Potential asbestos containing materials.

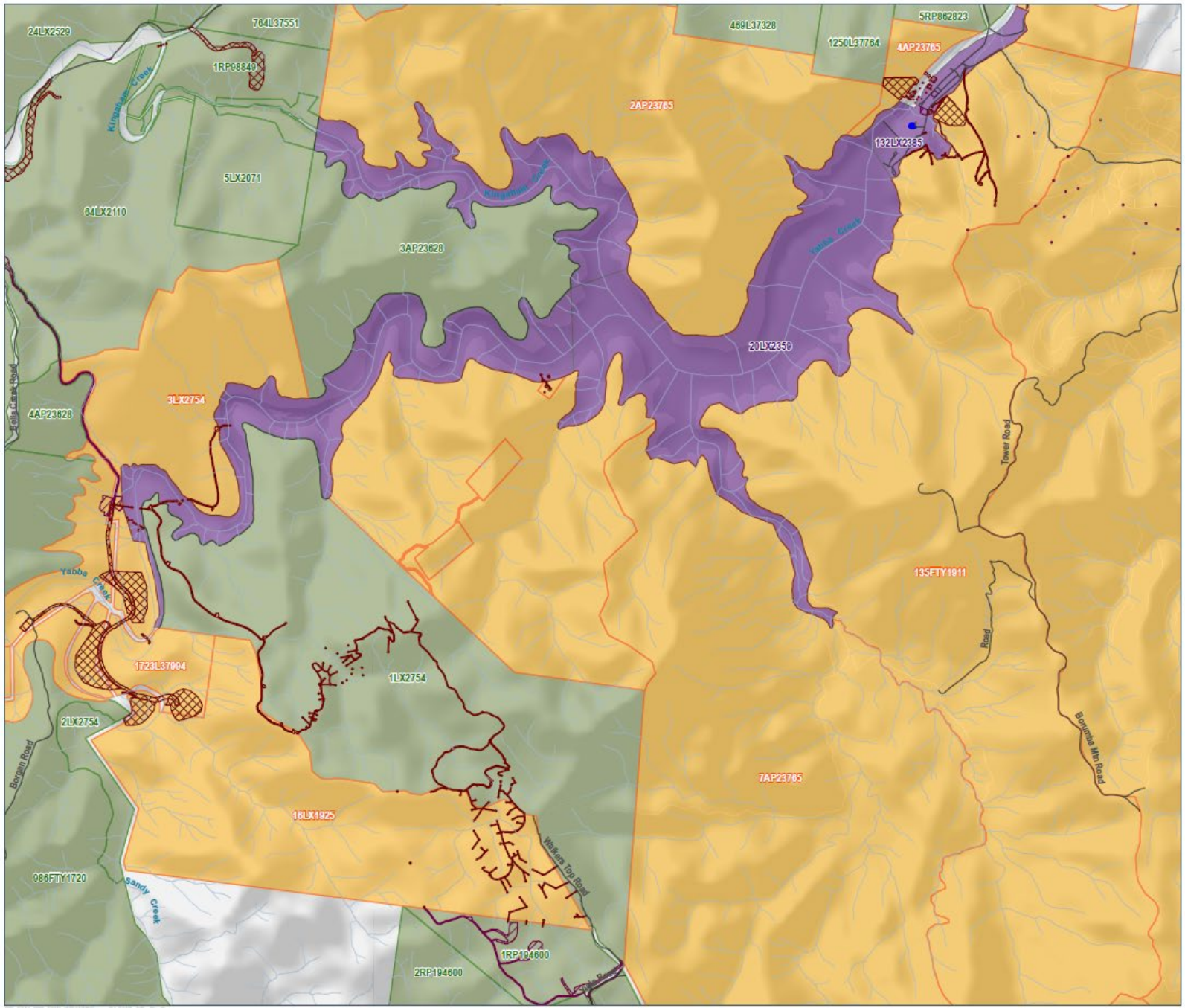
Where these factors are identified, the material is possibly contaminated and the flowchart is to be followed.

B-1-2 Asbestos

An unexpected asbestos find occurs when asbestos containing materials (ACM) are found on site. In the event of an unexpected asbestos find, the below steps are to be followed along with the flowchart:

- The area is to be demarcated, works in the area to cease and workers warned.
- Notify the Safety and Environment Manager.
- Ensure the soil and potential asbestos remain damp with dust suppression or covered where water cannot be accessed.
- Arrange for testing of the suspected ACM and monitoring of the area by approved sub-contractors (if required).
- An asbestos removalist is to be engaged to provide recommendations to treat the area, as required.

- A clearance certificate is required from the asbestos removalist to confirm that the area is to be made safe.



Queensland Hydro

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PCS: GDA2020 MGA Zone 56
Map Units: Meter

N

LEGEND

- Watercourse
- State controlled roads
- Local road
- Project Footprint for Exploratory Works EPBC - Current PD
- Project Footprint for Exploratory Works excluded from EPBC - Current PD
- Temporary Site Compound - Seqwater
- Search undertaken – Lot is on the EMR
- Search undertaken – Lot is not on the EMR
- Potentially Contaminated Land

Data Sources:
1. Basemap © Light Gray Base Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

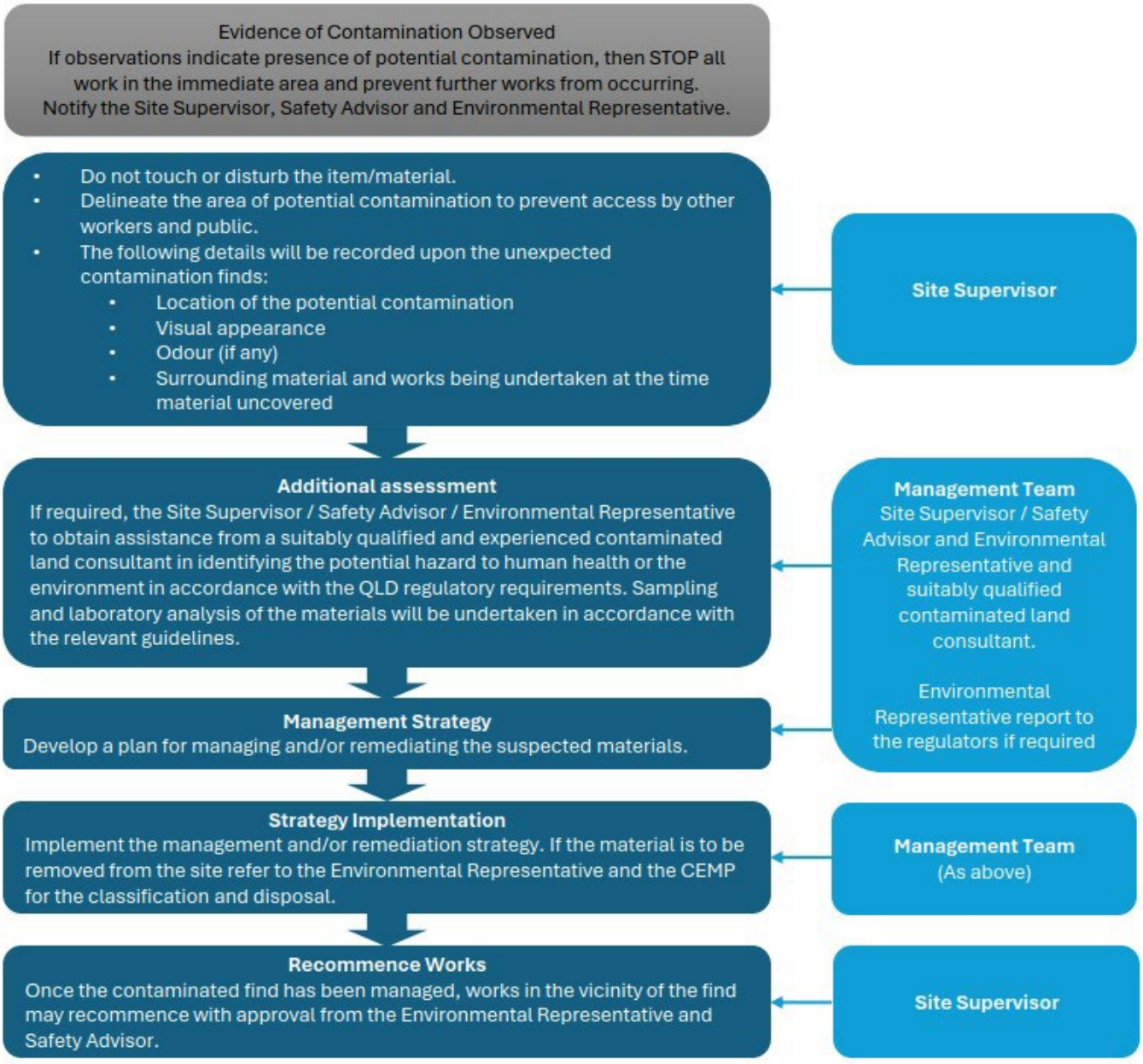
Borumba PHES Project

POTENTIALLY CONTAMINATED LAND

CREATED BY:	BM
MODIFIED ON:	6/02/2026
AMENDED BY:	BM14706
VERSION:	C
MAP ID:	M0004

FIGURE B1

The Environment manager will be consulted prior to any material being removed off-site to ensure it is classified in accordance with the Queensland Government (2017), as amended 2019, Model Operating Conditions, ERA 60 – Waste disposal requirements. Refer to flow chart for clear steps to follow.



B-1-3 Assessment of unexpected find

The sampling strategy for the characterisation and validation of an 'unexpected find' must be prepared by a suitably qualified specialist and in accordance with requirements of the consent and regulatory guidelines. The intent of the sampling is to determine the nature of the substance/material found and whether it is hazardous. It should then be determined if the substance/material exists in concentrations which could cause an unacceptable risk to human health and/or the environment.

B-1-4 Validation sampling of unexpected finds

Validation inspection and possible sampling/analysis is required to be undertaken to demonstrate that unexpected finds have been managed to a standard suitable for the proposed land use. In the event that unexpected contaminated material is found, the following sampling schedule outlined in Table 7 will be followed.

Table 7: Validation sampling and analytical scheduling

Validation Area	Sampling Frequency	Analytes
Excavations formed by the removal of unexpected finds	Minimum of 1 validation sample per 10 m linear of wall and 1 m depth, minimum of 1 validation sample per 100 m^2 area for the base (10 m grid).	As appropriate, based on the characteristics of the find
Contaminated material requiring disposal offsite	To be determined based on circumstances	As appropriate based on the characteristics of the find
Residual soils underneath stockpiles where contaminated material has been stored	Minimum of 1 sample per 10 m grid	As appropriate, based on the characteristics of the find

Note: All samples analysed for asbestos validation / re-use purposes will be 500 mL samples in accordance with WA DoH guidelines (DoH, 2021) (in the absence of Queensland specific guidelines) and analysed in accordance with AS 5370:2024. Asbestos samples for waste disposal purposes will be 50 g samples.

B-1-5 Remediation or removal from site

Contaminated material must be documented, and the quantities determined. A suitably qualified specialist must advise on the appropriate action to be taken. Any material identified as contaminated must be disposed of in accordance with the EP Act and its associated regulations. A Soil Disposal Permit must be obtained prior to removal of the contaminated material from the Project site.

B-2 Unexpected Finds

B-2-1 Cultural heritage finds

This section outlines the unexpected cultural heritage finds protocol to be applied during Exploratory Works activities, and is consistent with Seqwater's Cultural Heritage Finds Procedure. The unexpected finds protocol should be applied to the discovery of previously unidentified items or objects of Indigenous or archaeological significance found within the project area, in addition to human remains.

A Cultural Heritage Find is defined as An Aboriginal object; or Aboriginal human remains; or archaeological or historical evidence of Aboriginal occupation; or a non-Indigenous archaeological or underwater cultural heritage artifact; or archaeological or historical evidence of potential significance to Queensland's non-Indigenous history.

Sites and artefacts related to European / non-Indigenous culture are regulated by the Department of Environment, Tourism, Science and Innovation under the *Queensland Heritage Act 1992*. Sites and artefacts related to First Nations peoples' culture are regulated by the Department of Women, Aboriginal and Torres Strait Islander Partnerships and Multiculturalism (DWATSIPM) under the *Aboriginal Cultural Heritage Act 2003.* This cultural heritage finds procedure supports compliance with both the *Queensland Heritage Act 1992* and the *Aboriginal Cultural Heritage Act 2003*.

Queensland Hydro has also signed an Early Work Agreement (EWA) with Kabi Kabi. The EWA provides further detail on the processes for managing unexpected Aboriginal Cultural Heritage finds and for engaging with Kabi Kabi as the Aboriginal Party.

B-2-2 Cultural heritage, Indigenous or archaeological finds

If any item or object of non-Indigenous, Indigenous or archaeological significance is found, the following steps must be undertaken:

Step	Action	Responsibility
1	FIND: A suspected Cultural Heritage Find is made.	Worker
2	STOP: All work at the find location shall cease. Mark the location of the Cultural Heritage Find, so it is easily identified and protected from harm. Do not disturb, move or relocate the Cultural Heritage Find.	Worker
3	NOTIFY: Immediately inform the Site Supervisor of the Cultural Heritage Find.	Worker
4	NOTIFY: Promptly notify the Seqwater Cultural Heritage Officer (and the Project Manager, where relevant) of the Cultural Heritage Find. **Note:** • *The Cultural Heritage Officer will determine whether additional agencies need to be notified, dependant on the nature of the find (refer Step 6)* • *Additional requirements for notification related to human remains are provided in Section B-2-3 below*	Site Supervisor
5	MANAGE: Complete a Cultural Heritage Finds Form and provide a copy to the Seqwater Cultural Heritage Officer as soon as practicable following the discovery. Implement temporary management measures as instructed by the Seqwater Cultural Heritage Officer to protect the Cultural Heritage Find from harm until such time that it is inspected and managed. This may include erecting a	Site Supervisor

	temporary exclusion zone with a minimum of 50m radius from the Cultural Heritage Find and precluding access to that area. Notify all site personnel of the Cultural Heritage Find and its proposed temporary treatment as soon as possible, but prior to commencing work on the next working day. Facilitate access to inspect and manage the Cultural Heritage Find.	
6	MANAGE: Provide temporary management instructions to the Site Supervisor. Arrange for the Cultural Heritage Find to be inspected and assessed for significance. Notify the Aboriginal Party and/or regulatory authorities (as relevant). Determine reasonably practicable mitigation measures in consultation with the Site Supervisor, the Project Manager, and external parties (as relevant). Inform the Site Supervisor of management requirements to mitigate the Cultural Heritage Find, and when works can recommence in the area of the Cultural Heritage Find.	Seqwater Cultural Heritage Officer
7	On notification from the Seqwater Cultural Heritage Officer, work can recommence in the area of the Cultural Heritage Find ensuring that all management measures are complied with.	Site Supervisor

B-2-3 Human remains

In the event human remains are found, the following steps must be undertaken:

- Immediately cease all works and do not move or disturb the remains. It is an offence to interfere with human remains, buried or not.
- Notify the Queensland Police on 000 immediately and provide details of the remains and the location. The police will assign a representative who will assess the scene and provide further advice on whether or not the area will be considered a crime and what additional action will be required,
- If it is established that the remains are not a crime scene, and the Coroner is satisfied that the remains are ancestral Aboriginal or Torres Strait Islander human remains, then Kabi Kabi must be notified, and the remains will be dealt with in accordance with the EWA.
- Works are not to recommence unless authorised in writing by the Queensland Police and – where the remains are determined to be ancestral Aboriginal or Torres Strait Islander remains – the Kabi Kabi representative.

Further information is contained within the *Guidelines for the Discovery, Handling and Management of Human remains (Queensland Government).*

B-3 Conservation significant flora and fauna species

Pre-works inspections will be undertaken and will include identification of animal breeding places or conservation significant flora and fauna species present within the footprint. If an unexpected conservation significant flora or fauna species is identified within the footprint during site works, the procedure described below will be followed. The unexpected threatened species finds procedure outlined below has been developed in consideration of the procedure outlined in the Fauna Sensitive Transport Infrastructure Delivery Manual – Chapter 7: Construction (June 2024)[3].

An impact assessment will be completed for any new unexpected conservation significant flora and faunaidentified during the works. This CEMP will be reviewed and updated as necessary to address any new impacts identified.

Stop work and hold point

- Personnel to notify Site Supervisor and other workers in the immediate area.
- Site Supervisor to notify the Environment Manager.
- Environment Manager to notify the Client and Project Ecologist / Fauna Spotter Catcher.
- Stop Exploratory Works Project activities within 100 m of the record.

Fence off and redirect

- Site Supervisor to demarcate and prevent access to the area to reduce impact on the threatened species and redirect works to an alternate area where practicable.

Record and assess

- Environment Manager to arrange for ecologist to complete an impact assessment and develop management options including options to avoid clearing.
- If a significant impact is likely or the species is a new find for the Exploratory Works Project, consult with DCCEEW and/or DETSI depending on the level of protection of the species to determine the next steps. Obtain relevant approvals, licences, or permits as required. The discovery will be discussed with OCG to determine the need for revision of the management plan in accordance with Section 1.5.
- If a significant impact is not likely / impacts can be avoided, implement management measures and controls as recommended by the ecologist.

Release hold point

- If a significant impact is likely, only resume once advice is sought and necessary approvals, licences and permits are obtained, and once the Environment Manager deems the site is safe to commence work and releases the hold point.
- If a significant impact is not likely to occur, recommence work and maintain regular inspections once management measures and controls are removed and the Environment Manager deems the site is safe to work in and releases the hold point.

Monitor and inform

- Maintain regular inspections for threatened species.
- Relevant information on the species will be included in the induction and a toolbox talk will be given to discuss the outcome.

Report

- Environment Manager to record and document the unexpected find.

[3] Department of Transport and Main Roads (2024). Fauna Sensitive Transport Infrastructure Delivery Chapter 7: Construction. Retrieved from https://www.tmr.qld.gov.au/ /media/49d2ab445cde4f42a0f4e1c3c69e9284.pdf?extension=pdf&size=3495106&rev=e10b87ee12cb435597d65c4f7845ff74&sc_lang=en&hash=CFA56CBCC2CA20DA7D871F39842580A7

Appendix C – Air Quality and Dust Sub-plan

The air quality and dust risks with potential to result from the Seqwater Compound Facilities have been assessed in accordance with the risk assessment methodology outlined in Section 6.1. The outcomes of the assessment are presented in Table 8 where the overall risk for air quality is considered low due to the small scope of works. The potential air quality risks include:

- Adverse impact to sensitive receptors (adjacent Seqwater facilities/buildings and nearby campground) surrounding the disturbance footprint, primarily though dust generation during surface works and vehicle movements
- Adverse impacts to surrounding vegetation through dust deposition
- Localised diesel generation from machinery.

A range of environmental requirements and control measures have been identified to ensure that the air quality impacts resulting from the works, as identified in Table 8, are appropriately managed. Safeguards and management measures will be implemented to avoid, minimise or manage impacts to air quality.

Specific safeguards and management measures to address the construction air quality impacts of the Seqwater Compound Facilities are outlined in Table 9.

Table 8: Air quality risk assessment

Environmental Aspect	Risk description	Risk level (without controls)			Risk level (after controls as identified in Table 9)		
		Likelihood	Consequence	Risk Rating	Likelihood	Consequence	Risk Rating
Dust generation	Adverse impact to sensitive receptors (adjacent Seqwater compound and nearby campground) surrounding the disturbance footprint, primarily though dust generation during surface works and vehicle movements	Possible	Minor	Low	Unlikely	Minor	Low
	Adverse impacts to surrounding vegetation through dust deposition	Possible	Minor	Low	Unlikely	Minor	Low
Air quality	Localised diesel generation from machinery and equipment, impacting sensitive receptors	Likely	Minor	Low	Possible	Minor	Low

Table 9: Air quality and dust environmental management measures

Mitigation Measure / Requirement	Responsibility
GENERAL	
Training will be provided to all project personnel, including relevant sub-contractors on air quality control practices and the requirements from this plan through inductions, toolboxes and targeted training.	Queensland Hydro
Air quality control measures from this plan will be included in relevant site environmental documents including for example, Environmental Work Method Statements (EWMS) and/or Site Environmental Plans.	Queensland Hydro
Construction activities will be modified, reduced or controlled during high or unfavourable wind conditions if they have a potential to increase off-site dust generation.	Queensland Hydro
Control measures including water carts, temporary stabilisation, compaction, and soil binders will be utilised where applicable to control dust emissions. The frequency of use will be modified to accommodate prevailing conditions.	Queensland Hydro
Works will be undertaken to ensure that no offensive odours are emitted from the site.	Queensland Hydro
There will be no burning off of waste.	Queensland Hydro
Spraying of herbicides, aerosols or other chemicals will not be undertaken in unsuitable weather i.e. high wind.	Queensland Hydro
Temporarily disturbed areas will be progressively stabilised or rehabilitated as reasonable and feasible, including rehabilitation with native species and sterile non-natives.	Queensland Hydro
VEHICLE MOVEMENT AND LOADING / UNLOADING OF EXCAVATED MATERIAL	
Water carts will be utilised where required, to control dust emissions on unsealed haul roads.	Queensland Hydro
Speed limits will be implemented across the works footprint to minimise dust generation from vehicle movements.	Queensland Hydro
All loaded haulage trucks on public roads will be covered when transporting materials.	Queensland Hydro
Hardstand areas and surrounding public roads will be cleaned, as required, using methods such as brooms, bobcat attachments or street sweepers.	Queensland Hydro
PLANT AND EQUIPMENT	
Haul trucks and plant equipment will be switched off when not in use for periods of more than 30 minutes.	Queensland Hydro
Construction plant, vehicles and machinery will be maintained in accordance with manufacturer's specifications to ensure that emissions do not exceed DETSI regulations.	Queensland Hydro
Any plant, equipment or machinery will be immediately switched off should there be visible signs of smoke emissions from equipment/machinery.	Queensland Hydro
Public roads will be inspected at main entry and exit points to and from areas where construction activities are taking place.	Queensland Hydro
CONSULTATION AND COMPLAINTS MANAGEMENT	
Sensitive receptors will be notified of construction activities that are likely to affect their air quality amenity. Information provided will include: • The types of activities to be undertaken. • The timing of activities including expected start and finish. • The location of activities. • Details of the community information line and how to make an enquiry and / or complaint.	Queensland Hydro / community engagement team

Mitigation Measure / Requirement	Responsibility
All complaints will be managed in accordance with the CSEP.	Queensland Hydro / community engagement team
PERFORMANCE INDICATORS	
No visual dust nuisance identified.	Queensland Hydro
No air quality or dust complaints received.	Queensland Hydro
Any identified non-conformance actioned within 7 days of identification.	Queensland Hydro / environment manager
MONITORING AND REPORTING	
Weather forecast will be reviewed on a daily basis during construction and appropriate measures implemented where unfavourable weather conditions (dry weather, strong winds) are anticipated.	Queensland Hydro / environment manager
Visual inspections of dust will be conducted daily during construction.	Queensland Hydro
TRIGGER FOR CORRECTIVE ACTION	
Dust complaint received.	Queensland Hydro / environment manager
Visual inspections indicate mitigation measures are not effective i.e. dust plumes observed.	Queensland Hydro / environment manager
CORRECTIVE ACTIONS	
Increase frequency of dust suppression if dust nuisance is observed by site team, or if a complaint is received.	Queensland Hydro

Appendix D – Noise and Vibration Sub-plan

The risk of noise and vibration impacts resulting from the Seqwater Compound Facilities has been assessed in accordance with the risk assessment methodology outlined in Section 6.1. The outcomes of the risk assessment are presented in Table 10.

The potential noise and vibration risks identified include:

- Temporary increase in noise levels at sensitive receptors surrounding the disturbance footprint (the adjacent Seqwater compound and nearby campground)
- Temporary increase in vibration levels at sensitive receptors surrounding the disturbance footprint (adjacent Seqwater compound and nearby campground)
- Temporary noise nuisance to fauna during construction activities.

Table 10: Noise and vibration risk assessment

Environmental aspect	Risk description	Risk level (without controls)			Risk level (after controls as identified in Table 11)		
		Likelihood	Consequence	Risk Rating	Likelihood	Consequence	Risk Rating
Noise	Temporary increase in noise levels at sensitive receptors surrounding the disturbance footprint	Possible	Moderate	Medium	Possible	Minor	Low
	Temporary noise nuisance to fauna during construction activities	Possible	Minor	Low	Possible	Minor	Low
Vibration	Temporary increase in vibration levels at sensitive receptors surrounding the disturbance footprint	Possible	Minor	Low	Possible	Minor	Low

A range of general environmental requirements and control measures have been identified to ensure that the noise impacts resulting from the proposed works, as identified above, are appropriately managed. Safeguards and management measures will be implemented to avoid, minimise or manage noise and vibration impacts in the vicinity of the works. The Exploratory Works will generally accord with the criteria outlined in the EP Act and subordinate legislation.

Specific safeguards and management measures to address the impacts to the surrounding environment as a result of activities generating noise and vibration are outlined in Table 11.

Table 11: Noise and vibration management measures

Mitigation Measure / Requirement	Responsibility
GENERAL	
Training will be provided to all project personnel, including relevant sub-contractors on noise and vibration management practices including the out of hours work procedure and the requirements from this plan through inductions, toolboxes and targeted training.	Queensland Hydro
Relevant noise and vibration management measures from this plan will be included in site environmental documents including for example, EWMS and/or site environmental plans.	Queensland Hydro
A pre-condition inspection for each public utility, structure and building will be carried out where: • Excavation by hammering or ripping is within 100 metres • Vibratory compactor >7 tonne plant is within 40 metres • Vibratory compactor <7 tonne plant is within 25 metres. Where the risk of damage to an item is assessed to be low, the requirement for a pre-condition inspection may be waived with the approval of Queensland Hydro.	Queensland Hydro
Maintain a site activity log, recording the type of activities occurring during various times of the day to assist with retrospective investigation of community complaints.	Queensland Hydro
Residents and sensitive receptors will be notified of construction activities that are likely to affect their noise and vibration amenity in accordance with the CSEP. All complaints received will be managed in accordance with the CSEP.	Queensland Hydro
PLANT AND EQUIPMENT	
Where practicable, noise generating equipment will be strategically positioned to take advantage of natural screening from geographical features or other structures to reduce the transmission of noise between work sites and receiver locations.	Queensland Hydro
Where feasible and reasonable, noisy equipment and/or construction processes will be substituted by alternative low noise emitting equipment and/or construction process.	Queensland Hydro
Offset distance between high vibration plant items and nearby vibration sensitive receptors will be maximised where practicable.	Queensland Hydro
All construction plant and equipment used on the site will be, in addition to other relevant requirements: • Fitted with properly maintained noise suppression devices in accordance with the manufacturer's specifications. • Maintained in an efficient condition. • Operated in a proper and efficient manner	Queensland Hydro
There are no sensitive receptors within 25 m of the proposed construction footprint. Based on the proposed worst case construction equipment of a 5T vibration roller and its safe vibration operating limits, there are no sensitive receptors anticipated to be impacted. As such, no vibration monitoring is proposed during construction.	Queensland Hydro

Mitigation Measure / Requirement	Responsibility
If construction activities approach 25 m from buildings in the existing Seqwater compounds structures, work practices will be reviewed to avoid any damage. Where safe working distances need to be encroached, real-time vibration monitoring with audible and visual alarms (warning lights) will be undertaken at structures and known heritage items so actual vibration can be monitored and managed appropriately. Criteria adopted are as per: • Human comfort - British Standard BS5228-2:2009 *Code of practice for noise and vibration control on construction and open sites.* • Building damage - British Standard BS7385-2:1993 *Evaluation and measurement for vibration in buildings – Part 2: Guide to damage levels from groundborne vibration.*	
WORKING HOURS	
Construction works associated with the Project will only be undertaken during the following approved hours, except as approved otherwise through the out of hours works procedure: • 6:30am to 6:00pm Monday to Sunday	Queensland Hydro
Works outside of the above hours will only be undertaken in the following circumstances: • where it is required in an emergency to avoid the loss of lives, property and/or to prevent environmental harm • works approved under an Out-of-Hours Work Procedure • emergency works that are required to avoid of the loss of life or to prevent damage to property.	Queensland Hydro
CONSULTATION AND COMPLAINTS MANAGEMENT	
Residents / sensitive receptors will be notified of construction activities that are likely to affect their noise and vibration amenity in accordance with the Communication Strategy. Information provided will include: • The types of activities to be undertaken. • The timing of activities including expected start and finish. • The location of activities. • Details of the community information line and how to make an enquiry and / or complaint.	Queensland Hydro / community engagement team
All complaints, including those related to property damage, will be managed in accordance with the CSEP.	Queensland Hydro / community engagement team
PERFORMANCE INDICATORS	
No noise or vibration complaints received.	Queensland Hydro
Any identified non-conformance actioned within 7 days of identification.	Queensland Hydro / environment manager
MONITORING AND REPORTING	
Noise and vibration monitoring will be undertaken as necessary in response to a valid complaint.	Queensland Hydro / environment manager
TRIGGER FOR CORRECTIVE ACTION	
Noise or vibration complaint received.	Queensland Hydro / environment manager
Exceedance of the noise or vibration requirements outlined in the EP Act, subordinate legislation or relevant licence conditions.	Queensland Hydro / environment manager
CORRECTIVE ACTIONS	

Mitigation Measure / Requirement	Responsibility
Review noise management measures to determine if additional noise management controls are required and update management plans as required.	Queensland Hydro
Where vibration impacts result in ongoing complaints, management measures will be reviewed which may include modification to construction methods.	Queensland Hydro

Appendix E – Bushfire Management Sub-plan

Fire is a natural part of the Australian landscape, and most vegetation communities are adapted to periodic fires. However, changes in the natural fire regime may result in changes in the species composition and / or structure of the vegetation.

The Seqwater Compound Facilities site is partly surrounded by mature eucalypt vegetation, though the remaining surrounding area is maintained grass within a key operational and/or catchment area where Seqwater operates a 24 hour utility business. The proposed work is mapped as having the following risk:

- potential Impact buffer zone on the Gympie Regional Planning Scheme overlays, town planning layer system (Gympie Regional Council, 2025)
- bushfire prone area (potential impact buffer) on the State Planning Policy interactive mapping system (DNRMMRRD, 2024)
- communities in this location should be aware they are close to areas that could be at risk of a dangerous fire under the Queensland Fire Department map[4].

The increased presence of construction vehicles and personnel in the area may increase fire risk through use of machinery that may generate sparks, use of flammable liquids and idling vehicles being present in areas of ground vegetation.

The bushfire risks associated with the Seqwater Compound Facilities have been assessed in accordance with the risk assessment methodology outlined in Section 6.1, noting that the proposed facilities do not provide accommodation and are temporary in nature. The bushfire risk levels before and after implementation of controls have been assessed in Table 12. Key risks identified are:

- Idling vehicles near grass initiating a bushfire
- Spill of flammable chemicals
- Changes to natural bushfire regime caused by construction vehicles and personnel, impacting flora and fauna in the area
- Destruction of site buildings and surrounding facilities as a result of increased bushfires.

The risk has been assessed as low and is considered an acceptable risk. As such, the risks to people and property have been sufficiently mitigated in accordance with the State Planning Policy.

[4] https://www.fire.qld.gov.au/postcode-checker

Table 12: Bushfire risk assessment

Environmental aspect	Risk description	Risk level (without controls)			Risk level (after controls as identified in Table 13)		
		Likelihood	Consequence	Risk Rating	Likelihood	Consequence	Risk Rating
Bushfire	Idling vehicles near grass initiating a bushfire	Unlikely	High	Medium	Rare	High	Low
	Spill of flammable chemicals	Possible	Moderate	Medium	Possible	Minor	Low
	Changes to natural bushfire regime caused by construction vehicles and personnel, impacting flora and fauna in the area	Unlikely	Moderate	Low	Unlikely	Moderate	Low
	Destruction of site buildings and surrounding facilities as a result of increased bushfires	Rare	Major	Medium	Rare	High	Low

Management measures to address the potential impacts associated with bushfire are outlined in Table 13. Management measures have been identified in consultation with the Queensland Hydro safety team and Seqwater personnel, ensuring that the plan aligns with Seqwater's current management of the site. Any additional bushfire management will be under the direction of Seqwater in accordance with the Works and Access Deed.

Table 13: Bushfire management measures

Mitigation Measure / Requirement	Responsibility
GENERAL	
Training will be provided through inductions and toolboxes to all project personnel, including relevant sub-contractors, on bushfire management practices and procedures to be implemented in the event of an emergency.	Queensland Hydro
The Emergency Response Plan will be implemented in the event of an uncontrolled fire, including evacuation procedures to a dedicated assembly area.	Queensland Hydro
Plant and machinery will be switched off when not in use.	All site personnel
Vehicles may not idle or be parked in areas of long grass.	All site personnel
Access tracks and fence lines will be maintained and used as firebreaks within the Project footprint and regularly maintained during clearing and construction activities.	Queensland Hydro
Smoking is not permitted on site, except within designated areas within site offices.	All site personnel
Fuel loads across the footprint will be monitored and appropriately managed through activities such as weed management and slashing.	Queensland Hydro
Flammable and combustible liquids will be stored in bunded areas and managed in accordance with AS 1940:2017 (The storage and handling of flammable and combustible liquids).	All site personnel
PERFORMANCE INDICATORS	
No unactioned items associated with weekly visual monitoring.	Queensland Hydro
No uncontrolled bushfires.	Queensland Hydro
MONITORING AND REPORTING	
Monthly assessment of fuel loads will be undertaken during the construction of the Project.	Queensland Hydro
During construction phase and bushfire season, the fire danger status will be monitored daily through the Rural Fire Service website.	Queensland Hydro
TRIGGER FOR CORRECTIVE ACTION	
Unplanned and uncontrolled bushfire.	Queensland Hydro
Fuel load assessments indicating unaccepted fuel loads are present.	Queensland Hydro
CORRECTIVE ACTIONS	
If fuel loads have increased following heavy rainfall, control methods will be implemented as required (i.e. weed control, slashing).	Queensland Hydro

Appendix F – Water Management Sub-plan

This water management sub-plan has been prepared to manage the use, containment and discharge of water as a result of the works. It also includes erosion and sediment control.

The water management risks associated with the Seqwater Compound Facilities have been assessed in accordance with the risk assessment methodology outlined in Section 6.1. The risk level of the water management risks before and after implementation of controls have been assessed in Table 14.

The nearest waterbody is Yabba Creek which is approximately 55 m from the proposed works. The works are also partly within a mapped wetland area on the Gympie Regional Planning scheme overlay maps, though there are no wetlands present in this area. The proposed site is above the high water mark for Yabba Creek and is not inundated unless the dam overtops which has not occurred. Additionally, vegetation communities at the site do not reflect mapped wetlands. The works have therefore not considered wetlands to be a potential constraint.

The potential risks associated with water management include:

- Impacts to surface water quality of nearby Yabba Creek from runoff and sedimentation as a result of surface vegetation removal
- Impacts to surface water quality of nearby Yabba Creek from contamination (fuel, oil or chemical spills, leaks, reaching surface water).

Table 14: Water management risk assessment

Environmental aspect	Risk description	Risk level (without controls)			Risk level (after controls as identified in Table 15)		
		Likelihood	Consequence	Risk Rating	Likelihood	Consequence	Risk Rating
Water quality – erosion and sedimentation	Impacts to surface water quality of nearby Yabba Creek from runoff and sedimentation as a result of surface vegetation removal	Possible	Minor	Low	Unlikely	Minor	Low
Water quality – contamination	Impacts to surface water quality of nearby Yabba Creek from contamination (fuel, oil or chemical spills, leaks, reaching surface water).	Possible	Minor	Low	Unlikely	Minor	Low

Management measures to address the potential impacts associated with water management are outlined in Table 15. A dedicated Erosion and Sediment Control Plan (ESCP) has been prepared for the works (refer to Appendix J). Given the low risk nature of the works and distance from Yabba Creek, monitoring of water quality is planned to comprise visual inspections only. Any visual observations of potential water quality issues will be identified in regular reporting to OCG.

Table 15: Water management measures

Mitigation Measure / Requirement	Responsibility
GENERAL	
Minimise the ground disturbing footprint wherever possible, including utilising existing access tracks	Queensland Hydro
Progressive reinstatement/rehabilitation of disturbed areas as soon as possible following completion of works to minimise duration of exposed surfaces.	Queensland Hydro
Prepare and implement an ESCP specific to the scope of works. A preliminary ESCP has been prepared and is provided in Appendix J.	Queensland Hydro
Size, construct and maintain all erosion and sediment controls to protect local water bodies (Yabba Creek) in accordance with the IECA guidelines. Further detail on this is provided in Appendix J.	Queensland Hydro
Avoid disturbance to the riparian zone of Yabba Creek.	Queensland Hydro
Fuel/chemical storage areas to have suitable controls to ensure that spills / run-off does not impact surrounding environment (i.e. primary / tertiary bunds, covering materials etc).	Queensland Hydro
Store fuel, diesel and hazardous substances above the 1% AEP flood level (114m elevation) and in accordance with the setbacks identified in the Works and Access Deed.	Queensland Hydro
No refuelling will occur within 50 m of Yabba Creek.	Queensland Hydro
Avoiding new disturbance, and stabilise sites where necessary, in periods when heavy rain is forecast (rainfall preparation procedure)	Queensland Hydro
Spill clean-up kits are to be kept readily available on site for any spilled fuel, oils or other contaminants	Queensland Hydro
Stormwater, recycled water or other water sources shall be used, where feasible and reasonable, for dust control.	Queensland Hydro
During construction, the environment manager will undertake post-rainfall inspections of erosion and sediment controls after more than 25 millimetres (mm) of rain in a 24-hour period (either from the nearest Bureau of Meteorology rainfall station or via onsite rainfall gauging). The inspection and records will follow those of the weekly environmental inspection tracking.	Queensland Hydro
PERFORMANCE INDICATORS	
No uncontrolled discharge of water or sediment from the work footprint to the surrounding environment.	Queensland Hydro
Controlled discharge (if necessary) to comply with the following criteria: • 50mg/L or less for total suspended solids • pH 6.5 to 8.5 • no visible trace of oils or grease.	Queensland Hydro
Integrity of erosion and sediment control infrastructure is maintained.	Queensland Hydro
MONITORING	
Daily site report (daily diary), including inspections of erosion and sediment controls to ensure they are in good, working condition.	Queensland Hydro
Visual monitoring to determine no impact to Yabba Creek (turbidity, oil/grease, rubbish etc.) through weekly environmental inspections.	Queensland Hydro

Mitigation Measure / Requirement	Responsibility
TRIGGER FOR CORRECTIVE ACTION	
Uncontrolled release of water, or evidence of sediment from the work footprint to the surrounding environment	Queensland Hydro
ESC found to be deficient during inspections or audits	Queensland Hydro
CORRECTIVE ACTIONS	
Assessing and repairing or amending ESC controls in place.	Queensland Hydro
Cleaning up any sediment that has mobilised outside the work footprint.	Queensland Hydro

Appendix G – Land Management Sub-plan

This land management sub-plan has been prepared to guide management of land, including soil resources and potentially contaminated land.

The land management risks associated with the Seqwater Compound Facilities have been assessed in accordance with the risk assessment methodology outlined in Section 6.1. The level of risk to land management before and after implementation of controls has been assessed in Table 16.

The location of proposed works on Lot 132 LX2385 is not on the Environmental Management Register or Contaminated Land Register. Preliminary contaminated land investigations[5] were undertaken within Lot 132 LX2358 at two locations of potential fire stations. A small metal band was observed in one borehole approximately 30 m from the proposed Seqwater Compound Facilities, with no further visual or olfactory evidence of contamination observed at either potential fire station location and no laboratory results exceeded the adopted assessment criteria. The assessment concluded that there was no source-pathway-receptor linkage identified and the sites posed a very low potential risk to human health and/or the environment.

The potential risks to land management associated with the works include:

- Potential to encounter and spread unexpected contaminated material
- Introduction of contaminants to land from importation of material or spills/leaks
- Erosion and sedimentation of the site through stripping of grass and topsoil.

[5] Borumba PHES – Contaminated Land Technical Report Rev 1 (Aurecon 2024)

Table 16: Land management risk assessment

Environmental aspect	Risk description	Risk level (without controls)			Risk level (after controls as identified in Table 17)		
		Likelihood	Consequence	Risk Rating	Likelihood	Consequence	Risk Rating
Contaminated land	Potential to encounter and spread unexpected contaminated material	Unlikely	Moderate	Low	Unlikely	Minor	Low
Contaminated land	Introduction of contaminants to land from importation of material or spills/leaks	Possible	Minor	Low	Unlikely	Minor	Low
Land management	Erosion and sedimentation of the site through stripping of grass and topsoil	Possible	Minor	Low	Unlikely	Minor	Low

Management measures to address the potential impacts associated with land management are outlined in Table 17.

Table 17: Land management measures

Mitigation Measure / Requirement	Responsibility
GENERAL	
Minimise the ground disturbance footprint wherever possible, including utilising existing access tracks. Where it is possible to install buildings or infrastructure without surface grubbing, this will be given priority.	Queensland Hydro
Progressive reinstatement/rehabilitation of disturbed areas as soon as possible following completion of works to minimise duration of exposed surfaces.	Queensland Hydro
Prepare and implement an ESCP specific to the scope of works. A preliminary ESCP has been prepared and is provided in Appendix J.	Queensland Hydro
Material must be inspected, segregated, stored and disposed of appropriately in accordance with the requirements of the Waste Management Sub-plan (Appendix H).	Queensland Hydro
Store fuel, diesel and hazardous substances above the 1% AEP flood level (114m elevation).	Queensland Hydro
In the event that unexpected contamination is identified, the Unexpected Finds Procedure outlined in Appendix B-1 must be implemented.	Queensland Hydro
Remediation of any contamination must be undertaken in accordance with the Works and Access Deed.	Queensland Hydro
Avoid new disturbance, and stabilise sites where necessary, in periods when heavy rain is forecast.	Queensland Hydro
Spill clean-up kits are to be kept readily available on site for any spilled fuel, oils or other contaminants.	Queensland Hydro
PERFORMANCE INDICATORS	
No uncontrolled discharge of sediment from the work footprint to the surrounding environment.	Queensland Hydro
Controlled discharge (if necessary) to comply with the following criteria (in accordance with the State Planning Policy[6]): • 50mg/L or less for total suspended solids • pH 6.5 to 8.5 • no visible trace of oils or grease.	Queensland Hydro / environment team
No material impact to environment outside of approved disturbance footprints.	Queensland Hydro
MONITORING	
During construction, daily site report (daily diary), including inspections of erosion and sediment controls to ensure they are in good, working condition.	Queensland Hydro
Daily visual monitoring for evidence of contamination, erosion or land degradation and weekly visual monitoring for potential water quality issues.	Queensland Hydro
TRIGGER FOR CORRECTIVE ACTION	
Evidence of erosion, uncontained contamination or sediment as a result of the works.	Queensland Hydro
Uncontrolled release of sediment identified.	Queensland Hydro
Non-compliance with the Seqwater Works and Access Deed requirements	Queensland Hydro
CORRECTIVE ACTIONS	

[6] Appendix 2 – Stormwater management design objectives, Table A: Construction phase – stormwater management design objectives in the State Planning Policy spp-july-2017.pdf

Mitigation Measure / Requirement	Responsibility
Review controls and update to prevent further erosion or mobilisation of sediment.	Queensland Hydro
Clean up any contamination incidents or sediment that has mobilised outside the work footprint.	Queensland Hydro
Resolve non-compliances with the Works and Access Deed requirements in consultation with Seqwater.	Queensland Hydro

Appendix H – Waste Management Sub-plan

This waste management sub-plan has been prepared to guide responsible management of waste generated during the Seqwater Compound Facilities, including appropriate handling, storage, transport and disposal of materials. Review of the likely waste streams and estimates of quantities has been undertaken for construction and operation of the Seqwater Compound Facilities and provided in Table 18. Non-regulated waste is anticipated to be no more than the equivalent of two 240L bins per week.

Table 18: Waste streams and estimated quantities

Waste stream	Description and source of waste	Estimated quantity per week
Non-regulated waste		
Green waste	Clearing of surface vegetation and topsoil at the site.	Negligible – most will be reused on site
Packaging materials	Delivery of construction materials in pallets, crates, cartons, plastics, wrapping materials etc.	7kg
Cardboard and paper	Materials used and disposed of at site offices, facilities etc.	5kg
Food scraps/ kitchen waste	Work sites	4kg
General/recyclable wastes	General/recyclable wastes generated by workers (e.g., glass bottles, cans, single use plastics, sanitary waste etc.)	7kg
Excavation waste/ spoil	Uncontaminated spoil generated during levelling etc.	Negligible – most will be reused on site
Construction materials (steel, timber, concrete, asphalt. electrical cabling, etc.)	Construction waste generated during construction of access tracks, facilities etc.	10kg
Wastewater	Surface water / stormwater runoff from construction sites.	Occasional – negligible
Other	Any waste stream not included in this assessment will be stored and handled as dictated by the waste hierarchy in accordance with the Environmental Protection Regulation 2019.	N/A
Regulated waste (category 1 and 2)		
Oils, lubricants, diesel etc	Spill over or excess oils and lubricant collected for machine maintenances.	Occasional – negligible
Sewage	Greywater and sewage from site offices and ablutions.	0.6m^3 or 600L
Batteries	Batteries used in vehicles and construction equipment.	Occasional – negligible
Wastewater	Water contaminated by hydrocarbons and other chemicals.	Occasional – negligible
Spill kits	Hydrocarbon spill clean-up kit materials, cleaning/ maintenance rags.	Occasional – negligible

The waste management risks associated with the Seqwater Compound Facilities have been assessed in accordance with the risk assessment methodology outlined in Section 6.1. The level of risk associated with waste management before and after implementation of controls has been assessed in Table 19. The potential risks associated with waste management include:

- Inadequate waste management from workers on site
- Inappropriate storage or stockpiling of surplus soil and other organic material
- Stockpiling or disposal of waste outside of approved footprint
- Generation and/or storage of hazardous waste (used oils, lubricants, paints etc.). Leaks or spills of contaminating waste
- Pollution leaching into environment, impacting land or surface water environmental values.

Table 19: Waste management risk assessment

Environmental aspect	Risk description	Risk level (without controls)			Risk level (after controls as identified in Table 20)		
		Likelihood	Consequence	Risk Rating	Likelihood	Consequence	Risk Rating
Waste management	Inadequate waste management and disposal from workers on site	Possible	Minor	Low	Unlikely	Minor	Low
Waste management	Inappropriate storage or stockpiling of surplus soil and other organic material	Possible	Minor	Low	Unlikely	Minor	Low
Waste management	Stockpiling or disposal of waste outside of approved footprint	Possible	Minor	Low	Unlikely	Minor	Low
Waste management	Generation and/or storage of hazardous waste (used oils, lubricants, paints etc.). Leaks or spills of contaminating waste	Possible	Minor	Low	Unlikely	Minor	Low
Waste management	Pollution leaching into environment, impacting land or surface water environmental values.	Possible	Moderate	Medium	Unlikely	Minor	Low

Management measures to address the potential impacts associated with waste management are outlined in Table 20. A skip bin will be provided within the clearway/storage area noted on the design drawing in Appendix A. Other bins including recycling and general waste will be provided with the office facilities. Sewage will be collected at the ablution facilities and removed from site and disposed of as regulated waste at a suitably licenced facility.

Table 20: Waste management measures

Mitigation Measure / Requirement	Responsibility
GENERAL	
All construction wastes will be recorded and separated, and stored in a designated storage area, for licensed removal and disposal. The designated storage area will be within the clearway/storage location identified in the design drawing.	Queensland Hydro
Waste management must be undertaken in accordance with the Works and Access Deed, including keeping the area clean and tidy and free from debris.	Queensland Hydro
Waste disposal (especially food waste) will be removed from site regularly (at least every month or as required) to discourage presence of pest fauna.	Queensland Hydro
Fuel/chemical storage areas will have suitable controls to ensure that spills / run-off does not impact surrounding environment (i.e. primary / tertiary bunds, covering materials etc.)	Queensland Hydro
Manage all waste in accordance with the waste and resource management hierarchy under the *Waste Reduction and Recycling Act 2011*.	Queensland Hydro
All waste generated throughout the works will be assessed and classified accordingly, with regulated waste and waste containing hazardous contaminants both being managed and disposed of in accordance with the EP Act, EP Regulation and relevant Australian Standards and guidelines.	Queensland Hydro
All waste will be removed from site, covered during transport and taken to suitably licenced facilities.	Queensland Hydro
Waste storage areas shall be assigned for all collected waste materials and recyclables. The designated area(s) shall have proper signage to identify the area to site personnel.	Queensland Hydro
Fuels will be stored and handled in accordance with the Australian Standard AS1940: The storage and handling of flammable and combustible liquids (Standards Australia, 2017).	Queensland Hydro
General waste bins will be covered to prevent odour, vermin and littering.	Queensland Hydro
All defined trackable wastes generated during the Exploratory Works Project will be tracked in accordance with the requirements of the EP Regulation. This will include the completion of waste tracking certificates for the collection, transport and management of trackable or regulated wastes.	Queensland Hydro
A waste management register must also be maintained, including as a minimum, the date of waste collection, waste type, waste classification, quantity, management method (re-use, recycle, disposal etc.) and waste sub-contractor	Queensland Hydro
PERFORMANCE INDICATORS	
No rubbish or waste leaving designated storage and handling containers/area.	Queensland Hydro
Removal of all waste by licensed sub-contractor for disposal offsite.	Queensland Hydro
Hazardous waste segregated and contained in bunded/storage with secondary containment	Queensland Hydro
MONITORING	
During construction, daily site report (daily diary), including inspections of waste management and disposal.	Queensland Hydro

Mitigation Measure / Requirement	Responsibility
TRIGGER FOR CORRECTIVE ACTION	
Environmental impact (waste) observed outside approved footprint	Queensland Hydro
CORRECTIVE ACTIONS	
Returning of waste to designated storage area.	Queensland Hydro
Review and update all controls in place.	Queensland Hydro

Appendix I – Flora and Fauna Management Sub-plan

This flora and fauna management sub-plan has been prepared to outline the responsibilities for the mitigation and management of potential impacts to ecological values associated with the Seqwater Compound Facilities.

Species that are listed under the EPBC Act, *Nature Conservation Act 1992* and/or are priority species under the Gympie Regional Planning Scheme will be addressed through implementation of management plans provided as part of the Preliminary Documentation under the EPBC Act. The Seqwater Compound Facilities are a small scope of work in a previously disturbed area. The works are not expected to have a significant impact on any MNES (or MSES) and were therefore not included in the EPBC Referral for the Exploratory Works. This flora and fauna management sub-plan relates to MLES under the Gympie Regional Planning Scheme, noting that some of these species are also MNES and MSES, as identified in Table 21.

Review of the Gympie Regional Planning Scheme identified the flora and fauna species which constitute MLES and would have required consideration through local council assessment in the absence of a works regulation, as summarised in Table 21. A number of these species are MNES and MSES which are addressed through EPBC assessment documentation and High Risk Species Management Program (HRSMP). While not specifically related to EPBC Act approvals, management measures for state listed species (including special least concern fauna) were also included in the EPBC assessment documentation. The management measures implemented for the Seqwater Compound Facilities scope will be based on the risk assessment for each species.

A previous record of an Australian lungfish and a Mary River Turtle are mapped in Yabba Creek, approximately 140 m from the proposed Seqwater Compound Facilities. Risk assessment for the proposed scope of works indicates a low risk to these species given the distance from the watercourse and the minimal earthworks required. The management measures contained within this sub-plan are adequate to manage the risk to these aquatic species.

Terrestrial ecology surveys (Umwelt, 2023) identified the adjacent vegetation between the Seqwater Compound Facilities and Yabba Creek as remnant vegetation, regional ecosystem 12.3.7. This community is listed as least concern under the *Vegetation Management Act 1999*. No other values are known to be present in the vicinity of the works. Some removal of native vegetation may be required, including looping and trimming, and will be undertaken in consultation with Seqwater, in accordance with the Works and Access Deed. This will be minimised to the greatest extent possible and significant residual impacts to MLES are not anticipated.

Table 21: MLES under Gympie Planning Scheme and location of management measures

Council priority species	EPBC Act status	*Nature Conservation Act 1992* status	Document suitable measures identified in
Black breasted button quail (*Turnix melanogaster*)	Vulnerable	Vulnerable	EPBC assessment documentation, HRSMP
Brush-tailed phascogale (*Phascogale tapoatafa*)	Not listed	Least concern	This sub-plan
Eastern yellow robin (*Eopsaltria australis*)*	Not listed	Least concern	This sub-plan
Feathertail glider (*Acrobates pygmaeus*)*	Not listed	Least concern	This sub-plan
Sugar glider (*Petaurus breviceps*)*	Not listed	Least concern	This sub-plan. HRSMP
Great barred frog (*Mixophyes fasciolatus*)	Not listed	Least concern	This sub-plan
Koala (*Phascolarctos cinereus*)*	Endangered	Endangered	EPBC assessment documentation
Mary River cod (*Maccullochella mariensis*)	Endangered	Endangered	EPBC assessment documentation. HRSMP
Noisy pitta (*Pitta versicolor*)	Not listed	Least concern	This sub-plan

Council priority species	EPBC Act status	*Nature Conservation Act 1992* status	Document suitable measures identified in
Ornate rainbowfish (*Rhadinocentrus ornatus*)	Not listed	Least concern	This sub-plan and water management sub-plan (Appendix F)
Platypus (*Ornithorhynchus anatinius*)	Not listed	Special least concern	EPBC assessment documentation. HRSMP
Topknot pigeon (*Lophoaimus antarcticus*)	Not listed	Least concern	This sub-plan
Wompoo fruit dove (*Ptilinopus magnificus*)	Not listed	Least concern	This sub-plan
Australian teak (*Flindersia australis*)	Not listed	Least concern	This sub-plan
Bloodwood (*Corymbia* spp.)*	Not listed	Least concern	This sub-plan
Blue gum (*Eucalyptus tereticornis*)*	Not listed	Least concern	This sub-plan
Blue quandong (*Elaecocarpus grandis*)	Not listed	Least concern	This sub-plan
Broad-leafed paperbark (*Melaleuca quinquenervia*)*	Not listed	Least concern	This sub-plan
Cabbage tree palm (*Livistona australis*)	Not listed	Special least concern	This sub-plan
Flooded or Rose gum (*Eucalyptus grandis*)*	Not listed	Least concern	This sub-plan
Gympie messmate (*Eucalyptus cloeziana*)	Not listed	Least concern	This sub-plan
Gympie nut (*Macadamia ternifolia* and *Macadamia integrifolia*)	Vulnerable	Vulnerable	EPBC assessment documentation
Hoop pine (*Araucaria cunninghamii*)	Not listed	Least concern	This sub-plan
Kauri (*Agathis robusta*)	Not listed	Least concern	This sub-plan
Rusty tulip oak, Copper Booyong (*Argyrodendron* sp. *Kin Kin*)	Not listed	Least concern	This sub-plan
Swamp grasstree (*Xanthorrhoea fulva*)	Not listed	Special least concern	This sub-plan
Wallum sun orchid (*Thelmitra purpurata*)	Not listed	Least concern	This sub-plan

*denotes species which may be relevant to the proposed Seqwater Compound Facilities based on surrounding habitat

The flora and fauna management risks associated with the Seqwater Compound Facilities have been assessed in accordance with the risk assessment methodology outlined in Section 6.1. The risk level of the below risks before and after implementation of controls have been assessed in Table 22. The potential risks to flora and fauna values include:

- fauna injury or mortality through plant and vehicle movement (vehicle strike)
- temporary disturbance to wildlife through dust, noise and light emission
- introduction or increased prevalence of pests and weeds due to increased vehicle movements and surface vegetation removal
- indirect or direct impacts to adjacent regional ecosystem 12.3.7
- temporary or permanent loss of breeding, foraging and sheltering habitat and microhabitat features for native fauna such as coarse woody debris and leaf litter
- impacts to aquatic habitat through changes to water quality as a result of erosion and sedimentation.

Table 22: Flora and fauna management risk assessment

Environmental aspect	Risk description	Risk level (without controls)			Risk level (after controls as identified in Table 23)		
		Likelihood	Consequence	Risk Rating	Likelihood	Consequence	Risk Rating
Fauna	Fauna injury or mortality through plant and vehicle movement (vehicle strike)	Possible	Moderate	Medium	Unlikely	Moderate	Low
Fauna	Temporary disturbance to wildlife through dust, noise and light emission	Possible	Minor	Low	Unlikely	Minor	Low
Biosecurity	Introduction or increased prevalence of pests, weeds and disease due to increased vehicle and surface vegetation / soil movements	Possible	Moderate	Medium	Possible	Minor	Low
Flora	Indirect or direct impacts to adjacent regional ecosystem 12.3.7	Possible	Minor	Low	Unlikely	Minor	Low
Flora	Potential spills of hazardous materials, impacting local flora	Possible	Minor	Low	Unlikely	Minor	Low
Fauna	Temporary or permanent loss of breeding, foraging and sheltering habitat and microhabitat features for native fauna such as coarse woody debris and leaf litter	Possible	Minor	Low	Unlikely	Minor	Low
Fauna	Impacts to aquatic habitat through changes to water quality as a result of erosion and sedimentation	Unlikely	Minor	Low	Unlikely	Minor	Low

Management measures to address the potential impacts associated with flora and fauna values are outlined in Table 23.

Table 23: Flora and fauna management measures

Mitigation Measure / Requirement	Responsibility
GENERAL	
Vehicles and machinery are to be washed down at an appropriate washdown facility regularly during works, especially when transferring between dirty areas and clean areas and when working in areas where weed or pathogen infestations are known.	Queensland Hydro
Vehicles and machinery are to be certified weed free before commencing work on site (via Weed Hygiene Declarations)	Queensland Hydro
Fuel/chemical storage areas will have suitable controls to ensure that spills / run-off does not impact surrounding environment (i.e. primary / tertiary bunds, covering materials etc.)	Queensland Hydro
Fuel and chemical storage will be setback from watercourse and drainage lines in accordance with the requirements in the Works and Access Deed. This includes storage of all such substances above the 1% AEP flood level (114m elevation).	Queensland Hydro
All new structures will be setback 50 m from the stream order 1 watercourse north of the existing ranger hut in accordance with the Works and Access Deed.	Queensland Hydro
Undertake a pre-works inspection prior to conducting works to identify, map and mark out any significant flora, fauna, animal breeding places or weeds within or immediately adjacent to the works footprint.	Queensland Hydro
Any unexpected threatened species finds will be managed in accordance with the procedure outlined in Appendix B-3.	Queensland Hydro
Relocate any animal habitat features e.g. hollow logs within the footprint to a suitable area of adjacent habitat.	Queensland Hydro
Install no-go fencing (using flagging tape or similar) around the adjacent vegetation that is outside the impact footprint to prevent access or clearing beyond the scope of works.	Queensland Hydro
Only herbicides approved by Seqwater will be used, and herbicides will only be used by appropriately trained and qualified personal with an approved Safety Data Sheet.	Queensland Hydro
All vehicles will travel at slow speeds (40 km/h) through the site.	Queensland Hydro
Bins will be covered and emptied regularly to prevent vermin.	Queensland Hydro
Biosecurity management will be undertaken in accordance with the Obligations of the *Biosecurity Act 2014*, including compliance with the General Biosecurity Obligation at all times, the Gympie Regional Council Biosecurity Plan 2023-2028 (Invasive Plants and Animals) and Qld Hydros Biosecurity Management Framework.	Queensland Hydro / all personnel
Restrict works footprint to the minimum necessary to complete the works.	Queensland Hydro
Buildings will be sited to avoid clearing native vegetation within 50 m of the watercourse or below the 1% AEP (114m elevation), in accordance with the Works and Access Deed.	Queensland Hydro
Rehabilitate temporary disturbance areas as quickly as possible following completion of works. Rehabilitation is to be undertaken in accordance with the methods outlined in Section 7.2.	Queensland Hydro
Limit works to daylight hours only to minimise impacts to surrounding fauna (as per the hours specified in Section 2).	Queensland Hydro

Mitigation Measure / Requirement	Responsibility
Prepare and implement a site specific ESCP to manage runoff into Yabba Creek (refer to Appendix J).	Queensland Hydro
PERFORMANCE INDICATORS	
No exceedance of clearing limits or evidence of disturbance beyond no-go zones.	Queensland Hydro
No injured fauna, or damage to threatened flora species or animal breeding places	Queensland Hydro
MONITORING	
During construction, daily site report (daily diary), including inspections of works limits and maintenance of erosion and sediment controls.	Queensland Hydro
TRIGGER FOR CORRECTIVE ACTION	
Exceeding clearing limits for the Seqwater Compound Facilities	Queensland Hydro
Fauna injury or mortality on site	Queensland Hydro
Unexpected threatened flora species damaged or removed	Queensland Hydro
Fencing or flagging tape damaged	Queensland Hydro
CORRECTIVE ACTIONS	
Inspect and repair damaged fencing or signage; replace any flagging tape.	Queensland Hydro
Where clearing extends outside the approved disturbance limits, a record must be taken of the incident and an investigation will occur.	Queensland Hydro
Consult with Seqwater as required to undertake corrective actions in accordance with the Works and Access Deed.	Queensland Hydro

Appendix J – Site specific ESC Plan

Clearing and Grubbing Risk Assessment

Scope of Works

The following Erosion and Sediment Control Plan (ESCP) has been developed to meet the requirements of IECA best practice guidelines for the Lower Reservoir Temporary Site Facilities The total exposed area of these works have been calculated as approximately 0.2ha which shall be undertaken in a single stage. When approved by the Administrator this ESCP represents the release of **Hold Point 1** for this stage of works.

Site Opportunities

- The clear and grub works will have total disturbed area <2000m², and
- Where possible, the works will be undertaken during a suitable dry weather window.

Site Constraints

- The Site is mapped by the Atlas of Australian Soils Queensland (Queensland Globe 2020) as containing red friable earths (Gn3.11). Associated are (Db3.12) and (Gn3.42) soils on slopes and crests and (Uc4.1) on jasper outcrops. Other soils include: (Dr4. 12) on slopes; (Db 1.23), (Gn3 .12), and (Dr4. 12) on terraces and fans; (Gn4.52) on very steep slopes; and (Gn3.74) on phyllites
- Works are located adjacent to Borumba Dam and Major risk "purple" fish passage waterway (Yabba Creek)

Table 1—Rainfall Data (BOM Gympie) and Erosion Risk (IECA Table 4.4.5, Gympie) Oct — Feb

	Oct	Nov	Dec	Jan	Feb	Mar	April	May	June	July	Aug	Sep
Mean Rainfall (mm)	72.2	88.5	136.7	160.2	168.4	144.1	81.6	71.5	59.3	51.4	39.5	44.6
Mean Days >10mm	2.0	2.5	3.6	3.6	3.5	3.2	1.9	1.6	1.3	1.2	0.9	1.2
Mean Days > 25mm	0.6	0.9	1.6	1.7	1.6	1.3	0.6	0.6	0.4	0.5	0.3	0.4
Erosion Risk	Mod	Mod	High	High	High	High	Mod	Mod	Mod	Low	V-Low	Mod

Design Criteria

Defined catchment areas are illustrated on the respective drawing. R factor was calculated using the 2 year ARI 6hr event for the site. The K factor was derived from the soil data contained in the Australian Soil Resource Information System (ASRIS) . LS factors were based on maximum slope of 60m (excluding batters). C Factor default value for construction sites was used to ensure a conservative risk rating. The P Factor default value for construction sites was used to ensure a conservative risk rating.

CATCHMENT ID	AREA (HA)	R	K	LS	P	C	A (t/ha/yr)	A (t/yr)	CONTROL
Catchment 1	0.11	3105	0.045	0.36	1.3	1.00	65	7	TYPE 3
Catchment 2	0.09	3105	0.045	0.36	1.3	1.00	65	6	TYPE 3

Erosion Controls

The calculated soil loss is approximately 65 t/ha/yr (i.e. very low erosion risk) however due to the sites location adjacent to significant waterways, the high erosion risk category for best practise land clearing has been incorporated as a minimum. Based on Table 4.4.7 IECA erosion controls for clearing works on high risk sites shall consist of:

- Land clearing limited to 5 business days of work; and
- The final surface treatment across the temporary site footprint will be gravel (19mm road base).
- Each site office building will be fixed to piers/planks to ensure the freestanding structures are placed off the ground by 50mm-200mm.
- No measures for stabilisation of batters have been considered.

Sediment Controls

The disturbed areas all being less than 2000m² in area and having a soil loss rate of less than 75t/ha/yr require Type 3 sediment controls (refer Table 3 below).

Table 3—Sediment Control Standard (Table B1 Revised Appendix B IECA 2018) .

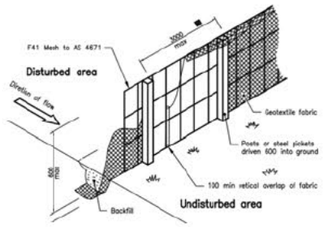
Area Limit (m²)	Soil Loss Rate (t/ha/yr)		
	Type 1	Type 2	Type 3
1,000	N/A	N/A	All cases
2,000	N/A	>75	75
>2,000	>150	150	75
>10,000	>75	N/A	75

Type 3 Standard Drawings

Type 3 controls are provisioned in for the works area and shall include; down gradient silt fences, mulch filter berms, and velocity checks. The locations and quantities are outlined within the ESCP at a minimum for the clearing and grubbing stage are detailed on Page 3 and are to be installed as per the standard drawings attached to this ESCP.

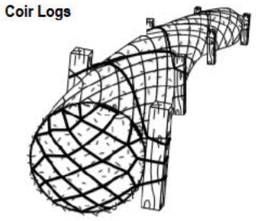
Figure 1—Examples of Relevant Type 3 Controls for Clearing and Grubbing

Mulch Berm



Sediment Fence

Coir Logs



Management Notes

General Conditions

1. Additional erosion and sediment control measures must be implemented and a revised ESCP must be submitted for approval in the event that site conditions change significantly from those considered within this ESCP.
2. Where there is a high probability that serious or material environmental harm may occur as a result of sediment leaving the site, appropriate additional erosion and sediment control measures must be implemented such that all reasonable and practicable measures are being taken to prevent or minimise such harm. Only those works necessary to minimise or prevent environmental harm shall be conducted on-site prior to approval of the amended ESCP.
3. All onsite staff (including subcontractors) will be made aware of their environmental responsibilities and the environmental issues associated with this project prior to commencement of their works.

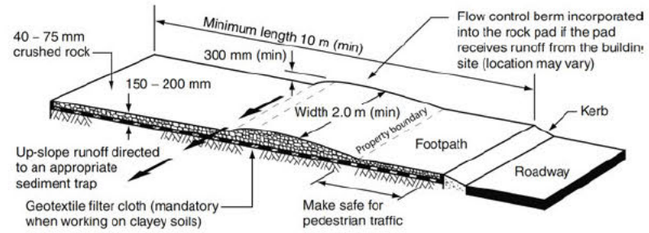
Site Management

1. All office facilities and operational activities must be located such that any liquid effluent (e.g. process water, wash-down water, effluent from equipment cleaning, or plant watering), can be totally contained and treated within the site facilities.
2. Adequate waste collection bins must be provided on-site and maintained such that potential and actual environmental harm resulting from such material waste is minimised.
3. Concrete waste and chemical products, including petroleum and oil-based products, must be prevented from entering an internal water body, or an external drain, stormwater system, or water body.
4. All flammable and combustible liquids, including all liquid chemicals if such chemicals could potentially be washed or discharged from the site, are stored and handled on-site in accordance with relevant standards such as AS1940 The storage and handling of flammable and combustible liquids.
4. Any onsite refuelling operations shall need to be undertaken by a licensed mobile facility. No refuelling shall occur within 50m of drainage lines or waterbodies. All care shall need to be taken during onsite refuelling activities to prevent any spills. All licensed mobile refuelling facilities shall carry spill kits with additional spill kits made available on site for all staff to utilize. All staff shall be trained in the use of materials for spill incidents.
5. No incineration or open burning shall be carried out onsite.

Pre-Works

1. Prior to undertaking any works on site, No Go Zones and all Vegetation to be retained shall be clearly delineated by fencing and/or marking as required.
2. All vegetation clearing shall be undertaken in accordance with all approvals and Plans.
3. Site exit points or Access Tracks must be appropriately managed to minimise the risk of sediment being tracked onto sealed, public roadways. If deemed required (i.e. site laydown compound) a stabilised entry/exit point from site shall be constructed and maintained during the works (refer Figure 2 Standard Detail below).
4. A silt fence shall be installed around the perimeter of the laydown gravel platform to minimise the release of sand and silt particles from this area.

Figure 2—Stabilised Entry / Exit Minimum Detail



Management Strategy

1. The site supervisor shall be responsible for the:

- Implementation of the ESCP, including the installation, repair, and maintenance of controls;
- Monitoring of the continued effectiveness of the controls during the works;
- Updating of the ESCP where necessary;
- Daily review of the 7 day BOM forecast for the works area, and rainfall events planned to ensure the site is prepared;
- Ensuring emergency ESC's or ESC material are held onsite and are readily available in suitable quantities; and
- All other control measures outlined in the CEMP

Performance Criteria

1. Integrity of erosion and sediment control infrastructure is maintained. Water quality monitoring shall be undertaken in accordance with the CEMP.
2. All water quality objectives non-conformances pertaining to ESC shall be investigated, remediated and reported.

Site Monitoring

1. Daily site report (Daily Diary), including inspections of erosion and sediment controls to ensure they are in good working condition.
2. Visual monitoring to determine no impact to Yabba Creek (turbidity, oil/grease, rubbish etc) through weekly environmental inspections.
3. Discharge criteria as per those identified in the CEMP

future-plus ENVIRONMENTAL

Erosion and Sediment Control Plan - Risk Assessment, Design Criteria and Management Notes

Location: Borumba Dam Lower Reservoir Temporary Site Facilities Imbil, Gympie Regional Council	Drawing Number: 6721_241017_1.2_ESCP Page 1 Drawn By: [redacted] (CPESC 9116) IV Reviewed By:	
FPE Reference Number: 6721	Client: Queensland Hydro	Scale: Not To Scale

Legend

- Dirty Water Flow Path
- Sediment Fence - Woven Fabric
- Access Track
- Catchment Areas

Catchment Area 1
0.11Ha

Catchment Area 2
0.09Ha

Edge of Vegetation
Concrete Footing Remains
Change of Grade
Toe of Batter
880mm Deep QLB
900mm Deep QLB
820mm Deep QLB
860mm Deep QLB
870mm Deep QLB
770mm Deep QLB
Bitumen Access Track
TBM Nail in RL 13
132.0
134.0

Note:

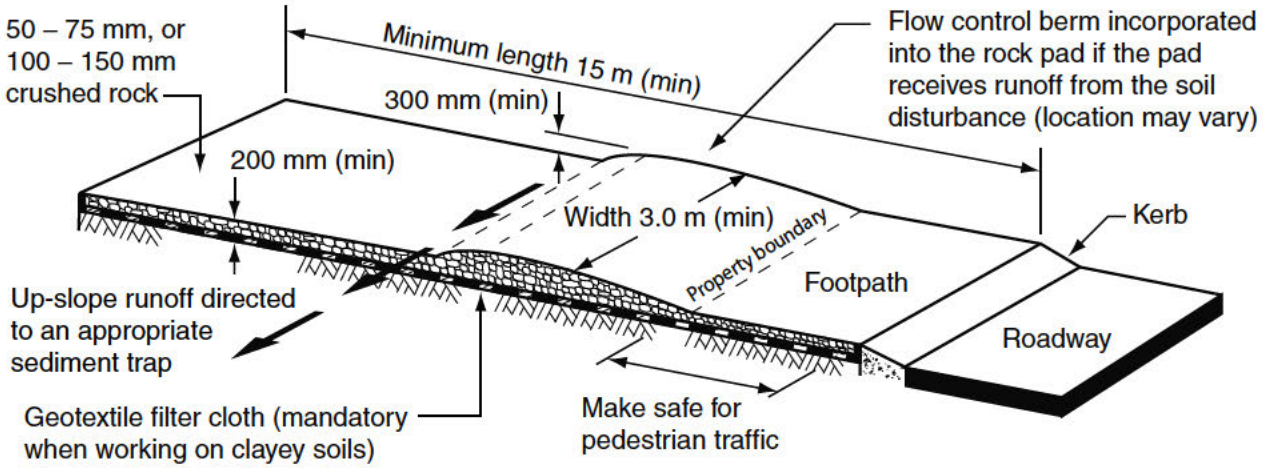
The locations of Erosion and Sediment Control measures are indicative only. Actual locations are to be determined on site and in keeping with the principals and intent of this erosion and sediment control plan.

DRAWN BY: [redacted] CPESC # 9116			
CLIENT: Borumba PHES			
TITLE: Lower Reservoir Temporary Site Facilities			
SCALE AT A1: NTS	DATE: 10/04/2025	DRAWN: TD	CHECKED TD
PROJECT NO: .	DRAWING NO: ESC 01		REVISION C

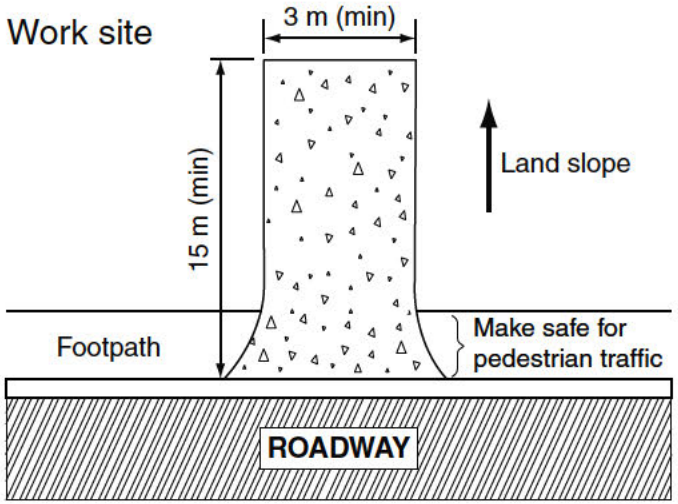
Source: Esri, Maxar, Earthstar G

Attachment B
Standard Drawings

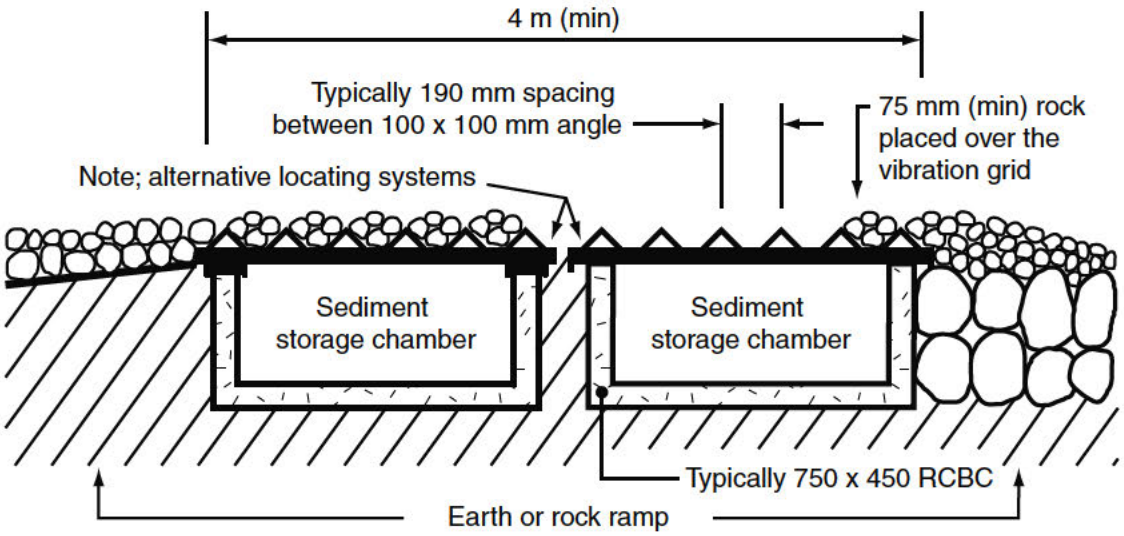
p: 07 3040 4337
f: 07 3102 9399
e: info@future-plus.com.au
www.future-plus.com.au
PO Box 1454, New Farm Q 4005
ABN 23 658 506 336



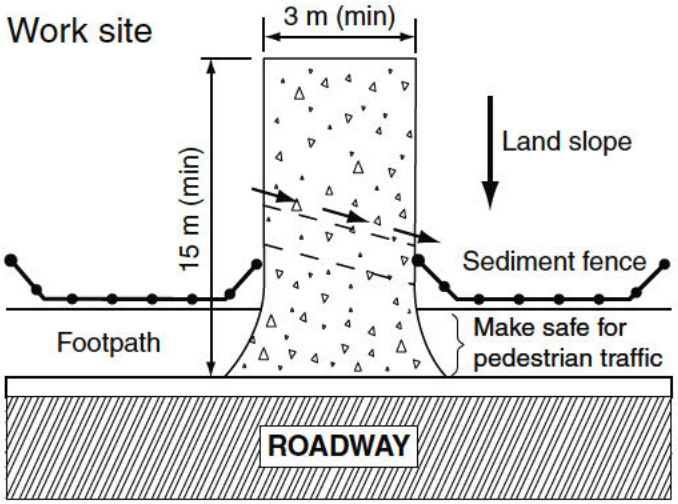
(a) Rock entry/exit pad for construction sites (refer to Standard Drawing Exit-03 for building sites)



(b) Rock pad sloping away from road



(c) Alternative low maintenance arrangement (still under development)



(d) Rock pad sloping towards the road

Drawn:	Date:		
GMW	Apr-10	Construction Exit - Rock Pad (construction sites only)	Exit-01

MATERIALS

ROCK: WELL GRADED, HARD, ANGULAR, EROSION RESISTANT ROCK, NOMINAL DIAMETER OF 50 TO 75mm (SMALL DISTURBANCES) OR 100 TO 150mm (LARGE DISTURBANCES). ALL REASONABLE MEASURES MUST BE TAKEN TO OBTAIN ROCK OF NEAR UNIFORM SIZE.

FOOTPATH STABILISING AGGREGATE: 25 TO 50mm GRAVEL OR AGGREGATE.

GEOTEXTILE FABRIC: HEAVY-DUTY, NEEDLE-PUNCHED, NON-WOVEN FILTER CLOTH ('BIDIM' A24 OR EQUIVALENT).

INSTALLATION

1. REFER TO APPROVED PLANS FOR LOCATION AND DIMENSIONAL DETAILS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, DIMENSIONS, OR METHOD OF INSTALLATION, CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.

2. CLEAR THE LOCATION OF THE ROCK PAD, REMOVING STUMPS, ROOTS AND OTHER VEGETATION TO PROVIDE A FIRM FOUNDATION SO THAT THE ROCK IS NOT PRESSED INTO SOFT GROUND. CLEAR SUFFICIENT WIDTH TO ALLOW PASSAGE OF LARGE VEHICLES, BUT CLEAR ONLY THAT NECESSARY FOR THE EXIT. DO NOT CLEAR ADJACENT AREAS UNTIL THE REQUIRED EROSION AND SEDIMENT CONTROL DEVICES ARE IN PLACE.

3. IF THE EXPOSED SOIL IS SOFT, PLASTIC OR CLAYEY, PLACE A SUB-BASE OF CRUSHED ROCK OR A LAYER OF HEAVY-DUTY FILTER CLOTH TO PROVIDE A FIRM FOUNDATION.

4. PLACE THE ROCK PAD FORMING A MINIMUM 200mm THICK LAYER OF CLEAN, OPEN-VOID ROCK.

5. IF THE ASSOCIATED CONSTRUCTION SITE IS UP-SLOPE OF THE ROCK PAD, THUS CAUSING STORMWATER RUNOFF TO FLOW TOWARDS THE ROCK PAD, THEN FORM A MINIMUM 300mm HIGH FLOW CONTROL BERM ACROSS THE ROCK PAD TO DIVERT SUCH RUNOFF TO A SUITABLE SEDIMENT TRAP.

6. THE LENGTH OF THE ROCK PAD SHOULD BE AT LEAST 15m WHERE PRACTICABLE, AND AS WIDE AS THE FULL WIDTH OF THE ENTRY OR EXIT AND AT LEAST 3m. THE ROCK PAD SHOULD COMMENCE AT THE EDGE OF THE OFF-SITE SEALED ROAD OR PAVEMENT.

7. FLARE THE END OF THE ROCK PAD WHERE IT MEETS THE PAVEMENT SO THAT THE WHEELS OF TURNING VEHICLES DO NOT TRAVEL OVER UNPROTECTED SOIL.

8. IF THE FOOTPATH IS OPEN TO PEDESTRIAN MOVEMENT, THEN COVER THE COARSE ROCK WITH FINE AGGREGATE OR GRAVEL, OR OTHERWISE TAKE WHATEVER MEASURES ARE NEEDED TO MAKE THE AREA SAFE.

MAINTENANCE

1. INSPECT ALL SITE ENTRY AND EXIT POINTS PRIOR TO FORECAST RAIN, DAILY DURING EXTENDED PERIODS OF RAINFALL, AFTER RUNOFF-PRODUCING RAINFALL, OR OTHERWISE AT FORTNIGHTLY INTERVALS.

2. IF SAND, SOIL, SEDIMENT OR MUD IS TRACKED OR WASHED ONTO THE ADJACENT SEALED ROADWAY, THEN SUCH MATERIAL MUST BE PHYSICALLY REMOVED, FIRST USING A SQUARE-EDGED SHOVEL, AND THEN A STIFF-BRISTLED BROOM, AND THEN BY A MECHANICAL VACUUM UNIT, IF AVAILABLE.

3. IF NECESSARY FOR SAFETY REASONS, THE ROADWAY SHALL ONLY BE WASHED CLEAN AFTER ALL REASONABLE EFFORTS HAVE BEEN TAKEN TO SHOVEL AND SWEEP THE MATERIAL FROM THE ROADWAY.

4. WHEN THE VOIDS BETWEEN THE ROCK BECOMES FILLED WITH MATERIAL AND THE EFFECTIVENESS OF THE ROCK PAD IS REDUCED TO A POINT WHERE SEDIMENT IS BEING TRACKED OFF THE SITE, A NEW 100mm LAYER OF ROCK MUST BE ADDED AND/OR THE ROCK PAD MUST BE EXTENDED.

5. ENSURE ANY ASSOCIATED DRAINAGE CONTROL MEASURES (e.g. FLOW CONTROL BERM) ARE MAINTAINED IN ACCORDANCE WITH THEIR DESIRED OPERATIONAL CONDITIONS.

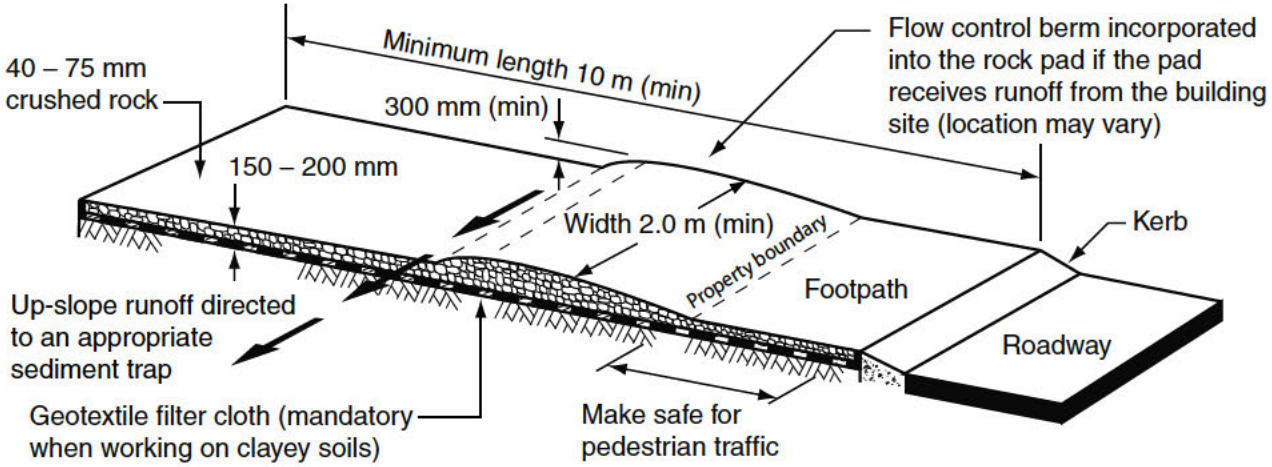
6. DISPOSE OF SEDIMENT AND DEBRIS IN A MANNER THAT WILL NOT CREATE AN EROSION OR POLLUTION HAZARD.

REMOVAL

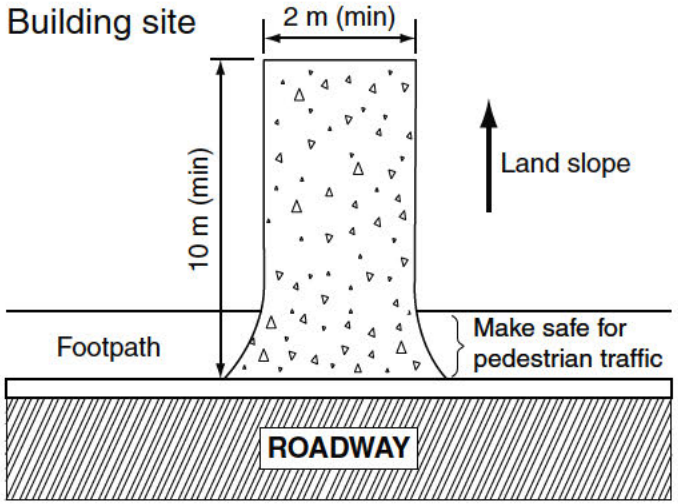
1. THE ROCK PAD SHOULD BE REMOVED ONLY AFTER IT IS NO LONGER NEEDED AS A SEDIMENT TRAP.

2. REMOVE MATERIALS AND COLLECTED SEDIMENT AND DISPOSE OF IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.
3. RE-GRADE AND STABILISE THE DISTURBED GROUND AS NECESSARY TO MINIMISE THE EROSION HAZARD.

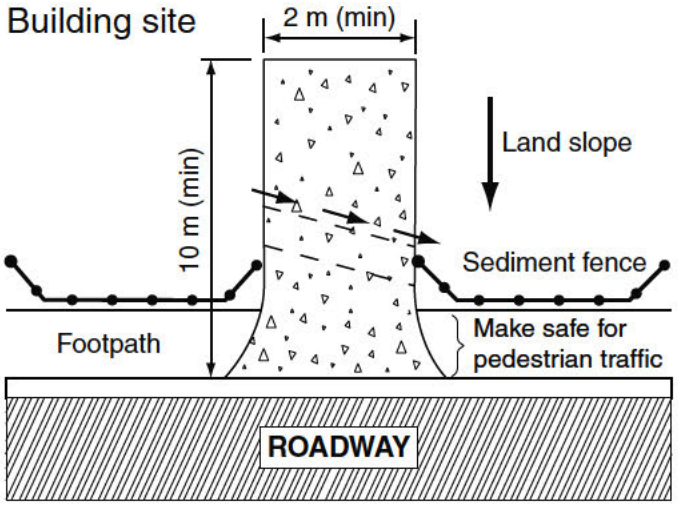
Drawn:	Date:		
GMW	Apr-10	Construction Exit - Rock Pad (construction sites only)	Exit-02



(a) Rock entry/exit pad for building sites



(b) Rock pad sloping away from road



(c) Rock pad sloping towards the road

CONSTRUCTION NOTES:

MATERIALS

ROCK: WELL GRADED, HARD, ANGULAR, EROSION RESISTANT ROCK, NOMINAL DIAMETER OF 40 TO 75mm.

FOOTPATH STABILISING AGGREGATE: 25 TO 50mm GRAVEL OR AGGREGATE (IF REQUIRED).

GEOTEXTILE FABRIC: HEAVY-DUTY, NEEDLE-PUNCHED, NON-WOVEN FILTER CLOTH ('BIDIM' A24 OR EQUIVALENT).

INSTALLATION

1. INSPECT ALL SITE ENTRY AND EXIT POINTS PRIOR TO FORECAST RAIN, DAILY DURING EXTENDED PERIODS OF RAINFALL, AFTER RUNOFF-PRODUCING RAINFALL, OR OTHERWISE AT FORTNIGHTLY INTERVALS.

2. IF SAND, SOIL, SEDIMENT OR MUD IS TRACKED OR WASHED ONTO THE ADJACENT SEALED ROADWAY, THEN SUCH MUST BE PHYSICALLY REMOVED, FIRST USING A SQUARE-EDGED SHOVEL, AND THEN A STIFF-BRISTLED BROOM, AND THEN BY A MECHANICAL VACUUM UNIT, IF AVAILABLE.

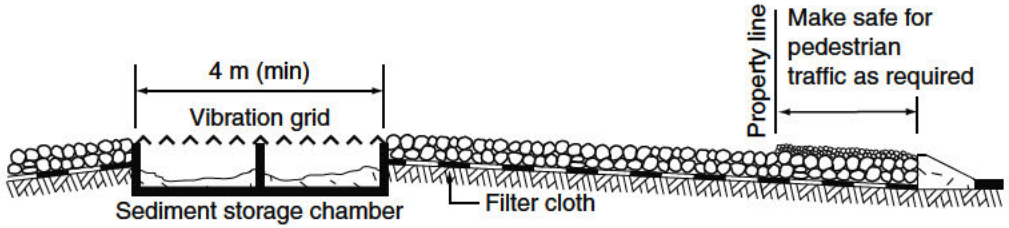
3. IF NECESSARY FOR SAFETY REASONS, THE ROADWAY SHALL ONLY BE WASHED CLEAN AFTER ALL REASONABLE EFFORTS HAVE BEEN TAKEN TO SHOVEL AND SWEEP THE MATERIAL FROM THE ROADWAY.

4. WHEN THE VOIDS BETWEEN THE ROCK BECOMES FILLED WITH MATERIAL AND THE EFFECTIVENESS OF THE ROCK PAD IS REDUCED TO A POINT WHERE SEDIMENT IS BEING TRACKED OFF THE SITE, A NEW 100mm LAYER OF ROCK MUST BE ADDED AND/OR THE ROCK PAD MUST BE EXTENDED.

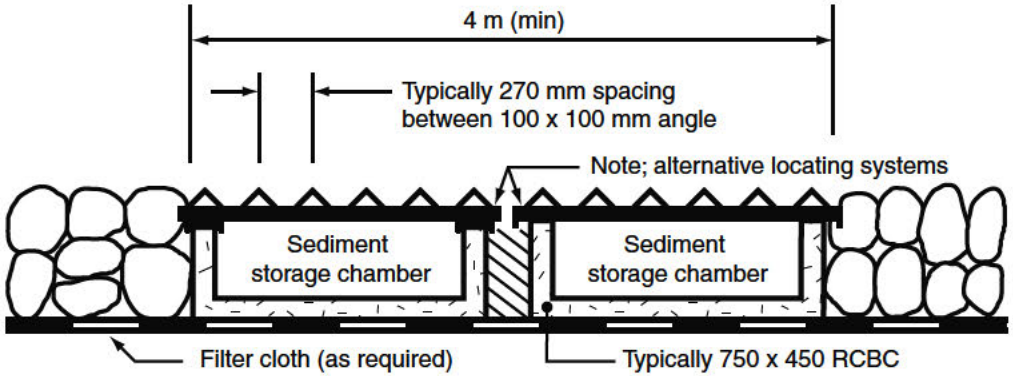
5. ENSURE ANY ASSOCIATED DRAINAGE CONTROL MEASURES (e.g. FLOW CONTROL BERM) ARE MAINTAINED IN ACCORDANCE WITH THEIR DESIRED OPERATIONAL CONDITION.

6. DISPOSE OF SEDIMENT AND DEBRIS IN A MANNER THAT WILL NOT CREATE AN EROSION OR POLLUTION HAZARD.

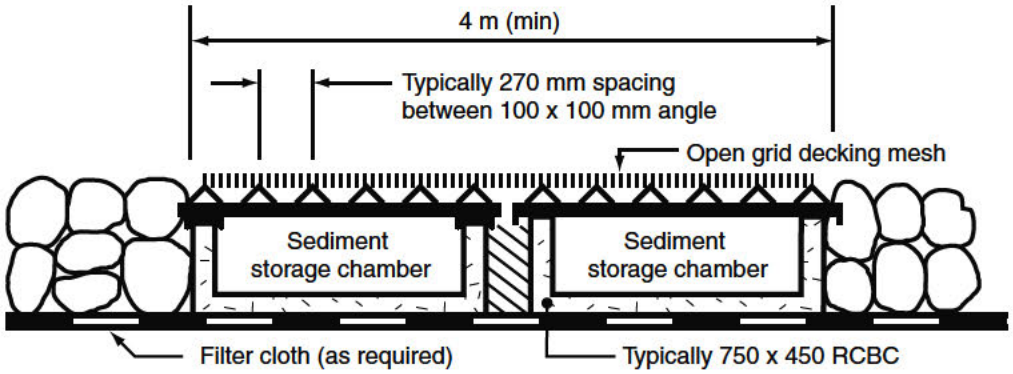
Drawn:	Date:		
GMW	May-10	Rock Pads for Building Sites	Exit-03



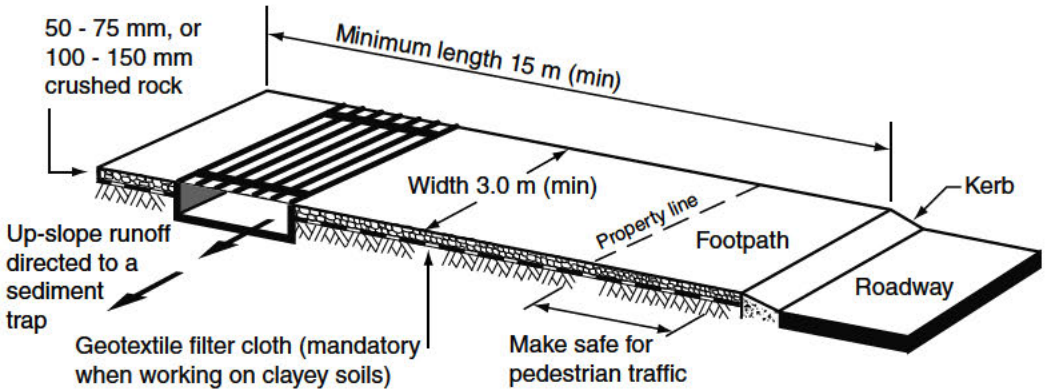
(a) Typical profile of a vibration grid



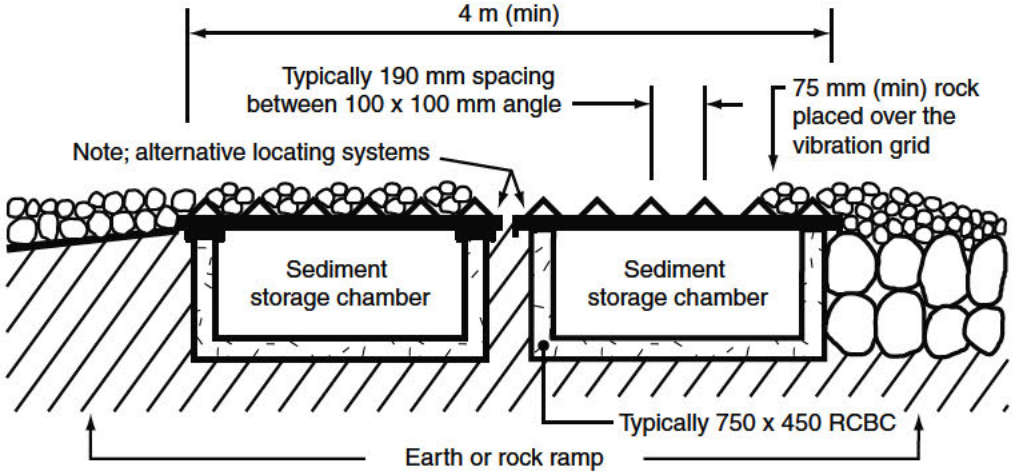
(b) Typical profile of the vibration panels



(c) Alternative, high travel speed arrangement (concept still under development)



(d) Typical layout of a vibration grid



(e) Alternative, medium travel speed arrangement (concept still under development)

Drawn:	Date:		
GMW	Dec-09	Construction Exit - Vibration Grid	Exit-04

MATERIALS

ROCK: WELL GRADED, HARD, ANGULAR, EROSION RESISTANT ROCK, NOMINAL DIAMETER OF 50 TO 75mm (SMALL DISTURBANCES) OR 100 TO 150mm (LARGE DISTURBANCES). ALL REASONABLE MEASURES MUST BE TAKEN TO OBTAIN ROCK OF NEAR UNIFORM SIZE.

FOOTPATH STABILISING AGGREGATE: 25 TO 50mm GRAVEL OR AGGREGATE.

GEOTEXTILE FABRIC: HEAVY-DUTY, NEEDLE-PUNCHED, NON-WOVEN FILTER CLOTH ('BIDIM' A24 OR EQUIVALENT).

INSTALLATION

1. REFER TO APPROVED PLANS FOR LOCATION AND DIMENSIONAL DETAILS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, DIMENSIONS, OR METHOD OF INSTALLATION, CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.

2. CLEAR THE LOCATION OF THE VIBRATION GRID, REMOVING STUMPS, ROOTS AND OTHER VEGETATION TO PROVIDE A FIRM FOUNDATION SO THAT THE ROCK IS NOT PRESSED INTO SOFT GROUND. CLEAR SUFFICIENT WIDTH TO ALLOW PASSAGE OF LARGE VEHICLES, BUT CLEAR ONLY THAT NECESSARY FOR THE EXIT. DO NOT CLEAR ADJACENT AREAS UNTIL THE REQUIRED EROSION AND SEDIMENT CONTROL DEVICES ARE IN PLACE.

3. GRADE THE LOCATION OF THE VIBRATION GRID SO THAT RUNOFF FROM THE UNIT WILL NOT FLOW INTO THE STREET, BUT WILL FLOW TOWARDS AN APPROPRIATE SEDIMENT-TRAPPING DEVICE.

4. ENSURE THAT THE INSTALLATION OF THE VIBRATION GRID HAS ADEQUATE SEDIMENT STORAGE VOLUME UNDER THE GRID. WHERE NECESSARY, INSTALL SUITABLE PRECAST SEDIMENT COLLECTION CHAMBERS.

5. PLACE A ROCK PAD/RAMP FORMING A MINIMUM 200mm THICK LAYER OF CLEAN, OPEN-VOID ROCK OVER THE ROADWAY BETWEEN THE VIBRATION GRID AND THE SEALED STREET TO PREVENT TYRES FROM PICKING UP MORE SOIL AFTER THEY HAVE BEEN CLEANED.

6. THE TOTAL LENGTH OF THE VIBRATION GRID AND ROCK RAMPS SHOULD BE AT LEAST 15m WHERE PRACTICABLE, AND AS WIDE AS THE FULL WIDTH OF THE ENTRY OR EXIT AND AT LEAST 3m. THE ROCK RAMP SHOULD COMMENCE AT THE EDGE OF THE OFF-SITE SEALED ROAD OR PAVEMENT.

7. FLARE THE END OF THE ROCK PAD WHERE IT MEETS THE PAVEMENT SO THAT THE WHEELS OF TURNING VEHICLES DO NOT TRAVEL OVER UNPROTECTED SOIL.

8. IF THE FOOTPATH IS OPEN TO PEDESTRIAN MOVEMENT, THEN COVER THE COARSE ROCK WITH FINE AGGREGATE OR GRAVEL, OR OTHERWISE TAKE WHATEVER MEASURES ARE NEEDED TO MAKE THE AREA SAFE

MAINTENANCE

1. INSPECT VIBRATION GRID PRIOR TO FORECAST RAIN, DAILY DURING EXTENDED PERIODS OF RAINFALL, AFTER SIGNIFICANT RUNOFF-PRODUCING RAINFALL, OR OTHERWISE AT FORTNIGHTLY INTERVALS.

2. IF SAND, SOIL, SEDIMENT OR MUD IS TRACKED OR WASHED ONTO THE ADJACENT SEALED ROADWAY, THEN SUCH MATERIAL MUST BE PHYSICALLY REMOVED, FIRST USING A SQUARE-EDGED SHOVEL, AND THEN A STIFF-BRISTLED BROOM, AND THEN BY A MECHANICAL VACUUM UNIT, IF AVAILABLE.

3. IF NECESSARY FOR SAFETY REASONS, THE ROADWAY SHALL ONLY BE WASHED CLEAN AFTER ALL REASONABLE EFFORTS HAVE BEEN TAKEN TO SHOVEL AND SWEEP THE MATERIAL FROM THE ROADWAY.

4. WHEN THE VOIDS BETWEEN THE ROCK BECOMES FILLED WITH MATERIAL AND THE EFFECTIVENESS OF THE ROCK RAMPS ARE REDUCED TO A POINT WHERE SEDIMENT IS BEING TRACKED OFF THE SITE, A NEW 100mm LAYER OF ROCK MUST BE ADDED AND/OR THE ROCK PAD MUST BE EXTENDED.

5. ENSURE ANY ASSOCIATED DRAINAGE CONTROL MEASURES ARE MAINTAINED IN ACCORDANCE WITH THEIR DESIRED OPERATIONAL CONDITION.

6. DISPOSE OF SEDIMENT AND DEBRIS IN A MANNER THAT WILL NOT CREATE AN EROSION OR POLLUTION HAZARD.

REMOVAL

1. THE VIBRATION GRID SHOULD BE REMOVED ONLY AFTER IT IS NO LONGER NEEDED AS A SEDIMENT CONTROL DEVICE.

2. REMOVE MATERIALS AND COLLECTED SEDIMENT AND DISPOSE OF IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.

3. RE-GRADE AND STABILISE THE DISTURBED GROUND AS NECESSARY TO MINIMISE THE EROSION HAZARD.

Drawn:	Date:		
GMW	Apr-10	Construction Exit - Vibration Grid	Exit-05

MATERIALS

(i) MULCH MUST COMPLY WITH THE REQUIREMENTS OF AS4454.

(ii) MAXIMUM SOLUBLE SALT CONCENTRATION OF 5dS/m.

(iii) MOISTURE CONTENT OF 30 TO 50% PRIOR TO APPLICATION.

INSTALLATION

1. REFER TO APPROVED PLANS FOR LOCATION AND EXTENT. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, EXTENT, MATERIAL TYPE, OR METHOD OF INSTALLATION CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.

2. WHEN SELECTING THE LOCATION OF A MULCH FILTER BERM, TO THE MAXIMUM DEGREE PRACTICAL, ENSURE THE BERM IS LOCATED:

(i) TOTALLY WITHIN THE PROPERTY BOUNDARIES;

(ii) ALONG A LINE OF CONSTANT ELEVATION (PREFERRED, BUT NOT ALWAYS PRACTICAL);

(iii) AT LEAST 1m, IDEALLY 3m, FROM THE TOE OF A FILL EMBANKMENT;

(iv) AWAY FROM AREAS OF CONCENTRATED FLOW.

3. ENSURE THE BERM IS INSTALLED IN A MANNER THAT AVOIDS THE CONCENTRATION OF FLOW ALONG THE BERM, OR THE UNDESIRABLE DISCHARGE OF WATER AROUND THE END OF THE BERM.

4. ENSURE THE BERM HAS BEEN PLACED SUCH THAT PONDING UP-SLOPE OF THE BERM IS MAXIMISED.

5. ENSURE BOTH ENDS OF THE BERM ARE ADEQUATELY TURNED UP THE SLOPE TO PREVENT FLOW BYPASSING PRIOR TO WATER PASSING OVER THE BERM.

6. ENSURE 100% CONTACT WITH THE SOIL SURFACE.

7. WHERE SPECIFIED, TAKE APPROPRIATE STEPS TO VEGETATE THE BERM.

MAINTENANCE

1. DURING THE CONSTRUCTION PERIOD, INSPECT ALL BERMS AT LEAST WEEKLY AND AFTER ANY SIGNIFICANT RAIN. MAKE NECESSARY REPAIRS IMMEDIATELY.

2. REPAIR OR REPLACE ANY DAMAGED SECTIONS.

3. WHEN MAKING REPAIRS, ALWAYS RESTORE THE SYSTEM TO ITS ORIGINAL CONFIGURATION UNLESS AN AMENDED LAYOUT IS REQUIRED OR SPECIFIED.

4. REMOVE ACCUMULATED SEDIMENT IF THE SEDIMENT DEPOSIT EXCEEDS A DEPTH OF 100mm OR 1/3 THE HEIGHT OF THE BERM.

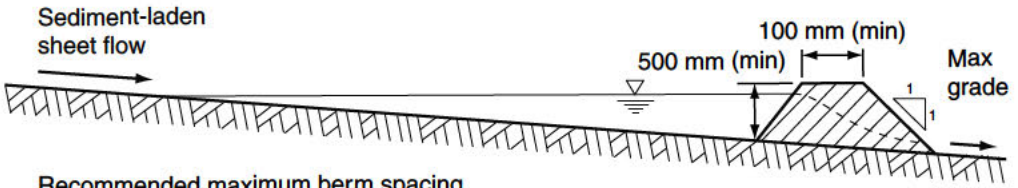
5. DISPOSE OF SEDIMENT IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.

REMOVAL (IF REQUIRED)

1. WHEN DISTURBED AREAS UP-SLOPE OF THE BERM ARE SUFFICIENTLY STABILISED TO RESTRAIN EROSION, THE BERM MAYBE REMOVED.

2. REMOVE ANY COLLECTED SEDIMENT AND DISPOSE OF IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.

3. REHABILITATE/REVEGETATE THE DISTURBED GROUND AS NECESSARY TO MINIMISE THE EROSION HAZARD.

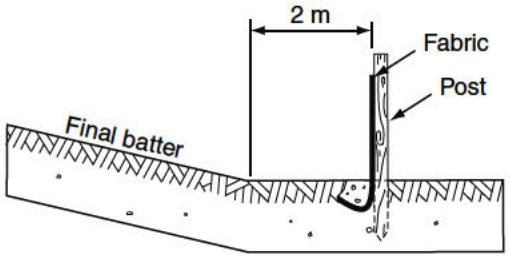


Recommended maximum berm spacing

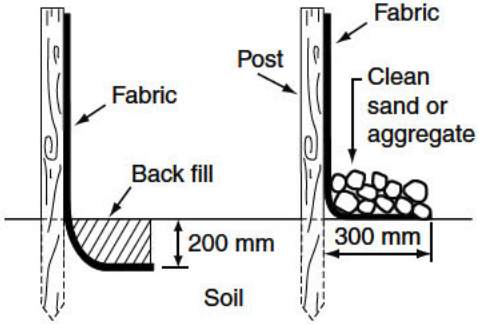
Land slope	Max spacing
< 2%	30 m
5%	25 m
10%	15 m
20%	8 m

Figure 1 - Typical placement of mulch filter berm

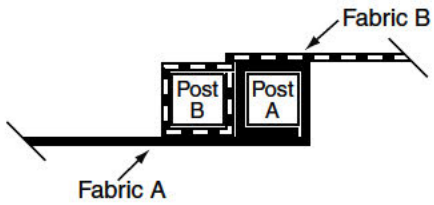
Drawn:	Date:		
GMW	Apr-10	Mulch Filter Berms	MB-01



(a) Location of fence relative to base of slope

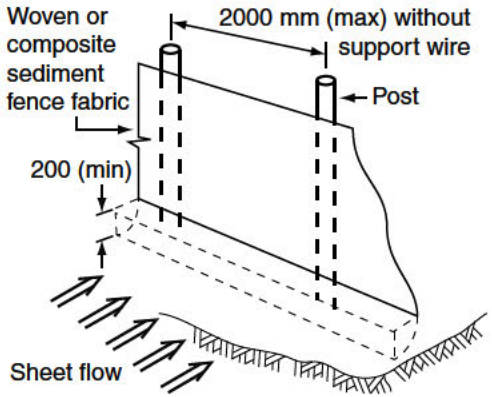


(b) Anchoring base of fabric

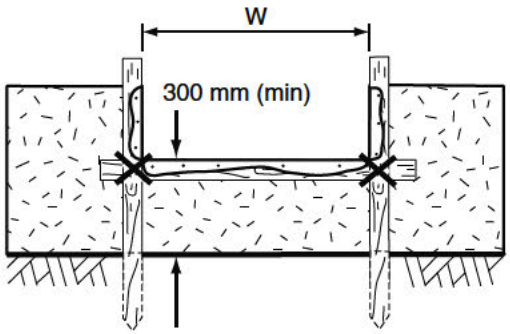


Fabric to fold around each stake one full turn.
Stake B to be drive tightly against Stake A.
The tops of both stakes to be secured with wire.

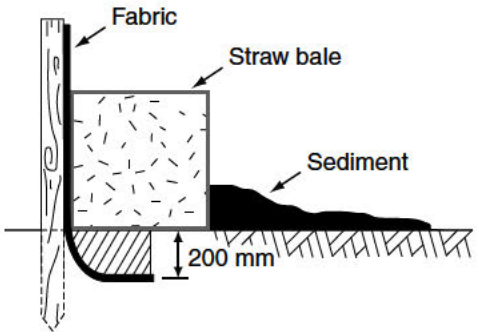
(c) Joining fabric - Method 1



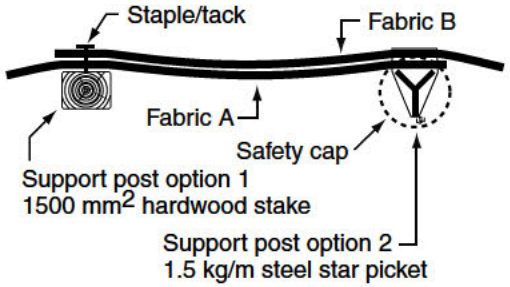
(d) Installation without backing support



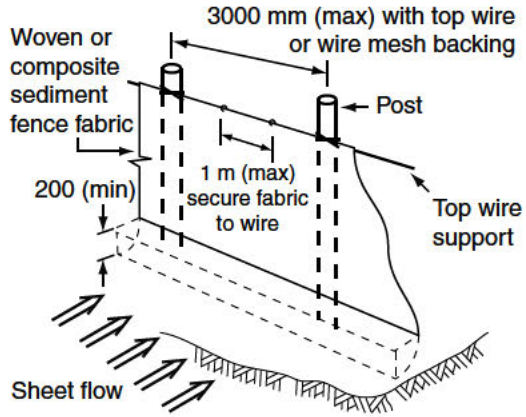
(e) Spill-through weir



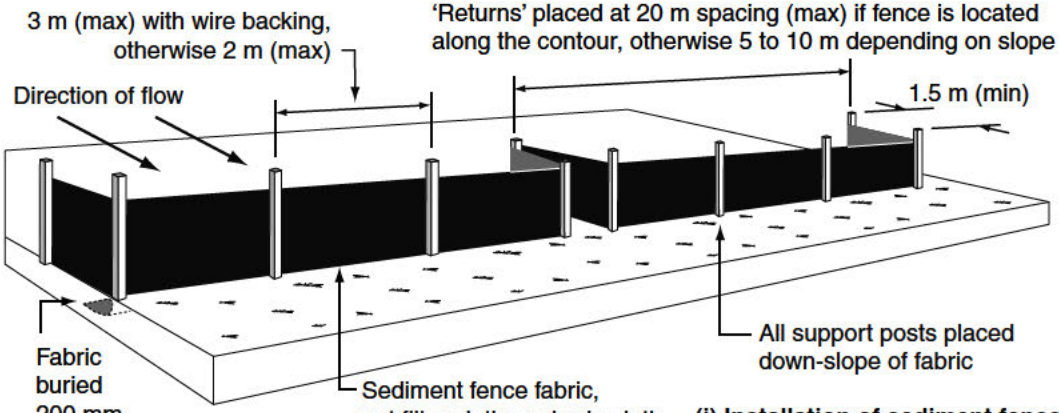
(f) Placement of up-slope straw bale



(g) Joining fabric - Method 2



(h) Installation with top wire support



(i) Installation of sediment fence

Notes:

1. Sediment fence to be installed along a line of constant ground elevation wherever practical.
2. Both end of the sediment fence to extend up the slope at least 1m.
3. Support post to be spaced a maximum 2m unless the fence is supported by a top wire or wire mesh backing, in which case 3m maximum spacing.
4. Fence 'returns' shall be installed at maximum 20m spacing if fence is installed along the contour, otherwise 5 to 10m maximum spacing.
5. Minimum 4 staples or tie wires per stake.

Drawn:	Date:		
GMW	Dec-09	Sediment Fence	SF-01

MATERIALS

FABRIC: POLYPROPYLENE, POLYAMIDE, NYLON, POLYESTER, OR POLYETHYLENE WOVEN OR NON-WOVEN FABRIC, AT LEAST 700mm IN WIDTH AND A MINIMUM UNIT WEIGHT OF 140GSM. ALL FABRICS TO CONTAIN ULTRAVIOLET INHIBITORS AND STABILISERS TO PROVIDE A MINIMUM OF 6 MONTHS OF USEABLE CONSTRUCTION LIFE (ULTRAVIOLET STABILITY EXCEEDING 70%).

FABRIC REINFORCEMENT: WIRE OR STEEL MESH MINIMUM 14-GAUGE WITH A MAXIMUM MESH SPACING OF 200mm.

SUPPORT POSTS/STAKES: 1500mm^2 (MIN) HARDWOOD, 2500mm^2 (MIN) SOFTWOOD, OR 1.5kg/m (MIN) STEEL STAR PICKETS SUITABLE FOR ATTACHING FABRIC.

INSTALLATION

1. REFER TO APPROVED PLANS FOR LOCATION, EXTENT, AND REQUIRED TYPE OF FABRIC (IF SPECIFIED). IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, EXTENT, FABRIC TYPE, OR METHOD OF INSTALLATION CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.

2. TO THE MAXIMUM DEGREE PRACTICAL, AND WHERE THE PLANS ALLOW, ENSURE THE FENCE IS LOCATED:
(i) TOTALLY WITHIN THE PROPERTY BOUNDARIES;
(ii) ALONG A LINE OF CONSTANT ELEVATION WHEREVER PRACTICAL;
(iii) AT LEAST 2m FROM THE TOE OF ANY FILLING OPERATIONS THAT MAY RESULT IN SHIFTING SOIL/FILL DAMAGING THE FENCE.

3. INSTALL RETURNS WITHIN THE FENCE AT MAXIMUM 20m INTERVALS IF THE FENCE IS INSTALLED ALONG THE CONTOUR, OR 5 TO 10m MAXIMUM SPACING (DEPENDING ON SLOPE) IF THE FENCE IS INSTALLED AT AN ANGLE TO THE CONTOUR. THE 'RETURNS' SHALL CONSIST OF EITHER:
(i) V-SHAPED SECTION EXTENDING AT LEAST 1.5m UP THE SLOPE; OR
(ii) SANDBAG OR ROCK/AGGREGATE CHECK DAM A MINIMUM 1/3 AND MAXIMUM 1/2 FENCE HEIGHT, AND EXTENDING AT LEAST 1.5m UP THE SLOPE.

4. ENSURE THE EXTREME ENDS OF THE FENCE ARE TURNED UP THE SLOPE AT LEAST 1.5m, OR AS NECESSARY, TO MINIMISE WATER BYPASSING AROUND THE FENCE.

5. ENSURE THE SEDIMENT FENCE IS INSTALLED IN A MANNER THAT AVOIDS THE CONCENTRATION OF FLOW ALONG THE FENCE, AND THE UNDESIRABLE DISCHARGE OF WATER AROUND THE ENDS OF THE FENCE.

6. IF THE SEDIMENT FENCE IS TO BE INSTALLED ALONG THE EDGE OF EXISTING TREES, ENSURE CARE IS TAKEN TO PROTECT THE TREES AND THEIR ROOT SYSTEMS DURING INSTALLATION OF THE FENCE. DO NOT ATTACH THE FABRIC TO THE TREES.

7. UNLESS DIRECTED BY THE SITE SUPERVISOR OR THE APPROVED PLANS, EXCAVATE A 200mm WIDE BY 200mm DEEP TRENCH ALONG THE PROPOSED FENCE LINE, PLACING THE EXCAVATED MATERIAL ON THE UP-SLOPE SIDE OF THE TRENCH.

8. ALONG THE LOWER SIDE OF THE TRENCH, APPROPRIATELY SECURE THE STAKES INTO THE GROUND SPACED NO GREATER THAN 3m IF SUPPORTED BY A TOP SUPPORT WIRE OR WEIR MESH BACKING, OTHERWISE NO GREATER THAN 2m.

9. IF SPECIFIED, SECURELY ATTACH THE SUPPORT WIRE OR MESH TO THE UP-SLOPE SIDE OF THE STAKES WITH THE MESH EXTENDING AT LEAST 200mm INTO THE EXCAVATED TRENCH. ENSURE THE MESH AND FABRIC IS ATTACHED TO THE UP-SLOPE SIDE OF THE STAKES EVEN WHEN DIRECTING A FENCE AROUND A CORNER OR SHARP CHANGE OF DIRECTION.

10. WHEREVER POSSIBLE, CONSTRUCT THE SEDIMENT FENCE FROM A CONTINUOUS ROLL OF FABRIC. TO JOIN FABRIC EITHER:
(i) ATTACH EACH END TO TWO OVERLAPPING STAKES WITH THE FABRIC FOLDING AROUND THE ASSOCIATED STAKE ONE TURN, AND WITH THE TWO STAKES TIED TOGETHER WITH WIRE; OR
(ii) OVERLAP THE FABRIC TO THE NEXT ADJACENT SUPPORT POST.

11. SECURELY ATTACH THE FABRIC TO THE SUPPORT POSTS USING 25 X 12.5mm STAPLES, OR TIE WIRE AT MAXIMUM 150mm SPACING.

12. SECURELY ATTACH THE FABRIC TO THE SUPPORT WIRE/MESH (IF ANY) AT A MAXIMUM SPACING OF 1m.

13. ENSURE THE COMPLETED SEDIMENT FENCE IS AT LEAST 450mm, BUT NOT MORE THAN 700mm HIGH. IF A SPILL-THOUGH WEIR IS INSTALLED, ENSURE THE CREST OF THE WEIR IS AT LEAST 300mm ABOVE GROUND LEVEL.

14. BACKFILL THE TRENCH AND TAMP THE FILL TO FIRMLY ANCHOR THE BOTTOM OF THE FABRIC AND MESH TO PREVENT WATER FROM FLOWING UNDER THE FENCE.

ADDITIONAL REQUIREMENTS FOR THE INSTALLATION OF A SPILL-THROUGH WEIR

1. LOCATE THE SPILL-THROUGH WEIR SUCH THAT THE WEIR CREST WILL BE LOWER THAN THE GROUND LEVEL AT EACH END OF THE FENCE.

2. ENSURE THE CREST OF THE SPILL-THROUGH WEIR IS AT LEAST 300mm THE GROUND ELEVATION.

3. SECURELY TIE A HORIZONTAL CROSS MEMBER (WEIR) TO THE SUPPORT POSTS/ STAKES EACH SIDE OF THE WEIR. CUT THE FABRIC DOWN THE SIDE OF EACH POST AND FOLD THE FABRIC OVER THE CROSS MEMBER AND APPROPRIATELY SECURE THE FABRIC.

4. INSTALL A SUITABLE SPLASH PAD AND/OR CHUTE IMMEDIATELY DOWN-SLOPE OF THE SPILL-THROUGH WEIR TO CONTROL SOIL EROSION AND APPROPRIATELY DISCHARGE THE CONCENTRATED FLOW PASSING OVER THE WEIR.

MAINTENANCE

1. INSPECT THE SEDIMENT FENCE AT LEAST WEEKLY AND AFTER ANY SIGNIFICANT RAIN. MAKE NECESSARY REPAIRS IMMEDIATELY.

2. REPAIR ANY TORN SECTIONS WITH A CONTINUOUS PIECE OF FABRIC FROM POST TO POST.

3. WHEN MAKING REPAIRS, ALWAYS RESTORE THE SYSTEM TO ITS ORIGINAL CONFIGURATION UNLESS AN AMENDED LAYOUT IS REQUIRED OR SPECIFIED.

4. IF THE FENCE IS SAGGING BETWEEN STAKES, INSTALL ADDITIONAL SUPPORT POSTS.

5. REMOVE ACCUMULATED SEDIMENT IF THE SEDIMENT DEPOSIT EXCEEDS A DEPTH OF 1/3 THE HEIGHT OF THE FENCE.

6. DISPOSE OF SEDIMENT IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.

7. REPLACE THE FABRIC IF THE SERVICE LIFE OF THE EXISTING FABRIC EXCEEDS 6-MONTHS.

REMOVAL

1. WHEN DISTURBED AREAS UP-SLOPE OF THE SEDIMENT FENCE ARE SUFFICIENTLY STABILISED TO RESTRAIN EROSION, THE FENCE MUST BE REMOVED.

2. REMOVE MATERIALS AND COLLECTED SEDIMENT AND DISPOSE OF IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.

3. REHABILITATE/REVEGETATE THE DISTURBED GROUND AS NECESSARY TO MINIMISE THE EROSION HAZARD.

Drawn:	Date:		
GMW	Apr-10	Sediment Fence	SF-02