Concrete Batch Plant and Trial Embankment Area for the Paradise Dam Improvement Project

Application Number: **02944** Commencement Date: **28/05/2025** Status: **Locked**

1. About the project

1.1 Project details

1.1.1 Project title *

Concrete Batch Plant and Trial Embankment Area for the Paradise Dam Improvement Project

1.1.2 Project industry type *

Water Management and Use

1.1.3 Project industry sub-type

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1.1.4 Estimated start date *

07/01/2026

1.1.4 Estimated end date *

31/12/2031

1.2 Proposed Action details

1.2.1 Provide an overview of the proposed action, including all proposed activities. *

Sunwater Limited (Sunwater, the proponent) proposes to undertake enabling works required for the Paradise Dam Improvement Project (PDIP). The PDIP is required to address deficiencies in the existing Paradise Dam and includes construction of a new dam wall. The components required to facilitate the PDIP, include:

- Concrete batch plants and trial embankment area (this proposed Action)
- Temporary Project Accommodation Village (TPAV)
- Laydowns
- Primary Dam Works
- Construction staging areas
- Road realignments
- Other ancillary activities (haul roads, powerline realignment etc.)

The subject of this referral (referred to as Referral 1) is limited to activities associated with the Concrete Batch Plant and Trial Embankment Area (the proposed Action). This proposed Action is critical to prepare for and inform the primary dam works associated with the PDIP. The timely commencement of this proposed Action is critical to the success of PDIP. A second split referral (referred to as the Referral 2) will detail the proposed Action associated with the Primary Dam Works and other PDIP components not dealt with under Referral 1 (further details in section 1.2.5 of this referral).

Proposed Action

The proposed Action involves site establishment, construction, operation, decommissioning and rehabilitation of two concrete batch plants and a trial concrete embankment required to inform the design and construction methodology of the PDIP and ancillary activities.

The proposed Action would take place within a 21.51 ha Disturbance footprint which overlays Lot 3 on SP158186 (Freehold) and one local road, being Paradise Dam Road. The Disturbance footprint is wholly located inside the 207.1 ha PDIP area (herein referred to as the PDIP Area). The PDIP Area includes the existing approved Paradise Dam (Attachment 01, Figure 1).

As part of the proposed Action, it is planned to construct and commission one Roller Compacted Concrete (RCC) batch plant and one Conventionally Vibrated Concrete (CVC) batch plant. These batch plants are required to maintain a safe and efficient program of construction that fulfils the specified quality requirements for the PDIP. Locating these batch plants proximate to the proposed replacement dam wall is necessary to undertake engineering performance and monitoring of the construction method for the trial RCC embankment under site conditions to inform the construction methodology of the Primary Dam Works.

Once the batch plants have been commissioned, the trial embankment will be constructed (within the Disturbance footprint) using the produced concrete to test the continuous RCC placement process meets the required strength and stability targets. Other ancillary activities as part of this proposed Action (within the Disturbance footprint) include material and aggregate storage, material screening areas, access roads, site offices and amenities and power generators.

Proposed Action Activities

The proposed Action includes:

- Site establishment –vegetation clearing and earthworks to form hardstand pads to support RCC and CVC patch plant infrastructure, and establishment of erosion and sediment control
- Construction – mobilisation and delivery of plant, equipment, structures and materials to the Disturbance footprint. Additionally, this phase will include construction of internal haulage roads (including ingress and egress), establishment of site offices and amenities, installation of permanent and temporary power supply (generators), and erection and commissioning of the RCC and CVC batch plants

- Operation – the receival and storage of aggregate, aggregate preparation (e.g. screening, washing etc.), operation of the RCC and CVC batch plants, and RCC placement within the trial embankment area
- Decommissioning – demobilisation and removal of all plant, equipment, structures and materials associated with the proposed Action from within the Disturbance footprint
- Rehabilitation – rehabilitation of the Disturbance footprint to return the areas to pre-disturbance conditions and is likely to include (as relevant) leveling and contouring, ripping of subsoils, spreading of topsoil, application of a hydro mulch seed mix and/or seedlings using a combination of annual and native perennial vegetation, and ongoing monitoring and maintenance to establish vegetation, including weed control

Direct and Indirect Impacts

The proposed Action is in a brownfield, largely disturbed area, although some direct impacts are expected, including to regrowth vegetation communities and habitat for threatened flora and fauna. The impacts are expected to occur during the construction period and resulting from vegetation clearing of 11.8 ha of regrowth Spotted Gum eucalypt woodland on metamorphic rock (RE 12.11.6) (see section 4.1 of this referral and Attachment 02, Section 5).

Paradise Dam Improvement Project Overview:

Paradise Dam (herein referred to as the Dam, formerly referred to as Burnett River Dam) is located on the Burnett River at an Adopted Middle Thread Distance of 131.4 kilometres (km). The street address for Paradise Dam is 1671 Paradise Dam Road, Coringa, approximately 20 km northwest of Biggenden and 80 km southwest of Bundaberg, Queensland (Attachment 01 – Figure 2).

The Dam was designed and built, under separate *Environment Protection and Biodiversity Act 1999* (EPBC Act) (EPBC 2001/422) and State approvals, between 2003 and 2005 to provide water supply to the Wide Bay Burnett region. At the same time, limited upgrades to the distribution network were undertaken to facilitate the supply of water for irrigation purposes. The Dam was constructed to provide a reliable source of water to support growth in the agriculture sector, attract new industry and meet future urban growth needs.

The Dam impoundment covers an area of 2,951 hectare (ha), with an approved storage volume of 300,000 megalitres (ML), at a Full Supply Level (FSL) of 67.6 metres Australian Height Datum (mAHD). The Dam is a key component of the Bundaberg Water Supply Scheme (Attachment 01 – Figure 3) and is owned and operated by Burnett Water Pty Ltd, a subsidiary of Sunwater.

Following a series of flooding events in 2010, 2011 and 2013, extensive and unexpected scour damage occurred to the riverbed immediately downstream of the primary spillway apron, resulting in damage to the apron, and potential for further scour and undercutting of the Dam. Despite emergency dam repair works and subsequent improvement works, it was identified that further works were needed to ensure the Dam could continue to hold and safely pass excess volumes of water during periods of extreme rainfall, and to satisfy design standards. For these reasons, Sunwater undertook works to lower the primary spillway by 5.8 m ahead of the 2019/20 wet season. Variation to the existing EPBC Act approval was undertaken with the Department of Climate Change, Energy, the Environment and Water (DCCEEW) post-approvals team.

In December 2021, the Queensland Government announced the preferred option for the long-term future of the Dam was to return the Dam to its original FSL, as part of dam safety improvement works. Since December 2021, Sunwater has progressed investigations into the feasibility of repairing the existing dam wall structure. This continued throughout 2022 and 2023 with a program of intensive testing undertaken to inform design development and identified three unexpected new issues regarding the long-term strength and quality of the Dam’s concrete:

- Swelling clay: Due to the porous nature of the concrete, low cement content, and high clay content, moisture in the wall caused repeated swelling and contracting

- Cement leaching: Porous concrete caused key ingredients that bond the cement to leach out of the concrete, leading to deterioration and strength loss
- Carbonation: The mix of carbon dioxide, moisture, and cement resulted in low pH (increased acidity), increasing the negative effects from swelling clay and lowering the concrete's strength

These results confirmed that the existing structure was a compromised asset, and in January 2024, the Queensland Government announced Sunwater would begin planning for a new Dam wall (the PDIP). The PDIP is required to develop a safe, sustainable, whole-of-life solution for the Dam by reducing dam safety risks to an acceptable level in accordance with the ANCOLD and Queensland Government dam safety guidelines and restore water security to the Wide Bay Burnett region.

Proposed Action Exclusions:

A number of PDIP components are excluded from this proposed Action as they do not impact on MNES and have been addressed via a self-assessment process and/or via a subsequent EPBC Act referral (described further in Section 1.2.5 of this EPBC Act referral). PDIP components excluded from Referral 1 include:

- TPAV will be undertaken on cleared land previously used as an orchard farm and grazing cattle that has been field verified to not contain any MNES. Construction, operation and decommissioning of the TPAV will not have an impact on MNES and consequently has been assessed as not requiring assessment under the EPBC Act
- Site investigations including geotechnical and geophysical investigations and other enabling activities
- Development and use of areas that do not contain or impact on MNES for laydowns and other ancillary construction activities, infrastructure or works, including for example hardstand pads, erosion and sediment controls, site offices and amenities. Construction, operation and decommissioning will not impact MNES and consequently have been assessed as not triggering assessment under the EPBC Act
- Demolition and relocation of existing assets/services and/or the installation of new assets, services and infrastructure located within existing operational areas that do not contain and will not impact on MNES

Primary Dam Works and associated works (including construction staging areas, road realignment, and other ancillary activities) – these form the subject of Referral 2

1.2.2 Is the project action part of a staged development or related to other actions or proposals in the region?

Yes

1.2.3 Is the proposed action the first stage of a staged development (or a larger project)?

Yes

1.2.5 Provide information about the staged development (or relevant larger project).

The proposed Action that is the subject of Referral 1 covers activities associated with the concrete batch plants and the trial embankment area only. These activities are necessary to prepare for and inform the design and construction method of the Primary Dam Works. The Primary Dam Works and other associated components of the PDIP will form the subject of Referral 2.

This staged approach will facilitate efficient construction of the replacement Dam structure, enabling Sunwater to undertake early set-up and process optimisation for the concrete batch plants, construction of the trial RCC embankment and supporting infrastructure in advance of main works commencement. Undertaking the proposed Action prior to the main works commencement will enable Sunwater to define construction methods such as rolling patterns, establish specification limits including joint maturity and contribute to the quality of the replacement dam.

EPBC Act Referral 2:

Referral 2 will address the PDIP, which will seek to resolve known deficiencies with the existing Paradise Dam. Referral 2 will encompass construction and operation phases of the PDIP, including the Primary Dam Works and associated works (excluding those works associated with Referral 1).

Works captured in Referral 2 will include, but are not limited to:

- Construction of a replacement dam wall (approximately 90 m downstream from the existing structure)
- Partial demolition and decommissioning of the existing dam wall
- Realignment of a local road on the left abutment (Kalliwa Road) and clearing for access roadway
- Spoil disposal (e.g. excavation material and demolished dam wall materials)
- Right abutment permanent excavation works, permanent access roadway and spillway
- Widening of the existing access road into site across Allens Creek
- Post construction rehabilitation
- Operation of the Dam at the original approved storage volume of 300,000 ML, at a FSL of 67.6 mAHD
- Ancillary works (including site offices, amenities, temporary power supply)

Ultimately, Referral 2 is required to develop a safe, sustainable, whole-of-life solution for Paradise Dam, by reducing dam safety risks to an acceptable level in accordance with the ANCOLD and Queensland Government dam safety guidelines and restore water security to the Wide Bay Burnett region. In its current condition, Paradise Dam does not meet these requirements.

1.2.6 What Commonwealth or state legislation, planning frameworks or policy documents are relevant to the proposed action, and how are they relevant? *

Commonwealth:

To facilitate construction of Paradise Dam, a controlled EPBC action approval (EPBC 2001/422) was granted by the Commonwealth Government on 25 January 2002. This approval granted authorisation for construction of the original Paradise Dam based on agreed management/mitigation measures for listed threatened species and communities and listed migratory species known to occur within the impact area. The approval has subsequently been varied on several occasions and remains in effect.

In consultation with DCCEEW, it was determined that PDIP requires new EPBC Act referrals where impacts to MNES are likely.

Split referrals are proposed to be submitted for PDIP (this Referral 1 and Referral 2).

State:

A Section 109 works regulation under the Queensland *State Development and Public Works Organisation Act 1971* (SDPWO Act) has been identified as the appropriate approval pathway to meet current project timeframes for the activities associated with this proposed Action. The Section 109 works regulation removes the requirement for development permits to be obtained under the *Planning Act 2016* and triggered by a local planning instruments, including development permits for a material change of use and operational works for earthworks.

A Section 109 works regulation does not impact:

- Requirement to obtain the relevant Commonwealth approval under EPBC Act
- Requirement to obtain the relevant state approvals, other than those no longer required because of the Section 109 works regulation
- Requirement to comply with the general environmental duty and duty to notify of environmental harm under the *Environmental Protection Act 1994* (EP Act)
- Requirement to obtain relevant Environmental Authorities under the EP Act
- Requirement to meet duty of care requirements under the *Aboriginal Cultural Heritage Act 2003*
- Assessment requirements for the Primary Dam Works
- Requirement to comply with any other laws, other than those that no longer apply because of the Section 109 works regulation

The Queensland Coordinator-General is currently working with the Office of the Queensland Parliamentary Counsel to facilitate making and notification of the Section 109 works regulation which is anticipated in June 2025 pending the outcome of State approvals processes.

The legislation and planning framework for the Primary Dam Works will be addressed in Referral 2.

1.2.7 Describe any public consultation that has been, is being or will be undertaken regarding the project area, including with Indigenous stakeholders. Attach any completed consultation documentations, if relevant. *

Sunwater has been undertaking consultation and engaging with the community regarding the PDIP since 2022, and with respect to the new dam wall since 2024. A summary of consultation undertaken to date, in addition to future planned consultation activities is provided.

Preliminary Engagement:

Sunwater has undertaken preliminary stakeholder communication and engagement since 11 January 2024 (date the Queensland Government announced planning had begun to build a new dam wall). Stakeholders consulted included:

- Paradise Dam Reference Group (PDRG) (includes representatives from local government, peak bodies, customers, Traditional Owners and downstream residents)
- Near neighbours
- Local community and residents
- Broader community
- First Nations Bailai, Gurang, Gooreng Gooreng, Taribelang Bunda and Wakka Wakka People
- Environment groups (Wide Bay Burnett Environmental Council, Burnett Catchment Care Association, Gladstone Conservation Council, and Queensland Conservation Council)
- Commonwealth Department of Climate Change, Energy, the Environment and Water (via pre-referral meetings)
- Queensland Government Department of State Development, Infrastructure and Planning
- Queensland Government Department of Environment, Tourism, Science and Innovation
- Queensland Government Department of Primary Industries (Fisheries Queensland, Rural Economic Development)
- Queensland Government Department of Transport and Main Roads
- Queensland Government Department of Natural Resources and Mines, Manufacturing, and Regional and Rural Development
- Queensland Government Department of Local Government, Water and Volunteers (Major Infrastructure Projects)
- North Burnett Regional Council
- Bundaberg Regional Council

Consultation with stakeholders consisted of a variety of engagement methods and tools, including:

- Briefing meetings, general meetings, and update meetings
- Specific/targeted meetings with residents and landowners
- Online meetings and updates
- Provision of a PDIP update during the First Nations Bailai, Gurang, Gooreng Gooreng, Taribelang Bunda community roadshow in Bundaberg
- Development of videos regarding the new dam wall announcement and the concrete issues (published on the Sunwater website and the Paradise Dam Facebook Page)
- Information stall and drop-in sessions at five different locations (Lions Park North Bundaberg, Pioneer Park Childers, Gin Gin Community Markets, Bundaberg Community Markets, and Beiers Park Biggenden)
- Social media posts
- Development and publication of brochure on Sunwater website outlining key project phases, including state environmental approvals
- Community drop-in sessions to discuss road upgrades and to provide other updates
- Information stall at Agrotrend, Bundaberg Recreational Precinct

First Nations Consultation:

Sunwater has been engaging with the First Nations Bailai, Gurang, Gooreng Gooreng, Taribelang Bunda (BGGGTB) People Aboriginal Corporation Registered Native Title Bodies Corporate (RNTBC) as the Prescribed Body Corporate representing the rights and interests of the BGGGTB People. An Indigenous Land Use Agreement has been developed for the PDIP with the Wakka Wakka Native Title Aboriginal Corporation (WWNTAC) RNTBC as the Prescribed Body Corporate representing the rights and interests of the Wakka Wakka People to develop a shared benefits agreement for the PDIP since 2022. Sunwater continues to engage regularly and shared an update on the PDIP and the approvals processes at the meeting with WWNTAC on 31 October 2024 and BGGGTB RNTBC on 19 December 2024.

Preliminary Stakeholder Feedback and Sentiment:

Sunwater provided communications, briefings and community information sessions to share information and receive questions and feedback from a wide range of stakeholders. State government agencies have provided general feedback on their requirements and processes which has been considered as part of the requisite approval pathways.

The PDRG is the key engagement forum to facilitate the exchange of information and ideas between stakeholders and Sunwater for the PDIP. The majority of stakeholders on the PDRG have a long history of involvement with Paradise Dam. Customers, grower groups and local councils are all long-term advocates of Paradise Dam being safely returned to its original FSL. Sunwater is committed to ongoing PDRG engagement and continues to provide updates on timing of the approval processes as they progress.

Additionally, Sunwater has continued to engage directly with residents located proximate to the PDIP to identify and manage anticipated impacts. This has included the early planting of a trees to screen the proposed TPAV which shares a boundary with the nearest neighbours to the PDIP.

Consultation Moving Forward:

Consultation will be ongoing with stakeholders as the proposed Action and the PDIP progresses through the various approval processes, and as any new matters may arise, with both statutory and non-statutory consultation undertaken to ensure appropriate, timely, and open communication.

1.3.1 Identity: Referring party

Privacy Notice:

Personal information means information or an opinion about an identified individual, or an individual who is reasonably identifiable.

By completing and submitting this form, you consent to the collection of all personal information contained in this form. If you are providing the personal information of other individuals in this form, please ensure you have their consent before doing so.

The Department of Climate Change, Energy, the Environment and Water (the department) collects your personal information (as defined by the Privacy Act 1988) through this platform for the purposes of enabling the department to consider your submission and contact you in relation to your submission. If you fail to provide some or all of the personal information requested on this platform (name and email address), the department will be unable to contact you to seek further information (if required) and subsequently may impact the consideration given to your submission.

Personal information may be disclosed to other Australian government agencies, persons or organisations where necessary for the above purposes, provided the disclosure is consistent with relevant laws, in particular the Privacy Act 1988 (Privacy Act). Your personal information will be used and stored in accordance with the Australian Privacy Principles.

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Alternatively, email us at privacy@awe.gov.au.

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1.3.1.1 Is Referring party an organisation or business? *

Yes

Referring party organisation details

ABN/ACN	54169579275
Organisation name	EPIC ENVIRONMENTAL PTY LTD
Organisation address	4000 QLD

Referring party details

Name	Romin Nejad
Job title	General Manager
Phone	0403116766
Email	rnejad@epicenvironmental.com.au
Address	L17, 95 North Quay, Brisbane

1.3.2 Identity: Person proposing to take the action

1.3.2.1 Are the Person proposing to take the action details the same as the Referring party details? *

No

1.3.2.2 Is Person proposing to take the action an organisation or business? *

Yes

Person proposing to take the action organisation details

ABN/ACN	17020276523
Organisation name	Sunwater Limited
Organisation address	Green Square North Level 9, 515 St Pauls Terrace Fortitude Valley, Queensland 4006

Person proposing to take the action details

Name	Sam Waldron
Job title	Project Director Paradise Dam Improvement Project
Phone	07 3120 0247
Email	sam.waldron@sunwater.com.au
Address	Green Square North Level 9, 515 St Pauls Terrace Fortitude Valley, Queensland 4006

1.3.2.14 Are you proposing the action as part of a Joint Venture? *

No

1.3.2.15 Are you proposing the action as part of a Trust? *

No

1.3.2.17 Describe the Person proposing the action's history of responsible environmental management including details of any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against the Person proposing to take the action. *

Sunwater has a strong history of responsible environmental management.

There are no current proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against Sunwater, or any of its executives.

In 2008, the Wide Bay Burnett Conservation Council Inc initiated proceedings in the Federal Court against Burnett Water Pty Ltd, a wholly owned subsidiary of Sunwater, alleging that it had breached condition 3 of the EPBC Act approval in relation to the operation of the fishway. Judgment in favour of Burnett Water Pty Ltd was handed down on 4 March 2011 (Wide Bay Conservation Council Inc v Burnett Water Pty Ltd (2011) 192 FCR 1; (2011) 277 ALR 462; [2011] FCA 175).

Prior to the judgment, in 2007, an audit conducted by the then Department of Sustainability, Environment, Water, Populations and Communities (SEWPaC) found Burnett Water Pty Ltd's operation of Paradise Dam to be partially non-compliant against a condition of approval under the EPBC Act. Following the handing down of the judgment, SEWPaC issued an addendum to the Final Compliance Audit Report. The addendum refers to the judgment and the finding that periods of non-operation of the fishway did not constitute a breach of the EPBC Act approval.

On 18 September 2023, Sunwater received notice that the DCCEEW had found that Burnett Water Pty Ltd was non-compliant with condition 1 of the EPBC Act approval for Paradise Dam. In response to this matter and to close out the contravention, DCCEEW on 16 January 2024 varied the conditions of approval under section 143 of the EPBC Act. New condition 1 requires Burnett Water Pty Ltd to compensate for the impacts of the action to the Black-breasted Button Quail by legally securing (by way of dedication as a conservation park under the Queensland *Nature Conservation Act 1992* or another mechanism agreed to in writing by the Minister) the Mount Blandy offset area. It should be noted that Mount Blandy had previously been dedicated as a Conservation Park in July 2016 under the Nature Conservation (Protected Areas) Regulation 1994 (Qld) at the behest of Sunwater. The proposed Action will not have a direct or indirect impact on the
Black-breasted Button Quail (see Attachment 02).

Sunwater is a water service provider, making the most of available water supply for agriculture, urban and industrial customers. Sunwater operates 365 days a year to deliver for its customers and understands the essential role its customers play in regional growth and prosperity.

Currently, Sunwater has 19 dams and 1,951 km of pipeline which store, capture and deliver around 40 percent of the water used commercially in Queensland to over 5,000 customers. Sunwater is known as the specialist that industry, mining and government turn to when they need the right solution for:

- Designing, developing, managing and operating bulk water infrastructure
- Conducting environmental impact studies
- Finding new ways to deliver water to remote locations

Sunwater prides itself on its values which guide everything it does and how it does it. Sunwater's values are set out below:

- Value people – everyone matters and we are committed to zero harm for all our people
- Work together – we are our best when we work together as one Sunwater and with our customers front of mind
- Take responsibility – we all have a part to play to deliver on our promises and challenge our thinking

Sunwater, as a responsible entity and in accordance with its Environmental Policy (Attachment 03), actively seeks to minimise the potential for adverse impacts from its activities on the environment, identifies ways of improving its environmental performance, and fulfills all environmental compliance obligations.

1.3.2.18 If the person proposing to take the action is a corporation, provide details of the corporation's environmental policy and planning framework

Sunwater's Environmental Policy (Attachment 03) is a roadmap for the future direction of Sunwater as an environmentally aware organisation. In conjunction with the staff code of conduct and corporate objectives, the Environmental Policy guides business operations in the way Sunwater meets its statutory obligations, its own corporate goals and its progress on sustainable practices.

Sunwater believes that everyone is responsible for the environment which surrounds us and of which they're a part of. Sunwater believes all employees are responsible for environmental protection. In addition, Sunwater ensures its operations contribute to a sustainable environment through their three values (set out below):

We Value People:

- Providing ongoing environmental awareness training and support for employees
- Maintaining effective communication with our employees and other stakeholders, such as customers and visitors to our recreation areas, to ensure all environmental management practices are followed

We Work Together:

- Continuously improving our environmental management by setting measurable goals, monitoring, reporting and reviewing the effectiveness of the management system
- Actively engaging with natural resource management groups and government agencies to achieve good environmental outcomes by preventing pollution or serious environmental harm

We Take Responsibility:

- Minimising the potential for adverse impacts from our activities on the environment and requiring our contractors to do the same
- Seeking to identify other ways of improving our environmental performance e.g. through innovation and application of new methods
- Setting achievable environmental targets and reporting against these
- Reporting and investigating environmental incidents

Fulfilling Sunwater's environmental compliance obligations

1.3.3 Identity: Proposed designated proponent

1.3.3.1 Are the Proposed designated proponent details the same as the Person proposing to take the action? *

Yes

Proposed designated proponent organisation details

ABN/ACN	17020276523
Organisation name	Sunwater Limited
Organisation address	Green Square North Level 9, 515 St Pauls Terrace Fortitude Valley, Queensland 4006

Proposed designated proponent details

Name	Sam Waldron
Job title	Project Director Paradise Dam Improvement Project
Phone	07 3120 0247
Email	sam.waldron@sunwater.com.au
Address	Green Square North Level 9, 515 St Pauls Terrace Fortitude Valley, Queensland 4006

1.3.4 Identity: Summary of allocation

Confirmed Referring party's identity

The Referring party is the person preparing the information in this referral.

ABN/ACN	54169579275
Organisation name	EPIC ENVIRONMENTAL PTY LTD
Organisation address	4000 QLD
Representative's name	Romin Nejad
Representative's job title	General Manager
Phone	0403116766
Email	rnejad@epicenvironmental.com.au
Address	L17, 95 North Quay, Brisbane

Confirmed Person proposing to take the action's identity

The Person proposing to take the action is the individual, business, government agency or trustee that will be responsible for the proposed action.

ABN/ACN	17020276523
Organisation name	Sunwater Limited
Organisation address	Green Square North Level 9, 515 St Pauls Terrace Fortitude Valley, Queensland 4006
Representative's name	Sam Waldron
Representative's job title	Project Director Paradise Dam Improvement Project
Phone	07 3120 0247
Email	sam.waldron@sunwater.com.au
Address	Green Square North Level 9, 515 St Pauls Terrace Fortitude Valley, Queensland 4006

Confirmed Proposed designated proponent's identity

The Person proposing to take the action is the individual or organisation proposed to be responsible for meeting the requirements of the EPBC Act during the assessment process, if the Minister decides that this project is a controlled action.

Same as Person proposing to take the action information.

1.4 Payment details: Payment exemption and fee waiver

1.4.1 Do you qualify for an exemption from fees under EPBC Regulation 5.23 (1) (a)? *

No

1.4.3 Have you applied for or been granted a waiver for full or partial fees under Regulation 5.21A? *

No

1.4.5 Are you going to apply for a waiver of full or partial fees under EPBC Regulation 5.21A?

No

1.4.7 Has the department issued you with a credit note? *

No

1.4.9 Would you like to add a purchase order number to your invoice? *

No

1.4 Payment details: Payment allocation

1.4.11 Who would you like to allocate as the entity responsible for payment? *

Third party

1.4.12 Is the third party an organisation? *

No

1.4.18 First name *

Mark

1.4.19 Last name *

Breitfuss

1.4.20 Job title *

Director

1.4.21 Phone *

0400212412

1.4.22 Email *

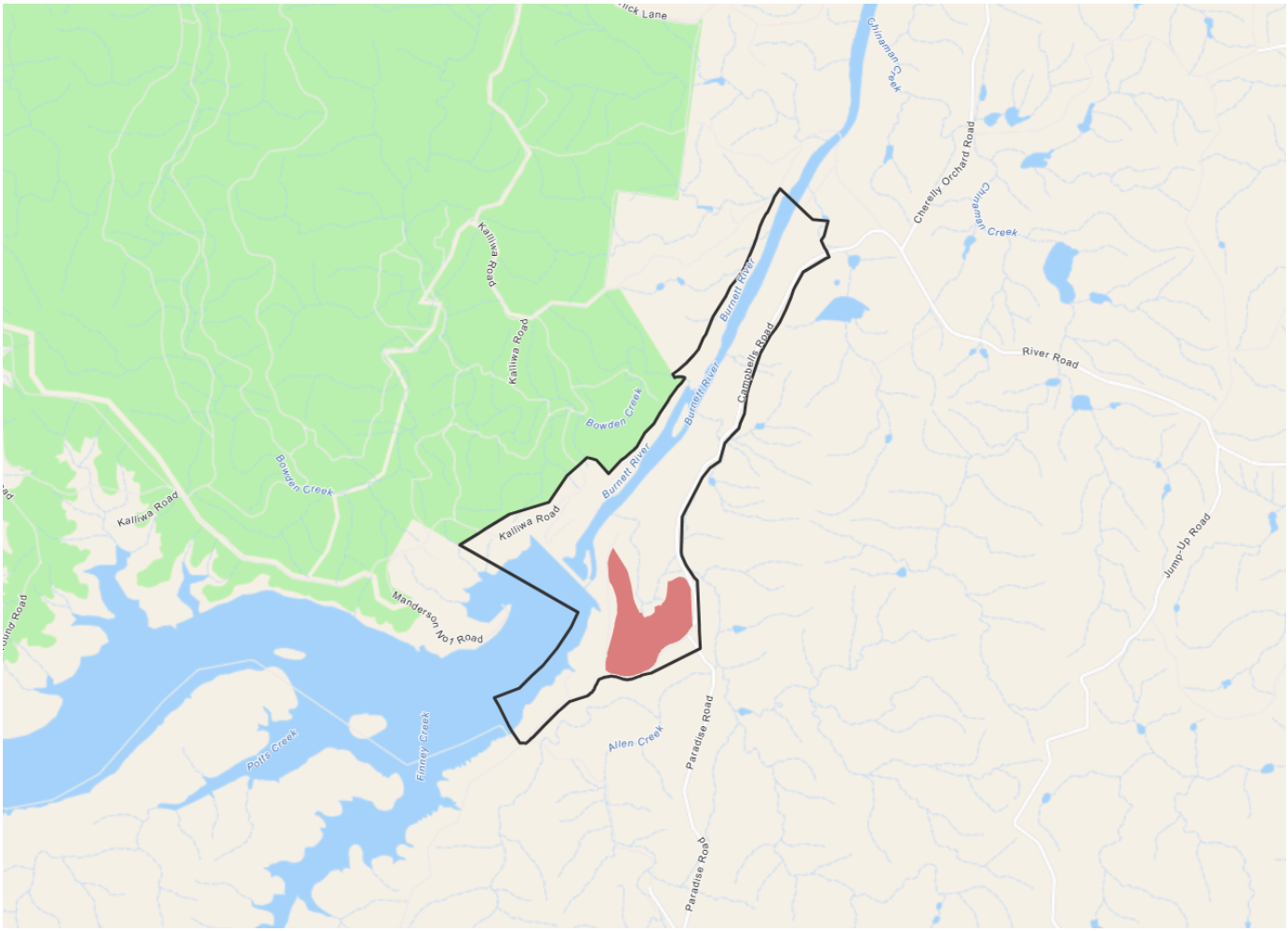
mbreitfuss@epicenvironmental.com.au

1.4.23 Address *

Level 17, 95 North Quay, Brisbane Qld 4000

2. Location

2.1 Project footprint



Project Area: 207.61 Ha **Disturbance Footprint:** 21.56 Ha

2.2 Footprint details

2.2.1 What is the address of the proposed action? *

1671 Paradise Dam Road, Coringa, Queensland 4621

2.2.2 Where is the primary jurisdiction of the proposed action? *

Queensland

2.2.3 Is there a secondary jurisdiction for this proposed action? *

No

2.2.5 What is the tenure of the action area relevant to the project area? *

The Disturbance footprint overlays Lot 3 on SP158186 (Freehold) and one local road, being Paradise Dam Road (Road Reserve) (Attachment 01, Figure 1)

There is no Native Title located within the proposed Disturbance footprint.

Sunwater acknowledges that while the PDIP and Paradise Dam are on the traditional lands of the BGGGTB and Wakka Wakka Peoples, the Disturbance footprint is on the traditional lands of the Wakka Wakka People only.

3. Existing environment

3.1 Physical description

3.1.1 Describe the current condition of the project area’s environment.

The street address for the proposed Action is 1671 Paradise Dam Road, Coringa, which is approximately 20 km northwest of Biggenden and 80 km southwest of Bundaberg, Queensland.

Local Government Area Zoning:

The proposed Action is located within the North Burnett Regional Council (NBRC) local government area (LGA). Within the *North Burnett Regional Planning Scheme 2014,* the Disturbance footprint is zoned as rural which is consistent with the proposed Action as it supports the maintenance of water infrastructure for existing and future rural uses and activities and protects and manages a significant natural resource and process (water cycle management).

Existing Infrastructure:

The Disturbance footprint includes existing access roads, parking areas, a temporary site office for geotechnical investigation works, laydown area and is largely comprised of regrowth eucalypt woodland.

Existing Environment - Disturbance footprint:

Detailed descriptions of the existing environment, for both terrestrial and aquatic matters are described in Attachment 02 – Section 4 and Attachment 04 – Section 3, respectively. An overview of these descriptions has been provided in this section.

The Disturbance footprint is largely a brownfield site and historically experienced disturbance from vegetation clearing, earthworks and infrastructure during the construction of Paradise Dam. Some sections of the Disturbance footprint are used for operational purposes, as described above.

The predominant surrounding land use is agriculture and occurs within close proximity to the north, east and south of the Disturbance footprint (Attachment 02 – Section 4.1, Page 18).

The Disturbance footprint is located within the Gympie subregion of the greater South-east Queensland bioregion. The Gympie subregion is characterised by low, hilly landscapes on old parent material. Catchment geology consists of predominantly marine volcaniclastic depositions. Local geology in and surrounding the Disturbance footprint comprises alluvium, baramba basalt, the goodnight beds, mingo granite, andesite, rhyolite, granodiorite, gabbro and other metamorphosed sediments (Attachment 02 – Section 4.1, Page 18).

Patches of Araucarian rainforest and mixed eucalypt forests are found in the wider PDIP Area on intermediate to basic volcanic soils. Ironbark woodlands tend to replace the mixed eucalypt forests where rainfall is below 1,000 millimetres per annum (mm/annum) (Attachment 02 – Section 4.1, Page 18).

The PDIP is located on the Burnett River within the Burnett catchment. The Burnett River originates at Mount Gaeta in the Great Dividing Range near Monto and flows south to southwest for approximately 100 km before flowing east near Riverleigh and then northeast at Gayndah until it discharges into the Coral Coast near Bundaberg. The Disturbance footprint is located adjacent to the Burnett River and does not intersect the Burnett River.

Introduced weed species are present over a large portion of the Disturbance footprint. Pest plant species were found at nearly all vegetation and habitat assessment sites during the 2024 terrestrial ecology survey (Attachment 02 – Section 4.3, Page 21). Four pest plant species are listed as Category 3 restricted matters under the Queensland *Biosecurity Act 2014*, of these, two are also listed as Weeds of National Significance (WoNS), including Lantana (*Lantana camara*) and Common Prickly Pear (*Opuntia stricta*). Lantana in particular was common and was dense along the edge of roads and access tracks (Attachment 02 – Section 4.3.1.1, Page 21).

Six species of introduced animal were recorded, either by direct observation or observations of burrows and digging, during the 2024 field survey, being the Cane Toad (*Rhinella marina*), Common Myna (*Acridotheres tristis*), European Brown Hare (*Lepus europaeus*), House Mouse (*Mus musculus*), Pig (*Sus scrofa*), and Rabbit (*Oryctolagus cuniculus*) (Attachment 02 – Section 5.1.4, Page 44).

Primary access

Primary access will be via the existing Paradise Dam Road which is a local road within the NBRC LGA. Internal site access/haulage roads will be used for hauling material and machinery into the Disturbance footprint.

3.1.2 Describe any existing or proposed uses for the project area.

The Disturbance footprint (21.51 ha) will encompass the entirety of the Proposed action. A large portion of the proposed Action (9.7 ha) has been previously cleared and is currently used for a temporary site office, geotechnical investigation works and laydown. The remainder of the Disturbance footprint (11.81 ha) is comprised of regrowth eucalypt woodland.

The Disturbance footprint will comprise two concrete batch plants and construction of a trial embankment. There will be one RCC batch plant and one CVC batch plant. These batch plants would be concrete factories and are required to maintain a safe and efficient program of construction that fulfils the specified quality requirements each plant will be required to meet. The trial embankment will be constructed using the produced concrete to test the continuous RCC placement process under site conditions and to test the trial structure to confirm that it has met the required strength and stability targets.

Presently, Burnett Water Pty Ltd (a subsidiary of Sunwater) owns and operates the existing Paradise Dam site and propose to continue these operations into the future. There are no other known or proposed uses for the Disturbance footprint.

3.1.3 Describe any outstanding natural features and/or any other important or unique values that applies to the project area.

Good Night Scrub National Park is located 430 m north of the Disturbance footprint on the northern side of the Burnett River. Good Night Scrub National Park is approximately 7,100 ha in area and includes examples of dry rainforest scrub that would have once covered extensive areas of the Gin Gin and Gayndah districts. Good Night Scrub National Park was declared a National Park in 1998 (Attachment 02, Section 4.1, Page 18).

No other outstanding natural features and/or other important or unique values have been identified in or near the Disturbance footprint.

3.1.4 Describe the gradient (or depth range if action is to be taken in a marine area) relevant to the project area.

Within the Disturbance footprint, the elevation ranges from 89 m AHD at the southern extent to 48 m AHD at the northeast extent. Generally, the Disturbance footprint slopes in a northerly or easterly direction. A gully in the centre of the Disturbance footprint creates the natural separation of the slope direction. The slope across the Disturbance footprint is approximately 6% in the northerly direction and 9% in the easterly direction.

3.2 Flora and fauna

3.2.1 Describe the flora and fauna within the affected area and attach any investigations of surveys if applicable.

Terrestrial Ecology:

The terrestrial MNES assessment for the proposed Action initially consisted of a desktop review of publicly available ecological data sources (including DCCEEW's Protected Matters Search Tool (PMST)) and survey data related to terrestrial species from field surveys previously undertaken by Epic Environmental (Epic) in 2019, 2020, 2022 and 2023. The desktop review was then followed by a post-wet season (spring) flora and fauna field survey from 5-10 November 2024 to further describe the potential MNES values present within the PDIP area and Disturbance footprint.

The Terrestrial MNES Assessment Report is provided in Attachment 02 and is summarised below.

Terrestrial Flora:

Surveys were undertaken in 2019, 2020, 2022, 2023 and 2024 confirmed the presence of vegetation analogous to seven REs present within the broader area. Within the PDIP area two REs are present along with areas of non-remnant vegetation.

The Disturbance footprint includes a single RE comprising Spotted Gum eucalypt woodland on metamorphic rock ecosystem (known in Queensland as regrowth vegetation, Regional Ecosystem (RE) 12.11.6, *Corymbia citriodora* subsp. *variegata*, *Eucalyptus crebra* woodland on metamorphics +/- interbedded volcanics). The regrowth Spotted Gum eucalypt woodland occupies an area of 11.81 ha within the Disturbance footprint, with the remainder (9.70 ha) being hardstand and non-remnant disturbed lands.

The regrowth Spotted Gum eucalypt woodland does not meet the diagnostic characteristics and biotic thresholds for a Threatened Ecological Community (TEC) under the EPBC Act. No TECs were identified within the Disturbance footprint, however it is acknowledged that an area of Subtropical floodplain forest TEC is located adjacent to the Disturbance footprint on the northern boundary (RE 12.3.3). It should be noted that the Disturbance footprint has been designed specifically to avoid impacting the Subtropical floodplain forest TEC occurring along Allen Creek.

Within the Disturbance footprint non-remnant vegetation occurs predominately in the northern portion of the footprint with a smaller patch of non-remnant land also located on the southern aspect of the footprint. The non-remnant lands in the northwest of the Disturbance footprint have been heavily disturbed and provide negligible value to fauna and flora.

A total of 220 flora species, including 59 non-native species, were identified across the PDIP area during the 2019/2020 and 2022 surveys. An additional 62 flora species, including 16 non-native species, were identified during a 2023 targeted threatened flora survey to the immediate north. The 2024 survey recorded 117 flora species, including 31 non-native species, across the broader PDIP area. No flora species listed as threatened under the EPBC Act were recorded during any surveys.

The PMST report identified 13 threatened (MNES) flora species as potentially present within the PDIP area. Wildnet records identified eight MNES species previously recorded within 50 km, including four not listed in the PMST report. No flora species from the desktop review are considered likely to occur. However, one species, Quassia (*Samadera bidwillii*) (Vulnerable), was identified as possibly present based on a likelihood of occurrence assessment.

Refer to Section 4.3 and 4.4 of Attachment 02 for more detailed information.

Terrestrial Fauna:

The 2022 fauna survey identified one terrestrial MNES fauna species: Grey-headed Flying-fox (*Pteropus poliocephalus*) listed as vulnerable under the EPBC Act, which was identified to the immediate south of the PDIP area. During the most recent (2024) fauna survey, no threatened fauna species were recorded within the Disturbance footprint (or within the PDIP area).

Twenty-seven threatened (MNES) fauna species were identified as potentially present in the PMST report (Attachment 02, Section 4.5.2, Page 32). Six of the species identified have been previously recorded in the PDIP area from the Wildnet database search. One additional species was identified in the Wildnet database search: the Glossy Black-cockatoo (south-eastern) (*Calyptorhynchus lathami lathami*). However, as the Disturbance footprint is located north of the northernmost range of this subspecies, it is more likely that records are of the northern subspecies *Calyptorhynchus lathami erebus* which is not listed under the EPBC Act.

Threatened species habitat mapping (essential habitat and protected wildlife habitat) and ground-truthing indicates there is 11.81 ha of habitat present suitable for Koala and Grey-headed Flying-fox within the Disturbance footprint.

Refer to Attachment 02, Section 4.3, Table 4, Page 19.

Migratory Species:

No migratory species were recorded across the PDIP area during the 2024 survey. However, eleven fauna species listed as Migratory were identified as potentially present in the PMST report. Six of these are also listed as threatened species (Attachment 02, Section 4.6, Page 41-42).

Aquatic Ecology:

Hydrobiology completed an assessment to describe the existing aquatic ecological values relevant to MNES. This assessment can be viewed at Attachment 04 – Aquatic Ecology Technical memo and is summarised below. The Disturbance footprint does not include any aquatic features.

Hydrobiology completed a desktop assessment (literature review and gap analysis) of the aquatic ecosystem values and previous field survey results to confirm desktop findings and fill gaps. Two field surveys were undertaken by Hydrobiology, occurring from the 12th to the 15th of November and the 3rd to the 6th of December 2024. The surveys involved canoeing upstream and downstream reaches from the Paradise Dam wall to collect eDNA samples and map micro- and macrohabitat as well as foraging, spawning and nesting habitat for Australian lungfish and WTST.

Refer Attachment 04, Section 2.2, Page 13.

Aquatic Flora:

No threatened aquatic flora listed under the EPBC Act occurs within the Disturbance footprint. Refer to Attachment 04, Section 3.2, Page 18.

Aquatic Fauna:

The Australian Lungfish (*Neoceratodus forsteri*), listed as vulnerable under the EPBC Act, has been recorded in the PDIP area, with records from both upstream and downstream reaches, as well as beyond. Habitat mapping identified 7.50 km2 of potential foraging habitat and 0.89 km2 of potential spawning habitat within the PDIP area, but not within the Disturbance footprint.

The White-throated snapping turtle (*Elseya albagula*) is listed as critically endangered under the EPBC Act and has been recorded with individuals sparsely distributed throughout the PDIP area and in upstream areas and tributaries, particularly Barambah Creek. Within the PDIP area, but outside the Disturbance footprint, habitat mapping identified 7.74 km2 of potential foraging habitat, 0.38 km2 of potential nesting habitat and 0.33 km2 of known nesting habitat.

The salt-water crocodile (*Crocodylus porosus*) is listed as migratory under the EPBC Act and is known to inhabit the wider Mary-Burnett Basin, though there are no records of its presence within the PDIP area or the Disturbance footprint.

Refer to Attachment 04, Section 3.2 and 3.3, Pages 18-20.

3.2.2 Describe the vegetation (including the status of native vegetation and soil) within the project area.

The proposed Action area is located within the Gympie subregion of the greater South-east Queensland bioregion. The Gympie subregion is characterised by low, hilly landscapes on old parent material. Catchment geology consists of predominantly marine volcaniclastic depositions. Local geology in and surrounding the PDIP area comprises alluvium, baramba basalt, the goodnight beds, mingo granite, andesite, rhyolite, granodiorite, gabbro and other metamorphosed sediments (QG 2024 in Attachment 02, Section 41, Page 18).

Soils:

The PDIP area soils are likely to be intermediate to basic volcanic soils given this is where Araucarian rainforest and mixed eucalypt forests are typically found (Attachment 02, Section 41, Page 18).

Terrestrial Vegetation:

Field survey of the PDIP area has confirmed the presence of Spotted Gum eucalypt woodland (RE 12.11.6) which is listed as Least Concern under the *Vegetation Management Act 1999* (VM Act) (Attachment 02, Section 4.3, Page 19).

No threatened flora species listed under the EPBC Act were identified within the PDIP area during field surveys (Attachment 02, Section 4.4, Page 23).

Aquatic / Riparian Vegetation:

No aquatic or riparian vegetation occurs within the Disturbance footprint.

3.3 Heritage

3.3.1 Describe any Commonwealth Heritage Places Overseas or other places recognised as having heritage values that apply to the project area.

A search of the Commonwealth heritage register did not identify any Commonwealth heritage places within the Disturbance footprint.

Noting the importance of historic heritage however, Sunwater conducted a number of register searches for the PDIP area which identified the following:

- World heritage register – there are no world heritage places
- Commonwealth heritage register – (as above) there are no Commonwealth heritage places
- National heritage list – there are no national heritage places
- Queensland heritage register – the closest registered place is Deep Creek Railway Bridge, Chowey (ID: 600031), located approximately 12 km south of the PDIP area
- NBRC local heritage register – Firstly, Paradise Cemetery (Lot 71CK540) located alongside Paradise Dam Road and outside but adjacent to the PDIP area. This cemetery is understood to be connected with the existence of the Paradise gold mining settlement (circa 1890s). Secondly, Deep Creek Railway Bridge, Chowey located approximately 12 km south of the PDIP area

Bundaberg Regional Council (BRC) local heritage register – there are no BRC registered local heritage places within or near the PDIP area

3.3.2 Describe any Indigenous heritage values that apply to the project area.

The Disturbance footprint is on the traditional lands of the Wakka Wakka People.

The *Aboriginal Cultural Heritage Act 2003* (ACH Act) requires that a person must exercise due diligence and reasonable precaution before undertaking an activity which may harm Aboriginal cultural heritage. Any Aboriginal cultural heritage, if found, is protected under the ACH Act.

Cultural Heritage Management Plans were developed with the relevant Traditional Owners when the Dam was constructed and which relate to the original dam footprint. A contemporary Cultural Heritage Management Agreement was finalised with the BGGGTB People in late 2024 for the PDIP in the bed and banks of the Burnett River and the left bank and is being implemented for investigation and enabling works. This Cultural Heritage Management Agreement with the BGGGTB People is intended to apply to the original footprint of the Dam to the extent of any inconsistencies as well as the extended areas required for the investigation and enabling works. Sunwater is continuing engagement with the Wakka Wakka people to manage cultural heritage requirements in the PDIP area to the south of the Burnett River, and separately as required for enabling road works already underway. A draft Cultural Heritage Management Agreement has been prepared and is currently being negotiated by the parties.

There is potential for Aboriginal cultural heritage to be associated with mature and/or remnant vegetation and water sources such as creeks, rivers, billabongs, lakes and springs. Duty of Care requires land users to take all reasonable and practicable measures to ensure their activity does not harm Aboriginal cultural heritage. This duty of care applies to any activity where Aboriginal cultural heritage is located. This includes cultural heritage located on freehold land and regardless of whether it has been identified or recorded in a database. Any activities that may cause ground disturbance or otherwise impact cultural heritage sites of significance will need to comply with the Duty of Care guidelines.

Cultural Heritage monitors from the relevant Native Title Prescribed Body Corporates have been and continue to be engaged to undertake survey and clearance works where activities may impact cultural heritage values including on third party land the subject of the investigations and enabling works.

The Construction Environmental Management Plan (CEMP) will include provisions for the ongoing management of cultural heritage and for works to cease and the relevant Aboriginal Party to be contacted if evidence of Aboriginal cultural heritage is encountered during site works.

3.4 Hydrology

3.4.1 Describe the hydrology characteristics that apply to the project area and attach any hydrological investigations or surveys if applicable. *

Surface water:

No hydrological investigations have been undertaken for the purpose of Referral 1. No watercourses intersect the Disturbance footprint. Surface water flows from the Disturbance footprint would flow into the Burnett River immediately downstream of the existing Paradise Dam. Notably the proposed Action is anticipated to have a negligible impact on existing hydrological processes.

The Burnett River is a modified system as a result of the existing Paradise Dam and other historical water harvesting. It is noted that the hydrology of the nearby Burnett River is already well understood from previous studies and investigations. Major flooding in the nearby Burnett River is relatively infrequent, however, under certain meteorological conditions, such as tropical low-pressure systems, heavy rainfalls can occur. Flooding from the upper catchment can overtop the Paradise Dam wall and flow onto downstream areas. There have been a series of flood events between 2010 and 2015 that led to widespread and repeated overtopping events at weirs and dams within the Burnett River catchment, including Paradise Dam, Ned Churchward Weir, Claude Wharton Weir and Jones Weir.

Groundwater:

Groundwater has played a major role in the development of the Bundaberg district and the wider Burnett region. In the latter part of the 1800s, the availability of groundwater enabled the development of an extensive cattle industry in the Burnett District (Burnett Water 2002). This was followed by the establishment of the irrigated sugar cane industry in the Bundaberg Area in the early 1900s. There are three major sources of groundwater within the Burnett Region (Burnett Water 2002):

- Bundaberg Area – Elliott Formation Fairymead beds
- Mulgildie and Mundubbera – consolidated sediments
- Major streams – alluvial deposits

Paradise Dam lies on the Elliott Formation which consists of unconsolidated sands, gravels and clays located along the coastal strip from the Gregory River in the south to Littabella Creek in the north (Burnett Water 2002). Yields from the formation are in the order of 10 - 30 L/s from depths to 30 metres. South of The Hummock, groundwater in the Elliott Formation is high in magnesium ions, which limits its use for irrigation (Burnett Water 2002).

4. Impacts and mitigation

4.1 Impact details

Potential Matters of National Environmental Significance (MNES) relevant to your proposed action area.

EPBC Act section	Controlling provision	Impacted	Reviewed
S12	World Heritage	No	Yes
S15B	National Heritage	No	Yes
S16	Ramsar Wetland	No	Yes
S18	Threatened Species and Ecological Communities	Yes	Yes
S20	Migratory Species	Yes	Yes
S21	Nuclear	No	Yes
S23	Commonwealth Marine Area	No	Yes
S24B	Great Barrier Reef	No	Yes
S24D	Water resource in relation to large coal mining development or coal seam gas	No	Yes
S26	Commonwealth Land	No	Yes
S27B	Commonwealth Heritage Places Overseas	No	Yes
S28	Commonwealth or Commonwealth Agency	No	Yes

4.1.1 World Heritage

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

—

4.1.1.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.1.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The MNES Significant Impact Guidelines 1.1 state that approval under the EPBC Act is required for any action occurring within or outside a declared World Heritage property that has, will have, or is likely to have a significant impact on the World Heritage values of World Heritage property (DoE 2013).

Desktop searches, including utilisation of the PMST (specifically the World Heritage Properties layer) has not identified any areas of World Heritage within, adjacent or proximate to the proposed Action. The nearest World Heritage areas are the Great Barrier Reef World Heritage Area (GBRWHA) and K'gari (also known as Fraser Island) which are located approximately 90 km northeast and 112 km east of the PDIP area, respectively. Both areas of World Heritage are well outside the MNES search radius of 50 km and no direct impacts are considered likely to occur as a result of the proposed Action.

Given the relatively limited nature of the proposed Action, it is not anticipated that it would cause any indirect impacts to the GBRWHA or K'gari during either the construction, operation, decommissioning or rehabilitation phases. This is further supported in terms of Paradise Dam maintaining the existing approved FSL and downstream flows. Therefore, there will be no indirect impacts from the proposed Action on World Heritage values.

4.1.2 National Heritage

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.2.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.2.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The MNES Significant Impact Guidelines 1.1 state that approval under the EPBC Act is required for any action occurring within or outside a National Heritage place that has, will have, or is likely to have a significant impact on the National Heritage values of the National Heritage place (DoE 2013).

The PMST (specifically the National Heritage Places layer) has not identified any National Heritage Places within, adjacent or proximate to the proposed Action. The nearest National Heritage Places are the same areas as the previously identified World Heritage areas, namely; Great Barrier Reef (GBR) and K'gari (also known as Fraser Island) which are located approximately 90 km northeast and 112 km east of the PDIP area, respectively. Both areas of National Heritage are well outside the MNES search radius of 50 km and no direct impacts are considered likely to occur as a result of the proposed Action during construction, operation, decommissioning or rehabilitation phases.

Given the relatively limited nature of the proposed Action, the concrete batch plants and construction of the trial embankment are not anticipated to cause any indirect impacts to the GBR or K'gari during the construction, operation, decommissioning or rehabilitation phases.

As the National Heritage and World Heritage areas both relate to the GBR and K'gari, the impact assessment for these areas is essentially the same as for World Heritage (EPBC Act referral section 4.1.1), with the only additional consideration relating to Indigenous Heritage Values which is unique to National Heritage Places.

4.1.3 Ramsar Wetland

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

—

4.1.3.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.3.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

There are no Ramsar Wetlands within, adjacent or proximate to the proposed Action.

The PMST shows that the nearest Ramsar Wetland, the Great Sandy Strait (including Great Sandy Strait, Tin Can Bay and Tin Can Inlet) is located approximately 100 km east of the Disturbance footprint. The Great Sandy Strait is a double-ended sand passage estuary with large horizontal tide movements (DETSI 2025) which separates mainland Queensland from K’gari.

Importantly, the Burnett River does not drain into the Great Sandy Strait, or any other Ramsar Wetland. The Great Sandy Strait is located approximately 80 km south of the Burnett River mouth (Attachment 01 – Figure 2).

Noting the distance to the Great Sandy Strait and the relatively limited nature of the proposed Action, both direct and indirect impacts are considered highly unlikely during construction, operation, decommissioning and rehabilitation phases of the proposed Action.

4.1.4 Threatened Species and Ecological Communities

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

Threatened species

Direct impact	Indirect impact	Species	Common name
No	No	Bosistoa transversa	Three-leaved Bosistoa, Yellow Satinheart
No	No	Calidris acuminata	Sharp-tailed Sandpiper
No	No	Calidris ferruginea	Curlew Sandpiper
No	No	Coleus omissus	
No	No	Cossinia australiana	Cossinia
No	No	Cupaniopsis shirleyana	Wedge-leaf Tuckeroo
No	No	Cycas megacarpa	
No	No	Dasyurus hallucatus	Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu]
Yes	Yes	Delma torquata	Adorned Delma, Collared Delma
No	No	Dichanthium setosum	bluegrass
No	No	Egernia rugosa	Yakka Skink
No	No	Elseya albagula	Southern Snapping Turtle, White-throated Snapping Turtle
No	No	Erythrotriorchis radiatus	Red Goshawk
No	No	Eucalyptus raveretiana	Black Ironbox
No	No	Falco hypoleucos	Grey Falcon
No	No	Furina dunmalli	Dunmall's Snake
No	No	Gallinago hardwickii	Latham's Snipe, Japanese Snipe
No	No	Geophaps scripta scripta	Squatter Pigeon (southern)
No	No	Grantiella picta	Painted Honeyeater
No	No	Hemiaspis damelii	Grey Snake
No	No	Hirundapus caudacutus	White-throated Needletail

Direct impact	Indirect impact	Species	Common name
No	No	Leuzea australis	Austral Cornflower, Native Thistle
No	No	Macadamia integrifolia	Macadamia Nut, Queensland Nut Tree, Smooth-shelled Macadamia, Bush Nut, Nut Oak
No	No	Macroderma gigas	Ghost Bat
No	No	Neoceratodus forsteri	Australian Lungfish, Queensland Lungfish
No	No	Neochmia ruficauda ruficauda	Star Finch (eastern), Star Finch (southern)
No	No	Nyctophilus corbeni	Corben's Long-eared Bat, South-eastern Long-eared Bat
No	No	Petauroides volans	Greater Glider (southern and central)
No	No	Petaurus australis australis	Yellow-bellied Glider (south-eastern)
Yes	Yes	Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)	Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory)
No	No	Potorous tridactylus tridactylus	Long-nosed Potoroo (northern)
Yes	Yes	Pteropus poliocephalus	Grey-headed Flying-fox
No	No	Rostratula australis	Australian Painted Snipe
No	No	Samadera bidwillii	Quassia
No	No	Sophora fraseri	
No	No	Stagonopleura guttata	Diamond Firetail
No	No	Tringa nebularia	Common Greenshank, Greenshank
No	No	Turnix melanogaster	Black-breasted Button-quail

Ecological communities

Direct impact	Indirect impact	Ecological community
No	No	Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community
No	No	Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland

Direct impact	Indirect impact	Ecological community
No	No	Lowland Rainforest of Subtropical Australia
No	No	Poplar Box Grassy Woodland on Alluvial Plains
No	No	Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions

4.1.4.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

Yes

4.1.4.2 Briefly describe why your action has a direct and/or indirect impact on these protected matters. *

Detailed assessments of direct and indirect impacts to threatened species and ecological communities, both terrestrial and aquatic, have been completed and can be viewed in:

- Attachment 02 – Terrestrial MNES Assessment Report
- Attachment 04 – Aquatic Ecology Technical memo

Summarised information from these assessments is provided below.

Threatened species:

As identified by desktop searches (including the PMST) and field surveys, threatened species which are either known to occur or possibly occur and that may be impacted directly and/or indirectly as a result of the proposed Action include the following:

- Threatened Terrestrial Flora:
  - Quassia (*Samadera bidwillii*)
- Threatened Terrestrial Fauna:
  - Grey-headed Flying-fox (*Pteropus poliocephalus*) yy
  - White-throated Needletail (*Hirundapus caudacutus*) nn
  - Diamond Firetail (*Stagonopleura guttata*) nn
  - Greater Glider (Southern and Central) (*Petauroides volans*) nn
  - Koala (*Phascolarctos cinereus*) yy
  - Collared Delma (*Delma torquata*)
- Threatened Aquatic Flora:
  - No threatened aquatic flora
- Threatened Aquatic Fauna:
- No threatened aquatic fauna

Note: migratory species have been excluded from the above list and are addressed in section 4.1.

Impact overview:

Activities associated with the proposed Action are within a brownfield, existing disturbed area, although some direct impacts are expected, including to vegetation communities and habitat for threatened flora and fauna. The impacts are predominantly expected to occur during the construction period from vegetation clearing.

For the purpose of impact assessment, it has been assumed that the entirety of the Disturbance footprint will be required to carry out the proposed Action.

Vegetation clearing

The clearing of vegetation will have a direct impact on ecological values. These impacts are immediate and may be significant in the short-term. Impacts may persist in the long-term if habitat created during rehabilitation does not closely resemble pre-disturbance ecosystems. Clearing for the proposed Action would require removal of 11.81 ha of regrowth Spotted Gum eucalypt woodland on metamorphic rock (RE 12.11.6) (Attachment 02, Section 5.1.1, Page 43).

Habitat fragmentation and connectivity

Highly fragmented habitats support fewer species than connected blocks of habitat of the same size. This is because fragmentation restricts dispersal of fauna and plant seeds between available habitat patches. The Disturbance footprint is already highly disturbed in nature. The northern portion of the Disturbance footprint is already cleared and there is no adjacent habitat to the west due to dam infrastructure. The proposed Action is not expected to have a significant impact on reducing habitat connectivity (Attachment 02, Section 5.1.2, Page 43).

Fauna mortality

Clearing of vegetation presents a risk of direct mortality or injury to fauna. Fauna of low mobility are at risk of injury or death from tree clearing works and mobilisation/operation of vehicles and heavy machinery for construction of infrastructure (Attachment 02, Section 5.1.3, Page 43).

Introduced pests and weeds

Introduced weeds have the potential to impact on terrestrial and aquatic ecological values as native flora can become displaced through competition with weed species, and browsing and soil trampling caused by feral animals such as pigs.

Introduced weed species are already present over a large portion of the Disturbance footprint and surrounds. Pest plant species were found at nearly all vegetation and habitat assessment sites during the 2024 terrestrial ecology survey. Of the 34 non-native flora species identified during the 2024 survey, four are listed as Category 3 restricted matters under the Queensland *Biosecurity Act 2014*, of these two are also listed as Weeds of National Significance (WoNS), being Lantana (*Lantana camara*) and Common Prickly Pear (*Opuntia stricta*).

Native fauna populations, particularly small to medium sized species, may be impacted by predation from introduced carnivores such as feral cats. Six species of introduced animal were recorded, either by direct observation or observations of burrows and digging, during the field survey (Attachment 02, Section 5.1.4, Page 44).

Changes in Hydrology

Indirect impacts on adjacent ecoystems could occur as a result of the changes in surface water flows. The changes in surface water flows would be a result of drainage pathways being altered following the earthworks required to establish the concrete batch plants or undertake trial embankment works. The vegetation clearing in the Disturbance footprint would increase the potential for on-site erosion and sedimentation of stormwater runoff (Attachment 02, Section 5.1.9, Page 45-56).

Dust

Earthworks and vehicular traffic associated with construction can generate substantial amounts of dust during dry weather (Epic Environmental 2025). Dust can impact vegetation by covering surfaces and affecting photosynthesis, respiration and transpiration, resulting in injury and decreased productivity (Farmer 1993). Dust has also been known to provide adsorption surfaces for volatile contaminants that are subsequently deposited either by dry or wet deposition, causing respiratory ailments in animals and humans (Epic Environmental 2025). Microclimatic changes such as these can affect areas great distances from roads, changing the vegetation composition (Attachment 02, Section 5.1.5, Page 44).

Noise

Noise may affect animal behaviour and, when at chronic levels or frequency, can have deleterious effects on fragmentation, weed invasion and road mortality (Blickley & Patricelli 2010). Not all effects are deleterious, for example some bird species have higher reproductive success in noisy areas due to disrupted predator-prey interactions (Francis et al. 2009). Many species may interpret a new noise as a potential danger at first, but rapidly learn the noise is not associated with any threat (Attachment 02, Section 5.1.6, Page 44-45).

Artificial lighting

Artificial lighting may impact fauna. Lighting may have a range of impacts across different groups of taxa and between species within these groups, affecting behaviour of both nocturnal and diurnal fauna, vertebrate and invertebrates (Attachment 02, Section 5.1.7, Page 45).

Bushfires and altered fire regimes

Most Australian vegetation types experience regular fires, and fire is important for maintaining structural attributes of vegetation, as well as facilitating seed germination of certain species (Catling et al. 2001). The proposed Action is located within a mosaic of vegetation communities and adjacent infrastructure. The adjacent vegetation communities have potential to be impacted by accidental fires caused by project related activities. In general, the proposed Action is not expected to cause substantial changes to local fire regimes. The most likely change is the reduced frequency of fire due to fuel reduction from pre-construction clearing and rehabilitation clearing (Attachment 02, Section 5.1.8, Page 45).

4.1.4.4 Do you consider this likely direct and/or indirect impact to be a Significant Impact? *

Yes

4.1.4.5 Describe why you consider this to be a Significant Impact. *

The MNES Significant Impact Guidelines 1.1 state that an action will require approval if the action has, will have, or is likely to have a significant impact on a species listed in any of the following categories (DoE 2013):

- Extinct in the wild
- Critically endangered
- Endangered
- Vulnerable

An action will also require approval if the action has, will have, or is likely to have a significant impact on an ecological community listed in any of the following categories (DoE 2013):

- Critically endangered, or
- Endangered

Impacts to MNES from the proposed Action were subject to an assessment for significant impacts under the Commonwealth MNES Guideline criteria. Significant impacts to MNES flora and fauna species are considered unlikely in accordance with the MNES Guideline, with the exception of Koala.

The Disturbance footprint will directly impact up to 11.81 ha of potential Koala habitat which could be considered as critical to the survival of the species. In accordance with the MNES Guideline, it is considered there is potential for a significant impact to Koala to occur as a result of vegetation clearing for the proposed Action.

4.1.4.7 Do you think your proposed action is a controlled action? *

Yes

4.1.4.8 Please elaborate why you think your proposed action is a controlled action. *

Koalas have a distinct association with eucalypt woodland and forest habitats comprising suitable food trees, mainly of the following genus: *Eucalyptus*, *Corymbia*, *Angophora* and *Melaleuca*. They are not necessarily restricted to bushland areas and are known to occur and breed where suitable tree species occur within farmland and the urban environment (Dique et al. 2004). Similarly, movement is not confined to vegetated corridors, as they also move across cleared rural land and through suburbs. They may use a variety of trees, including many non-eucalypts, for feeding, shelter and breeding purposes (Attachment 02, Section 6.4.2.1, Page 56)

However, no Koalas have been recorded within the Disturbance footprint or surrounding area during ecology surveys in 2019/2020, 2022, 2023, 2024 and 2025. There are a large number of database records in the surrounding region, but all nearby records are older (1980s and 1990s). The nearest record is from 1988 and located 7 km south-east of the Disturbance footprint. The nearest recent records from the Disturbance footprint include a 2020 record near Gin Gin (42 km north), 2021 record near Mungy State Forest (43 km west) and a 2024 record from Nour Nour National Park (47 km north-west) (ALA 2025).

Queensland Blue Gum, Spotted Gum and Narrow-leaved Ironbark are all considered ‘locally important’ trees for Koala in the south-east Queensland region (Youngentob et al. 2021). These species are present in the Disturbance footprint. Queensland Government threatened species habitat mapping (essential habitat and protected wildlife habitat) indicates there is habitat present along Allen Creek that is suitable for Koala.

There is no conclusive evidence that Koala currently uses habitat within the Disturbance footprint or surrounds to any substantive degree, even though surveys have been undertaken from 2019 to 2025. This includes active searches and spotlighting in 2019, 2022 and 2024. The Disturbance footprint already occurs in a landscape fragmented by the existing dam and associated infrastructure. The Burnett River also likely serves as a landscape movement barrier to the species. With mitigation measures in place (i.e. pre-clearance surveys, the use of fauna spotter catchers during clearing, and pest and weed measures) the proposed Action (and indeed the PDIP) are not anticipated to increase additional threats to the species in the area.

The Disturbance footprint comprises 11.81 ha of potential eucalypt habitat for Koala which would need to be cleared. There are extensive tracts of identical vegetation remaining in the adjacent landscape which will not be impacted by the proposed Action. Queensland vegetation mapping indicates there is over 4,000 ha of suitable eucalypt habitat located with 10 km of the Disturbance footprint.

In summary, the proposed Action may impact up to 11.81 ha of potential Koala habitat which could be considered as critical to the survival of the species. However, based on the lack of conclusive sightings and evidence of Koalas within the Disturbance footprint and surrounds during surveys from 2019 to 2025, it is considered **possible** (rather than likely) there could be a significant impact to Koala as a result of the proposed Action (Attachment 02, Section 6.4.2, Pages 56-59)

4.1.4.10 Please describe any avoidance or mitigation measures proposed for this action and attach any supporting documentation for these avoidance and mitigation measures. *

Sunwater will commit to a range of mitigation measures to avoid and/or minimise impacts to threatened species associated with the proposed Action. Preliminary design phases have reduced the potential Disturbance footprint, based on desktop and field-based review, and potential impact to MNES. A range of mitigation measures will be implemented under an overarching CEMP to mitigate potential impacts to MNES values. Sub-plans will include (but not limited to): Erosion and Sediment Control Plan, Biosecurity and Weed/Pest Management Plan, Flora and Fauna Management Plan and Water Quality Management Plan.

Specific mitigation measures include site-based environmental awareness training, clearly defined vegetation clearing extents, utilisation of licenced fauna spotter catchers and ongoing rehabilitation, where possible.

Sunwater takes seriously its responsibility to minimise the potential for adverse impacts from its activities on the environment, as has been demonstrated through the operation of Paradise Dam and presence of threatened species described in this referral. Further, Sunwater always seeks to identify ways of improving environmental performance. As part of ongoing mitigation and management measures, Sunwater will set achievable environmental targets, with clear reporting against these targets and will fulfill all environmental compliance obligations.

Further details on proposed avoidance and mitigation measures are detailed in Attachment 02, Section 5.2, Page 46-47.

4.1.4.11 Please describe any proposed offsets and attach any supporting documentation relevant to these measures. *

Sunwater is currently investigating options to provide a land-based offset package associated with impacts on Koala habitat which are presented in the Offsets Delivery Strategy (Attachment 05).

4.1.5 Migratory Species

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

Direct impact	Indirect impact	Species	Common name
No	No	Actitis hypoleucos	Common Sandpiper
No	No	Apus pacificus	Fork-tailed Swift
No	No	Calidris acuminata	Sharp-tailed Sandpiper
No	No	Calidris ferruginea	Curlew Sandpiper
No	No	Calidris melanotos	Pectoral Sandpiper
No	No	Crocodylus porosus	Salt-water Crocodile, Estuarine Crocodile
Yes	Yes	Cuculus optatus	Oriental Cuckoo, Horsfield's Cuckoo
No	No	Gallinago hardwickii	Latham's Snipe, Japanese Snipe
No	No	Hirundapus caudacutus	White-throated Needletail
No	No	Pandion haliaetus	Osprey
No	No	Tringa nebularia	Common Greenshank, Greenshank

4.1.5.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

Yes

4.1.5.2 Briefly describe why your action has a direct and/or indirect impact on these protected matters. *

The MNES Significant Impact Guidelines 1.1 state that an action will require approval if the action has, will have, or is likely to have a significant impact on a listed migratory species (noting that some migratory species are also listed as threatened species) (DoE 2013).

It has been identified that the proposed Action has the potential to impact migratory species during construction, operation, decommissioning and rehabilitation phases. Ecological assessments of impacts to migratory species, have been completed and can be viewed in Attachment 02, Section 4.6, Page 41. Summarised information from this assessment is provided below.

Terrestrial migratory species:

Eleven fauna species listed as Migratory were identified as potentially present in the PMST report. Six of these are also listed as threatened species, and nine have been previously recorded in the wider area from the Wildnet database search. The likelihood of occurrence assessment identified three migratory species as known or possibly occurring within the proposed Disturbance footprint, namely:

Known to occur:

- Eastern Osprey (*Pandion haliaetus*), suitable habitat may occur within the Disturbance footprint. There are a number of records approximately 2 km to the west.

Possibly occurring:

- Fork-tailed Swift (*Apus pacificus*), the species may occur over almost any habitat. The nearest record of the species is located 25 km northeast of the Disturbance footprint. The species may forage aerially above the Disturbance footprint
- Oriental Cuckoo (*Cuculus optatus*), suitable woodland habitat occurs within the Disturbance footprint. The nearest record of the species is located 13 km southwest of the Disturbance footprint.

Whilst each of the above species is reliant on the presence of aquatic habitat which is abundant upstream and downstream of nearby Paradise Dam, none of the migratory species listed are at the limit of their range in the area or in an area where the species is thought to be declining. There is no evidence that habitat of critical importance occurs for any of the species within or near the Disturbance footprint.

Direct impacts to migratory species may occur through vegetation clearing whereby the removal of habitat may reduce the size of species dependent on that habitat. These impacts are immediate and may be significant in the short-term, and impacts may persist in the long-term if habitat created during rehabilitation does not closely resemble pre-disturbance ecosystems. Other impacts to migratory species may be seen through limited habitat fragmentation, noise generation, artificial lighting and bushfire/altered fire regimes.

The potential for significant impacts during construction, operation, decommissioning and rehabilitation on any of these species however is considered negligible at worst, given the nature of the habitat within the Disturbance footprint, and noting it has already been impacted and fragmented by the existing dam.

Attachment 02, Section 4.6, Page 41.

4.1.5.4 Do you consider this likely direct and/or indirect impact to be a Significant Impact? *

No

4.1.5.6 Describe why you do not consider this to be a Significant Impact. *

For listed Migratory species that are not threatened, the significant impact criteria outlined in the MNES Significant Impact Guidelines 1.1 state that; an action is likely to have a significant impact on a Migratory species if there is a real chance or possibility that it will:

- Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species
- Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species, or
- Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species

Detailed assessments of significant impacts to migratory species, have been completed and can be viewed in Attachment 02, Section 61, Page 48-49. Summarised information from this report is provided below.

The MNES Guideline criteria for Migratory species requires an assessment of the potential for ‘important habitat’ to be present within or near the Disturbance footprint or that an ‘ecologically significant proportion of the population’ may be disrupted by the proposed Action. Important habitat is defined as the following:

- Habitat utilised by a migratory species occasionally or periodically within a region that supports an ecologically significant proportion of the population of the species
- Habitat that is of critical importance to the species at particular life-cycle stages
- Habitat utilised by a migratory species which is at the limit of the species range and/or
- Habitat within an area where the species is declining

None of the Migratory species identified in Section 4.1.5.2 are at the limit of their range in the area or in an area where the species is thought to be declining. There is no evidence that habitat of ‘critical importance’ occurs for any of the species within or near the Disturbance footprint.

An ecologically or nationally significant proportion of the population (at 0.1% of the population as described in DE 2015)) of the various species comprises the following:

- Eastern Osprey - 24 individuals (DE 2015)
- Oriental Cuckoo – 1,000 individuals (DE 2015)

These species are reliant on the presence of aquatic habitat which is abundant upstream and downstream of the nearby Paradise Dam.

There is no evidence the habitat within the Disturbance footprint would support an ecologically significant proportion of the populations of any of the discussed species. As such, the potential for significant impacts on any of these species is negligible at worst (Attachment 02, Section 61, Page 48-49).

4.1.5.7 Do you think your proposed action is a controlled action? *

No

4.1.5.9 Please elaborate why you do not think your proposed action is a controlled action. *

No significant impacts on any Migratory species are anticipated as a result of the proposed Action as outlined in Section 4.1.5.6 and as detailed in Attachment 02, Section 61, Page 48-49.

The proposed Action will not result in any significant impacts to Migratory species, and therefore the proposed Action is not considered a controlled action.

4.1.5.10 Please describe any avoidance or mitigation measures proposed for this action and attach any supporting documentation for these avoidance and mitigation measures. *

Sunwater will commit to a range of mitigation measures to avoid and/or minimise impacts to MNES values associated with the proposed Action. Initially, the detailed design process will aim to further reduce the area of impact to vegetated areas representing habitat for species as much as is feasible for construction. Where avoidance is not possible, a range of mitigation strategies will be implemented under an overarching CEMP to mitigate potential impacts to MNES values.

Other mitigation measures such as site-based environmental awareness training, clearly defined vegetation clearing extents, utilisation of licenced fauna spotter catchers and ongoing rehabilitation, where possible, will also be undertaken. Additional management plans will also be developed and will include (but are not limited to): Erosion and Sediment Control Plan, Biosecurity and Weed/Pest Management Plan, Flora and Fauna Management Plan and Water Quality Management Plan amongst others.

Further details on proposed avoidance and mitigation measures are detailed in Attachment 02, Section 5.2, Page 46.

4.1.5.11 Please describe any proposed offsets and attach any supporting documentation relevant to these measures. *

No offsets are proposed for Migratory species as these species will not be significantly impacted.

4.1.6 Nuclear

4.1.6.1 Is the proposed action likely to have any direct and/or indirect impact on this protected matter? *

No

4.1.6.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The proposed Action does not constitute nor is it related to a nuclear action.

4.1.7 Commonwealth Marine Area

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.7.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.7.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

A Commonwealth Marine Area is any part of the sea that isn't state or territory waters but is within Australia's Exclusive Economic Zone and/or over the continental shelf of Australia and includes the water, seabed and airspace (DCCEEW 2025). The Commonwealth Marine Area stretches between 3 and 200 nautical miles from the coast (DCCEEW 2025).

The PMST has confirmed there are no Commonwealth Marine Areas within, adjacent or proximate to the Disturbance footprint. Therefore, the potential for direct and indirect impacts as a result of the proposed Action to a Commonwealth Marine Area is considered unlikely.

4.1.8 Great Barrier Reef

4.1.8.1 Is the proposed action likely to have any direct and/or indirect impact on this protected matter? *

No

4.1.8.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The proposed Action does not occur within, adjacent or proximate to the GBRMP. The PMST (specifically the GBRMP layer) identifies that the southern extent of the GBRMP is located approximately 100 km northeast of the proposed Action, and 45 km to the north of the Burnett River mouth. The GBRMP is outside the MNES search radius of 50 km (from the proposed Action) and no direct impacts are considered likely to occur as a result of the proposed Action during construction, operation, decommissioning and rehabilitation phases. As the proposed Action is not being undertaken within the GBRMP, approval/permission is not required under the *Great Barrier Reef Marine Park Act 1975*.

Given the nature of the proposed Action, indirect impacts to the GBRMP during the construction, operation, decommissioning and rehabilitation phases are not anticipated.

The significant impact criteria outlined in the MNES Significant Impact Guidelines 1.1 (DoE 2013) identify that an action is likely to have a significant impact on the environment of the GBRMP if there is a real chance or possibility that the action will:

- Modify, destroy, fragment, isolate or disturb an important, substantial, sensitive or vulnerable area of habitat or ecosystem component such that an adverse impact on marine ecosystem health, functioning or integrity in the GBRMP results
- Have a substantial adverse effect on a population of a species or cetacean including its life cycle (for example, breeding, feeding, migration behaviour, life expectancy) and spatial distribution
- Result in a substantial change in air quality or water quality (including temperature) which may adversely impact on biodiversity, ecological health or integrity or social amenity or human health
- Result in a known or potential pest species being introduced or becoming established in the GBRMP
- Result in persistent organic chemicals, heavy metals, or other potentially harmful chemicals accumulating in the marine environment such that biodiversity, ecological integrity, or social amenity or human health may be adversely affected, or
- Have a substantial adverse impact on heritage values of the GBRMP, including damage or destruction of an historic shipwreck

Noting that the proposed Action does not occur within, adjacent or proximate to the GBRMP, only potential downstream indirect impacts to the GBRMP were considered. These considerations are detailed below as they relate to the GBRMP.

GBRMP Context:

The *Great Barrier Reef Progress Report to UNESCO World Heritage Centre* (GBR Progress Report), dated February 2024 states that the Great Barrier Reef covers an area of 344,000 km2 which is roughly the same size area as Italy or Japan and has more than 35 catchments which drain into the reef across a 423,000 km2 catchment, an area bigger than Norway (DCCEEW 2024). The GBR Progress Report addresses issues raised in the World Heritage Committee Decision 45COM 7B.13 and provides updates on commitments concurrently with regards to improving water quality, sustainable fishing, and mitigating climate change impacts.

Of relevance to the proposed Action is the importance of water quality, as poor water quality impacts the health of the Great Barrier Reef and affects its resilience to other pressures (DCCEEW 2024). The reduction in soil loss by controlling erosion, implementing revegetation and undertaking responsible land management practices are all noted as key factors in reducing sediment runoff to the GBRMP.

Potential climate change impacts are also acknowledged and must be kept at the forefront for construction, operation, decommissioning and rehabilitation phases of the proposed Action, ensuring environmental impacts are avoided, minimised and/or mitigated as appropriate.

Burnett Catchment Water Quality Targets:

It is understood that water quality targets have been set for all catchments that drain to the Great Barrier Reef. With reference to the *Burnett Mary Region – Burnett Catchment Water Quality Targets*, defined as part of the *Reef 2050 Water Quality Improvement Plan*, it is stated that rainfall averages 688 mm a year, which results in river discharges to the coast of about 1,076 gigalitres (GL) each year (DETSI 2025). The Burnett River captures the waters from the whole catchment at various points as it makes its way to the coast where its waters discharge into the Great Barrier Reef Marine Park (DETSI 2025). There are areas of sugarcane and horticulture near the coast, but the dominant land use is grazing (DETSI 2025).

The 2025 water quality targets and priorities for the Burnett Catchment aim to reduce the amounts of fine sediments, nutrients (nitrogen and phosphorus) and pesticides flowing to the reef (DETSI 2025). Each anthropogenic reduction target has been ranked from very high through to low or not assessed. Of the five reduction items identified for the Burnett Catchment, three are ranked as moderate priority (fine sediment, particulate phosphorus and particulate nitrogen) and two are ranked as low priority (dissolved inorganic nitrogen and pesticides) (DETSI 2025).

The water quality targets cite that the Burnett Catchment contributes the second largest anthropogenic loads of dissolved inorganic nitrogen and fine sediment in the region, with most of the dissolved inorganic nitrogen coming from sugarcane and most of the fine sediment coming from streambank erosion (DETSI 2025). Paradise Dam, as a currently approved and operational dam, does not meaningfully contribute to dissolved inorganic nitrogen levels, however, the Dam could be contributing to fine sediment loads from streambank erosion (the leading type of sediment erosion in the catchment) (DETSI 2025).

Given the proposed Action seeks to construct and operate two concrete batch plants and construction of a trial embankment, there exists the potential for fine sediments to enter the Burnett River, however with a CEMP, Erosion and Sediment Control Plan and other management plans in place, sediment runoff will be limited. and is not anticipated to have any measurable increase to fine sediments flowing to the GBRMP.

Climate Change:

As outlined in the GBR Progress Report, climate change is the greatest threat to coral reefs worldwide and is a global threat that requires a global solution, including taking increased action through emission reduction targets and significant investments (DCCEEW 2024).

Sunwater, as a responsible entity and in accordance with its Environmental Policy (Attachment 03), actively seeks to minimise the potential for adverse impacts from its activities on the environment, identify ways of improving its environmental performance, and fulfill all environmental compliance obligations, ultimately contributing to the global effort in combating climate change related impacts by doing its part.

Summary:

Given the significant impact criteria outlined in the MNES Significant Impact Guidelines 1.1, it is clear that the proposed Action will not have a direct or indirect significant impact on the GBRMP. There is no real chance or possibility that the proposed Action will modify, destroy, fragment, isolate, disturb or have any other substantial adverse effect or change on the GBRMP or any associated environmental or heritage values.

Again, noting the limited nature of the proposed Action, the proposed Action (concrete batch plants and construction of a trial embankment) are not anticipated to cause any significant impacts to the GBRMP during the construction, operation, decommissioning and rehabilitation phases.

4.1.9 Water resource in relation to large coal mining development or coal seam gas

4.1.9.1 Is the proposed action likely to have any direct and/or indirect impact on this protected matter? *

No

4.1.9.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The proposed Action is not a large coal mine development or coal seam gas project.

4.1.10 Commonwealth Land

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.10.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.10.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

There is no Commonwealth Land located within, adjacent or proximate to the proposed Action, as confirmed by the PMST. No direct or indirect impacts on Commonwealth Land are anticipated as a result of the proposed Action.

4.1.11 Commonwealth Heritage Places Overseas

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.11.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.11.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The proposed Action is located in Australia and will not have any interaction with a Commonwealth Heritage Places Overseas.

4.1.12 Commonwealth or Commonwealth Agency

4.1.12.1 Is the proposed action to be taken by the Commonwealth or a Commonwealth Agency? *

No

4.2 Impact summary

Conclusion on the likelihood of significant impacts

You have indicated that the proposed action will likely have a significant impact on the following Matters of National Environmental Significance:

- Threatened Species and Ecological Communities (S18)

Conclusion on the likelihood of unlikely significant impacts

You have indicated that the proposed action will unlikely have a significant impact on the following Matters of National Environmental Significance:

- World Heritage (S12)
- National Heritage (S15B)
- Ramsar Wetland (S16)
- Migratory Species (S20)
- Nuclear (S21)
- Commonwealth Marine Area (S23)
- Great Barrier Reef (S24B)
- Water resource in relation to large coal mining development or coal seam gas (S24D)
- Commonwealth Land (S26)
- Commonwealth Heritage Places Overseas (S27B)
- Commonwealth or Commonwealth Agency (S28)

4.3 Alternatives

4.3.1 Do you have any possible alternatives for your proposed action to be considered as part of your referral? *

No

4.3.8 Describe why alternatives for your proposed action were not possible. *

The Queensland Government commissioned an assessment in 2020 to review available options for addressing the deficiencies in the Paradise Dam. The following, three options were progressed for further evaluation as part of the detailed business case:

- Option 1 – return the primary spillway back to its original height (FSL)
- Option 2 – permanent lowering of the primary spillway level at 5m below the original height
- Option 3 – permanent lowering of the primary spillway to 10m below the original height

Following a Dam Safety and Water Security evaluation, it was determined Option 1 would achieve the optimal balance of safety and water reliability for the Bundaberg region. Consequently, in December 2021, the Queensland Government confirmed the Dam would be returned to its full height.

Since this announcement, Sunwater has progressed with investigations into the feasibility of repairing the existing dam wall structure. This continued throughout 2022 and 2023 and resulted in a concept design (termed the 'Reference Design'). A program of intensive testing was undertaken to inform design development and identified three unexpected new issues regarding the long-term strength and quality of the Dam's concrete. These issues were identified as stemming from the Dam's original construction and included swelling clay, cement leaching, and carbonation.

The new issues were unprecedented as dams are usually not tested for long-term strength loss. Because of this, Sunwater, along with its partners and independent experts, was required to develop a bespoke and world-first concrete testing program. Results from the testing program showed that the Dam was built with a far higher percentage of clay than the majority of other RCC dams in the world.

The results confirmed that the existing structure was a compromised asset, and in January 2024, the Queensland Government announced Sunwater would begin planning for a new Dam wall on the Burnett River to ensure a safe and secure water supply for the Wide Bay Burnett and Bundaberg regions.

Alternative locations, timelines, and activities are not considered appropriate due to the level of risk associated with any delay to the proposed Action. Risks that would arise as a result of delayed timeframes are not limited to water demand and security, the most important risk is public safety. A compromised asset of this magnitude requires swift rectification to ensure dam wall failure does not occur and to reduce overall dam safety risks to an acceptable level in accordance with regulatory requirements.

The construction and operation of the two batch plants and associated trial embankment are required to inform construction methods such as rolling patterns, establish specification limits including joint maturity and contribute to the quality of the replacement dam.

Alternative locations for the proposed Action are not feasible as concrete has a finite period of workability which prevents extended travel from source to placement. Additional transportation introduces further variables (e.g. particle settlement etc) that could affect the results of the trial embankment. The proposed Action is considered critical to commencing early works (concrete batch plants and a trial embankment) to rectify the known issues with the Dam and to minimise in-river works and risks of flooding.

5. Lodgement

5.1 Attachments

1.2.1 Overview of the proposed action

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 01 - Referral figures.pdf Figures related to this referral	28/05/2025	No	High
#2.	Document	Attachment 02 – Terrestrial MNES Assessment Report.pdf Terrestrial MNES Assessment Report	28/05/2025	No	High

1.3.2.17 (Person proposing to take the action) Proposer's history of responsible environmental management

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 02 – Terrestrial MNES Assessment Report.pdf Terrestrial MNES Assessment Report	27/05/2025		High
#2.	Document	Attachment 03 – Sunwater’s Environmental Policy.pdf Sunwater Environmental Policy	28/05/2025		High

1.3.2.18 (Person proposing to take the action) If the person proposing to take the action is a corporation, provide details of the corporation’s environmental policy and planning framework

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 03 – Sunwater’s Environmental Policy.pdf Sunwater Environmental Policy	27/05/2025		High

3.1.1 Current condition of the project area's environment

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 02 – Terrestrial MNES Assessment Report.pdf Terrestrial MNES Assessment Report	27/05/2025	No	High
#2.	Document	Attachment 04 – Aquatic Ecology Technical memo.pdf Technical memo describing the aquatic ecology	28/05/2025	No	High

3.1.3 Natural features, important or unique values that applies to the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 02 – Terrestrial MNES Assessment Report.pdf Terrestrial MNES Assessment Report	27/05/2025	No	High

3.2.1 Flora and fauna within the affected area

Type	Name	Date	Sensitivity	Confidence
#1.	Document Attachment 02 – Terrestrial MNES Assessment Report.pdf Terrestrial MNES Assessment Report	27/05/2025	No	High
#2.	Document Attachment 04 – Aquatic Ecology Technical memo.pdf Technical memo describing the aquatic ecology	27/05/2025	No	High

3.2.2 Vegetation within the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 02 – Terrestrial MNES Assessment Report.pdf Terrestrial MNES Assessment Report	27/05/2025	No	High

4.1.3.3 (Ramsar Wetland) Why your action is unlikely to have a direct and/or indirect impact

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 01 - Referral figures.pdf Figures related to this referral	27/05/2025	No	High

4.1.4.2 (Threatened Species and Ecological Communities) Why your action has a direct and/or indirect impact on the identified protected matters

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 02 – Terrestrial MNES Assessment Report.pdf Terrestrial MNES Assessment Report	27/05/2025	No	High
#2.	Document	Attachment 04 – Aquatic Ecology Technical memo.pdf Technical memo describing the aquatic ecology	27/05/2025	No	High

4.1.4.11 (Threatened Species and Ecological Communities) Proposed offsets relevant to avoidance or mitigation measures

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 05 - Offsets Delivery Strategy.pdf Strategy for delivery of offsets	28/05/2025	No	High

4.1.5.2 (Migratory Species) Why your action has a direct and/or indirect impact on the identified protected matters

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 02 – Terrestrial MNES Assessment Report.pdf Terrestrial MNES Assessment Report	27/05/2025	No	High

4.1.5.6 (Migratory Species) Why you do not consider the direct and/or indirect impact to be a Significant Impact

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 02 – Terrestrial MNES Assessment Report.pdf Terrestrial MNES Assessment Report	27/05/2025	No	High

4.1.5.9 (Migratory Species) Why you do not think your proposed action is a controlled action

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 02 – Terrestrial MNES Assessment Report.pdf Terrestrial MNES Assessment Report	27/05/2025	No	High

4.1.5.10 (Migratory Species) Avoidance or mitigation measures proposed for this action

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 02 – Terrestrial MNES Assessment Report.pdf Terrestrial MNES Assessment Report	27/05/2025		High

4.1.8.3 (Great Barrier Reef) Why your action is unlikely to have a direct and/or indirect impact

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Attachment 03 – Sunwater's Environmental Policy.pdf Sunwater Environmental Policy	27/05/2025	No	High

5.2 Declarations

Completed Referring party's declaration

The Referring party is the person preparing the information in this referral.

ABN/ACN	54169579275
Organisation name	EPIC ENVIRONMENTAL PTY LTD
Organisation address	4000 QLD
Representative's name	Romin Nejad
Representative's job title	General Manager
Phone	0403116766
Email	rnejad@epicenvironmental.com.au
Address	L17, 95 North Quay, Brisbane

☑ Check this box to indicate you have read the referral form. *

☑ I would like to receive notifications and track the referral progress through the EPBC portal. *

☑ By checking this box, I, **Romin Nejad of EPIC ENVIRONMENTAL PTY LTD**, declare that to the best of my knowledge the information I have given on, or attached to this EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. *

☑ I would like to receive notifications and track the referral progress through the EPBC portal. *

Completed Person proposing to take the action's declaration

The Person proposing to take the action is the individual, business, government agency or trustee that will be responsible for the proposed action.

ABN/ACN	17020276523
Organisation name	Sunwater Limited
Organisation address	Green Square North Level 9, 515 St Pauls Terrace Fortitude Valley, Queensland 4006
Representative's name	Sam Waldron

Representative's job title	Project Director Paradise Dam Improvement Project
Phone	07 3120 0247
Email	sam.waldron@sunwater.com.au
Address	Green Square North Level 9, 515 St Pauls Terrace Fortitude Valley, Queensland 4006

☑ Check this box to indicate you have read the referral form. *

☑ I would like to receive notifications and track the referral progress through the EPBC portal. *

☑ I, **Sam Waldron of Sunwater Limited**, declare that to the best of my knowledge the information I have given on, or attached to the EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. I declare that I am not taking the action on behalf or for the benefit of any other person or entity. *

☑ I would like to receive notifications and track the referral progress through the EPBC portal. *

✔ Completed Proposed designated proponent's declaration

The Proposed designated proponent is the individual or organisation proposed to be responsible for meeting the requirements of the EPBC Act during the assessment process, if the Minister decides that this project is a controlled action.

Same as Person proposing to take the action information.

☑ Check this box to indicate you have read the referral form. *

☑ I would like to receive notifications and track the referral progress through the EPBC portal. *

☑ I, **Sam Waldron of Sunwater Limited**, the Proposed designated proponent, consent to the designation of myself as the Proposed designated proponent for the purposes of the action described in this EPBC Act Referral. *

☐ I would like to receive notifications and track the referral progress through the EPBC portal. *