# 1. Description of the action

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## 1.1 Overview

This chapter describes the proposed action, the function of the draft environmental impact statement (EIS) for the Lower Fitzroy River Infrastructure Project (Project) and provides an overview of the structure of the draft EIS documentation. In addressing Part C, Sections 1.30 – 1.32, of the terms of reference (ToR) for the draft EIS this chapter describes the Project proponents, provides a summary description of the proposal (with greater detail in Chapter 2), provides the justification for the action, considers its relationship to other projects, sets out the legislative basis for the draft EIS in relation to matters of national environmental significance (MNES) and describes the specific matters to be addressed under the *Environmental Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act).

The ToR is included in Appendix A. A ToR cross-reference table that links the requirements of each section of the ToR with the corresponding section of the draft EIS (where applicable) is included at Appendix B. Appendix C provides a consolidated glossary of technical terms and a list of acronyms and abbreviations. The study team are listed in Appendix D. Appendix E provides the proponents' environmental records as described in Section 1.2.

Project approvals are addressed in Chapter 3 Planning and approvals. The public consultation process is described in Chapter 4 (and detailed in Appendix F). Project alternatives are discussed in Chapter 5.

## 1.2 Project proponent

The Gladstone Area Water Board (GAWB) and SunWater Limited (SunWater) are joint proponents undertaking technical, environmental, social, cultural and economic investigations for the Project. SunWater and GAWB are herein referred to as the proponents for the Project.

The contact details for the Project are:

Lower Fitzroy River Infrastructure Project

Reply Paid 668, Brisbane, QLD, 4001

Telephone: 1800 423 213

Email: fitzroyweirs@ghd.com.au

Website: www.fitzroyweirs.com.au

### 1.2.1 GAWB

On 1 October 2000, GAWB commenced operations as a Category 1 commercialised Water Authority under the *Water Act 2000* (Qld) (Water Act), responsible to the Minister for Water. As from 1 July 2008, GAWB became a registered service provider under the *Water Supply (Safety and Reliability) Act 2008* (Qld). GAWB owns and operates Awoonga Dam on the Boyne River along with a network of delivery pipelines, water treatment plants and other bulk water distribution infrastructure in the Gladstone Region in central Queensland. GAWB holds an allocation of 78,000 ML/a from Awoonga Dam by virtue of a Resource Operations Licence (ROL) issued pursuant to the Water Resource (Boyne River Basin) Plan 2000 (GAWB, 2009). GAWB's corporate objective is to ensure that the long- and short-term water needs of current and future customers are met in ways that are environmentally, socially and commercially sustainable.

Specifically, GAWB will:

- Contribute to long-term environmental sustainability
- Apply best practice in the management of natural resources and the development of infrastructure
- Maintain environmental (ISO14001:2004), quality (ISO9001:2008), compliance and risk management systems.

GAWB achieves its objective through planning for future water needs, and developing, operating and maintaining its infrastructure in a sustainable manner, while minimising the impact its operations have on the environment.

The contact details for GAWB are:

Gladstone Area Water Board

147 Goondoon St, Gladstone, QLD, 4680

PO Box 466, Gladstone, QLD 4680

Telephone: (07) 4976 3000

Website: www.gawb.qld.gov.au

### 1.2.2 SunWater

SunWater was established as a statutory Government Owned Corporation on 1 October 2000 under the *Government Owned Corporations Act 1993* (Qld). SunWater owns and operates the Queensland Government's bulk water supply and distribution infrastructure located throughout regional Queensland. SunWater manages 40 per cent of commercially used water in Queensland via 23 water supply schemes and three subsidiary companies. Under ROLs and interim ROLs held, SunWater manages a total water allocation of 2.82 million ML, including the existing Eden Bann Weir (28,621 ML/a). SunWater provides a range of services including infrastructure ownership, water delivery, operation and maintenance of infrastructure and engineering consultancy services. SunWater shares the values and responsibilities of the wider communities within which it operates, namely to secure water for the future. SunWater provides support to regional communities through its sponsorship and education initiatives.

SunWater's Environmental Management System ensures that best practice environmental management and compliance is achieved across the business in accordance with ISO 14001:2004. SunWater's key environmental objectives are:

- To optimise project management and operational procedures that minimise SunWater's ecological footprint and to ensure full compliance with environmental legislation
- To minimise SunWater's impacts on native fish populations and prevent the spread of pest fish
- To proactively manage weeds on SunWater owned and managed property and investigate alternate, more sustainable methods of weed control.

The contact details for SunWater are:

SunWater Limited

Level 10, 179 Turbot Street, Brisbane, QLD, 4002

PO Box 15536, City East, Brisbane QLD, 4002

Telephone: (07) 3120 0000

Website: www.sunwater.com.au

### 1.2.3 Environmental record

GAWB and SunWater have good environmental records and neither party has been found to be in contravention of environmental conditions imposed on their projects. GAWB and SunWater are committed to managing and operating their infrastructure in a safe and sustainable manner as is evident in their environmental policies included in Appendix E.

## 1.3 Project description

The Project (the 'action') comprises the construction and operation of a raised Eden Bann Weir and construction and operation of Rookwood Weir on the Fitzroy River, Central Queensland to facilitate the capture and storage of all high priority unallocated water (nominal volume of 76,000 ML) in the Fitzroy system.

Key Project components include the following:

- Eden Bann Weir
  - Eden Bann Weir Stage 2 – a raise of the existing Eden Bann Weir (Stage 1 full supply level (FSL) 14.5 m Australian Height Datum (AHD)) to a FSL 18.2 m AHD and associated impoundment of the Fitzroy River
  - Eden Bann Weir Stage 3 – the addition of 2 m high flap gates to achieve FSL 20.2 m AHD and associated impoundment of the Fitzroy River.
- Rookwood Weir
  - Rookwood Weir Stage 1 – a new build to FSL 45.5 m AHD, a saddle dam and associated impoundment of the Fitzroy, lower Mackenzie and lower Dawson rivers
  - Rookwood Weir Stage 2 – the addition of 3.5 m high flap gates to achieve FSL 49.0 m AHD and associated impoundment of the Fitzroy, lower Mackenzie and lower Dawson rivers.
- Aquatic fauna passage infrastructure, namely fish locks and a turtle bypass, at each weir
- Any combination of the above stages.

The Project is expected to be staged, with sequencing and timing dependant on a number of demand triggers including existing and new consumers, drought conditions and security of supply requirements.

Other infrastructure components associated with the Project include:

- Augmentation to and construction of access roads (public and private) to and from the weir sites for construction and operations and upgrades to intersections
- Construction of low level bridges in areas upstream of weir infrastructure that will be impacted by the impoundments, specifically at Glenroy, Riverslea and Foleyvale crossings

- Installation of culverts at Hanrahan Crossing downstream of Rookwood Weir to facilitate access during operation releases
- Relocation of existing and/or installation of new gauging stations
- Removal and decommissioning of existing low level causeways and culverts at river crossings described above
- Water supply for construction will be sourced directly from the Fitzroy River (weir infrastructure and Glenroy, Riverslea and Hanrahan crossings) and the Mackenzie River (Foleyvale Crossing) and will not require the construction of additional water supply infrastructure. Operational water for services/facilities at the weir sites will be provided through rainwater harvesting systems.

Figure 1-1 shows the Project location.

Operationally the Project comprises the maintenance and management of the weir infrastructure, private access roads and impoundments, inclusive of a flood buffer. Water releases will be made through 'run of river' methods and no water distribution infrastructure is required as part of the Project. Water releases will be made to satisfy environmental flow and water allocation security objectives in accordance with the Water Resource (Fitzroy Basin) Plan 2011 (Fitzroy WRP). Operating regimes will be developed and implemented through the Fitzroy Basin Resource Operations Plan 2004 (Fitzroy ROP) (as augmented).

The development of weir infrastructure (and associated works), the resultant storage of water (inundation of the river bed and banks) and the transfer of water between storages through 'run of river' methods on the Fitzroy River comprise the scope of the Project. Abstraction, transmission and distribution to end users are not considered as part of the proposed Project and are subject to their own environmental investigations and approvals where applicable.

Power supply, telecommunications and construction material resource extraction areas have been considered for the Project and will be assessed under separate approvals processes.

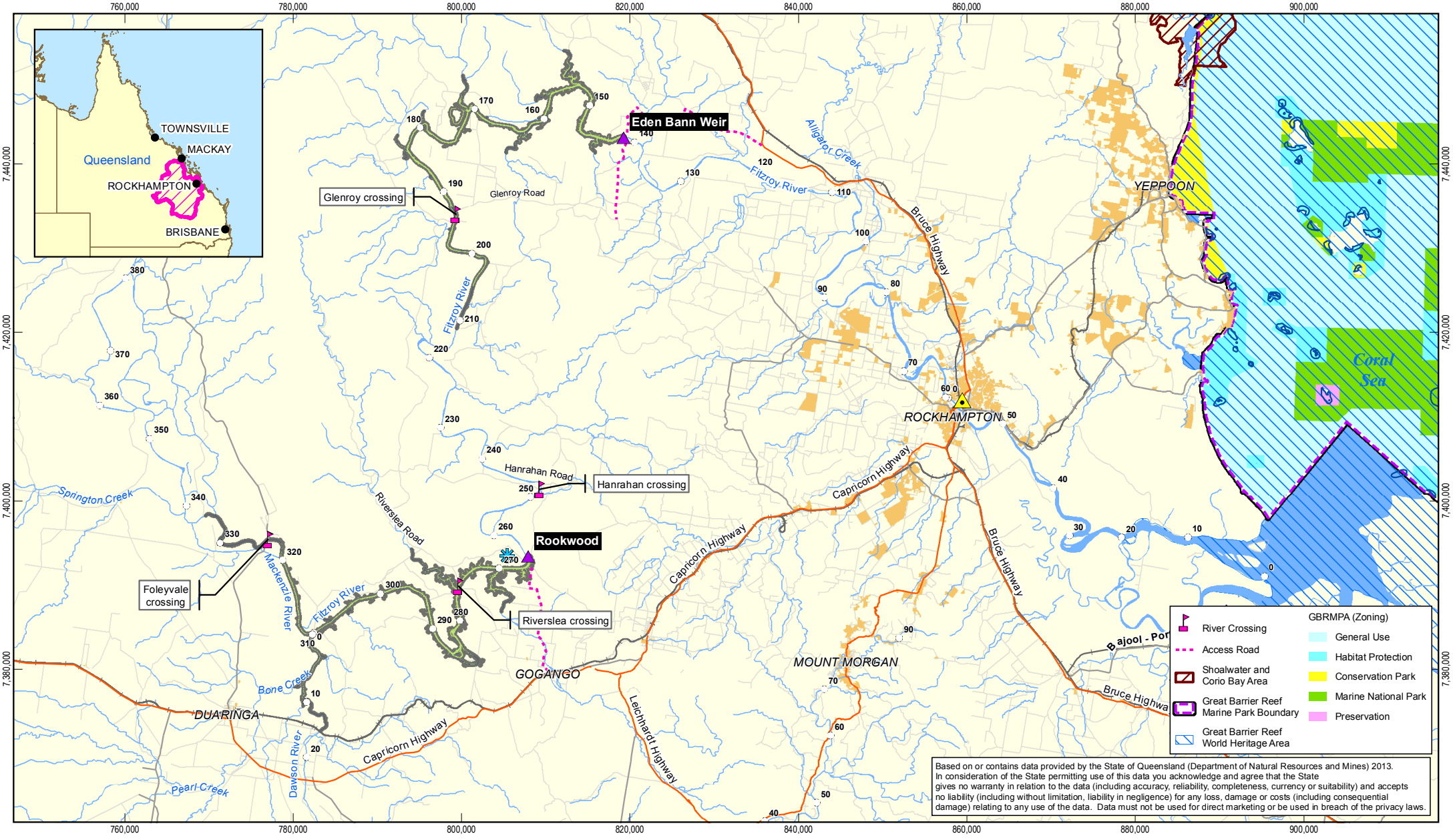
A detailed Project description is provided in Chapter 2.

## 1.4 Project rationale

### 1.4.1 Strategic and economic justification

The Queensland Government is committed, through the National Water Initiative Agreement (2004), to working with the Commonwealth, New South Wales, Victoria, South Australia, the Australian Capital Territory and the Northern Territory governments to progress national water reforms. Planning, management and delivery of water to urban, industrial and agricultural communities is the role of State and local governments collaborating to implement water reforms to provide secure water entitlements to users while protecting the natural values and ecosystems of the region.

At the State level and of relevance to the Project, the Fitzroy WRP seeks to achieve general and specific outcomes for the sustainable management of water, specifically security for water users and licence holders through the establishment of water allocation security objectives (WASOs) and environmental water for aquatic ecosystems through the establishment of environmental flow objectives (EFOs). The Fitzroy ROP implements the Fitzroy WRP and defines the rules for allocation and management of water in order to achieve WASOs and EFOs.




1:600,000 (at A4)

0 5 10 15 20

Kilometres

Map Projection: Universal Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia (GDA94)
Grid: Map Grid of Australia 1994, Zone 55

N

**LEGEND**

- AMTD (km)
- Weir Location
- Fitzroy Barrage
- Saddle dams
- Highway
- Major Road
- Streets (Local)
- Access Road
- Fitzroy Basin
- Urbanised Area
- Rookwood Weir Stage 1 impoundment
- Rookwood Weir Stage 2 impoundment
- Eden Bann Weir Stage 2 impoundment
- Eden Bann Weir Stage 3 impoundment

Gladstone Area Water Board, SunWater
Lower Fitzroy River Infrastructure Project

Job Number 41-20736
Revision J
Date 26 Sep 2014

# Project locality plan

Figure 1-1

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Level 9, 145 Ann Street Brisbane QLD 4000 Australia T +61 7 3316 3000 F +61 7 3316 3333 E bnemail@ghd.com W www.ghd.com

The Fitzroy WRP identifies that a nominal volume of 76,000 ML is available for water infrastructure on the Fitzroy River as supplemented water from the strategic water infrastructure reserve. The Project is recognised as strategic water infrastructure to which allocations may be granted.

The Fitzroy ROP specifies that submissions to make unallocated water available from the strategic water infrastructure reserve on the Fitzroy River may be made as follows:

- GAWB: up to 30,000 ML of the reserve for urban and industrial water supplies
- Local government authority: up to 4,000 ML of the reserve for urban water supplies for the Capricorn Coast.

The Fitzroy ROP does not specify the intended use of the remaining 42,000 ML and nominates that any person or entity may make a submission in this regard.

The priority assigned to a supplemented water supply refers to the level of reliability assigned to the supplemented water supply or the probability in relation to achieving the reliability of supply. High priority water under the Fitzroy WRP must achieve an annual supplemented water sharing index (or reliability) of at least 94 percent and a monthly supplemented water sharing index of at least 98 per cent. Medium priority water supply must achieve a monthly supplemented water sharing index of 82 per cent. The Project's primary objective is secure high priority supplemented supplies.

At a regional level and in response to a prolonged and severe drought in Central Queensland, a Central Queensland Regional Water Forum was held in May 2003. The forum identified the need for a study (the Central Queensland Regional Water Supply Study) into key water supply issues, challenges and priorities.

In December 2004 the Queensland Government, in partnership with local government, committed to developing the Central Queensland Regional Water Supply Strategy (CQRWSS) (DNRW 2006), a long term water supply strategy for the region to address the following key issues:

- Continued urban growth and industrial development, particularly in the Lower Fitzroy and Gladstone areas, and mining development in the Bowen and Surat coal basins
- Entitlements in some existing regional water supply systems are at or approaching full usage
- Some existing water supply schemes are performing below water user requirements
- Water demand projections indicate regional supply shortfalls exist to meet urban, industrial, coal mining and agricultural requirements through to 2020.

In the absence of implementing measures from the CQRWSS, it is considered that ongoing demand management measures (including water restrictions) will be needed to maintain adequate levels of water supply services; and the economic prosperity of the region will be adversely impacted as industrial and urban (and to a lesser extent agricultural) expansion and new development is currently limited by this constraint.

While the CQRWSS acknowledged that more emphasis on water efficiency improvements, water allocation trading and demand management was required it was recognised that there was a need to reserve additional water sources for future infrastructure projects. The Lower Fitzroy river system is identified as the next main supply source for urban and industrial needs of the Rockhampton Regional Council (RRC) and Livingstone Shire Council (LSC) local government areas and for the needs of GAWB's supply area. The CQRWSS identified that further infrastructure on the lower Fitzroy River is required in order to provide the appropriate reliability of supply (mainly for high priority water). Raising and operating Eden Bann Weir and constructing and operating Rookwood Weir were identified as

appropriate infrastructure to satisfy short- to medium-term supply requirements for this high priority water. Further the CQRWSS identified the need for pipeline infrastructure to deliver the water to the intended locations. Accordingly GAWB's Gladstone-Fitzroy Pipeline (GFP) Project was identified. Long-term demands were predicted to be achieved through the Project operating in conjunction with the Fitzroy Barrage, Awoonga Dam and the proposed Nathan Dam, thereby improving the overall performance of water supplies and enabling additional water to be made available.

In December 2007, the Governor in Council approved, under the *State Development and Public Works Organisation Act 1971*(Qld) (SDPWO Act), the establishment of a state-wide water program of works to facilitate the development of water infrastructure projects (through to business-case stage), including the Project. GAWB, SunWater and (the then) Rockhampton City Council were nominated to deliver a business case for the Project. Subsequent to this, RRC withdrew from the proposal but remain a key stakeholder (Section 1.5). While the program of works has ceased, the proponents are committed to progressing the studies required for the Project in line with the Queensland Government's initiatives to secure future supply sources to address the future water needs of the Central Queensland region.

Through a series of workshops held in early 2009, it was recognised that a flexible strategy was required to deliver water quickly to meet anticipated future demands, while not knowing the exact timing of these future demands. It was determined that a strategic project development route be adopted to enable access to all available but as yet unallocated water in the lower Fitzroy system rather than selecting a single option for further assessment. Investigations proceeded to 'map out' potential development staging options. As such, the Project implementation is expected to be staged, with development option staging needing to be flexible to changes and timing in demand growth while offering overall value for money and affordability. Staging will enable proponents to progressively respond to demand growth over time but not compromise the full development scenario. This will ensure that infrastructure developed is sustainable in terms of performance (yield) and cost, inclusive of social, cultural and environmental considerations.

### 1.4.2 Technical feasibility and commercial drivers

Cumulatively, the CQRWSS predicted a total shortfall of high priority water for urban and industrial needs in the order of 41,000 ML/a by 2020. Future demand for water resources is predicted to be primarily due to the continued growth of industrial and urban expansion in the Lower Fitzroy and Gladstone area and potentially some agricultural development within the Fitzroy Agricultural Corridor. In addition to direct increases in demand there is also a potential requirement to improve the level of reliability of the existing water supplies locally and regionally. This improved reliability may also take into account the need for some contingency within the system to meet climate change variability.

Yield modelling (Appendix P) indicates that a number of Project development scenarios achieve the yield attributed to the strategic water infrastructure reserve (a nominal volume of 76,000 ML). However, smaller demands are likely to occur in stages, thus development routes for each of the ultimate storage options is required. Given that there are two development sites and two development stages proposed for each site (raised Eden Bann Weir to Stage 2 and the addition of gates to Stage 3; and Rookwood Weir to Stage 1 and the addition of gates to Stage 2), in the order of 20 staging permutations could be undertaken should an interim demand trigger arise.

Future demands are difficult to predict with any degree of certainty. It is also noted that since the 2004-2007 drought that stimulated investigations into the Project, generally wetter than average weather and widespread flooding has been experienced in the region, until recently when drier conditions have again been prevalent. It is acknowledged that, as at September 2014, the demand for water that the full Project

development can deliver is not yet realised. A staged approach to development will enable proponents to respond to potentially smaller demands in the short-term and progressively respond to increasing and/or larger demand requirements over time through intermediate infrastructure builds until full development is reached. The current Project concept/preliminary design is modular to facilitate staging in order to respond quickly and efficiently to deliver water quickly to meet anticipated future demands.

Key potential water demand may arise from the following:

- GAWB

  The CQRWSS identified that shortfalls in the order of 23,000 ML/a by 2020 would eventuate in the Gladstone sub-region as a result of strong industrial sector growth.

  GAWB's water reservations (contracted demand) have increased from 53,472 ML in 2011 to 60,926 ML in 2013 of a total water allocation of 78,000 ML/a from Awoonga Dam. Forty-two per cent of the 2012/13 water reservation was for the Callide Power Station. GAWB (2013) predict that:

  – Base case demand (60,000 ML/a) will remain constant over the next 20 years
  – An additional demand of 30,000 ML/a could arise over the next ten years as a result of known and credible projects being developed
  – Base case and future demand totals approximately 90,000 ML/a which exceeds Awoonga Dam's supply capacity by 12,000 ML/a
  – While unlikely, if all currently known and credible projects were commissioned in the shortest timeframes, possible demand could exceed 120,000 ML/a by 2020.

  While not realised, water supply to the GFP Project of 30,000 ML/a is considered a likely first demand for the Project (Section 1.5.3). Separately the Project would provide a second water source solution for GAWB to improve reliability of supply risks (Section 1.5.3).

- Rockhampton Regional Council

  The Fitzroy Barrage currently provides an allocation of 50,000 ML of high priority water to RRC (Fitzroy River Water) in accordance with the current licence conditions. This represents around double Rockhampton City's current annual urban rate of consumption. Whilst the current allocation is well in excess of demand, the Fitzroy Barrage only generates a supply reliability of 99.6 per cent, meaning that Rockhampton City is exposed to a potential supply shortfall under an extreme drought scenario.

  Whilst the existing reliability highlights potential supply issues facing Rockhampton City, the RRC's ultimate demand for additional yield from the Project will be subject to their required level of service (LOS), which has yet to be determined. The Department of Energy and Water Supply is working with the RRC to determine LOS requirements and solutions. The LOS requirement can be converted into a volumetric demand on the Project; at which time the RRC may consider further participation in the Project.

  Demand in the lower Mackenzie-Fitzroy sub-region is predicted in the CQRWSS as a result of industrial growth, particularly in the Stanwell-Gracemere Industrial Corridor. Demand shortfalls in the order of 17,500 ML were predicted by 2020. RRC is currently promoting the need and desire for this development

- Livingstone Shire Council

  The Capricorn Coast's (LSC local government area) traditional water supply is Waterpark Creek (4,400 ML/a). Implementation of demand management measures has allowed growth without an

overall increase in water consumption. The CQRWWS predicted an increased water demand for the Capricorn Coast as a result of urban growth, with a shortfall in the order of 3,250 ML by 2020. An average daily demand of 37 ML per day is predicted by 2056.

In July 2010, the Rockhampton to Yeppoon Pipeline project was officially opened supplementing supplies from Waterpark Creek. Water is provided through the pipeline from the Yaamba Road Reservoir in Rockhampton to St Faiths Reservoir (feeding Yeppoon and the northern areas) and Tarangaba Reservoir (feeding Emu Park and southern areas) (RRC 2013). The Rockhampton to Yeppoon Pipeline supplements supply from Water Park Creek. The pipeline is designed to deliver up to 37 ML per day of treated water from the Glenmore Water Treatment Plant in Rockhampton; the average predicted daily demand by 2056. Water delivered through the pipeline is part of the RRC's current entitlement. Together with the existing supply capacity of 17 ML per day (from the Woodbury Water Treatment Plant) a total supply capacity of 54 ML per day is available to meet future demand. In addition to significantly increasing the daily supply capacity, the pipeline delivers a major improvement in the long term security of supply from the current 2,400 ML/a safe yield from Waterpark Creek to greater than 53,000 ML/a year when combined with the highly reliable water allocation available to Fitzroy River Water in the Fitzroy Barrage (Fitzroy River Water, undated). Discussions with LSC indicate that given this improved reliability and supply is provided from the Fitzroy River, the LSC remains interested in further water resources being made available and/or supply reliability being improved as a result of the Project.

- Industry and mining

  Whilst regional planning for the development of future infrastructure in the Rockhampton region has been undertaken, notably in the form of the Gracemere-Stanwell Industrial Corridor, none of the expected projects have yet materialised, and demands are uncertain. RRC is however currently promoting the need and desire for this development. Increased industrial demand within Gladstone is expected, and these demands are catered for in the 30,000 ML being sought by GAWB.

  In the order of 94 per cent (in the order of 24,000 ML/a) of the high priority allocation from the existing Eden Bann Weir from the Lower Fitzroy Water Supply Scheme is allocated to Stanwell Corporation Limited for the Stanwell Power Station. In addition Stanwell utilises the existing excess allocation from RRC.

  A number of mining and petroleum exploration projects are proposed for the Rockhampton region, particularly copper and gold in the Mount Morgan area (south of Rockhampton). While some demand for water can be expected in the long term, volumes required are difficult to predict. There are no existing or proposed operating coal mines in the Rockhampton and Gladstone regions.

- Agriculture

  In terms of the demand for water from the agricultural sector, the CQRWSS reported that while the majority of demand could be satisfied by the take-up and trading of under-utilised entitlements, some demand from agriculture was predicted (DNRW 2006). With regard to the Project, tradable water allocations have been established for the lower Mackenzie and Fitzroy rivers from Tartrus Weir to the Fitzroy Barrage.

  Further to this the Fitzroy Industry and Infrastructure Study (DIP 2007) identified that the potential existed for animal production, fodder crops and some horticulture to be undertaken within the Lower Fitzroy Agricultural Corridor. The study was completed in 2007 but no further implementation plans were developed and no demand profiles were confirmed. More recently, through Regional Development Australia's Growing Central Queensland initiative and RRC's promotion of agricultural

development within the region (the Fitzroy Agricultural Corridor) it is possible that some future demand for high priority water will arise. The agricultural demand profile is however uncertain.

## 1.5 Relationships to other projects

### 1.5.1 Existing Eden Bann Weir

The existing Eden Bann Weir (Stage 1) was constructed in 1994 on the Fitzroy River (Figure 1-1) primarily to supply high priority water (in the order of 24,000 ML/a) to Stanwell Power Station. Eden Bann Weir is owned and operated by SunWater under the Lower Fitzroy Water Supply Scheme.

Water released from Eden Bann Weir is captured in the Fitzroy Barrage, which is then pumped to various water consumers.

Whilst no specific provision for future raising of Eden Bann Weir was made in the original design, some care was taken to accommodate future expansion through crest design provisions and downstream excavation was extended sufficiently to accommodate a larger structure warranted under a raising (SunWater 2008).

### 1.5.2 Fitzroy Barrage

The Fitzroy Barrage is located on the Fitzroy River in the city of Rockhampton (Figure 1-1). The Fitzroy Barrage forms a barrier between downstream intertidal saltwater and upstream freshwater environments.

The Fitzroy Barrage was completed in 1970 and is owned and operated by Fitzroy River Water (a business unit of RRC). The storage is used to supply water for urban supply, irrigation and recreation. The Fitzroy Barrage Water Supply Scheme has a total 50,000 ML/a of high priority and 12,335 ML/a of medium priority supplemented water allocations. Water from the impoundment is treated at the Glenmore Water Treatment Plant before being distributed via an existing reticulation system.

Within the lower Fitzroy system, the Lower Fitzroy Water Supply Scheme (Eden Bann Weir) and the Fitzroy Barrage Water Supply Scheme (Fitzroy Barrage) operate in conjunction with each other providing in the order of 75,500 ML/a of high priority water and 15,500 ML/a of medium priority water (Appendix P).

The Project will operate in concert with the existing Fitzroy Barrage with releases from Rookwood Weir to Eden Bann Weir to the Fitzroy Barrage for abstraction (Chapter 2 Project description).

### 1.5.3 Gladstone-Fitzroy pipeline project

GAWB owns and operates Awoonga Dam on the Boyne River. Awoonga Dam is the fourth largest dam in Queensland with a total storage capacity of 776,854 ML and a maximum allowable yield of 78,000 ML/a (GAWB 2013). Industrial and power generation demand represents 80 per cent of the total water supplied. The remaining 20 per cent is supplied as potable water to the Gladstone Regional Council for residential and small business uses.

Analysis shows that, over a 120 year data period, 78,000 ML can be reliably extracted every year. GAWB acknowledges that while 120 years is a relatively long period of analysis, it is possible that better or worse hydrological outcomes could be experienced in the future. Stochastic analysis of historical data shows that over a 10,000 year simulated period at an annual extraction rate of 78,000 ML, Awoonga Dam has a failure frequency of 0.36 per cent (GAWB 2013).

Whilst Awoonga Dam is regarded as a secure water source, it remains GAWB's sole water source. Consequently, compared to other water supply systems with multiple integrated supply options, GAWB's water supply system has a higher inherent risk as it has a single point of potential supply failure. GAWB

plans to augment its existing system by construction of a second water source. Development of a second water source would provide greater security for GAWB's water customers and will form part of GAWB's Contingent Supply Strategy (CSS). The CSS provides GAWB with a strategic approach to respond to emerging demand or supply shortages caused by drought.

GAWB has identified the development of the Gladstone-Fitzroy Pipeline (GFP) Project as its preferred delivery mechanism for a second water source. The GFP Project is designed to transfer 30,000 ML of water per annum (and possibly more if required) from the Fitzroy system. Water supply is proposed to be sourced from water secured through development of the Project. Extraction is proposed to be from the Fitzroy Barrage impoundment near Laurel Bank, approximately 12 km upstream of the Fitzroy Barrage infrastructure. The pipeline's capacity aligns with the Gladstone reserve volume provided for in the Fitzroy ROP and the Fitzroy WRP's strategic water reserve for strategic water infrastructure on the Fitzroy River.

The GFP Project preliminary design has included an additional concept of reversibility of the pipeline to supply water to Rockhampton as an exercisable option in order to improve the long-term reliability of the RRC water supply.

GAWB has completed detailed design for the pipeline, gaining the appropriate approvals and securing easements and land so that when a trigger of either drought or increased demand is activated, the pipeline can be constructed within a three year timeframe to ensure water is available when it is needed.

GAWB considers that preparatory works that have been undertaken since 2004 for the GFP Project will reduce the implementation timeframe from a period of six to eight years to in the order of three years. In a drought scenario a solution requiring a six to eight year implementation period would be unlikely to provide relief in time. Similarly, an implementation period of six to eight years would limit GAWB's ability to respond in a timely manner to a fast ramp up in demand or a large single source of emerging demand.

Construction of the Project will enable the development of the GFP Project. GAWB consider that this water supply is essential to increase the reliability of supply to the region and meet additional future demand that GAWB will be unable to service under existing supply arrangements from Awoonga Dam. The EIS for the GFP Project was approved by the Queensland Coordinator-General in February 2010[1] and by the Commonwealth Minister for Environment in November 2011. Prudent Project planning through this EIS, and associated concept/preliminary design, is considered to align the Project implementation period (an approximate two to two and a half year build period plus 10 – 12 months of preparatory works from a Project trigger) with that of the GFP Project (an estimated period of three years from a trigger).

## 1.6 Environmental impact assessment process

### 1.6.1 Legislative basis of the EIS

The Project EIS is being undertaken in accordance with the provisions of the EPBC Act and SDPWO Act and addresses the requirements of the Project ToR included in Appendix A.

The Project is a 'controlled action' requiring assessment and approval under the EPBC Act (EPBC referral 2009/5173). The nominated assessment approach is by EIS. The relevant controlling provisions in relation to MNES are:

- World Heritage properties

[1] The validity of the Coordinator-General's report on the GFP Project EIS has been extended to 2 February 2016.

- National Heritage places
- Listed threatened species and communities
- Listed migratory species.

In June 2010, the Commonwealth Department of the Environment issued guidelines for an EIS in relation to MNES. The Project has been declared a 'coordinated project' under the SDPWO Act requiring an EIS. ToR for the EIS were finalised by the Coordinator-General in April 2012. As at 10 January 2014, the Project transitioned to assessment through the bilateral assessment process executed between State and Commonwealth governments. As a result, a single EIS addresses both State ToR and Commonwealth Guidelines. To facilitate this process, draft ToR addressing both State and Commonwealth requirements were re-issued and finalised in September 2014.

Detailed legislative requirements are described in Chapter 3 Planning and approvals. A summary of the approvals that may be triggered by the Project is provided in Table 1-1.

**Table 1-1 Approvals Summary**

| Approval | Why it applies | When/how it applies | Relevant legislation | Approving authority | Conditions sought in Coordinator-General's report |
|---|---|---|---|---|---|
| **Commonwealth** | | | | | |
| Approval of controlled action | The Project is a controlled action under the EPBC Act. The controlling provisions are:<br>• World Heritage properties (Sections 12 and 15A)<br>• National Heritage places (Sections 15 B and 15C)<br>• Listed threatened species and communities (Sections 18 and 18A)<br>• Listed migratory species (Sections 20 and 20A). | Prior to development | EPBC Act | DoE | Recommended |
| **State IDAS** | | | | | |
| MCU | If a CID is not sought or granted for the Project, a MCU Development Approval can be applied for. The proposed Eden Bann Weir triggers a MCU. The proposed Rookwood Weir is exempt development. | Post EIS (during detailed design) | Livingstone Shire Planning Scheme 2005 | RRC / LSC | Recommended |
| MCU for an ERA | The Project includes activities defined as ERAs. These are to be determined prior to lodgement. | Subject to separate environmental assessment and approval (prior to construction) | *Environmental Protection Act 1994* (Qld), *Sustainable Planning Act 2009* (Qld) (SP Act) and Sustainable Planning Regulation 2009 (SP Regulation) | DEHP / State Assessment and Referral Agency (SARA) | Not applicable |
| Operational works for clearing of native vegetation | The clearing of native vegetation for the Project is exempt development and will not require approval. | Exempt | *Vegetation Management Act 1999* (Qld) and SP Act | Department of Natural Resources and Mines (DNRM) / SARA | Not applicable |

| Approval | Why it applies | When/how it applies | Relevant legislation | Approving authority | Conditions sought in Coordinator-General's report |
|---|---|---|---|---|---|
| Operational works for a referrable dam | The Eden Bann Weir is classed as a referrable. | Post EIS (during detailed design) | Water Act and SP Regulation | DEWS / SARA | Recommended |
| Operational works for constructing or raising waterway barrier works | A development permit for waterway barrier works is required for the Rookwood and Eden Bann Weir construction, bridges at Glenroy, Riverslea and Foleyvale crossings, Hanrahan Crossing upgrade and Thirsty Creek Road upgrade. | Post EIS (during detailed design) | *Fisheries Act 1994* (Qld), SP Act and SP Regulation | DAF / SARA | Recommended |
| Development permit for the removal of quarry material (dredging) in a watercourse | A development permit is required for the removal of quarry material from a watercourse if an allocation notice is required under the Water Act. | Subject to separate environmental assessment and approval (prior to construction) | Water Act, SP Act and SP Regulation | DNRM / SARA | Not applicable |
| Operational works for taking or interfering with water from a watercourse, lake or spring | A development permit is required for weir and bridge construction. | Post EIS (prior to operation) | Water Act, SP Regulation | DNRM / SARA | Recommended |
| Reconfiguration of a lot | A development permit is required for obtaining new tenure over or reconfiguring parcels of land. | Post EIS (prior to operation) | *Land Act 1994* (Qld); SP Act and SP Regulation | Regional Council | Not applicable |
| Building works | Development application for building works requiring assessment against the *Building Act 1975* (Qld) and assessable against a planning scheme. | Post EIS (prior to construction) | *Building Act 1975* (Qld), SP Act and SP Regulation | Regional Council | Not applicable |
| **State Non IDAS** | | | | | |
| Coordinated Project Declaration | The Project has been declared a 'coordinated project' under the SDPWO Act, requiring an EIS. | Prior to issue of any and all state approvals | SDPWO Act | Department of State Development (DSD) | Yes |

| Approval | Why it applies | When/how it applies | Relevant legislation | Approving authority | Conditions sought in Coordinator-General's report |
|---|---|---|---|---|---|
| CHMPs | The Project has the potential to disturb items of Aboriginal cultural heritage significance.<br>CHMPs for the Project have been approved. | Parallel to EIS | *Aboriginal Cultural Heritage Act 2003* (Qld) | Department Aboriginal and Torres Strait Islander and Multicultural Affairs | Not applicable |
| CID | Land may be designated for community infrastructure under a planning scheme, in which case the works will be exempt development under the relevant planning schemes. | Post EIS (during detailed design) and prior to any other State approvals | SP Act and SP Regulation | Minister for State Development Infrastructure and Planning | Not applicable |
| Coordinator General Approval - Works Regulation | Due to the nature and scale of the Project a submission to the Coordinator-General could be made that the Project be approved as a works. | Post-EIS | SDPWO Act | DSD | Not applicable |
| PIF | If a private entity was designated to deliver the Project. | Post EIS | SDPWO Act | DSD | Not applicable |
| Evidence of a resource entitlement (no longer required to be submitted with applications). | There are number of State Resources applicable to the Project. | Post-EIS | SP Act, *Land Act 1994* (Qld), Water Act and *Transport Infrastructure Act 1994* (Qld) (TI Act) | Applicable government department | Not applicable |
| Water permit | Water will be taken on a temporary basis during the construction of the Project. | Post EIS (during detailed design | Water Act, Fitzroy ROP | DNRM / SARA | Recommended |
| Water licence | A water licence will be required to take water through the operation of the Project. | Post EIS (prior to operation) | Water Act, Fitzroy ROP | DNRM / SARA | Recommended |
| Riverine protection permit | A permit is required to excavate, place fill or destroy vegetation in a watercourse, unless such works are otherwise authorised or exempt. | Post EIS (prior to construction) | Water Act | DNRM / SARA | Recommended |

| Approval | Why it applies | When/how it applies | Relevant legislation | Approving authority | Conditions sought in Coordinator-General's report |
|---|---|---|---|---|---|
| Permit to clear native plants | A licence, permit or authority (issued under the *Nature Conservation Act 1992* (Qld) (NC Act)), or an exemption is required to 'take' protected plants. This relates to almost all native plants within Queensland. | Post-EIS | NC Act | DEHP | Not applicable |
| Damage mitigation permit | In the event that the Project tampers with a confirmed breeding place of a native animal (that is endangered, vulnerable, near threatened or least concern wildlife). | Post EIS | Nature Conservation (Wildlife Management) Regulation 2006 | DEHP | Not applicable |
| Species management program | For large impacts, particularly where potential breeding places of endangered, vulnerable, near threatened or least concern species, or essential habitat for these species, is involved, a Species Management Program will be required. | Post EIS | Nature Conservation (Wildlife Management) Regulation 2006 | DEHP | Imposed |
| Sales permit for quarry material and/or timber | A sales permit may be required for use of forest products or quarry material. | Post EIS | *Forestry Act 1959* (Qld) | DAF | Not applicable |
| Quarry material allocation notice | An allocation notice is required for the removal of quarry material in a watercourse or other State land. | Post EIS | Water Act, SP Act and SP Regulation | DNRM | Not applicable |
| Failure impact assessment | A Failure Impact Assessment must be undertaken prior to submission of the operational works application for a referrable dam. | Post EIS | *Water Supply (Safety and Reliability) Act 2008* (Qld) | DEWS | Not applicable |
| Disposal permit to remove and treat or dispose of contaminated soil from land on the Environmental Management Register or Contaminated Land Register | A disposal permit will be required if contaminated soil is to be removed from site. | Post EIS | *Environmental Protection Act 1994* (Qld) | DEHP | Not applicable |
| Road corridor permit | A road corridor permit to construct, maintain, operate or conduct ancillary works and encroachments on a state controlled road is required for the Project. | Post EIS | TI Act | DTMR / SARA | Recommended |

| Approval | Why it applies | When/how it applies | Relevant legislation | Approving authority | Conditions sought in Coordinator-General's report |
|---|---|---|---|---|---|
| Oversized load permit | For heavy machinery and oversized loads to be transported on the road network. | Ad hoc during construction | TI Act | Queensland Police Service | Not applicable |
| Approval for carrying out works on a road or interfering with a road or its operation | Road upgrade works to local government controlled roads for road upgrades and improvements. | Post EIS | *Local Government Act 2009* (Qld)<br>Local Law No. 1 (Administration) 2011 | Regional councils | Recommended |
| Flammable and combustible liquids licence | Storage of flammable and combustible liquids on site. | Post EIS | *Work Health and Safety Act 2011* (Qld) | Department of Justice and Attorney-General | Not applicable |
| Notification if hazardous chemicals in excess of manifest quantities or Major Hazard Facility | Storage of hazardous substances may exceed thresholds. | Post EIS | *Work Health and Safety Act 2011* (Qld) | Department of Justice and Attorney-General | Not applicable |
| Amendment to Fitzroy ROP 2004 | An amendment is required to include the operation of the Rookwood Weir and raised Eden Bann Weir. | Post EIS | Water Act | DNRM | Recommended |
| ROL | A ROL is required to authorise the interference with water necessary to operate the infrastructure.<br>An interim ROL may be required prior to the Fitzroy ROP 2004. | Post EIS | Water Act | DNRM | Recommended |
| Building works | Development application for building works requiring assessment against the *Building Act 1975* (Qld). | Post EIS | *Building Act 1975* (Qld) | Private certifier | Not applicable |

### 1.6.2 Objectives of the draft EIS

The EPBC Act is the Commonwealth's principle piece of environmental protection legislation. The objectives of the EPBC Act are:

- To provide for the protection of the environment, especially those aspects of the environment that are MNES
- To promote ecologically sustainable development through the conservation and ecologically sustainable use of natural resources
- To promote the conservation of biodiversity
- To promote a co-operative approach to the protection and management of the environment involving governments, the community, land-holders and Indigenous peoples
- To assist in the co-operative implementation of Australia's international environmental responsibilities
- To recognise the role of indigenous people in the conservation and ecologically sustainable use of Australia's biodiversity
- To promote the use of indigenous peoples' knowledge of biodiversity with the involvement of, and in co-operation with, the owners of the knowledge.

The purpose of the draft EIS is to address these objectives and ensure that all potential environmental, social and economic impacts of the Project are identified and assessed and that adverse impacts on the natural, built and social environment are avoided or mitigated. The management and mitigation measures determined through the environmental impact assessment process provide for the protection of the environment including MNES. The Project promotes ecologically sustainable development by conserving biological diversity while enhancing current community welfare and safeguarding the welfare of future generations (Section 1.7). Consultation with government, industry, local communities, Aboriginal parties and affected landholders has been ongoing and will continue to be undertaken to promote a co-operative approach to the protection and management of the environment.

The draft EIS covers all phases and possible staging of the Project and identifies and assesses the direct, indirect and cumulative impacts for the Project area. The draft EIS document provides information for the following persons and groups, as Project stakeholders:

- For interested bodies and persons: a basis for understanding the Project, feasible alternatives, affected environmental values, impacts that may occur and the measures to be taken to mitigate adverse impacts
- For directly affected persons: an outline of the effects of the Project
- For government agencies and referral bodies: a framework for decision-makers to assess the environmental aspects of the Project with respect to legislative and policy provisions, and based on that information; to make an informed decision on whether the Project should proceed or not and if so, subject to what conditions
- For the proponents: a mechanism by which the potential environmental impacts of the Project are identified and understood, including information to support the development of management measures, such as an environmental management plan, and to mitigate the effects of adverse environmental impacts of the development.

### 1.6.3 Methodology of the EIS

Environmental impact assessment (EIA) is an approach for assessing a proposed action (or project) and describing these in an EIS. The approach taken for this EIA was to identify and link the actions associated with the Project to the potential direct and indirect impacts, develop mitigation measures and then management strategies for residual impacts.

Environmental impacts may encompass both potential impacts and uncertain risks to the environment. Assessment of impacts involves a risk management approach to determine both the severity of the potential consequence and the likelihood of events occurring. Feasible approaches to manage the risk are then described and the reasons for selection of a preferred approach are clearly identified. Throughout the EIS, compliance with legislation, standards, policies and community acceptance is acknowledged and adhered to, to maximise environmental benefits and minimise risks.

Potential impacts can be both positive and negative and characteristics can vary in terms of the:

- Nature (positive/negative, direct/indirect)
- Magnitude (severe, high, moderate, low)
- Extent/location (area/volume covered, distribution)
- Timing (during construction, operation etc., immediate, delayed)
- Duration (short term/medium term/long term, intermittent/continuous)
- Reversibility/irreversibility
- Likelihood of occurrence (probability, uncertainty)
- Significance (local, regional, national, global).

The methods for predicting impacts vary according to the technologies and data available and include:

- A qualitative method. This is a professional judgement, based on professional experience with a particular environmental value in a specific region. It is acceptable where suitable professional experience and/or third party peer review can be obtained. Where residual impacts are not quantifiable, qualitative methods should be as detailed as reasonably practicable
- Use of quantitative mathematical models (e.g. CALPUFF, MODFLOW). Where the ability to utilise these models is limited due to technology and data availability, conservative assumptions as inputs to the models are utilised
- Experiments and physical models where suitable engineering design data is available
- Case studies as analogues or references. Virtually all assessment of baseline data includes a thorough literature search and review to identify case studies, available references and available information. These are commonly then supplemented by field collection of project specific data.

If a potential impact is identified, available management and mitigation measures are applied. If a residual impact exists after the application of these measures, the test for significant effects is then applied as follows:

- If there are any residual impacts, are these likely to be significant?
- If yes, are these significant impacts likely to occur?

Further information on the methodology for assessing impacts on MNES is provided in Chapter 6 including details of surveys undertaken.

Each Chapter of the report includes identification of the actions associated with the construction and/or operation of the Project for that technical discipline, and the environmental impact resulting from that action. Table 1-2 provides a summary of the structure of the draft EIS.

**Table 1-2 EIS structure**

| Volume 1 Part B of the ToR (focussing on State matters) | | Volume 2 – Part C of the ToR (focussing on MNES) | | Volume 3 – Appendices (support material) | |
|---|---|---|---|---|---|
| E | Executive summary | E | Executive summary | A | Final terms of reference |
| 1 | Introduction | 1 | Introduction | B | Terms of reference cross-reference |
| 2 | Project description | 2 | Project description | C | Glossary and abbreviations |
| 3 | Legislation and project approvals | 3 | Planning and approvals | D | Study team |
| 4 | Climate, natural hazards and climate change | 4 | Consultation | E | Proponents' environmental policies |
| 5 | Land | 5 | Alternatives to the Project | F | Consultation report |
| 6 | Flora | 6 | Methodology | G | Land - detailed mapping |
| 7 | Aquatic ecology | 7 | Existing environment | H | An assessment of the potential implications on native vegetation and terrestrial ecosystems (Nangura 2007) |
| 8 | Terrestrial fauna | 8 | General impacts | I | Flora - detailed mapping |
| 9 | Surface water resources | 9 | World Heritage properties and National Heritage places | J | Eden Bann Weir baseline aquatic ecology report |
| 10 | Groundwater resources | 10 | Threatened species and ecological communities | K | Rookwood Weir baseline aquatic ecology report |
| 11 | Water quality | 11 | Migratory and marine species | L | Fitzroy River turtle (*Rheodytes leukops*) technical report |
| 12 | Air quality | 12 | Cumulative and consequential impacts | M | Fitzroy River turtle (*Rheodytes leukops*) species management program |
| 13 | Greenhouse gas emissions | 13 | Environmental Management System | N | Eden Bann Weir baseline terrestrial fauna report |
| 14 | Noise and vibration | 14 | Offsets | O | Rookwood Weir baseline terrestrial fauna report |
| 15 | Waste | 15 | Conclusion | P | Surface water resources supporting material |
| 16 | Transport | 16 | Information sources and reference list | Q | Traffic and transport supporting material |
| 17 | Cultural heritage | | | R | Social impact assessment report |

| Volume 1 Part B of the ToR (focussing on State matters) | | Volume 2 – Part C of the ToR (focussing on MNES) | Volume 3 – Appendices (support material) | |
|---|---|---|---|---|
| 18 | Social impact | | S | Economic assessment report (Commercial in confidence) |
| 19 | Economics | | T | Counter-terrorism and critical infrastructure protection reports (Commercial in confidence) |
| 20 | Hazard and risk | | U | EPBC Protected Matters Search Tool Results |
| 21 | Cumulative impacts | | V | IQQM yield assessment (Commercial in confidence) |
| 22 | Offsets | | | |
| 23 | Environmental Management Plan | | | |
| 24 | Project commitments | | | |
| 25 | Conclusions and recommendations | | | |

### 1.6.4 Submissions

Any person, group or organisation can make a submission about the draft EIS to the Office of the Coordinator-General. Any submissions which are properly made submissions must be accepted by the Coordinator-General and considered in evaluating the draft EIS.

Under section 24 of the SDPWO Act a properly made submissions must:

- Be made in writing
- Be received on or before the last day of the submission period
- Be signed by each person who makes the submission
- State the name and address of each person who makes the submission
- State the grounds of the submission and the facts and circumstances relied on in support of those grounds.

A person wishing to make a submission about the draft EIS should also:

- Clearly state the matter(s) of concern or interest and list points to help with clarity
- Reference the relevant section(s) of the draft EIS
- Ensure the submission is legible.

The Coordinator-General may also accept submissions which are not properly made. However, only properly made submissions will trigger rights to appeal against a decision about a development application for the project under the SP Act. Any submission accepted by the Coordinator-General may be amended by written notice given to the Coordinator-General during the submission period, or may be withdrawn at any time before a decision is made about the EIS.

Any submissions regarding this draft EIS should be addressed to:

The Coordinator-General

EIS Project Manager – Lower Fitzroy River Infrastructure Project

Coordinated Project Delivery

Office of the Coordinator-General Box 15517

City East QLD 4002

Tel: (07) 3452 7458 Fax: (07) 3452 7486

Email: LowerFitzroy.InfrastructureProject@coordinatorgeneral.qld.gov.au

Website: www.statedevelopment.qld.gov.au/lower-fitzroy

The Coordinator-General will consider public submissions in making decisions in relation to the Project and coordinate a consultation process between the proponents and other regulatory agencies that may assess aspects or provide specific technical inputs. All submissions from the public and other regulatory agencies will be collated and provided to the proponents for review and response. The proponents may then be required to prepare additional information to address the comments submitted by the Advisory Bodies and the public.

## 1.7 National Strategy for Ecologically Sustainable Development

The National Strategy for Ecologically Sustainable Development (NSESD) (Commonwealth of Australia 1992) defines ecologically sustainable development (ESD) as 'using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased'. Put more simply, ESD is development which aims to meet the needs of Australians today, while conserving our ecosystems for the benefit of future generations.

The NSESD recognises that to do this, we need to take a long term view and develop ways of using environmental resources which form the basis of our economy in a way which maintains and, where possible, improves their range, variety and quality. At the same utilising those resources to develop industry and generate employment (Commonwealth of Australia 1992).

The NSESD is a broad strategic and policy framework under which the Commonwealth and State governments will cooperatively make decisions and take actions to pursue ESD in Australia. It is used by governments to guide policy and decision making, particularly in those key industry sectors which rely on the utilisation of natural resources.

The three core objects of ESD, as outlined by the NSESD, are:

- To enhance individual and community well-being and welfare by following a path of economic development that safeguards the welfare of future generations
- To provide for equity within and between generations
- To protect biological diversity and maintain essential ecological processes and life-support systems.

The guiding principles are:

- Decision making processes should effectively integrate both long and short-term economic, environmental, social and equity considerations

- Where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation
- The global dimension of environmental impacts of actions and policies should be recognised and considered
- The need to develop a strong, growing and diversified economy which can enhance the capacity for environmental protection should be recognised
- The need to maintain and enhance international competitiveness in an environmentally sound manner should be recognised
- Cost effective and flexible policy instruments should be adopted, such as improved valuation, pricing and incentive mechanisms
- Decisions and actions should provide for broad community involvement on issues which affect them.

These guiding principles and core objectives need to be considered as a package. No objective or principle should predominate over the others. A balanced approach is required that takes into account all these objectives and principles to pursue the goal of ESD.

A comparative analysis of the Project against the core objectives and guiding principles of ESD is provided in Table 1-3.

**Table 1-3 Comparative analysis of the NSED core objectives**

| Core objective or guiding principle | Project analysis |
|---|---|
| To enhance individual and community well-being and welfare by following a path of economic development that safeguards the welfare of future generations | The Central Queensland Regional Water Supply Strategy (CQRWSS) (DNRW 2006) identified that the short to medium term urban and industrial needs of the Lower Mackenzie-Fitzroy sub-region that cannot be met by trading and/or efficiency measures are expected to be met by the raising of Eden Bann Weir and/or construction of a weir at Rookwood on the Fitzroy River in Central Queensland.<br>As such, the Project will both enhance current community welfare and safeguard the welfare of future generations through the provision of long term water supply primarily for urban populations and industry in Rockhampton, Gladstone and Capricorn Coast regions. |
| To provide for equity within and between generations | The Project will provide for equity within and between generations through the enduring nature of the infrastructure.<br>Current generations will initially benefit from the Project through an increase in water supply.<br>The permanency of the infrastructure will ensure that the weirs remain long into the future and continue to provide water supply for coming generations.<br>The infrastructure has been designed and planned considering environmental and socio-economic protection for future generations, as shown through the management and mitigation measures provided in this EIS. These measures will facilitate that the development of the Project will not reduce or degrade the health, diversity and productivity of the environment or adversely affect current and future generations. |

| Core objective or guiding principle | Project analysis |
|---|---|
| To protect biological diversity and maintain essential ecological processes and life-support systems | Flora and fauna assessments have been undertaken for the Project to determine the biodiversity values and important ecological processes occurring within the existing environment. The assessments allowed for the identification and analysis of potential impacts on local flora and fauna values that may occur as a result of the Projects construction and/or operation.<br><br>These assessments have been used as part of the planning and development of the Project, including the formulation of a Project environmental management plan (EMP) (Chapter 13 EMS). The draft EMP identifies management and mitigation measures to protect biological diversity during the construction and operation phases of the Project. Where significant residual impacts have been identified offsets are proposed (Chapter 14 Offsets)<br><br>In conjunction with the EMP, environmental flows will be maintained though water releases from the weirs. This will maintain river health. The Project will also include turtle and fish passage infrastructure to allow for the continued migration of these species up and down the river (Chapter 2 Project description).<br><br>Management and mitigation measures and proposed offsets have been developed with reference to approved conservation advice for impacted species or ecological communities. |
| Decision making processes should effectively integrate both long and short-term economic, environmental, social and equity considerations | The Project was identified in the CQRWSS to help meet future demand for water primarily for urban populations and industry and the Rockhampton, Gladstone and Capricorn Coast regions.<br><br>Detailed investigations and assessments have been undertaken as part of the EIS to enable the Proponents and stakeholders to make a sound decision that considers both the short and long term economic, environmental, social and equity impacts resulting from the Project. |
| Where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation | Investigations and assessments have been undertaken to inform the development of a draft EMP such that practicable and feasible mitigation and management are applied to adverse Project impacts. Where significant residual impacts have been identified offsets are proposed. Specifically, offsets are proposed for the Fitzroy River turtle (*Rheodytes leukops*), black ironbox (*Eucalyptus raveretiana*), and Brigalow (*Acacia harpophylla* dominant and co-dominant) threatened ecological community (Chapter 14 Offsets). |
| The global dimension of environmental impacts of actions and policies should be recognised and considered | Predicted increased temperatures, increased evaporation and reduced rainfall as a result of climate change will impact on catchment yields. Staging the development of the Project will allow the Project to respond to actual demand over time taking into account climate variation, economic considerations and Government policy, planning instruments and guidelines based on circumstances at the time. Water storages are likely to become more important for the purpose of water supply, mitigating drought and for maintaining environment flows as climate change impacts are realised.<br><br>The Project will not have any direct impacts on the Great Barrier Reef World Heritage Area (GBRWHA), approximately 150 km downstream of the Project. Further, with the recommended management and mitigation in place no significant indirect impacts are predicted to the GBRWHA as a result of the Project (Chapter 9 World Heritage properties and National Heritage places). |

| Core objective or guiding principle | Project analysis |
|---|---|
| The need to develop a strong, growing and diversified economy which can enhance the capacity for environmental protection should be recognised | The most significant benefit of the Project will be the increase in availability and reliability of water. The Project will facilitate and enable development in the region, thus benefiting the regional, state and national economies. |
| The need to maintain and enhance international competitiveness in an environmentally sound manner should be recognised | |
| Cost effective and flexible policy instruments should be adopted, such as improved valuation, pricing and incentive mechanisms | |
| Decisions and actions should provide for broad community involvement on issues which affect them | Public consultation is being undertaken as part of the Project EIS (Appendix F). |

A key concept of ESD is the precautionary principle which states 'that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation'.

The analysis of the core objectives and principles of ESD in demonstrates the Proponent's commitment to incorporate sustainability considerations throughout design, construction, operation and decommissioning of the Project. In conclusion, this EIS demonstrates that an iterative planning approach has been taken to the design and development of the Project, effectively integrating both environmental and social considerations into decision making for the Project and supporting the objectives of ESD.