Prepared by:

SunWater

120 Edward Street, Brisbane
PO Box 15536 City East
Brisbane Queensland Australia 4002

Tel: +61 7 3120 0153
Fax: +61 7 3120 0242
www.sunwater.com.au

Author:

Mr Sean Fleming
Project Manager

Reviewer:

Ms Sally Frazer
Corporate Counsel

Approved:

Mr Mark Browne
General Manager

Report

Connors River Dam And Pipelines

Initial Advice Statement

Date: February 2008
Ref: P-AEXP-0803-BA-01
AS0208

Prepared for:
Department of Infrastructure & Planning

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

LIST OF ABBREVIATIONS

AHD	Australian height datum
AMTD	Adopted middle thread distance
CID	Community infrastructure designation
CG	Coordinator-General
CQRWSS	Central Queensland Regional Water Supply Strategy
DEWHA	Department of the Environment, Water, Heritage and the Arts (Australian Government)
DIP	Department of Infrastructure and Planning (Qld)
EIS	Environmental impact statement
EMP	Environmental management plan
EPA	Environmental Protection Agency (Qld)
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
FSL	Full supply level
IAS	Initial advice statement
IDAS	Integrated Development Assessment System
IPA	*Integrated Planning Act 1997*
LGA	Local government area
NRW	Department of Natural Resources and Water (Qld)
ROP	Resource operations plan
SDPWO Act	*State Development and Public Works Organisation Act 1971*
ToR	Terms of reference
VMA	*Vegetation Management Act 1999*
WRP	Water resource plan

1.0 EXECUTIVE SUMMARY

This initial advice statement (IAS) has been prepared to assist the Coordinator-General (CG) in the decision making process on the declaration of the proposed Connors River Dam and Pipelines (the Project) as a 'significant project' under s.26 of the *State Development and Public Works Organisation Act 1971* (SDPWO Act). Should the CG declare the Project a 'significant project' then this IAS will be considered by the CG when preparing draft Terms of Reference (ToR) for the Environmental Impact Statement (EIS). In addition the IAS will assist stakeholders to determine the nature and level of their interest in the Project.

1.1 THE PROJECT

The Project, located on the Connors River at 95.7 km Adopted Middle Thread Distance (AMTD) in Central Queensland, is approximately 110 km due east of Moranbah and some 70 km south of Sarina. Three indicative storage capacity options of 150,000ML, 200,000ML and 336,000ML are being considered as part of this Project. The relative Full Supply Levels (FSLs) for these storages are 163.9m, 165.4m and 168.4m approximately. A yield of 30,000ML per annum would likely require a water storage capacity of 150,000ML to 200,000ML. The relationship between yield and storage area will be evaluated during the EIS process and may differ from that noted here.

1.2 THE PROPONENT

SunWater has been appointed by the Queensland Government as the Proponent to undertake feasibility investigations to the business case stage.

1.3 PROJECT JUSTIFICATION

The Central Queensland Regional Water Supply Strategy (CQRWSS) concluded that a sizeable additional supply would be required – particularly for mining and urban needs, in the Isaac-Connors sub-region. The preferred strategy for the satisfaction of this demand is the Project including associated pipeline(s)

1.4 ENVIRONMENTAL IMPACTS AND MANAGEMENT

The main direct impacts from the Project arise from the following activities: land clearing; drilling; site preparation: quarrying and excavation of materials: transporting people and materials to, from and within the site, and activities within the watercourse and other areas of inundation.

As a result of these activities, the IAS has highlighted the following potential impacts:

- Water made available from the Project may service mining, industrial, urban and possibly irrigation demands. This would provide the capacity to accommodate new development opportunities, enhance existing development and provide the impetus for filling positions with workers and businesses from the area;
- Those directly affected by inundation and the process of land acquisition will be adversely affected and changes will occur to the social environment of the local and regional community;
- Grazing and good quality agricultural land will be inundated;
- Two secondary rural roads are likely to require realignment over several kilometres (Collaroy-Tierawoomba Road and Killarney-Collaroy Road). Very little other infrastructure is expected to be impacted;
- Temporary infrastructure will be required during the construction phase (some of which will be retained for operation and monitoring requirements);
- The new environment offered by the storage will favour some animals and communities and disadvantage others. This will include some protected species;
- The Project is expected to provide at least 150 people with work at the site during peak activity; there will be employment opportunities for the regional community and the offsite employment will be considerable;

- Noise impacts are anticipated to be minimal, due to the isolated nature of the site and taking into account the use of appropriate controls;
- Air quality impacts will primarily relate to dust generated during clearing and construction. The use of water for dust suppression is expected to minimise such impacts:
- Hazardous materials and waste will be controlled by adherence to relevant guidelines and legislation and are not anticipated to cause significant impacts;
- The potential impact of construction traffic upon the local road network will be assessed in the EIS and mitigation measures developed as appropriate;
- Considerable expenditure will occur in the local region. Long term impacts will be partially dependent on the extent of projects expanding or developing in the region as at least a partial consequence of the available water, and
- Expansion of mining operations is likely to make a major contribution to the local and State economies.

Community and stakeholder consultation will be conducted during the EIS process and a Consultation and Community Involvement Plan will be developed by the Proponent.

Management of water quality will be based on best practice guidelines and monitoring will be undertaken during construction and operation. Temporary erosion and water quality protection measures will be required to prevent release of contaminants into the Connors River.

An environmental management plan (EMP) will be prepared to guide the management of the construction and operation of the Project in an environmentally acceptable manner. Monitoring and reporting will lead to corrective actions being quickly taken if and when necessary and ensure that the objectives of the EMP are met. An environmental summary report will be released annually and incidents will be reported as required by legislation

2.0 INTRODUCTION

2.1 BACKGROUND

In 2006, the Department of Natural Resources and Water (NRW) released the Central Queensland Regional Water Supply Strategy (CQRWSS). This was largely based on a range of technical reviews and studies reported in the Central Queensland Regional Water Supply Study (NRW 2005). The CQRWSS examined the adequacy of current water supplies to meet existing and future demands in each of the six sub-regions contained within the Fitzroy River Basin and the coastal streams of the nearby Capricorn Coast and Gladstone region. The northern-most sub-region is the Isaac-Connors where water usage is dominated by the coal mining industry. The CQRWSS concluded that a sizeable additional supply would be required, particularly for mining and urban needs in this sub-region. The preferred strategy for the satisfaction of this demand is the construction of the Connors River Dam ("the Dam") at the Mt Bridget site along with associated pipeline(s) (which together constitute "the Project").

Also in 2006, the Queensland Government released its Statewide Water Policy, which outlined a plan to improve water security and support future economic growth in regional Queensland. The policy supports a $451 million investment in regional water infrastructure which aims to meet the needs of urban and rural users as well as:

- enable the development of Bowen as a major industrial centre of the future;
- provide additional water to the rapidly growing coalfield and coal mining communities in the Bowen Basin;
- drought-proof coastal communities to ensure the viability of valuable tourism and manufacturing industries;
- provide secure water supplies to the Surat Basin to open up the vast thermal coal reserves for mining and stimulate the rural economy; and
- provide secure water supplies for industrial and urban users in Central Queensland.

To achieve these aims the Queensland Regional Water Infrastructure Program was released in 2007. The program was based on 12 major water infrastructure projects in central and northern

Queensland. As part of the program the government committed $56.5M to progress the Dam and $60M for associated pipelines.

The proponent's final decision on whether to proceed with the Project will be based on the outcomes of a full business case assessment, including demand estimates, commercial viability, environmental approvals and the conditions of those approvals. Given the timeframes within which water supply enhancements are required, the environmental approvals process will be conducted in parallel with the refinement of other components of the business case. As such, robust estimates of demand levels and location, the means of transporting water to demand points and the end uses of the water will progress in line with the various environmental studies. Development of the business case and the Environmental Impact Statement (EIS) are complementary processes in that each component will take into account the outputs of the other in decision-making. The definition of the Project included in the submitted EIS will consequently be more precise than that included here.

2.2 THE PROPONENT

SunWater has been appointed by the Queensland Government as the Project Proponent for the Business Case.

The Proponent owns and operates the Queensland Government's bulk water supply and distribution infrastructure located throughout regional Queensland. The Proponent supplies approximately 40% of the water used commercially in Queensland via 27 water supply schemes. Water supply customers number over 6,000 and include irrigators, water boards, local governments, power stations and mining, industrial and manufacturing companies.

SunWater specialises in the investigation, design, construction, operation and maintenance of water infrastructure, as well as supply of water to rural, urban and industrial customers. It has extensive experience in water supply development, and has the support systems in place to enable it to effectively implement the Project and ensure compliance with relevant legislation, including certified quality, environmental and workplace health and safety management systems.

Contact details for the Proponent are:

Project Manager
Connors River Dam and Pipelines Project
SunWater
Level 9, 120 Edward Street
PO Box 15536
City East Qld 4002
Phone +61 7 3120 0200
Fax +61 7 3120 0242

SunWater's Environmental Policy is shown on the following page.

SunWater is also the Proponent for other water resource projects in the region nominated in the Queensland Regional Water Infrastructure Program, specifically Nathan Dam, Rookwood Weir and the raising of Eden Bann Weir.

2.3 PURPOSE AND SCOPE OF THE IAS

This Initial Advice Statement (IAS) relates to the construction and operational impacts of the Project and has been prepared to:

- assist the Coordinator-General (CG) in the decision making process on a declaration of the Project as a 'significant project' under s.26 of the *State Development and Public Works Organisation Act 1971 (*SDPWO Act);
- assist the CG to prepare draft Terms of Reference (ToR) for the Project's EIS; and
- enable stakeholders to determine the nature and level of their interest in the Project.

SunWater

Environmental Policy

SunWater is Queensland's major bulk water supplier and provides water supply services throughout Australia.

Our aim is to achieve a high standard of care for the natural environment in all of the activities in which we engage, including the storage of water, delivery and management of water services, investigation planning and design of new infrastructure, management of existing infrastructure, the provision of technical services, and at all times we will seek to optimise environmental outcomes.

Our Vision is to be a water service provider of excellence, performing in an environmentally sustainable manner, with due regard to community values and heritage and to be recognised as such by our customers, the community and other stakeholders.

Through the implementation of the SunWater Environmental Management System we will:

- Apply best industry practice in the management of water resources;
- Clearly allocate responsibilities for environmental performance at all levels within SunWater;
- Provide sufficient financial and human resources to meet environmental objectives and training needs;
- Seek continuous improvement in environmental performance;
- Apply research and development and cleaner production principles and where practical use environmentally sustainable products and services;
- Communicate with our customers and the community about environmental matters;
- Report annually on our environmental performance;
- Identify opportunities to support industry initiatives related to the sustainable use of water resources; and
- Comply with all relevant environmental legislation, regulation, licences, permits, approvals and authorities.

..... Date: .....

Peter Noonan
Chief Executive

EMS 1 P1 Rev: 2 Issue Date: May 2005

2.4 APPROVALS PROCESS AND RELEVANT LEGISLATION

It is expected that the Project will receive 'significant project' status under Section 26 of the *State Development and Public Works Organisation Act 1971,* centralising coordination of the environmental assessment process.

2.4.1 Commonwealth Approvals

Environment Protection and Biodiversity Conservation (EPBC) Act 1999

The Project will be referred to the Australian Government Department of the Environment, Water, Heritage and the Arts (DEWHA). It is expected that the Project will be a 'controlled action' under the EPBC Act. This would require assessment of the Project impacts on matters of national environmental significance (MNES) by the Commonwealth Minister for the Environment, Heritage and the Arts

Through a bilateral agreement between the Commonwealth and the State of Queensland it is accepted that the EIS process of the SDPWO Act (below) provides sufficient information for the Minister to reach an informed decision about the impacts of a project on MNES.

2.4.2 State Approvals

State Development and Public Works Organisation Act 1971

This IAS has been prepared to assist the CG in the decision-making process on the declaration of the proposed Connors River Dam and Pipelines as a 'significant project' under s.26 of the SDPWO Act. Should 'significant project' status be given, the IAS will be considered by the CG when preparing Draft ToR for the EIS. This process allows central coordination of the assessment process.

2.4.3 Other Approval Requirements

The construction and operation of the dam will require a number of statutory planning and environmental approvals. The information presented in Appendix 1 provides an overview of the key legislation that needs to be considered for the approval process. Other requirements will be identified as the Project progresses, and hence the table in Appendix 1 should not be considered

as exclusive. Further requirement for approvals and permits will be assessed continuously through the EIS and approvals process.

Feasibility investigations for the Regional Water Infrastructure Projects are being overseen by the Water Infrastructure Project Board through a 'Program of Works' for the projects approved under Section 17 of the *State Development and Public Works Organisation Act 1971*.

The "Program of Works" includes a list of the investigation "works" to be undertaken by the project proponents. These works include all necessary studies and investigations up to securing approvals and development of a business case for each project. The "Program of Works" also specifies the proponents for each project, timeframes for delivery, reporting requirements and budgetary allocations.

3.0 THE PROPOSAL

3.1 LOCATION

The Project is located in Central Queensland on the Connors River at 95.7 km AMTD, some 5 km downstream of the junction of Murray and Collaroy Creeks. The site is approximately 274 km upstream of the junction with the Fitzroy River and 562 km from the Fitzroy River barrage, the upstream limit of tidal intrusion. The system drains the western slopes of the Connors Range, which is part of the mountain range that separates the area from the coastal plains around Sarina. The Project is approximately 110 km due east of Moranbah and some 70 km south of Sarina. A regional locality plan is shown in Figure 1 and the extent of inundation is shown in Figure 2.

Three indicative storage capacity options of 150,000 ML, 200,000 ML and 336,000 ML are being considered by the Proponent. The relative Full Supply Levels (FSLs) for these storages are 163.9 m, 165.4m and 168.4 m approximately. A yield of 30,000ML per annum would likely require a water storage capacity of 150,000ML to 200,000ML. The proposed dam axis is in close proximity to the present DNR gauging station (GS 130403A) for which records are available from December 1965 to the present. The gauging station commands a catchment of approximately 1,320 km^2. The relationship between yield and storage area will be evaluated during the EIS process and may differ from that noted here.

Many of the potential beneficiaries of the water from the Project are not located downstream of the proposed impoundment area, and subsequently one or more pipelines will need to be constructed to deliver water to end users – notably the mining community to the west of the dam. The Proponent has been conducting demand surveys within the Isaac-Connors sub-catchment area to determine the likely pipeline routes. This will allow consideration in the EIS of the options for delivering water to the end users.

Figure 1: Regional location plan.

Figure 2: Extent of inundation.

3.2 PROJECT JUSTIFICATION

The CQRWSS (NRW, 2006) noted that the Isaac – Connors region was currently supplied by two small dams in the upper Isaac catchment (Burton Gorge and Teviot Creek), the Bowen Broken Water Supply Scheme which transports water from the Burdekin catchment (Eungella Dam), Bingengang Weir on the Mackenzie River and from the Braeside Borefield. The volume of water used from these systems in 2003-4 was 15,500 ML. The water serviced primarily coal mining and the small urban centres that support the mines. There are no major urban or agricultural water supply schemes in the sub-region and little unsupplemented water is diverted for agricultural use.

The recent drought has demonstrated that the supply performance of some of these schemes is well below that required. A supply shortfall of 6,500 ML of high priority water was identified in documents supporting the strategy, based on 2004-5 data, so the strategy carried the caveat "*recent information suggests that there has been considerable growth in short and medium term demands in the area*." The development of the Gattonvale Offstream Storage in the Broken River catchment (commissioned by SunWater in late 2005) and construction of Stage 1 of the Burdekin to Moranbah pipeline (operational from August 2007) has improved system performance, providing an increased reliability of yield from the system. Additional yield from these works is fully committed to mining foundation customers.

The Proponent is in the process of conducting water demand surveys with major mining companies in the Bowen Basin to update the demand projections and determine the likely routes of the pipeline(s) required to deliver water from the Project. Preliminary results of this survey indicate that at the time of the programmed commissioning of the dam (i.e. 2013), these mining companies would require an additional 16,000 ML/a of high priority water. The rapid increase compared to the figures quoted above is due to the continued demand for coal from overseas. The Project would be unable to satisfy demands prior to 2013; the majority of such demands will be serviced by the operation of the Burdekin to Moranbah pipeline.

The CQRWSS identified a long term demand of up to 26,000 ML/a of medium priority (agricultural) water. This demand could be met by release of unallocated unsupplemented water by grant of licence. This is provided for under the Fitzroy Basin WRP. While there is a

significant area of land suited for irrigation in the region downstream of the Project, a market based demand to develop the land has not yet been identified.

A more detailed analysis of future irrigation demand will be required before any decisions regarding the provision of irrigation allocations can be made. It is anticipated that the yield from the Project would be in high demand for urban and industrial, primarily mining related, use, hence the high value of the water would prohibit most agricultural use. In accordance with the hierarchy of water use under the National Water Initiative, the highest and best use of water should be achieved.

3.3 PROJECT ALTERNATIVES

The CQRWSS adopted a hierarchy of three key principles:

- Facilitating the highest value and best use of water through trading of existing secure and well specified water entitlements.
- Promoting efficient use of water. For example, by improving demand management and by recycling water.
- Where demands cannot be met through the above measures, and where unallocated water is available, by the development of additional water supply sources.

The existing WRP and ROP facilitate the water trading process.

The report noted potential efficiency savings in the Lower Fitzroy of up to 19% of current rural and urban use. Research in the mining sector under the Coal Association Research Program identified a number of potential areas of savings along with a range of alternative means of supply and re-use.

The potential for gains was assessed as insufficient to cater for future growth. The CQRWSS Study Report (2005) presents a detailed assessment of the existing water supplies and the options that have been considered for fulfilling future water supply requirements in the Isaac-Connors sub-catchment.

At the time of writing this IAS, the Queensland Government had placed a moratorium on the sub-artesian water contained in the alluvial aquifers of the Isaac-Connors catchment, as the prolonged drought and record low levels in some aquifers had raised concerns that the groundwater resource may be at risk of being over committed. The groundwater resource is currently the subject of a draft amendment to the WRP, which will facilitate public consultation on the future use of the resource and allow the execution of technical assessments of environmental, hydrologic, economic and social factors to support the planning process prior to the inclusion of the Isaac-Connors groundwater into the WRP.

The CQRWSS Study Report (2005) identified seven potential surface water source options and associated distribution pipelines:

- Connors River Dam (Mt Bridget site) at AMTD 95.7 km
- Spencer Dam on Denison Creek at AMTD 33.5 km
- Waitara Dam on Funnel Creek at AMTD 69.7 km
- Poitrel Dam on the Isaac River at AMTD 206.8 km
- Nebo Creek Dam on Nebo Creek at AMTD 40.2 km
- Bee Creek Dam on Bee Creek at AMTD 66 km
- Prospect Creek Dam on Prospect Creek.

Section 8.8 of the CQRWSS Study Report (2005) presents the results of a detailed assessment of the viability of available supply options. The report presents the following conclusion from a two stage assessment process:

"On balance, the Connors River storage options were considered to be the best strategic long-term options to meet the future water needs of the sub-region."

Hence, the preferred medium to long term option for the Isaac-Connors sub region was a dam on the Connors River at the Mt Bridget site, supplying approximately 30,000 ML/a of high priority water . The strategy further identified that part of the supply could be made available to meet agricultural demands downstream, subject to satisfactory water pricing arrangements.

3.4 PROPOSED PROJECT TIMEFRAMES

Below is the preliminary timeline for completion of the major components of the Project, assuming its designation as a 'significant project' under the SDPWO Act:

- Concept design – early 2008
- Preliminary design – mid 2009
- Environmental impact statement – mid/late 2009
- Water resource planning approvals – early 2010
- Business case – mid 2010
- Detailed design – early 2011
- Construction – 2011-2013
- Commissioning – early/mid 2013.

3.5 ELEMENTS OF THE PROJECT

3.5.1 The Storage

Conceptual designs have been produced for 150,000ML, 200,000ML and 336,000ML storages. Table 1 presents characteristics of the various dam size options. These will be refined during preliminary design so may alter.

Table 1: Dam Characteristics

Dam Storage Volume	**150,000ML**	**200,000ML**	**336,000ML**
FSL (m AHD)	163.9	165.4	168.4
Length of embankment (m)	550	555	560
Theoretical Yield (ML/annum)	31,300	37,820	56,400
Area inundated (ha)	3,000	3,700	5,400
Depth at wall (m)	22	24	26
Average depth (m)	5.0	5.4	6.2
Length of river / stream inundated (m)	44,712	48,797	58,478
Properties affected (approx)	6	6	7
Length of public road affected (km)	8.5	10.7	17.4
Cost ($)	Conceptual Estimate of 195M to 210M		
Note: These cost estimates preclude any estimate of business case development cost, infrastructure relocation costs or any cost associated with pipelines required to transport water to areas of demand.			

3.5.2 The Dam Wall

A SunWater Feasibility Report (2003) considered construction of the Project by three construction methods, namely a central earth core rockfill dam (CECRD), a concrete faced rockfill dam (CFRD) and a roller compacted concrete dam (RCC). Conceptual design assessments (SunWater 2003) indicate that an RCC dam would be the most likely suitable construction type. Consequently an RCC dam has been adopted for all dam arrangements and cost estimates presented in this document.

The dam type would be reconsidered during the preliminary design and EIS phases when:

- The geological model for the site can be better defined following geotechnical investigations;
- Potential material sources are better understood following geotechnical investigations;
- Social, environmental and economic considerations are better understood; and
- Design floods have been refined and modelled.

The location of quarries is not yet known. Assessments of geological features within close proximity to the proposed Dam axis will be investigated as a source of materials for construction. It is anticipated that some construction materials will be trucked to site from Mackay.

3.5.3 Fishways and Outlet Works

If required, the dam will incorporate a fishway to enable upstream and downstream fish migration. As the dam is high in the catchment, the type of device required will depend very much on the needs of the species present. The proponent will work with the Department of Primary Industries and Fisheries (DPI&F), and other relevant government agencies and stakeholders to develop appropriate fishway arrangements with respect to the requirements of local fish species. Advice will be sought from experts as necessary.

Strategies may also need to be developed for protection of turtle species including minimising the impact of design elements and providing for movement if required.

Outlet works on the dam will be designed to enable downstream releases to be made in compliance with the requirements of the Fitzroy Basin Resource Operations Plan (ROP). A suitable offtake will be constructed to enable water of appropriate quality for the downstream environment to be released from the dam.

3.5.4 Water Reticulation

Should the Project proceed, the delivery of the majority of the water to demand nodes will be by pipe. In the case of the mining community, this will result in the construction of a pipeline somewhere in the order of 150 km in length to the west of the storage. Conceptual planning shows this pipeline may be able to be accommodated primarily within existing easements however route selection is not yet complete. Servicing the needs of the areas east of the Dam would require an additional eastern pipeline over the Connors Range. Route selection for any pipelines would be incorporated within the EIS process for the Project.

Water for downstream users would be released from the Dam to existing weirs.

4.0 EXISTING ENVIRONMENT

4.1 BUILT ENVIRONMENT

Within the proposed inundation area are a number of rural homesteads, sheds, local roads, bridges, farm roads, fences, yards and watering points. One four hectare leased site near Collaroy has been identified as possibly being a telecommunications location. A further similar sized site north of the telecommunications site has been identified as a Reserve. Both identified sites appear to occur within the inundation area.

The extent of the impact of the storage on this infrastructure will depend on the final FSL and flood inundation levels which will be determined through flood hydrology studies.

As there are no significant towns in the vicinity, it is likely that a construction camp will be required on or near the site.

4.2 LAND TENURE AND OWNERSHIP

The impact area would likely affect six landholders. Four properties would be severely impacted, with no access available and the remaining land not considered viable (Figures 3 and 4).

If the Project proceeds, all land subject to inundation will need to be purchased. In some instances this may involve the purchase of whole properties. Crown land associated with the beds and banks of the Connors River would also be affected as well as land associated with the Collaroy Killarney Road. No inundation impact to National or State parks or reserves has been identified for the dam arrangement and inundation area.

4.3 NATURAL ENVIRONMENT

The Queensland EPA Environmental Management Register (EMR) and Contaminated Lands Register (CLR) has been searched to determine the existence of any known contamination issues or any record of Notifiable Activities having been conducted on any of the properties within the 200,000 ML storage inundation area. No properties were identified on either register.

Figure 3: Photo image base.

Figure 4: Land Tenure.

The potential for historic land contamination from farming practices exists despite the lack of register listings.

Hyder (1999) describes the proposed impoundment area as being predominantly cleared of forest vegetation. The majority of remnant vegetation in the study area is listed as Of concern or Not of concern under the state *Vegetation Management Act 1999* (VMA, Table 2 and Figure 5). Riparian vegetation lines the majority of existing watercourses.

Table 2: Regional Ecosystems Mapped for the Study Area (EPA 2005)

RE Code	RE Description (EPA 2005)	VMA
11.3.4	*Eucalyptus tereticornis* and/or *Eucalyptus spp.* tall woodland on alluvial plains	Of concern
11.3.9	*Eucalyptus platyphylla, Corymbia spp.* woodland on alluvial plains	Not of concern
11.3.25/b	*Eucalyptus tereticornis* or *E. camaldulensis* woodland fringing drainage lines (b) *Melaleuca leucadendra* and/or *M. fluviatilis, Nauclea orientalis* open forest	Not of concern
11.12.1a	*Eucalyptus crebra* ± *E. exserta* woodland. Occurs on undulating rises.	Not of concern
11.12.4	Semi-evergreen vine thicket and microphyll vine forest on igneous rocks	Not of concern
11.12.3	*Eucalyptus crebra, E. tereticornis, Angophora leiocarpa* woodland on igneous rocks especially granite	Not of concern
11.12.2	*Eucalyptus melanophloia* woodland on igneous rocks	Not of concern
11.12.6a	*Eucalyptus crebra* + *Corymbia citriodora* and/or *E. acmenoides* + *Lophostemon suaveolens* woodland to open-forest.	Not of concern

The EPBC Act database of national environmental significance was searched and the results are shown in Table 3. It should be noted that the Great Barrier Reef World Heritage Area (GBR), which is also listed as a National Heritage Place, was not included in the report but SunWater acknowledges that the Fitzroy River discharges to the GBR lagoon. No commonwealth lands, heritage places, reserves, critical habitats or places on the Register of the National Estate, were reported. An additional five species listed under the Queensland *Nature Conservation Act 1992* (NC Act) were also identified (also shown in Table 3). Field studies will be undertaken in accordance with standard field survey procedures and will target investigation of the presence of endangered, vulnerable or rare (EVR) species or suitable habitat.

Figure 5: EPA Regional ecosystems.

If not specifically encountered, the reports will assess the likelihood of the presence of EVR species and the potential impacts of the Project on these and on natural communities and native species in general. Impact mitigation and management strategies will be developed aimed at maintaining the diversity of natural flora and fauna in the area. The needs of migratory fish species found to be present will be assessed in relation to the development of suitable fishway designs for the dam.

Table 3: EPBC Act Protected Matters Report for the Dam

Matters of National Environmental Significance (Species or habitat that may occur in the study area or be impacted by the Dam) (Note threatened species are also noted if listed under the Queensland NC Act)			
Wetlands of international significance	Shoalwater and Corio bays area	Ramsar site	
Threatened ecological communities	Brigalow (*Acacia harpophylla* dominant and co-dominant) Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions	Endangered Endangered	
Status	**Species Description**	**EPBC**	**NC Act**
Threatened species	**Birds**		
	Erythrotriorchis radiatus (Red Goshawk)	V	E
	Geophaps scripta scripta (Squatter Pidgeon (southern))	V	V
	Neochmia ruficauda ruficauda (Star Finch eastern and southern)	E	E
	Rostratula Australia (Australian Painted Snipe)	V	V
	Ephipooiorhynchus asiaticus (Black-necked Stork)		R
	Neochmia phaeton (Crimson Finch)		V
	Frogs		
	Taudactylus eungellensis (Eungella Day Frog)	E	E
	Mammals		
	Dasyurus hallucatus (Northern Quoll)	V	C
	Nyctophilus timoriensis (south-eastern form) (Eastern Long-eared Bat)	V	V
	Pteropus conspicillatus (Spectacled Flying-fox)	V	C
	Reptiles		
	*Denisonia maculata (*Ornamental Snake*)*	V	V
	Egernia rugosa (Yakka skink)	V	V
	Furina dunmalli (Dunmall's snake)	V	V
	Rheodytes leukops (Fitzroy tortoise)	V	V
	Plants		
	Eucalyptus raveretiana (Black Ironbox)	V	V
	Leucopogon cuspidatus		C
	Neisosperma kilneri		V
	Marsdenia hermiptera (rusty vine)		R
	Rourea brachyandra		

	Cycas megacarpa *Actephila sessifolia*		R E R
Migratory species	**Migratory terrestrial species** *Haliaeetus leucogaster* (White-bellied Sea Eagle) *Hirundapus caudacutus* (White-throated Needletail) *Hirundo rustica* (Barn Swallow) *Merops ornatus* (Rainbow Bee-eater) *Monarcha melanopsis* (Black-faced Monarch) *Monarcha trivirgatus* (Spectacled Monarch) *Myiagra cyanileuca* (Satin Flycatcher) **Migratory wetland species** *Ardea alba* (Great Egret, White Egret) *Ardea ibis* (Cattle Egret) *Gallinago hardwickii* (Latham's snipe, Japanese snipe) *Nettapus coromandelianus albipennis* (Australian cotton Pygmy-goose) *Numenius minutus* (Little Curlew, Little Whimbrel) *Rostratula benghalensis s. lat.* (Painted Snipe) **Migratory marine birds** *Apus pacificus* (Fork-tailed Swift) *Ardea alba* (Great Egret, White Egret) *Ardea ibis* (Cattle Egret)		Migratory Migratory Migratory Migratory Migratory Migratory Migratory Migratory Migratory Migratory Migratory Migratory Migratory Migratory Migratory Migratory
Migratory marine species	**Reptiles** *Crocodylus porosus* (Estuarine crocodile, Salt-water Crocodile)		Migratory
Listed marine species	**Birds** *Anseranas semipalmate* (Magpie Goose) *Apus pacificus* (Fork-tailed Swift) *Ardea alba* (Great Egret, White Egret) *Ardea ibis* (Cattle Egret) *Gallinago hardwickii* (Latham's snipe, Japanese snipe) *Haliaeetus leucogaster* (White-bellied Sea Eagle) *Hirundapus caudacutus* (White-throated Needletail) *Hirundo rustica* (Barn Swallow) *Merops ornatus* (Rainbow Bee-eater) *Monarcha melanopsis* (Black-faced Monarch) *Monarcha trivirgatus* (Spectacled Monarch) *Myiagra cyanoleuca* (Satin Flycatcher) *Nettapus coromandelianus albipennis* (Australian Cotton Pygmy-goose) *Numenius minutus* (Little Curlew, Little Whimbrel) *Rostratula benghalensis s. lat.* (Painted Snipe) **Reptiles** *Crocodylus porosus* (Estuarine crocodile, Salt-water Crocodile)		Listed – overfly marine area (all) Listed

SunWater will refer the Project to the DEWHA under the EPBC Act. It is anticipated that referral will result in the Project being considered a controlled action and an EIS satisfying Commonwealth requirements will be conducted under the SDPWO Act in accordance with the Bilateral Agreement between the Commonwealth and the State.

4.4 SOCIO-ECONOMIC ENVIRONMENT

4.4.1 Indigenous and Cultural Heritage Issues

Native title searches have been undertaken on the National Native Title Tribunal Register (September 2007). Results reveal that there is one Native Title Claim over the area. The claimants are the Barada Barna Kabalbara People 4 (QC01 / 25).

The Project's impact on Aboriginal cultural heritage values will be managed under a cultural heritage management plan (CHMP) that will address the duty of care requirement under the *Aboriginal Cultural Heritage Act 2003*. The CHMP process may include the following:

- A process for undertaking a comprehensive and systematic cultural heritage assessment of the Project development area and associated works and infrastructure;
- A processes for mitigation, management and protection of identified cultural heritage places and material in the Project development area and associated works and infrastructure, both during the construction and operational phases of the Project;
- Provisions for management of the accidental discovery of cultural material, including burials; and
- A conflict resolution process.

A search of the Queensland Aboriginal Cultural Heritage Database and Register revealed that no Aboriginal cultural heritage is recorded in the area around the proposed dam or impoundment area. It is probable that the absence of recorded Aboriginal cultural heritage places reflects a lack of previous cultural heritage surveys of the area.

No records were found of any places or items of state or Commonwealth heritage significance within the vicinity of the proposed Project.

4.4.2 Economic Issues

Land use in the inundation area is dominated by grazing of native pastures with improved pastures in places. Areas of State Forest exist upstream of the inundation area.

Agricultural productivity will cease on areas that will be inundated and may be reduced on remnant property if it is too small to be viable. This economic loss will be offset by the benefits associated with increased water supply availability and security to potential users, though the offset will probably not be agricultural.

The rights of current water entitlement holders downstream from the dam will need to be maintained under new arrangements for the Project.

5.0 POTENTIAL IMPACTS

The construction and operation of any major infrastructure project will inevitably lead to some degree of social, environmental and economic impact, which may be positive or negative. However, projects are undertaken only if the perceived overall result is a net benefit to society. In the case of the Project, the proponent will commit, via the EIS process, to a range of mechanisms to minimise the negative impacts and enhance the positive benefits.

5.1 BUILT ENVIRONMENT

The level of impact on current road corridors will depend on the final FSL chosen though it is highly likely that the Collaroy-Tierawoomba Rd and Killarney-Collaroy Rd (secondary rural roads) will require realignment over several kilometres. Otherwise there is very little infrastructure owned by Local or State Government in the area, as it is a remote rural location. The telecommunications tower currently located on the Collaroy property may require relocation. Existing on-farm infrastructure may require removal or relocation.

5.2 CONSTRUCTION AND OPERATIONS INFRASTRUCTURE

The existing Collaroy Rd from the Marlborough Sarina Rd will likely serve as both the construction and the permanent access road. Site preparation will include land clearing within the construction area, deep excavation at the dam site, a diversion channel or conduit by-passing the excavation, and coffer dams upstream and downstream of the dam site to ensure reasonable immunity against flooding of the excavated area. Quarry areas and associated machinery access roads will be established at suitable sites.

Temporary infrastructure will include accommodation units, offices, storage and waste disposal facilities, quarries, batching plants, vehicle service and wash-down facilities, as well as power supply/generation, fuel storage and on-site water supply facilities. Some of this infrastructure will be retained after construction in support of ongoing operational and monitoring requirements.

Water required for construction (for concrete, conditioning earth and rockfill, dust suppression, washing sand, etc) will be sourced from Connors River and it is not anticipated that this will require treatment before use.

5.3 NATURAL ENVIRONMENT

While a substantial amount of information exists on the terrestrial and aquatic environments of the region, new surveys specific to the Project (including pipeline routes) will be undertaken to supplement that information. Strategies to manage environmental impacts during investigation, construction and operation of the dam will be developed based on the results of surveys and discussions with relevant agencies.

The main direct impacts are expected to arise from land clearing, drilling, site preparation, quarrying and excavation of materials, transporting materials and people to, from and within the site, and other necessary activity within the watercourse and other areas of inundation. In all cases, best-management practices will be used to ensure that impacts are minimised and all relevant legislative requirements are adhered to.

The importance of EVR communities and species is recognised and every effort will be made to minimise the impact of the dam on these areas or to provide offsets in cases where impact cannot be avoided.

The new environment offered by the storage will favour some animals and disadvantage others, and ongoing management of water quality, algae, weeds, the new riparian zone and human impacts (e.g. fishing) will be required. Management of the downstream flow regime will comply as a minimum with the Fitzroy WRP with respect to environmental flows and water allocation security objectives.

Management strategies will be developed to minimise impacts of the Project on the natural environment as part of the Project EIS. Offsite, cumulative and consequential impacts of the Project will also be assessed as part of the Project EIS. SunWater recognises that these will go beyond simple hydrological compliance with the WRP.

5.4 EMPLOYMENT DURING CONSTRUCTION AND OPERATION

Workforce requirements during construction will be determined when the construction methodology and design configuration have been finalised and will be presented in the Project EIS. It is expected that at least 150 people will be employed on site during peak activity, plus a significant number offsite in support activities. The construction contractor will likely bring a nucleus of specialist skills; however, the Project is expected to provide a range of employment opportunities for the regional community.

5.5 SOCIAL ENVIRONMENT

Water made available from the Project may service mining, industrial, urban and (possibly) irrigation demands. The benefits associated with additional water to the region include:

- The security of water supply provides the capacity to accommodate new development opportunities and to enhance existing development.
- Increased economic activity provides impetus for filling production and services gaps with skilled workers and businesses deciding to remain or to relocate to the area.

There will be adverse social effects for those directly affected by inundation and the process of land acquisition will require sensitivity and appropriate compensation to ensure these individuals are treated fairly. This is the Proponent's objective. The dam development, along with planned mining and industrial expansion in the area, will inevitably lead to changes in the social environment of the local and regional community, though the type of development is in line with existing developments. The dam will inundate an area of grazing land and otherwise good quality agricultural land and will have a direct impact on those currently living and working within the proposed inundation area.

During the construction phase there will be considerable expenditure in the local region, including likely employment of local workers, purchase of goods and services for construction purposes and expenditure by workers based at the construction camp. The long-term social impact of the scheme on the local population will inevitably depend on the extent of projects that expand or develop in the region as at least a partial consequence of the distribution of water from the Project.

5.6 LOCAL, STATE AND NATIONAL ECONOMIES

The annual value of production from Queensland's minerals and energy sectors is currently estimated at $23 billion, which represents about 14 per cent of the state's economy. The Bowen Coal Basin is a major contributor to that sector with considerable scope for expansion during the current period of high demand. Expansion of such mining operations will likely make a major economic contribution at all levels. This growth requires capital investments in major new projects – dams, pipelines, railways, ports and power transmission lines. Thousands of new highly skilled jobs will be created in the Basin and its service centres.

The trade-off specific to this Project is the loss of current agricultural productivity from within the inundation area, although if some of the yield is made available to increase the security of agricultural supply downstream, this type of productivity may not be lost to the region.

It is expected that the Project economics will be sound, particularly in view of the extent of coal mine expansion and development approved, planned or envisaged. The flow-on benefits of the Project to the local and State economies are expected to be substantial.

A comprehensive analysis of the Project's impact on the local, state and national economies will be undertaken as part of the EIS. Economic factors will be weighed up alongside the social and environmental considerations when examining Project viability and options.

5.7 COMMUNITY CONSULTATION

As part of the EIS, community consultation will be conducted with the local rural and urban communities and landowners, federal, state and local government representatives, industry sectors, special interest groups and organisations, traditional owners, public utility providers, the media and other stakeholders yet to be identified. The objectives are to inform the community about the Project, provide an effective mechanism for community involvement and enable the various groups and individuals to add value to the EIS process.

Community consultation will be conducted in accordance with statutory requirements as required by the SDPWOA process. This includes ensuring that the Draft ToR, the EPBC referral and the

EIS are made publicly available as required by the Act in order that the public may have input during these important phases.

A Consultation and Community Involvement Plan for the Project will be developed by the Proponent. This plan will articulate the consultation and communication activities and mechanisms to be implemented over the duration of the Project. "

6.0 ENVIRONMENTAL MANAGEMENT

6.1 CONSTRUCTION / COMMISSIONING

An environmental management plan (EMP) will be prepared to provide strategies for the planning, design, construction and operation of the Project to ensure safe, efficient and environmentally sensitive outcomes. The EMP will provide local, state and federal governments and the proponent with a framework to confirm compliance with relevant policies and requirements. The EMP will also provide the community with evidence that the management of the Project will be conducted in an environmentally acceptable manner. As the operator of existing infrastructure in the State, SunWater has previously developed such plans and they have been accepted by authorities.

6.1.1 Water Quality

Performance criteria for the management of water quality will be based on guidelines established from:

- the Queensland Environment Protection (Water) Policy (1997);
- the National Water Quality Management Strategy: Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC 2000); and
- the draft Queensland Water Quality Guidelines (2004).

During construction temporary erosion and water quality protection measures will be required to prevent release of contaminants into the Connors River. These measures will include sediment barriers, removal of sediment from waters prior to discharge, reinstatement of disturbed areas, correct storage and handling of chemicals, fuels, oils etc. and spill response procedures.

Monitoring of water quality in the works area and downstream will be required and responses made as necessary to ensure water quality objectives are achieved.

6.1.2 Noise

Potential noise sources on the site will occur mainly during the construction phase, with activities such as drilling and blasting being the most disruptive. Increased heavy vehicle movements will occur during construction.

The main construction site is located a significant distance from the nearest sensitive receiver, which is a residence. There are no schools, medical centres, places of worship or other sensitive receivers in the vicinity. With appropriate controls in place, noise impacts should be minimal.

6.1.3 Air Quality

Air quality impacts are anticipated to be primarily from dust generated during clearing and construction activities. It is anticipated that water will be used for dust suppression in disturbed areas. The remote nature of the site suggests impacts will be minimal.

6.1.4 Hazardous Materials

Hazards associated with explosives, fuels, oils, pesticides, solvents, cement etc. will be managed by strict adherence to relevant legislation, standards and codes of practice.

6.1.5 Waste Management

It is expected that substantial waste will be generated during the construction phase. Where waste is generated, the proponent will ensure that appropriate waste management practices are specified with contractors and applied in order to minimise any adverse environmental impacts. The proponent and its contractors will hold appropriate waste management licenses. Waste management will be included in the Project EMP.

The operation of the dam is not expected to generate significant amounts of waste.

6.1.6 Infrastructure and Traffic

The impact of potential construction traffic on the local road network will be assessed and mitigation measures developed in the Project engineering study and EIS.

6.1.7 Monitoring and Reporting

Environmental monitoring and reporting will be undertaken through the construction phase of the Project to ensure that the the need for corrective actions is identified quickly, those actions are taken when necessary and the objectives of the EMP are met.

6.1.8 Consultation

The community consultation program will continue through the construction phase, ensuring the community is aware of Project activities, how to be involved if they desire and how to complain if need be. A complaints handling process will be specifically established.

6.2 OPERATION

The dam will be operated in accordance with the requirements of the Fitzroy Basin ROP with respect to water releases for use by customers, water for the environment and enabling upstream and downstream fish passage. Operating rules related to the new infrastructure will be established through amendments to the ROP.

6.2.1 Monitoring and Reporting

Environmental monitoring and reporting will continue during operations to provide a basis for tracking changes to the ecosystems, resource availability and compliance with Project commitments.

The ongoing environmental monitoring program will be developed as part of the EIS and approvals process and in accordance with ROP requirements for flow releases, water quality, biological assessment and visual inspections.

An annual environmental summary report will be prepared each calendar year by the operator containing, in part, the following information:

- Summary of the periodic and specific monitoring reports
- Fluctuations in water storage level
- Environmental releases

- Water quality monitoring
- Biological indicator monitoring
- Fish passage monitoring.

This report will be submitted to the appropriate agencies and will be made available to the public.

7.0 REFERENCES AND DATA SOURCES

1. Department of Natural Resources, Report on Connors River Damsite at AMTD 95.7km Flood Hydrology, 1999.
2. Department of Natural Resources & Mines, *Mt. Bridget Damsite – Connors River 95.7 km – PMF*, 2003 Version.
3. Department of Natural Resources & Water, Central Queensland Regional Water Supply Strategy, 2006.
4. Department of Natural Resources & Mines, *Future Urban, Industrial and Cola Mining Requirements* – Information Paper No 5a, Central Queensland Water Supply Study, 2005
5. Department of Natural Resources & Mines, *Potential Future Agricultural Water Demand – Information Paper No 5a*, Central Queensland Water Supply Study, 2005
6. Department of Natural Resources & Water, *Study Report*, Central Queensland Regional Water Supply Strategy, 2005.
7. Hyder Consulting, Initial Environmental Evaluation – Lower Fitzroy River Weirs – Mt. Bridget Dam, Connors River, 1999.
8. Infrastructure Route Solutions, Pre-feasibility Desktop Assessment of Land Valuation Issues: Proposed Dam at Connors River AMTD 95.7km, 2006.
9. Parsons Brinkerhoff, Connors River Dam (AMTD 95.7km) Stage 1: Pre-feasibility Study, 2007.
10. SMEC, Feasibility Study of Connors River 95.7 km Dam-site prepared for Irrigation and Water Supply Commission Qld, 1976.
11. SunWater, Feasibility Study – Preliminary Design for a Dam at the Mount Bridget Site Connors River AMTD 95.7 km, 2003.
12. SunWater, Supplementary Report - Feasibility Study – Preliminary Design for a Dam at the Mount Bridget Site Connors River AMTD 95.7 km, 2005.
13. SunWater, Water Plan for the Northern Bowen Basin, 2006.

14. Whitsunday Hinterland and Mackay Regional Planning Project, Water Infrastructure Assessment, 2001

APPENDIX 1

SUMMARY OF KEY APPROVAL CONSIDERATIONS

Summary of Key Approval Considerations

Key project issue	Key legislation	Application
Impact assessment	*State Development and Public Works Organisation Act 1971*	The SDPWOA provides the CG with significant powers to manage major projects on a whole-of-government basis and to coordinate environmental approvals. The Project can be assigned 'significant project' status under the Act based on one or more of the following criteria: ▪ Complex approval requirements, including local, State and Australian Government involvement ▪ A high level of investment in the State ▪ Potential effects on infrastructure and/or the environment ▪ Provision of substantial employment opportunities ▪ Strategic significance to a locality, region or the State. Once a project is declared 'significant' an environmental impact statement (EIS) is usually required to ensure that environmental, social and economic impacts are appropriately considered.
	Integrated Planning Act 1997	A development permit under the IPA will be required for material change of use. The Project is likely to be designated as community infrastructure under Section 29K of the SDPWOA and Department of Infrastructure and Planning (DIP) assigned as the assessment manager.
Vegetation clearance	*Vegetation Management Act 1999*	All approval processes would generally require approval for vegetation clearing under the Vegetation Management Act. Vegetation management offsets will be required.
	Integrated Planning Act 1997	Carrying out operational work that is the clearing of native vegetation on freehold or leasehold land is assessable development under the IPA. A decision on the proposal's preferred option for the planning approval process and further investigations into the existing land tenure will be required to confirm precise vegetation clearing requirements.
Clearing and quarrying on Crown land	*Forestry Act 1959*	The Forestry Act regulates the use of forest products and quarry materials on Crown land. A permit is required for extractive resources in order to take quarry materials from Crown land. Where removal of (or interference with) millable timber is required on any Crown Land, a permit is required under Section 53(1)(b) and Section 56 of the Forestry Act. It will be necessary to consult with NRW regarding a permit for removing large trees for construction of the dam and associated infrastructure.
Habitat protection	*Nature Conservation Act 1992*	The NCA provides for the protection of protected areas, reserves and native wildlife in Queensland. The NCA is based on principles to conserve biological diversity, ecologically sustainable use of wildlife, and ecologically sustainable development.
Native Title	*Native Title Act 1999*	Native title is managed under the Native Title Act. The proponent will need to identify any Aboriginal parties who may hold native title within the study area and address any potential issues that may arise.
Cultural heritage	*Aboriginal Cultural Heritage Act 2003*	The ACHA requires demonstrated compliance with the cultural heritage duty of care, as defined in the ACHA. The ACHA provides a series of mechanisms by which this can be done, including: ▪ preparation of a notified Cultural Heritage Management Plan (CHMP) developed in the manner specified in Part 7 of the ACHA, and approved by the Minister for Natural Resources and Water, or ▪ management of cultural heritage as a component of a native title agreement of a type specified in Schedule 2 of the ACHA.
Water permits	*Water Act 2000*	The Water Act outlines several permits/licences that may be required for the proposal, including the following: ▪ A resource operating licence to interfere with the natural flow of

Key project issue	Key legislation	Application
		water to the extent necessary to operate water infrastructure ▪ A riverine protection permit for any works crossing a freshwater watercourse that interferes with the bed or banks ▪ A licence to take water from the catchment for taking water from a watercourse ▪ An interfering with a watercourse permit for interfering, taking and/or controlling the flow of water in a watercourse
Fish passage	*Fisheries Act 1994 (Qld) (s22), Fisheries Regulation 1995 (Qld) Part 12, Div 5), Integrated Planning Act 1997 (Qld)*	Regulation of fisheries development has now been rolled into the Integrated Development Assessment System (IDAS) process under the IPA, and hence will be assessed under the EIS process. The Fisheries Act regulates water barrier works in relation to the restriction of fish passage. The dam is likely to require the provision of suitable fish passage devices that will need to be designed in consultation with the Department of Primary Industries and Fisheries. All other activities relating to or that may impact on fisheries resources and habitats may require a general fisheries permit.
Statutory planning	State planning policies that may be relevant to the environmental assessment of the proposal	*State Planning Policy – 1/92 Development and Conservation of Agricultural Land.* The proposed dam would be located on properties predominantly utilised for rural purposes. *State Planning Policy – 1/03 Mitigating the Adverse Impacts of Flood, Bushfire and Landslide.* An assessment of this policy would be required in consideration of natural hazards of flood, bushfire and landslide and in ensuring these matters are adequately addressed when carrying out the development. *State Planning Policy – 2/07 Protection of Extractive Resources.* This policy may be applicable to the proposal if the subject site is identified as a key resource area. It is intended to maintain the long-term availability of major extractive resources.
Lighting of fires	*Fire and Rescue Service Act 1990 (Qld)(Part 7, Div 1)*	A permit is required to light fires associated with construction activities (includes permission for fires to be lit, maintained or used on land that SunWater owns or occupies). Any notice issued by the Commissioner prohibiting the lighting of fires on specified land, or requisition measures to reduce fire risk, must be complied with.
Storage of chemicals	*Dangerous Goods Safety Management Regulation 2001 (Qld)*	Specific signage, site emergency plans, registers, etc. may be required if stored chemicals exceed certain thresholds/criteria. The relevant area would therefore be classified as a Dangerous Goods Location (DGL) or a Large Dangerous Goods Location (LDGL).
	Environmental Protection Act 1994 (Qld), Environmental Protection Regulation 1998 (Qld)	Storage of any chemicals in quantities greater than $10m^3$ (excluding crude oil, natural gas & petroleum products) – ERA 7 registration certificate and development permit required. Level 1 ERA = $>1,000m^3$ Level 2 ERA = $10m^3$–$1,000m^3$. Storage of petroleum products or crude oil in quantities >10,000 litres – ERA 11 registration certificate and development permit required. Level 1 ERA = 500,000 litres or more (apply to EPA) Level 2 ERA = 10,000–500,000 litres (apply to local council).
Excavation	*Environmental Protection Act 1994 (Qld), Environmental Protection Regulation 1998 (Qld)* and *Integrated Planning Act 1997 (Qld)*	Dredging material (removal of material) from the bed of any waters (includes channels, drains, natural watercourses etc.) – ERA 19 development permit and registration certificate required. Extracting rock, sand, clay, gravel or other material from a pit or quarry – ERA 20 registration certificate and development permit required in most circumstances.

Key project issue	Key legislation	Application
Use, transport, storage or purchase of explosives	*Explosives Act 1999 (Qld) (Part 3), Explosives Regulation 2003 (Qld) (s19)*	Licence to use and/or shotfirer's licence, licence to transport, licence to store, authorisation to buy.
Pest management	*Land Protection (Pest and Stock Route) Management Act 2002 (Qld) (s46)*	Moving or transporting a vehicle where soil or other organic material on the vehicle may contain reproductive material of a declared pest plant. Must: (1) take reasonable steps to restrict the release of reproductive material; a (2) ensure that the vehicle is free from reproductive material.
Road management	*Transport Infrastructure Act 1994 (Qld) (s50),* Department of Main Roads (DMR) *Transport Infrastructure (state controlled roads) Regulation (Qld) 2006*	Interference with a State-controlled road or its operation (e.g. temporary or permanent closure) requires written approval of the chief executive. Construction of ancillary works and encroachments on a State-controlled road (either temporary or permanent) requires ancillary works and encroachment permit required from DMR. Use of vehicles which exceed certain mass and dimensions criteria require various approvals depending on dimensions of load – dimensions are outlined in the Transport Operations (Road use Management – mass, dimensions and loading) Regulation (Qld) 2005 (e.g. excess mass permit, excess dimension permit, letter of no objection, etc). To construct, maintain, use or operate miscellaneous transport infrastructure requires a licence from DMR. Conditions may be attached to this licence. If granted a licence, the proponent may then apply for an approval to construct, maintain, operate or use the infrastructure (for which the licence was granted), across, over or under an intersecting area. The proponent must obtain written authorisation from the chief executive to temporarily occupy and use land, including roads, for miscellaneous transport infrastructure works. Before temporarily occupying the land, the proponent must also either provide the landowner with three days notice or obtain written permission from the land owner to enter the land.
	Land Act 1994	A permit to occupy from NRW is required for temporary or permanent encroachment onto a non-state controlled road or reserve. Road closures will be required in areas of permanent inundation. The dedication, opening, closing and temporary closure of roads is managed under the Land Act (Section 93, 94, 98, 106). Roads may be built under this Act (Section 110).
Waste management	*Environmental Protection (Waste Management) Regulation 2000 (Qld) (Part 4)*	Non-commercial regulated waste transportation – ERA 83 Registration Certificate and Development Permit required. If using a commercial transporter to collect the waste, the proponent's registration certificate and development permit must be sighted. Waste tracking certificates are required.
Civil works	*Environmental Protection Act 1994 (Qld), Integrated Planning Act 1997 (Qld)*	Screening (incl. washing, crushing, grinding, milling, sizing, etc.) materials – ERA 22 Registration Certificate and Development Approval required. Concrete batching in equipment with a production capacity >100 t/yr – ERA 62 Registration Certificate and Development Approval required.
Land use	*Land Act 1994*	The Land Act has regard for allocating land for development in the context of the State's planning framework, and applying contemporary best practice in design and land management. The Land Act provides a framework for the allocation of State Land as freehold, leasehold or other tenure.