PART B – AEIS

1. INTRODUCTION

1.1. Need for the Project and economic viability

The need for the Project was questioned based on the assumption by a submitter that the coal industry was in such a state of decline that it could not viably support the Project. This assumption is not supported by the number of mines and coal-fired power stations that are in various stages of development, the anticipated lifespan of those developments and the State Government decision to facilitate that development through the CoalPlan 2030 (Queensland Government 2010) and the designation of the Galilee Basin State Development Area (declared in June 2014).

A submitter questioned the viability of the project in relation to possible future costs associated with CO_2 emissions. Such an analysis would be conjecture but in any case it is normal business practice to pass on additional costs to customers. Climate change modelling was reported in Section 14.2.2.6 of the EIS and showed the dam did not fail so could supply the operational yield.

It is true however, that the viability of the Project is contingent upon the viability of its customers and on their development timeframes. Sections 1.4.3 and 1.4.4.2 of the EIS discussed the numerous factors that could impact on a mine's development timeframes. SunWater undertakes regular reviews of the likely water demands of customers and potential future customers and has repeated the review for this AEIS. The results confirm that there is a strong likelihood that the minimum demand required to make the Project economically viable will exist when funding is sought from those customers to begin significant works. The Business Case for the Project will only be approved by the Board of SunWater if this case in fact exists.

Some submissions suggested that the demand should be confirmed before the Project is approved. SunWater suggests that because planning and implementation for these major infrastructure projects takes many years and relies upon forecasts of future likely demand from a range of customers whose projects are at different stages of development, decisions are not based on "confirmation" but on likelihood and risk. This is standard business practice. SunWater manages this risk partly through the staged "foundation customer" approach wherein likely future customers financially support the project through its developmental phases, thereby verifying their bona fide interest. The final stage in the approach is the Business Case when commitment to the large-scale construction cost is sought. Customers will then re-assess their own business development timeframe and financial obligations and make their own decisions regarding the appropriateness or otherwise of committing to the water supply proposal. Ownership of the asset will be dependent on SunWater's (and SunWater's owner's – the QLD Government's) ability to raise capital and will be part of the funding model included in the business case.

Certainty regarding approvals is an important input to the Business Case decision, not only for SunWater but for its potential customers and this is why approvals must precede the Business Case decision.

1.2. Consequential impacts

Some submissions suggested that mines were a consequence of the Project so their impacts should be assessed in accordance with Section 527E of the EPBC Act. SunWater expressed a different view in Sections 1.4.4 and 28.2.7 of the EIS and maintains that view. The recent experience on the Connors River Dam project

supports SunWater's position. Development of that project will not proceed at this time because of changes to the project timeframes and investment horizons of customers (mines). The approval of the Connors River Dam water supply project by both and State and Commonwealth governments was clearly not sufficient in its own right to facilitate the development of any mines. It is noted that SEWPaC (now DoE) as the agency responsible for the EPBC Act did not raise this issue in its submission.

One submission questioned how demand from mines could be used to justify the Project yet mines were not considered a consequential impact of the Project. SunWater does not view the two approaches as contradictory. The outcome of the Connors River Dam and Pipelines project is a clear example of the situation. Many of the mines which were potential customers of that project will still develop but could obtain their water supply needs from alternative sources. Those alternatives may or may not be a better alternative for each individual mine but the Connors River Dam and Pipelines project was definitely the preferred regional alternative.

1.3. Alternatives to the Project

1.3.1. Alternative water supply options for Dalby

A submission suggested that Dalby's water supply needs could be better serviced through connection to the South East Queensland Water Grid. Responsibility for determining the most appropriate water supply for Dalby rests with Western Downs Regional Council. Council expressed interest to SunWater in obtaining water from the Nathan pipeline, hence planning supporting the EIS progressed on that basis. Council has since noted that they may not need access to the water for a long period of time in which case SunWater could terminate the pipeline at the southern-most demand node (near Warra) with the extension to Dalby completed when the demand required it. The EIS sought approval of the trunk pipeline but not of potential future "lateral" pipelines connecting the trunk pipeline to customers. It is requested that the extension to Dalby be treated as such a lateral with approval sought under the *Sustainable Planning Act 2009 (*SP Act) when required, if it is not the subject of a community infrastructure designation.

1.3.2. Use of Coal Seam Gas water

Submitters suggested that better use could be made of treated Coal Seam Gas (CSG) water as a water supply alternative to the Project. SunWater currently holds two Beneficial Use Approvals to take treated CSG water from CSG water treatment plants and beneficially use it along a pipeline (primarily for crop irrigation) or within a SunWater operated Water Supply Scheme, one being Chinchilla and the other being the Dawson Valley. The latter is the Woleebee Creek to Glebe Weir (W2G) Pipeline project. SunWater also assisted APLNG develop their Fairymeadow Road Irrigation Scheme, which uses CSG water, near Miles.

SunWater is therefore very cognisant of the availability and potential alternative use of this supply source and has shown its willingness to use it when it is shown to be a sustainable alternative.

When SunWater commenced assessment of potential use of CSG water, it was regarded as a waste so a Beneficial Use Approval under the *Waste Reduction and Recycling Act 2011* was required before it could be regarded as a resource and used. Treated CSG water (usually after filtration and reverse osmosis processes or desalination) has many viable potential uses but just like the comparison of desalination of seawater to supply from a river based dam, the true cost of the water is very high, particularly related to energy use and it has the

additional cost related to treatment and disposal of the by-products (brine, filter wastes, chemical wastes). Like any other water supply, the water must be transported to end users, usually by a pipe but sometimes after discharge to a watercourse. Irrespective of these issues, CSG water will be available and is likely to be cost competitive because the CSG producers are not necessarily seeking cost recovery.

Section 1.7.3 of the EIS clearly noted that the availability of treated CSG water had the potential to delay the construction of Nathan Dam, but that the lack of long-term certainty of the treated CSG water supply to customers who have long-term needs, such as industrial customers, meant that Nathan Dam would still be required. As an example of this circumstance, SunWater assisted Arrow with a project to supply of up to 5ML/d of treated CSG water through SunWater's pipeline distribution network to mines in the Moranbah area but this volume was supplementary only, the core of the mines water supply and the basis on which their projects were undertaken was Burdekin Falls Dam and / or Eungella Dam.

The lack of long term certainty of CSG water relates to the relatively poor predictive capacity of the industries water production models, as evidenced by Figure 11 of "Forecasting CSG water production in Queensland's Surat and southern Bowen basins" (Klohn Crippen Berger 2012), reproduced below as Figure 1.1. Very large variations can be seen in the predictions of the water profile, including when peak volumes would be produced, the duration and height of the peak and the rate of decline after the peak. This is because water production varies from well to well and gas field to gas field.

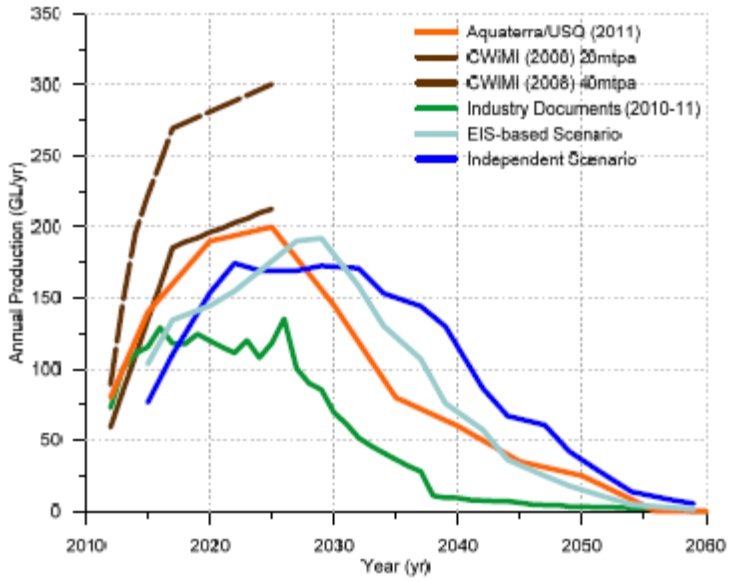

Figure 1.1 Comparison of CSG water production estimates from different sources (Figure 11 from Klohn Crippen Berger 2012).

Klohn Crippen Berger (2012) in their forecast of CSG water production used probabilistic modelling because it "is an accepted scientific method for predicting outcomes when there is a high degree of uncertainty." While such modelling is an attempt to account for the uncertainty, it does not remove it. Similarly the authors noted that in order to simplify the models, uncertainties were often removed by making assumptions and "the assumptions may reduce overall accuracy." This is not a criticism of the work, it is simply the best that can be achieved in a very uncertain circumstance. In presenting two water production scenarios the authors cautioned "it is important

to note that these scenarios represent only a small subset of all possible scenarios and should not be considered as exact representations of how the industry will evolve."

The potential variation in produced water volumes is often presented as P10 (10% probability of being realised) and P90 (though Klohn Crippen Berger used P25 and P75) and the difference between the two is often extreme. In comparison a large riverine dam would supply high priority users such as mines or urban areas at between 98% and 100% reliability. The reason for the difference in reliability is that CSG water production estimates are based on predictive models, models which can only be verified when well production actually commences. Dam reliability models on the other hand are based on a long historic record of actual river flow; in the case of Nathan Dam the Fitzroy IQQM model is based on 118 years of flow. For CSG water to be supplied at the same reliability, the volume of water contracted would need to be the safe minimum of all of the estimates.

Similarly the useful life of a major dam is usually at least 150 years while the availability of significant volumes of water from the CSG industry in the Surat Basin is approximately 20 years. If one reviews Figure 1.1, for an industry that required certainty of supply, and assuming 100Gl/a was an acceptable safe minimum volume threshold, that volume would likely be available between about 2016 and 2027. This duration of certain supply is not sufficient to sustain a large mine or equivalent venture. Similarly, unless that mine was either currently in production or already approved and ready to commence, it would be unlikely to need its peak water by 2016 so the timeframe in which a useful volume is available would be shorter again.

The third factor is the development plans for the gas fields and how they will vary over time. Each of the major companies has committed to develop certain fields but potential future development of other fields, has not been confirmed and will be determined by market forces at the time. The production of water from these fields is therefore not certain, despite it often being shown in predictions (Figure 1.1).

Finally, the points at which CSG water is generated are many and widespread, and obviously owned by multiple companies, so coordination and management of the entire volume of CSG water, or even part of it, would be very difficult. Klohn Crippen Berger (2012) pointed out that the location of CSG water production would change over time as new production areas become active and older areas close down. As a result, each CSG company tends to find local water management solutions related to individual water treatment plants, rather than attempting to amalgamate the produced water and manage it as a single source of supply, which could potentially "smooth out" some of the variation in produced volumes. SunWater attempted to do so with the Surat Dawson Integrated Water Supply Project (reported in the EIS) but the distances between water treatment plants, the timing of production across the various sites and the commercial reality of coordinating multiple entities made the scheme unviable. This also means that if a mine sourced its water from a water treatment plant in the southern gas fields, as water production from that plant dwindled the mine would need to add further lengths of pipeline to reach the water treatment plant which was producing the water at that time.

It is Queensland State Government policy that beneficial use of the CSG water is preferred (Coal Seam Gas Water Management Policy, DEHP 2012). The Policy notes other obligations on CSG producers such as "make good" obligations under the Water Act 2000 and assumes CSG water could be used for that purpose, principally through aquifer reinjection schemes. Each CSG company must produce a CSG Water Management Plan which details their management approach and their conformance with the Policy and other obligations. The plans relate to each gas producing area so each company has produced several plans. SunWater has reviewed many of the

available plans to determine the likelihood that significant volumes of CSG water would be available for use by potential industrial clients of Nathan Dam. The plans reviewed included those by Santos, APLNG and QGC for Surat Basin fields.

Importantly, none of the viewed plans incorporate a significant component related to industrial usage though the potential for it has often been investigated. For example APLNG in their gas fields EIS noted that they investigated 22 industrial water supply options including 13 related to proposed or existing mines and five related to power stations. Only the supply to one power station has eventuated (though more are still possible) and the volume of water involved was minor (1ML/d; Talinga-Condabri Integrated CSG Water Management Plan 2013). The vast majority of water included within this particular plan went to a local irrigation scheme.

Most plans incorporate:

- on-site re-use in construction or operational needs (relatively low volumes);
- irrigation on their own properties (sometimes significant e.g. Santos at Fairview or Mt Hope; APLNG at Spring Gully);
- aquifer re-injection (often significant and used by all companies but not at all sites); or
- irrigation water supply to third parties (e.g. APLNG via Fairymeadow Road, QGC via Kenya to Chinchilla pipeline and W2G pipeline).

Only the latter, which is to be operated by SunWater, has a significant possible future industrial client, being Wandoan Coal Joint Venture (WDJV). In their EIS WCJV put forward three water supply options in addition to on-site generation; two CSG water options and a SunWater option to raise Glebe Weir (which, depending on development timing, would be replaced by Nathan Dam). In their Supplementary EIS WDJV discarded one of the CSG options.

That the majority of CSG water is targeting use via irrigation is not surprising because the relatively low investment in infrastructure is justified despite the uncertainties of the water production profile whereas this is not the case when the very high capital cost of industrial developments is taken into account.

CSG water should not be seen as a direct alternative to Nathan Dam but as a conjunctive supply. For example CSG water already augments two SunWater water supply schemes via beneficial use schemes as noted above but also from treated CSG water discharges which are currently classified as waste. Those discharges, including from the Santos field upstream of Taroom, act to supplement the volume in the river and is then distributed to users in the scheme. When there are no storages and no water supply schemes, these valuable volumes achieve little benefit, other than environmental flows in systems which have been impacted by extraction. The benefits of the availability of CSG water are maximised by use via an existing water supply scheme, with associated water storages, because the scheme can utilise variable and even small volumes to supplement its core long term natural supply whereas direct supply from CSG water treatment plants to individual or a small number of clients is often not economic or will become uneconomic when the volume of available CSG water declines and there is no core conjunctive supply.

In summary, the availability of CSG water is uncertain, relatively short term and in any case fully committed to various forms of beneficial use which include very little industrial use. Conjunctive use of CSG water within

existing riverine water supply schemes offers significant long term advantages to the separate operation of small independent CSG supply schemes.

1.4. Within Project alternatives

1.4.1. Pipeline alignment, including co-location opportunities and constraints

A submission requested more detail on alternative pipeline alignments, including assessment by ground-truthing. Alternative alignments were presented in Section 1.7.8.2 of the EIS at a level appropriate to differentiate between them and in accordance with the TOR. It is normal practice to separate broad route options based on desktop information then ground survey the preferred alignment along with a planning buffer, as was done for this project. Economic, social and environmental considerations were taken into account including impacts on any corridors recognised though biodiversity planning assessments.

Some submitters were unsure which of the alternative alignments investigated was determined as the preferred option. Section 1.7.8.2 of the EIS discussed the options and concluded "Subsequently pipeline option 2 was selected as the preferred alignment." This is the alignment shown in Figure 1-1 of the EIS which is the locality plan and it is the alignment assessed in all EIS chapters. It is shown in detail in Appendix 10A of the EIS. At its nearest point the alignment is approximately 20 km east of Miles.

Several submitters suggested that further consideration be given to co-location (or otherwise) of the pipeline with other infrastructure. A range of linear infrastructure corridors (e.g. roads, rail, power, gas, communications, water, State Development Areas) either exist or are proposed within the study area. The ability to co-locate with another corridor depends on the safety, practical, legal, environmental and cost implications of doing so. Even when an existing route is suitable, it is extremely rare to be able to fit a new construction corridor entirely within an existing corridor but it is sometimes possible to share part of an easement, at least for the construction phase.

It should also not be assumed that co-location is necessarily the best environmental alternative. For example, it is common for roads in rural areas to preserve strips of native vegetation within an otherwise agricultural landscape so clearing of that vegetation is clearly a negative impact. Road managers commonly resist placement of pipelines in road other than at perpendicular angles meaning that roads are generally not a solution for long sections of linear infrastructure. Similarly co-location often refers to the corridors being adjacent rather than shared. Such co-location brings cumulative impacts associated with the total width of the disturbed area and the impacts it has on landowners and / or the environment.

SunWater assesses each co-location opportunity on its merits, taking into account the views of the easement/tenure owner, the relative environmental value of alternative routes and the views of affected landholders.

1.4.2. The use of coal seam associated water

Some submitters were confused as to the relationship of the (then) Surat Dawson Integrated Water Project and the Nathan Dam and Pipelines Project as discussed in Section 1.7.3 of the EIS. The Nathan Dam and Pipelines Project as proposed and which was assessed in the EIS did not include the transport of CSG water in the pipeline. The EIS noted the possibility of this occurring but as no projects were as yet a reality at that time, it was not included within EIS assessments.

However since that time and as noted in **Section 1.3.2**, the W2G project has been approved, constructed and become operational. It involves the beneficial use of treated CSG water, including transport to the existing Glebe Weir and use within the Dawson Valley Water Supply Scheme. The lifespan of that project will in all likelihood overlap with the Nathan Dam and Pipelines Project, should the latter be approved. The availability of the treated CSG water could delay the need to construct the dam until such time as the volume of available CSG water cannot fulfil pipeline demands. The dam would then be constructed and flow within the W2G pipeline would be reversed such that river water could be delivered to pipeline customers. Depending on demands and their locations, it is possible that the Wandoan Coal JV may take all of the available CSG water and customers along the Nathan pipeline will receive only river water. However, it may also eventuate that customers south of Wandoan receive a blend of river water and treated CSG water. As was noted in Section 1.7.3 of the EIS, should this situation arise it would need a Beneficial Use approval under the *Waste Reduction and Recycling Act 2011*. If only river water is provided by the pipeline it would not need such approval and as a result, SunWater will apply for such approval separately.

1.4.3. Relationships between SunWater projects in the region

Besides the two projects noted above (Nathan Dam and Pipelines, and W2G Beneficial Use scheme), SunWater is also the proponent for the Glebe Weir Raising project. The Glebe Weir Raising project was investigated for the purpose of taking water from Glebe Weir to the Wandoan Coal project at Wandoan. The Glebe Weir raising project has been approved, with the approval currently held by Wandoan Coal Project (not by SunWater) however, in the event that the project proceeds SunWater will become the project proponent.

The W2G project takes treated CSG water from south-west of Wandoan to Glebe Weir, so flow in the pipeline is in the opposite direction to that proposed in the Glebe Weir Raising project. Section 1.7.8.2 of the Nathan Dam and Pipelines EIS noted the potential need for more than one pipeline to be constructed in the section between Wandoan and Glebe Weir, mainly along Nathan Road, with such need, or the ability to amalgamate uses into a single pipeline, dependant on the timing of the various project drivers, being primarily the Wandoan Coal project and the CSG associated water industry.

The Wandoan Coal project is a major potential customer for water from the W2G pipeline. When the production of treated CSG water falls below the level required by the Wandoan Coal project, the earlier approved Glebe Weir Raising project may be implemented. The pipeline constructed for the W2G project will be used (pumping in the reverse direction) but other aspects of the Glebe Weir Raising proposal will require new construction such as the raising of the weir itself, the intake and pump station at Glebe Weir and two other pump stations along the route. In order to allow these changes to be implemented with minimum disruption to supply, certain fittings and design features were incorporated within the W2G pipeline. This information was provided in the Preliminary Documentation (SunWater 2012) of the W2G project. That document was made publically available as part of the EPBC Act approval process. The features are listed below (note chainages refer to the W2G pipeline, not the Nathan pipeline):

- at chainage 118.5 km - a tee connection special pipe length to allow for connection to proposed Glebe Weir pump station; and
- at chainage 104 km - two tee connection special pipe lengths and an isolation valve to allow for connection of future pump station.

Should the Glebe Weir Raising project not proceed these will be redundant. The primary reasons the project may not proceed would be continued high production of treated CSG water or sufficient foundation customers supporting the weir raising or construction of Nathan Dam.

If and when the Nathan Dam and Pipelines Project is approved and constructed, Glebe Weir will be inundated along with several kilometres of pipeline infrastructure. As noted above, the dam would only be constructed when the supply of CSG water could no longer meet demands from the pipeline. As such the remainder of the W2G pipeline will likely be able to serve as the Nathan pipeline as far as the Leichhardt Highway near Wandoan. As above, the design of the W2G pipeline incorporated certain fittings and design features which allow the linking of the Nathan pipeline with minimum disturbance. These features are listed below (chainages refer to the Nathan pipeline for convenience):

- at chainage 3.3 km - a tee connection special pipe length to allow for future section of pipeline connecting to Nathan Dam;
- at chainage 9 km and 34 km - two tee connection special pipe lengths to allow for connection of future pump stations; and
- at chainage 72.7 km - a tee connection special pipe length to allow for the future Nathan pipeline heading south.

1.5. Project approvals

1.5.1. Reduction in approvals requirements as a result of changes to the Project

As noted in **Section 1.4.3**, the W2G pipeline is constructed and will serve as part of the Nathan pipeline should it be approved. As such, many of the impacts previously noted on that section, and many of the approvals related to that section, are no longer relevant to this Project other than the following (**Figure C-1**in **Part C** of the AEIS):

- new section of pipe from the dam to connect to the W2G pipeline (this section of pipe was addressed in the Nathan Dam and Pipelines EIS and no specific comments were received on that section);
- treatment of the redundant section of the W2G pipeline between the connection point and Glebe Weir;
- construction of pump stations 2 and 3 and connection to a power supply (these items were identified in the Nathan Dam and Pipelines EIS and the only issue raised was with respect to the noise of the pumps. This is addressed in **Chapter 19**);
- construction of the associated balancing storage at pump station 2 (that associated with pump station 3 was approved as part of the W2G project); and
- construction of the connection between the W2G pipeline and the Nathan Pipeline near Wandoan.

All landholder negotiations relating to the W2G pipeline and its associated easements are now complete and these landholders will not be impacted further by the Nathan Dam and Pipelines Project, other than in those areas noted above.

Major approval requirements presented in the EIS for this section which are no longer relevant to the Nathan Dam and Pipelines Project as a result of this section of pipeline being separately approved (other than as related to components listed above) are:

- land purchase or easement acquisition;

- vegetation clearing and fauna relocation;
- watercourse crossings;
- road crossings; and
- environmental offsets.

1.5.2. Issues raised with respect to approvals

Submissions provided a number of clarifications with respect to this section in the EIS and those clarifications are included below.

1.5.2.1. Fisheries Act 1994

Fisheries Queensland suggested that no reference was made to waterway barrier works approval requirements under the *Fisheries Act* for the Project. Appendix 1-D of the EIS identified that the Project would trigger the requirement of waterway barrier works approval. SunWater will seek approval for waterway barrier works for the dam wall and all waterway crossings for the pipeline where required. Adequate fish passage must be provided for as a component of the waterway barrier works approval.

1.5.2.2. Health (Drugs and Poisons) Regulation 1996

A submission noted that the workforce accommodation camps may require approval under the *Health (Drugs and Poisons) Regulation 1996* (HDP Regulation). It is outlined in **Section 7.1.1** that SunWater is not seeking approval for the camps through the EIS process. The requirements of the HDP Regulation will be taken into account when applications for approval are lodged with the respective local government bodies.

1.5.2.3. Forestry Act 1959

The *Forestry Act 1959* (Forestry Act) provides for forest reservations, the management of silvicultural treatment and protection of State forests, and the sale and disposal of forest products and quarry material, that are property of the State on State forests and timber reserves and on other State lands, and on certain freehold lands where the State owns the native forest log timber through a forest consent agreement registered on title as a profit a U23, and/or where there is a reservation of quarry material on title.

SunWater will provide access for relevant DAF officers to assess timber resources in the inundation area, pipeline alignment and associated infrastructure and will plan for extraction well prior to construction commencing. SunWater has committed to harvest commercial timber prior to other vegetation clearing works. A Vegetation Clearance Management Plan will be developed in consultation with DAF. All timber products are proposed to be salvaged where practical and feasible.

Other than clay sourced within the proposed inundation area, other resources required for the Project will be sought from licenced suppliers. When a preferred location for the source of clay has been identified, relevant approvals under the Forestry Act will be sought if required. This includes consideration of a Sales Permit if clay will be extracted from land owned by the State.

1.5.2.4. Water Act 2000

A submission stated that the EIS does not make reference to the need for approvals for operational works for quarrying in a watercourse. The requirement was noted in Appendix 1D- Approvals of the EIS, on page 2 of the table.

A submission noted the need to obtain a permit for the take of groundwater for construction purposes. SunWater will provide the necessary information when the design for the dewatering process is finalised. The EIS noted that it was not anticipated that groundwater, other than sourced through dewatering, would be required for construction.

Under s237 of the *Water Act 2000* (Water Act), a water permit will be required for taking water to be used for an activity with a reasonably foreseeable conclusion date. The application must be made in the approved form, supported by sufficient information to enable a decision on the application and be accompanied by the fee prescribed under the regulation. A "construction authority" is allowed to take water without a water permit if the holder abides by the "Exemption requirements for the taking of water without a water entitlement under the Water Regulation 2002".

1.5.2.5. Community Infrastructure designation

A submission noted that a Community Infrastructure Designation (CID) would exempt the Project from assessment against local government planning schemes. This was stated in the EIS. SunWater's preference is to follow a CID process for land underpinning the Project following the release of the Coordinator-General's assessment report. The process is described below.

Under section 200 of the *Sustainable Planning Act 2009* (Qld) (SP Act) a Minister or a local government may designate land for community infrastructure, prescribed under the *Sustainable Planning Regulation* 2009 (Qld) (SP Regulation).

Schedule 2 of the SP Regulation sets out the types of community infrastructure that may be subject to a designation, which includes:

> *"(14) water cycle management infrastructure; and/or*
>
> *(15) storage and works depots and similar facilities, including administrative facilities associated with the provision or maintenance of the community infrastructure mentioned in this part."*

Section 203 of the SP Act identifies how the integrated development assessment system applies to land that has been designated under section 200 of the SP Act. Development under a designation is exempt development to the extent the development is either, or both, of the following:

> *"(a) self-assessable development, development requiring compliance assessment or assessable development under a planning scheme;*
>
> *(b) reconfiguring a lot."*

This does not remove the need to obtain approvals required for the Project where triggered in Schedule 3 of the SP Regulation and other State legislation as shown in Appendix 1-D of the EIS and updated as **Appendix B1-A** of this document.

Before designating land, a Minister or local government must consider specific matters, in particular that:

- an adequate environmental assessment has been carried out;
- adequate public consultation has occurred in respect of the environmental the environmental assessment; and
- adequate account has been made of any issues raised in the public consultation.

Section 207 of the SP Act provides that there has been adequate environmental assessment and public consultation if the Coordinator-General has prepared a report under section 34D of the *State Development and Public Works Organisation Act 1971* (Qld).

Designations may include requirements:

- about works or the use of the land, including the height, shape, bulk or location of works, access, landscaping and ancillary uses; and
- to lessen the impacts of the works or use of the land, including procedures for environmental management (which may include requirements for offsets).

If a designation is made by a Minister, the Minister must notify:

- each owner of the designated land;
- each local government that is affected by the designation; and
- the chief executive for the SP Act.

A designation remains in force for a period 6 years.

1.5.2.6. Vegetation Management Act 1999

A submission mentioned that the EIS incorrectly states that exemptions for the *Vegetation Management Act 1999* (VM Act) are under the *Nature Conservation Act 1992* (NC Act), the *Land Act 1994* (Land Act) and the *Forestry Act*. SunWater recognises that exemptions for clearing vegetation protected under the VM Act are identified in Schedule 24 of the SP Regulation.

Under Schedule 24 Part 1, 1 (16) of the SP Regulation, community infrastructure mentioned in Schedule 2 is not assessable development if it is carried out on land designated under section 200 of the SP Act. Schedule 2 Part 2 includes section (14); "water cycle management infrastructure"; section (8);" facilities for parks and recreation areas", and section (15); "storage and works depots and similar facilities, including administrative facilities associated with the provision and maintenance of the community infrastructure". SunWater has previously been advised by the Fitzroy and Central Regional Office, Regional Services North of Department of Infrastructure, Local Government and Planning, that the Nathan Dam and Pipelines Project could meet the definition of community infrastructure and, therefore, if it was designated under section 200 of the SP Act, the clearing of native vegetation would therefore not be assessable development.

A submission identified that the EIS stated that clearing of any regulated regrowth vegetation will require an operational works permit under Schedule 3 of the SP Regulation. SunWater recognises that at the time of

preparation of the EIS, clearing regulated regrowth vegetation was controlled by the self-assessable Regrowth Vegetation Code (RVC) and that a clearing notification needed to be provided to DNRM prior to the regrowth vegetation being cleared. A number of self-assessable codes now exist such as "Managing Category C regrowth vegetation" (December 2013) however as noted if the project is designated as Community Infrastructure the clearing of regrowth vegetation would not be assessable development.

SunWater acknowledges that approvals may be required in respect of the VM Act, if, for example, one of the self-assessable vegetation clearing codes does not apply, clearing occurs outside of the area of land designated for community infrastructure or a community infrastructure designation is not sought or obtained. The need for approvals under the VM Act will be determined on a case by case basis having regard to facts on the ground at the time of the proposed clearing, the approvals obtained for the project, their scope and changes in law over time.

1.5.2.7. Significant Community Project designation

If a CID is made for the project, a Significant Community Project designation (SCP) will not be sought. If a CID is not achieved for the project, SunWater may seek designation as a SCP under Section 10(5) of the VM Act. If granted, the designation allows special consideration under the Policy for Vegetation Management. In order to be determined a SCP, a project must meet one category from **Table 1-1** below and, traditionally, all categories in **Table 1-2**.

Table 1-1 SCP categories and SunWater consideration

Category	Consideration
1. Aesthetic benefit	Chapter 5 of the EIS concluded: "Views of the water storage area once operational would be generally enjoyed by visitors to the area using the recreational facilities and the residents of the Taroom township"
2. Conservation benefit	Not suggested for consideration
3. Cultural benefit	Not suggested for consideration
4. Economic benefit	Chapter 25 and Section 1.6 of the EIS showed that the $1.4 billion Project (now $1.19 billion) would produce real and direct benefits to the local, regional and state economies. These assessments did not include direct benefits to SunWater (the Proponent) or secondary benefits from industries which would benefit from the supply of water.
5. Essential need	Section 1.3 of the EIS justifies the need for the Project in terms of policy and planning, and supply and demand. Section 1.7 confirmed the Project as the preferred alternative for long-term secure water supply to the region and as serving a potential role in statewide water security
6. Access to services	The Project improves community access to a secure long-term surface water supply and to water-based recreational opportunities.

Table 1-2 Assessment Considerations

Consideration	Response
1. Specific locational requirements	There is no other suitable location for a major water storage in the Dawson River catchment. For a site to be suited to dam construction and operation it requires particular topography, geology and river flow and the ability to avoid impacting significantly on existing towns or infrastructure. The Nathan dam site is the only site that fulfils these criteria.
2. Benefits are not speculative	The EIS and Supplement to the EIS substantiate the benefits which relate to urban water supply security, reliability and seasonality of irrigation supply, stock supplies to pipeline users, employment, economic impacts and recreational benefits are real and not speculative.
3. Benefits are significant	The scale of benefit is clarified in the respective EIS chapters and includes: ▪ High priority water supply monthly reliability delivered at 100% (improved from currently as low as 94.4%) ▪ Medium priority water supply monthly reliability raised from a minimum of 83.3% to at least 88.4% along with improved seasonal reliability ▪ Pipeline graziers currently have no supplemented supply and the proposal is to deliver up 2 ML/a to each property. ▪ The Project will deliver approximately 525 peak jobs (local 53) ▪ The economic contribution to domestic GDP equates to $1.61 billion ▪ Boating, camping and fishing are very popular regional recreational pursuits, with only Glebe Weir providing local facilities. The much larger resource of Nathan Dam will provide access via two dedicated boat ramp / picnic areas.
4. Predominantly for community benefit	Local and regional community benefits are summarised above and while the dam will be providing the bulk of new water to industrial developments which are privately owned, this development is in the State's interest as determined through policy such as the Central Queensland Water Supply Strategy, Statewide Water Policy, Program of Works, Statewide Water Grid Regional Water Infrastructure Projects and CoalPlan 2030. Therefore the supply of water in accordance with these policies and programs provides significant community benefit at the State level. SunWater is a Government owned corporation so profits made go to Government.
5. In the community's interest	The benefits outlined above have been modelled / predicted based on the Project itself and not on any flow-on benefits related to the supply of water to industry or any other sector. For example, the employment related to coal mines that may use the water has not been included, nor has any estimate of the increased value of farm production related to improved water supply security.

1.5.3. Changes to legislation and policy

Various legislation and policy changes have occurred since the EIS document was submitted to the Coordinator-General. Key changes are described below along with their relationship to the Project. Appendix 1-D of the EIS has been updated to reflect all current changes (**Appendix B1-A**).

SunWater appreciates that there are a broad range of current reviews into laws which may impact on the project and will in the ordinary course continue to monitor changes to law and adjust its strategy in respect of approvals as and when changes are finalised. This section is not a comprehensive review of all changes to law that have occurred over time, but provides guidance on some of the key changes that have occurred and how SunWater is adapting to those changes as and when they occur.

1.5.3.1. Water Resource Plan (Fitzroy Basin) 2011 and Fitzroy Basin Resource Operations Plan 2004 (amended October 2011, Revision 3)

The *Water Resource Plan (Fitzroy Basin) 1999* (WRP 1999) and the *Fitzroy Basin Resource Operations Plan 2004 (amended October 2011, Revision 3)* have now been superseded by the *Water Resource Plan (Fitzroy Basin) 2011* (WRP 2011) and the *Fitzroy Basin Resource Operations Plan 2014 (amended September 2015* (ROP).

At the time of initial preparation of the EIS the WRP 1999 was the gazetted piece of legislation governing water resource planning in the Fitzroy Basin. While the WRP was under review by DNRM (then DERM) at the time of preparing the EIS, the EIS was still required to comply with the gazetted WRP 1999. The EIS also noted that information presented in the EIS would need to be revised once the new WRP was released.

In accordance with the commitment, **Chapter 14** (Part B of the AEIS) provides new hydrologic modelling in line with the WRP 2011. SunWater will continue to monitor the Fitzroy Basin WRP and ROP and adjust its processes to account for any relevant changes, as and when they occur. SunWater notes that amendments to the WRP occurred on 11 September 2015 and commenced in December 2015. Similarly, amendments to the ROP also occurred on 11 September 2015 and commenced in December 2015. SunWater does not consider that these amendments affect the project.

Section 1.3.1.3 of the EIS referred to the moratorium in place for overland flow development in the Water Resource (Fitzroy Basin) Plan area. The effect of the moratorium is continued under the Fitzroy WRP 2011, Section 31. Section 110 of the Fitzroy WRP 2011 provides for regulation of overland flow.

1.5.3.2. Environmental Offsets

On 1 July 2014, a new environmental offsets framework was introduced in Queensland. Under the *Environmental Offsets Act 2014* (Qld) (EO Act), the previous five issue-specific offset policies were replaced by a single State policy governing the assessment of environmental offsets.

In line with the intent of the EOA, SunWater expects that its offset obligations will be coordinated to the extent possible so that they form an integrated package which is set out in the Coordinator-General's assessment report, and to the extent necessary in conditions under any approval given under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth).

The EIS presented an offset strategy in Section 10.4. As a result of changes to legislation and policy, the strategy has been updated (**Appendix B1-B**).

1.5.3.3. Regional Planning Interests Act 2014

The *Regional Planning Interests Act 2014* (RPIA) commenced by proclamation on 13 June 2014. The RPIA repealed the *Strategic Cropping Land Act 2011*. The RPIA provides a new assessment process for regional planning for the successful co-existence of the agricultural and resource sectors.

The Nathan Dam and Pipelines project is not a resource activity, but meets the definition of a 'water storage (dam)' and should be regarded as requiring a RPIA approval, unless:

- it could be carried out under the SP Act without further approval; or
- it is not being carried out in a strategic environmental area.

Currently there are no strategic environmental areas identified in the Central Queensland Regional Plan or the Darling Downs Regional Plan or a prescribed strategic environmental area in the region of the Nathan project and therefore the RPIA requirements do not currently apply to the project. The above applies despite part of the pipeline route being within a Priority Agricultural Area as mapped in the Darling Downs Regional Plan. The location, design, environmental management plan and proposed easement agreements all aim to minimise impacts on agricultural use of the land (refer to. Section 7.1.4 and Section 7.2.2 of the AEIS).

1.5.3.4. Biosecurity Act 2014

The *Biosecurity Act 2014* (the Act) commenced on 1 July 2016 and has replaced the *Land Protection (Pest and Stock Route Management) Act 2002*. The Act changes the way that Biosecurity Queensland operates on a day-to-day basis. It provides a more comprehensive range of response tools and powers that can be tailored to address the unique challenges presented by each biosecurity threat. The new Act ensures a consistent, modern, risk-based approach to biosecurity. A major focus of the new laws is that of shared responsibility – everyone is responsible for managing their own biosecurity risks. The laws introduce the general biosecurity obligation, meaning everyone must take an active role in managing biosecurity risks under their control and must ensure their actions do not spread pests or diseases.

The Act provides comprehensive biosecurity measures to safeguard our economy, agricultural and tourism industries, environment and way of life, from:

- pests (e.g. wild dogs and weeds)
- diseases (e.g. foot-and-mouth disease)
- contaminants (e.g. lead on grazing land).

The Biosecurity Regulation 2016 underpins the Act. The regulations prescribe ways in which a person's general biosecurity obligation can be met to prevent or minimise a biosecurity risk, and includes measures to prevent or control the spread of biosecurity matter, sets maximum acceptable levels of contaminants in carriers, and sets fees.

1.5.3.5. State Planning Policy July 2014

In December 2013 the single State Planning Policy (State PP) replaced all former State Planning Policies, including SPP 1/12: Protection of Queensland's Strategic Cropping Land, and SPP 1/92: Development and the Conservation of Agricultural Land.

The State PP is intended to be used in the assessment of development from both a State and local perspective. The State PP does not intend to mandate prescriptive approaches to planning, but rather, it focuses on finding solutions to issues that may arise with development that are regionally, locally and site appropriate by identifying the outcomes that must be achieved in relation to State interests.

The State PP applies to any designation of land for community infrastructure as well as development applications under the SP Act. SunWater considers that the following State interests are relevant to the project.

Planning for economic growth	The project is intended to be a core part of the future economic development of southern and western Queensland, including by providing economic and reliable water supply for economic growth, including in respect of: ▪ industrial water users; ▪ agricultural water users; ▪ mining operations; and ▪ residential and community expansions.
Development and construction	The project will have a significant impact on development and construction in the State, not only because of the works required to complete the dam, but because secure and reliable water supply is required for future community and private development.
Mining and extractive resources	An anticipated benefit for the project is that it will be available to current and future mining and extractive resource companies for reliable and costs efficient water supply. Impacts on existing mining and extractive rights have been considered as part of the development process.
Water quality	Ensuring that water quality is not adversely affected by the project is a key element of the EIS process and reporting.
Natural hazards	The EIS and project design have expressly considered the impact of the project in respect of natural hazards, particularly flood impacts.
Infrastructure, Energy and Water Supply	The State PP recognises that future bulk water supply projects such as the Nathan dam should be protected from encroachment.

1.5.3.6. Environmental Protection Act 1994

SunWater notes that a number of provisions relating to the assessment and management of contaminated land recently commenced and SunWater is committed to managing any contaminated lands in accordance with the updated requirements of the *Environmental Protection Act 1994* (Qld).

1.6. Socio-economic costs and benefits

1.6.1. Providing a greater proportion of the water to agriculture

Several submissions suggested that the Project should provide more water to agriculture rather than to high priority industrial customers. SunWater operates in a commercial environment. For the Project to proceed it must be economically viable. This requires that the price of water provides a satisfactory return on investment within a satisfactory timeframe. Investigations reported in the EIS showed that high priority industrial customers were willing to pay substantially more than medium priority customers and this made the project economically viable. The cost of high priority water could not be reported because customers wished their purchasing circumstances to remain commercial-in-confidence however it can be said that the price paid for high priority industrial water is usually at least an order of magnitude greater than that paid for medium priority agricultural water.

A submission requested additional detail on how the capital costs for medium security water were calculated, and how they reflect the true cost of water. The submission also called for the operational costs of the dam to be listed separately from the pipeline. Section 1.3.3.2 of the EIS states that the cost of medium priority allocations from the dam would be in the order of $500-$600/ML. This cost has been estimated from a financial model that takes into account both the capital cost of the infrastructure and the operational costs associated with operating

and maintaining the dam over an extended period of time, using SunWater's weighted average cost of capital as the discount rate. The financial model contains commercially sensitive information, and subsequently details of the modelling will not be released. As outlined in Section 1.3.3.2, the theoretical medium priority water pricing stated is based on the costs associated with the dam only, and do not include the costs of the pipeline.

The Project does provide water for agriculture and also provides existing supplemented irrigators in the DVWSS with security benefits. The supplies and benefits are:

- provision of stock supplies to those directly impacted by the pipeline route as a form of compensation, should it be requested.
- Continued provision of access rights to the dam for riparian farmers.
- Maintenance of the existing supplemented allocations within the DVWSS but with increased reliability of supply (**Chapter 14** of Part B of the AEIS) and better seasonal performance.
- Provision of compensation options for unsupplemented licence holders who are negatively impacted by the project (**Chapter 14** of Part B of the AEIS). SunWater anticipates most water harvesters will take up this option.

The Project provides a clear net benefit to irrigated agriculture relative to the current water supply arrangements (Chapter 25 of the EIS), assuming water harvesters utilise the compensation option. The provision of stock supplies via the pipeline is clearly advantageous to graziers, particularly during naturally dry periods.

The project does not, however, make allocations available for new or expanded agricultural developments. The consequential impacts of water usage have been assessed on this basis, and it is anticipated that the approval for the project would be conditional on the assignment of water to the usage types modelled in the EIS, i.e. urban and industrial use. There are two main controls available to SunWater to ensure compliance with any such condition:

1. SunWater may choose to lease allocations to users rather than sell them. This is a model that has been used increasingly by SunWater in recent years whereby ownership of the allocations remain with SunWater with usage of the allocation leased to a customer on a long term basis. In doing so, SunWater can select who the water is leased to, and if required under the condition of an approval restrict the lease of water to non-agricultural customers; and

2. Prior to the construction of Nathan Dam, SunWater could seek an amendment to the Fitzroy Basin Resource Operations Plan regarding the purpose of new water allocations granted from the strategic water infrastructure reserve. The purpose of new water allocations could be limited to exclude agriculture, other than small volumes which may be required as part of a compensation package yet to be negotiated with the unsupplemented water allocation holders (waterharvesters) on the Dawson River.

If this situation were to change, possibly as a result of changes in global commodity prices or government policy preferences, the situation could be re-assessed but the impacts of the project and any approvals issued to it would then require re-assessment.

1.6.2. Transferring water out of the catchment

The view was also expressed that it was inappropriate to move water from one catchment to another without first ensuring adequate supplies in the source catchment. To be clear, planning did not proceed in the order suggested and adequate supplies in the source catchment are a primary consideration within the planning process. The Water Resource Plan is the main instrument related to ensuring adequate supplies in the Dawson catchment and the proposal meets all requirements of that plan. The current plan took into account various long-term water resource planning strategies, including the Central Queensland Regional Water Supply Strategy in determining its objectives and outcomes. The Plans do not specifically take into account the demands in neighbouring catchments but it is assumed that if the requirements of the Plans are met, then there is no specific restriction with respect to where any unallocated water can be used.

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