PART B – AEIS

2 DESCRIPTION OF PROJECT

This section addresses issues raised on the Description of the Project. Aspects of the Project which have changed since release of the EIS are described in **Part C** and are taken into account when providing responses in this Section. Many issues in submissions which nominated this Section actually related to other EIS Sections and have been addressed in those Sections. For example, consultation with regards to Project design or construction issues or the effects of the land purchase process on landholders is addressed in **Chapter 24**.

2.1 Dam related issues

2.1.1 Environmentally Relevant Activities

A submitter requested information regarding emission points and emission profiles for the ERAs noted in the EIS. It is not possible to be definitive until a Contractor is in place and has identified the specific locations on site for the activities and the particular equipment which will be performing the activity. SunWater is aware of the standard conditions relating to each of the ERAs and does not envisage any difficulty with compliance.

Waste streams were identified in Chapter 20 of the EIS along with their proposed treatment. Waste related to ERAs will be specified when the development applications are sought.

2.1.2 Fishway

Fisheries Queensland provided their "Fish passage design and implementation process" document as an attachment to their submission. SunWater is fully aware of this document and noted its intention to finalise design in general accordance with the process in Section 2.3.1.7 of the EIS. SunWater recently used the process in the design of the Connors River Dam fishway. As a matter of course, SunWater will consult with Fisheries Queensland during detailed design of any fish passage infrastructure required by the project.

A site office will be located at the dam site. A duty dam operator, likely based in Theodore, will be responsible for the operation of the dam, including the fishway. The duty dam operator will respond to any operational issues, including issues with the fish passage infrastructure. The majority of SunWater's dams are operated under this arrangement. Any malfunction of the fishway will be detected automatically and corrected as quickly as possible. Drive time from Theodore is approximately 1.5 hours.

2.1.3 Minimisation of the risk of fish being entrained into the dam intake

The open areas of the screens on the dam intake will be as small as possible to minimise the potential for fish entrainment with due consideration to the potential for blocking by debris if the open areas are too small. Fisheries Queensland (or private consultants if the agency no longer provides such advice) will be consulted on the design.

2.1.4 Energy Dissipation and potential fauna injury or death

The flip bucket type energy dissipation being proposed at Nathan Dam is considered suitable for the site and the least likely energy dissipation structure to injure turtles. During spillway discharges water will be projected outwards and away from the flip and be deposited into the plunge pool downstream. There are no impact baffles, which are typical of other spillway energy dissipation devices.

2.1.5 Decommissioning of Glebe Weir

The partial decommissioning will enable water to pass the structure such that it will not trap fish.

2.1.6 Dam Location and fault lines

The 1:250,000 Geological sheet (Mundubbera SG56-05 – Second Edition), published by the Bureau of Mineral Resources, Geology & Geophysics (1980) indicates no faults of significance within the sedimentary succession within 24 km of the proposed Nathan Dam. Revised mapping, provided as part of the Geological Survey of Queensland's 2015 digital dataset indicates the closest mapped fault lies approximately 17 km from the proposed dam site.

These features dissect the Carboniferous (360 – 300 Ma) to Permian (300 – 250 Ma) aged rocks of the Camboon Volcanics, and Oxtrack Formation. These units are overlain [at least in part] by the younger, Early Jurassic (200 – 175 Ma) aged Precipice Sandstone.

There are no mapped faults contained in either of the published datasets reviewed in the vicinity of the proposed dam site or within the rocks of the Great Artesian Basin (i.e. Precipice Sandstone, Evergreen Formation or Hutton Sandstone).

The intrusive geotechnical investigations completed to date (at the dam site) have not revealed any significant faulting.

During construction of the dam, any such joints (or other features) that may have remnant permeability are generally controlled through the installation of a grout curtain.

2.1.7 Using sandstone in the dam wall

Section 2.3.1.3 of the EIS discussed the key engineering design components of the dam wall structure. The design involves an earth (clay, sand) and rockfill embankment. Weathered resistant stone (rip rap) imported to the dam construction site will provide wave protection on the upstream face of the embankment and coarse, reinforced sandstone rockfill will provide weather protection on the downstream face and erosion protection in the event of overtopping during construction. Many earth and rockfill dams have been built successfully using sandstone for the purposes proposed for Nathan Dam.

2.1.8 Potential shortage of clay

Nine prospective sources of clay near the dam site were identified and discussed in Section 2.3.2 and represented spatially in Figure 2-8a and 2-9 of the EIS. The deposits are considered suitable for providing sufficient volumes of material for the construction of the relevant dam wall components. Geotechnical investigations will be carried out to determine the best source from these sites.

2.2 Pipeline related issues

2.2.1 Pipeline alignment – general

The most detailed depiction of the pipeline location as it related to vegetation or cadastre was provided in Appendix 10A of the EIS in a series of 52 maps. These are of sufficient detail to show which side of the road the corridor is on and whether it is in a road reserve or on adjacent private property. Appendix 2B of the EIS also listed each impacted land parcel along with its tenure. For the area south of Chinchilla the alignment was on private property to the east of highway and rail infrastructure. The potential to use parts of a local government road reserve was noted as was the difficulty of doing so. **Part C** of this AEIS describes changes in this area that relocate the majority of the pipeline length to the western side of the highway and railway where it will be located on private property, generally immediately inside the fence line. The Warrego Highway and railway are crossed once and this is the only direct impact on those reserves. Appendix 2B of the EIS has been updated to reflect all changes and is presented in the document as **Appendix B2**.

As described in Part C of the AEIS, the Woleebee Creek to Glebe Weir (W2G) Pipeline project is approved, constructed and operational. The Nathan Dam and Pipelines Project therefore does not include many aspects of pipeline construction in Area 1 as these have been completed as part of the W2G project.

2.2.2 Minimisation of risk of transferring non-indigenous or pest species between catchments

While the EIS noted that the only two pest species of fish in the proposed water storage area also existed in the Condamine catchment and the likelihood of successful transfer of any species was low, submitters requested identification of mechanisms to filter raw water prior to its use or discharge along the pipeline. SunWater has implemented successful filtering screens at a number of locations, such as the “Tilapia screens” within the channel network of the Mareeba Dimbulah Irrigation Area. For this Project a fine filter will be fitted to the 5 ML balancing storage at chainage 74 km. This will filter water discharged into the balancing storage, ensuring release to the remaining pipeline of only filtered water. The screen aperture will be in the order of 0.5 mm. Debris collected on the screens will be removed, placed on dry land within the easement and away from any watercourses and left to dry.

2.2.3 Bedding material extraction areas

Section 2.2.3.2 of the EIS noted that pipeline bedding material would be sourced from licenced commercial suppliers. SunWater does not intend to hold permits related to such extraction.

2.2.4 Disposal of surplus excavated trench material

Options for disposal of the surplus excavated trench material were discussed in Sections 2.4.3.2, 4.3.2 and to an extent in 6.2.2.2 of the EIS. The risks associated with sodic and dispersive subsoils were recognised. SunWater has considered this issue further and more detailed management procedures are provided in **Chapter 6**. The procedure is likely to result in most of the spoil being used as originally nominated which is by way of a low mound over the easement which is then covered by topsoil and grassed or otherwise revegetated. A Soil Management Protocol has been developed and is included in **Appendix B 6**.

2.2.5 Potential for above-ground sections

Section 2.3.2.1 of the EIS noted that sections of the pipeline between chainage 105 km and 150 km may need to be above ground, depending on the strength of underlying rock but SunWater's preference is for the pipeline to be buried. On review, it is highly likely that rock-breaking machinery will be sufficient to excavate the trench but if not, controlled blasting will be employed such that there will be no need for the pipeline to be above ground (noting that items of above-ground infrastructure, such as pump stations, are always necessary). This uses relatively small charges in order to fracture the rock and allow excavation. Should geotechnical investigations confirm the need for blasting the appropriate approvals will be sought at the time. The location in question is a remote rural area with isolated houses. The nearest house is located at chainage 150 km and is approximately 850 m from a potential blasting site.

2.2.6 Potential for exposure of buried pipes during flood events

Section 2.4.3.2 of the EIS noted that the depth of the buried pipe at watercourses would be below the level of potential flood scour.

2.2.7 Interaction with farming activities

A number of landholders sought further information regarding the interaction of pipeline construction and operation activities with their on-farm activities. Some of the issues were property specific and will be resolved through consultation with the landholders concerned. Many of the issues related to the black soil floodplain area between Chinchilla and Dalby and this area is now significantly less affected as a result of termination of the pipeline near Warra and relocation to the west of the highway.

The range of issues raised covered the design, construction and operation phases. SunWater's approach to these issues, besides good engineering practice, is to establish and maintain a thorough consultation process with affected landholders and infrastructure operators. Components of the process were outlined in Section 24.9 of the EIS. This includes regional working groups in order that issues such as traffic and transport are coordinated but also individual consultation with affected landholders.

Easement acquisition will be progressed separately from design and construction issues. Any issue which the landholder considers impacts on the value of their property should be raised in those discussions. The process was described in the EIS Section 2.4.1.1. During the design phase, each landholder will receive an information package covering issues raised in earlier consultation, including responses to the EIS. Landholders will then be individually contacted by design engineers who will traverse the proposed alignment on the property in the company of the landholder and (this list is not exhaustive):

- locate any infrastructure and discuss options for avoiding or re-locating it,
- discuss the proposed locations of SunWater's above ground infrastructure,
- identify preferred easement access locations,
- identify any areas of erosion or waterlogging risk,
- identify fence and gate / grid requirements,
- Identify any current areas of weed infestation,

- clarify any restrictions on land use during the construction phase or imposed as part of the easement agreement,
- discuss safety and insurance issues during the construction phase,
- discuss any specific aspects of farming operations that might influence construction works or be influenced by the works,
- confirm the project timeframe, communication protocols for the construction phase and the complaints process,
- discuss communication and access protocols for the operations phase.

SunWater is cognisant of the importance of ensuring minimal impact on farming operations while maintaining the purpose of the easement and the safety of infrastructure. Responses are provided below to the specific issues raised.

2.2.7.1 Capacity to take heavy machinery

The easement will be designed for a standard highway loading which is equivalent to a loaded B-double truck or approximately 44 tonnes.

2.2.7.2 Compatible uses

Grazing access will be maintained over the majority of the pipeline easement (except areas occupied by above ground infrastructure) once the pipeline is operational.

The operational easement of the pipeline will be 15 m wide. This is to accommodate the pipeline, necessary above-ground infrastructure, the maintenance track, and additional area to ensure access for machinery is available if it is needed to conduct repairs. Many segments of the pipeline are adjacent to boundaries which currently contain landholder access tracks, firebreaks or stockpile areas. These existing tracks will be utilised as much as possible to avoid disturbance to cropping activities.

SunWater's standard easement agreement excludes cropping land uses only within the area occupied by the maintenance track or above-ground infrastructure. It also excludes deep ripping (but not ploughing) from the area directly above the underground segments of the pipeline. The maintenance track will have a total width of 3 m. The above-ground infrastructure may typically be isolated structures hundreds of metres apart and with a footprint of several square metres each.

Cropping activities that do not include deep ripping and are located outside of the maintenance track will be possible in the operational easement. The maintenance track would generally be placed immediately inside property boundaries where possible, such as when the easement aligns with a road or highway, to minimise impacts to agricultural activities.

Stockpiles of equipment, bales etc. which do not exceed the weight restriction will be allowed on the easement other than on the maintenance track, however, if emergency repairs to the pipeline are needed the material would need to be rapidly removed.

2.2.7.3 Management of flow diversion and erosion

The potential for erosion resulting from concentration or redirection of flows as a result of earthworks is an issue normally covered by a Sediment and Erosion Control Plan (SECP) which is developed during detailed design and in conjunction with the construction contractor. Section 29.9.4 of the EIS provided significant detail of the basis of the SECP and nominated SunWater's preferred technical guideline.

2.2.7.4 Frequency of traverse and notification procedures during operations

The issue was raised with respect to the safety of SunWater staff (depending on what farm activities were occurring at the time, such as chemical spraying), interactions with on-farm vehicles or staff and potential stock movement considerations. SunWater staff will traverse the pipeline easement on a regular fortnightly basis. The schedule is made known to landholders but prior notification to landholders is not usually undertaken in order to avoid unnecessary frequent communication. Minor maintenance works such as erosion control include prior notification, usually by means of a phone call, to the landholders impacted. Any larger works require written notification to the landholder prior to the works being undertaken.

2.2.7.5 Fencing the easement

One submitter suggested fencing the construction easement until rehabilitation was sufficient to overcome issues of vehicle or stock bogging, amongst other issues. It is usual practice to temporarily fence the easement during the rehabilitation phase however, this will be discussed with landholders and agreed on an individual basis.

2.3 Associated infrastructure issues

SunWater is committed to consulting with service or infrastructure providers, including Powerlink, during detailed design.

2.3.1 Construction camps

SunWater is not seeking approval for the construction camps as part of the EIS process (as stated in Section 2.2.1 for the dam, Section 2.2.2 for the pipeline and repeated in Section 2.4.6 of the EIS), though the potential impacts of the camps were discussed in the appropriate sections to ensure that the relevant issues were raised and the potential scale of impacts was identified. It is intended that approvals for the camps will be progressed through the applicable local government bodies. The likely approvals related to construction camps as they applied to each local government area were listed in Appendix 1-D of the EIS.

SunWater will provide copies of the issues raised in submissions regarding construction camps to the applicable Councils for their consideration when approvals are sought.

SunWater anticipates that significant further policy regarding construction camps and their management may be available by the time Project mobilisation commences. Similarly the development timelines of other projects within the region is likely to affect the availability of accommodation options for SunWater and it would be inappropriate to make firm decisions at the present time. SunWater will approach Councils in this regard as they will be aware of all options at the time and will have preferred alternatives based on their particular circumstances. It is anticipated that determination of a suitable location for a camp will take into account that it is

an accommodation facility provided primarily to allow workers to rest and recuperate hence it will be treated as a sensitive receiver and appropriately sited with respect to noise, dust, vibration and other factors.

SunWater appreciates that other approvals may be necessary once the location of the camps is finalised. SunWater will liaise with DTMR and others as appropriate at that time.