NORTHERN PIPELINE INTERCONNECTOR

REPORT

Stage 2 – Landers Shute WTP to Noosa/Cooroy

Initial Advice Statement

NPI001-A-REP-015

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Revision number	Date	Description	Page/ Clause	Reviewer		Approved for issue		
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CONTENTS

Abbreviations

ASS acid sulfate soils

CG Coordinator-General

CSMP community stakeholder management plan

DoI Department of Infrastructure

EIS environmental impact statement

EMP environmental management plan

NRW Department of Natural Resources and Water

IAS initial advice statement

NPI Northern Pipeline Interconnector

Project Stage 2 of the NPI

QWC Queensland Water Commission

RE regional ecosystem

Regional Plan South East Queensland Regional Plan

ROW right of way

SCADA supervisory control and data acquisition system

SDPWOA *State Development and Public Works Organisation Act 1971*

SEQ south-east Queensland

SEQWSS South East Queensland Regional Water Supply Strategy

SRWP Co The Southern Regional Water Pipeline Company Pty Ltd—the proponent

VM Act *Vegetation Management Act 1999*

WTP water treatment plant

Water Regulation Water Amendment Regulation (No.6) 2006

1 EXECUTIVE SUMMARY

This initial advice statement (IAS) has been prepared to assist the Coordinator-General (CG) to determine the significance of the project known as Stage 2 of the Northern Pipeline Interconnector, to enable stakeholders to determine the nature of the project and to enable the preparation of terms of reference for an environmental impact statement (EIS) for the proposed project.

THE PROPONENT

The project proponent is the Southern Regional Water Pipeline Company (SRWP Co).

THE PROJECT

The Northern Pipeline Interconnector (NPI) is a drought contingency project that will supply a target of 65 ML/d of potable water from the Sunshine Coast to Brisbane. Stage 2 of the NPI, and the subject of this IAS, involves the construction of new pipelines and infrastructure to provide linkages between existing facilities at Noosa and/or Cooroy and the termination for Stage 1 works at the Landers Shute Water Treatment Plant (WTP).

PROJECT JUSTIFICATION

The draft South East Queensland Regional Water Supply Strategy (SEQRWSS) has identified the need for a SEQ water grid that will allow water to be transferred from areas with surplus water to those in need. The grid includes the NPI.

The NPI is part of the SEQ drought emergency strategy which is a measure of the Water Amendment Regulation (No.6) 2006 (Water Regulation).

THE ROUTE

The preferred corridor for the project passes through the local government areas of Maroochy and Noosa shires. The route utilises existing public utility easements, cleared areas and will require the establishment of new easements.

Nominally, the corridor width is similar to that of existing public utility easements, ranging from 30 m to 40 m, and includes a 40 m width for investigation purposes.

ENVIRONMENTAL IMPACTS AND MANAGEMENT

The project area comprises the floodplains of the Maroochy River, Petrie Creek and Eudlo Creek interspersed by a number of coastal ridges extending east–west from the Blackall Range. Much of the floodplain areas have been highly modified and are typically characterised by more intensive land uses, including cropping, road and rail infrastructure, urban communities, industrial uses and rural residential properties. In these areas, vegetation persists as linear corridors along waterways or small isolated patches.

The preferred corridor traverses a number of areas within the coastal management district, including tidal rivers and creeks, and lands under tidal influence. These areas are

concentrated around the floodplains of the Maroochy River and Petrie Creek and coincide with low-lying lands predominantly used for growing sugar cane.

Wherever possible, the pipeline will be located within existing cleared service corridors, road reserves and public lands to minimise the impact on individual land holders.

A comprehensive environmental management plan will be developed prior to construction of the project to manage impacts on affected environmental features.

2 INTRODUCTION

2.1 The project

The Northern Pipeline Interconnector (NPI) is a drought contingency project that will supply up to or exceeding 65 ML/d of potable water from the Sunshine Coast to Brisbane. To be undertaken in two stages, the NPI will also link existing and potential future water supplies to feed into the SEQ water grid. The NPI has a regulated completion date of 31 December 2008.

Stage 1 of the NPI south from Landers Shute WTP feeds into the Brisbane system via the Morayfield reservoirs.

Stage 2 of the NPI (the project), and the subject of this initial advice statement (IAS), will involve the construction of new pipelines between Noosa and/or Cooroy and the termination point for Stage 1 of the NPI near Eudlo. The project is necessary to augment water supplies transported in Stage 1. The additional water is from existing allocations that are not fully utilised. This water will be treated at the Noosa and Image Flat water treatment plants (WTP). Water is supplied to the Noosa WTP via Lake Macdonald and the Mary River, whereas water is supplied to the Image Flat WTP from the Wappa Dam.

2.2 Scope

The scope of works includes:

- Linkage with the northern termination point of NPI Stage 1, at the Landers Shute WTP main line connection on Nobles Road, Eudlo
- Construction of approximately 50 km of large diameter (>1,200 mm) pipeline from the Stage 1 termination point north to Noosa and/or Cooroy
- Upgrade of approximately 10 km of medium diameter (<450 mm) pipeline linking the Image Flat WTP with existing infrastructure at Bli Bli. These works are required for local distribution and will provide flows to the NPI
- Construction of approximately 5 km of medium diameter (<600 mm) pipeline linking Stage 2 main line works with the Noosa WTP
- Construction of three new pump stations and an upgrade to the existing one at the Mary River
- Construction of one new balance tank (approx. 5-10 ML capacity)

A number of additional above-ground facilities would be required for commissioning, operation and maintenance of the system. These include:

- Water quality maintenance structures
- Offtakes
- Cleaning and communications stations

The project also involves the construction of a pipeline from the Image Flat WTP to the main line near Bli Bli. Three pump stations and one balance tank are required along the main route to facilitate the transfer of water to Stage 1. Pump stations are nominally located at the Noosa WTP, the Image Flat connection at Bli Bli and Nobels Road, Eudlo. The balance tank would be required at a location near Nobels Road. Water quality dosing stations will be constructed

with the balance tank and pump station at Nobels Road. These facilities will contribute to the reverse flow capacity of the system, although this capacity will not be implemented within the regulated timeframe of 31 December 2008.

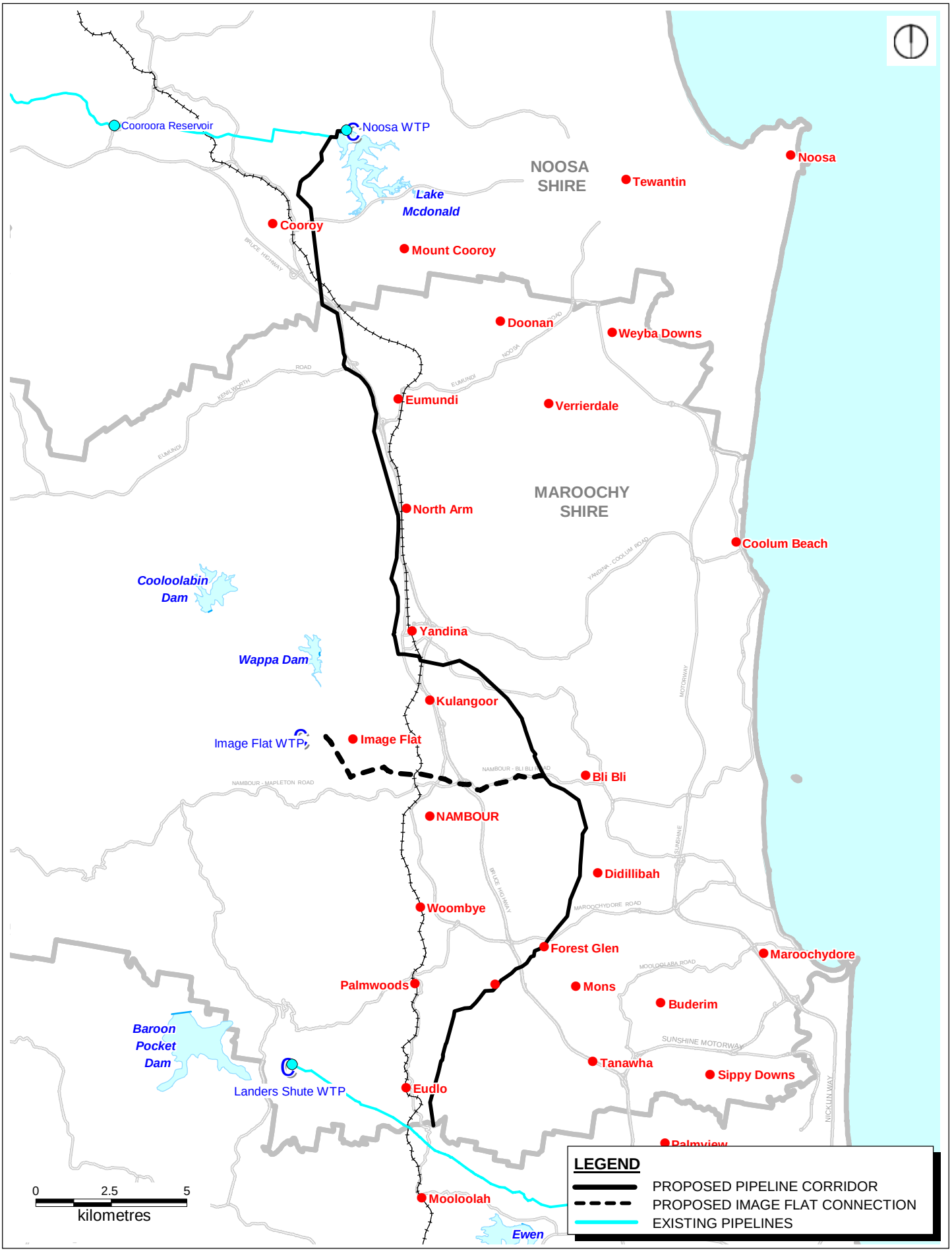
The linkage between Stage 1 and Stage 2 works will involve the facilities at Nobles Road as well as augmentation of the existing main line from Landers Shute WTP. A number of engineering options for the final linkage may be considered in the EIS.

The NPI will be designed with a capacity to accommodate water from the proposed Traveston Crossing Dam, should it be approved. Should Traveston Crossing Dam not proceed, then the NPI would be available to accept water from alternative bulk supply sources.

2.3 Project proponent

The statutory authority responsible for making water available for the NPI is the Queensland Water Commission (QWC).

The proponent for the project is the SRWP Co which is a wholly government owned company incorporated under the *Corporations Act 2001*. The SRWP Co was established to build the Southern Regional Water Pipeline and has since been tasked with building the NPI and the Eastern Pipeline Interconnector.



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Date: *23 August 2007 (Rev B)*

northern pipeline inter connector

NORTHERN PIPELINE INTERCONNECTOR

LOCALITY

1.1

2.4 Purpose and scope of the Initial Advice Statement

This IAS has been prepared to provide information to government in order to:

- assist the Coordinator-General (CG) to determine the significance of the project
- enable stakeholders to determine the nature of the project and their level of interest in the proposal
- enable the preparation of terms of reference for an environmental impact statement (EIS) for the proposed project.

This IAS is intended to scope the potential impacts that will be investigated in detail prior to the project being granted appropriate approvals to proceed and the conditions applicable in undertaking the works program. Reflecting this, an EIS and environmental management plan are likely to be required as part of the approvals process.

2.5 Background

On 8 August 2006, a water supply emergency regulation (the Water Regulation 2002) pursuant to section 25B of the *Water Act 2000* directed that works be undertaken to complete the NPI by the statutory date of 31 December 2008. For the purposes of the Water Regulation 2002, the NPI is defined as that project summarised in the *Report on Drought Contingency Projects* held by the DoI.

Under s.87 of the Water Regulation, all necessary steps are required to be taken to prepare for, and construct, the NPI. In addition, the works are authorised to be undertaken under s.100 of the *State Development and Public Works Organisation Act 1971* (SDPWOA). This authorisation is described under s.12C(4) of the State Development and Public Works Organisation Amendment Regulation (No. 3) 2006.

The NPI is a drought contingency project that will target to supply 65 ML/d of potable water to the SEQ water grid. To be undertaken in two stages, the NPI will also link existing and potential future water supplies between the Sunshine Coast and Brisbane. The water grid will link water storages, water supply resources and interconnecting pipelines that will increase the capacity of potable water supplies to support the expanding population of SEQ.

2.6 Water supply and allocations

The QWC has completed investigations into available water storages and determined that the high average rainfall in the Sunshine Coast hinterland provides more consistent yields from local catchments compared to other regional supplies.

The Stage 2 works are necessary to augment Stage 1 of the NPI and allow the project to fulfil its drought contingency role. Stage 2 of the NPI has the potential to provide up to 30 ML/d of treated potable water to consumers. This water will be largely derived from unutilised water from existing allocations treated at the Noosa and Image Flat WTPs. These WTPs source raw water from a series of small to medium capacity water supply dams on the Sunshine Coast.

There is potential for the QWC to increase the harvest from the Mary River sourced from the strategic reserve identified in the Water Resource (Mary Basin) Plan 2006.

It is anticipated that water for Stage 2 of the NPI project will be drawn from one or a combination of the following:

- unutilised water under existing allocations from Wappa Dam and the Poona/Cooloolabin systems to the Image Flat WTP
- unutilised water under existing allocations from the Mary River and Lake Macdonald systems to the Noosa WTP
- new water entitlements authorised under the Water Resource (Mary Basin) Plan 2006.

3 THE PROPOSAL

3.1 Location

The NPI Stage 2 works will form a linear corridor through the Sunshine Coast hinterland, traversing to the east of the Blackall Range. The preferred corridor for the project passes through the local government areas of Maroochy and Noosa Shires, traversing the localities of Eudlo, Chevallum, Forest Glen, Didillibah, Rosemount, Bli Bli, Maroochy River, Yandina, Bridges, North Arm, Eerwah Vale, Cooroy and Lake McDonald.

The main pipeline for the project is between existing infrastructure at the Noosa WTP and the termination point for Stage 1 of the NPI near Eudlo. Water will be treated at the Noosa and Image Flat WTPs. Water is supplied to the Noosa WTP via Lake Macdonald and the Mary River, whereas water is supplied to the Image Flat WTP from the Wappa Dam.

The project also involves the construction of a pipeline from the Image Flat WTP to the main line near Bli Bli. Pump stations are nominally located at the Noosa WTP, the Image Flat connection at Bli Bli and Nobels Road, Eudlo. Augmentation to the existing Mary River pump station will be required. A balance tank would be required at a location near Nobels Road. A water quality dosing station will be co-located with one or more of these facilities.

Works associated with increased water harvesting from the Mary River include upgrades to existing infrastructure at the Mary River pump stations and new storage facilities adjacent to the existing Cooroora reservoir at Pomona.

The pipeline corridor will utilise existing public utility easements and public open space wherever practical. However, new easements are required on public and private property.

3.2 Elements

3.2.1 Pipeline

The project will link supplies from the Noosa WTP and Image Flat WTPs with Stage 1 works from the Landers Shute WTP main line at Eudlo (see Figure 1). The completed system will feed potable water into the Brisbane system via the Morayfield reservoirs.

The scope of pipeline works includes:

- Linkage with the northern termination point of NPI Stage 1, at the Landers Shute WTP main line connection on Nobles Road, Eudlo. A number of engineering options may be assessed in the EIS
- Construction of approximately 50 km of large diameter (>1,200 mm) pipeline from the Stage 1 termination point north to Noosa and/or Cooroy
- Upgrade of approximately 10 km of medium diameter (<450 mm) pipeline linking the Image Flat WTP with existing infrastructure at Bli Bli. These works are required for local distribution and will provide flows to the NPI
- Construction of approximately 5 km of medium diameter (<600 mm) pipeline linking Stage 2 main line works with the Noosa WTP

The main pipeline will be buried in a trench with up to 1.2 m cover for most of the alignment. The main pipe will most likely to be supplied in 13 m lengths and connected using rubber ring joints. It is anticipated that the majority of the pipeline will use glass-reinforced pipe, with sections of steel pipe installed as required. However, due to the present high demand for large diameter pipe for a range of major water infrastructure projects throughout SEQ and nationally, availability will be a key determinant of the type of pipe ultimately used.

The medium diameter steel pipe used for offtakes will probably have an epoxy internal lining and a high density polyethylene external coating to provide corrosion protection, with cathodic protection provided to supplement protective coatings. These internal and external coatings are applied at the factory prior to delivery.

The maximum allowable operating pressure of the completed pipeline will be 1.6 MPa (160 bar). In the early stages, operating pressures will be considerably lower as the volumes of water being transferred will be well below design capacity. Future increases in the volume of potable water can be catered for by increasing the flow rate reflected by an increase in the operating pressure in the pipeline.

3.2.2 Pumping

Pumping is required to transfer water from the project to the linkage with Stage 1 works and back to Brisbane. The location of these pump stations will also facilitate future reverse flow from Brisbane to the Sunshine Coast.

The three pump stations required for the project are nominally located at the Noosa WTP, the Image Flat WTP connection at Bli Bli and the connection with Stage 1 works at Nobels Road near Eudlo. Water will gravity flow south from the Nobels Road connection. Additional pumping works are required at the existing Mary River pump station to augment the existing harvest of water at that location. This will likely involve a new pump being located in the existing facility.

Pump stations will be designed for automatic, unmanned operation out of normal working hours by using supervisory control and data acquisition (SCADA) systems at the regional management centre. All buildings will be designed to minimise impacts on visual amenity and to limit operational noise.

3.2.3 Balance tanks

For the maintenance of pressure within the system, the Stage 2 works require the construction of a storage balance tank at Nobels Road to transfer the additional water south to Brisbane. The tank size required for this phase of works is approximately 5-10 ML, although larger tanks may be required to accommodate increased future flows through the system in the future.

3.2.4 Other facilities

A range of other facilities will be necessary for ongoing operation and maintenance of the project. These include:

- water quality maintenance buildings
- offtake sheds
- communications sheds.

3.2.5 Reverse flow

The NPI Stage 2 will be designed with a future reverse flow capacity with the linkage to Stage 1 works from Brisbane back to the Sunshine Coast should drought or demand management scenarios require. This feature will not be operational as a result of the project.

3.2.6 Route selection

Generally, all route selection and optimisation is based on previous reports that detail various options for delivery of the NPI (see KBR 2006, JWP 2006). Initial investigations undertaken between January and March 2007 identified three potential routes to deliver the Stage 2 works north from Landers Shute to Noosa WTP.

The three corridor options were subjected to a semi-quantitative multi-criteria assessment to determine critical flaws and select a preferred option. The assessment technique used standard overlays to compare options in a geographic information system (GIS) context. Field verification of engineering, landowner, construction and socio-environmental considerations provided the robust approach necessary to select the preferred corridor.

This technique was used to ensure the selection process took a balanced approach towards considerations for engineering, landowner, construction and socio-environmental factors. These factors identified potential critical flaws to the preferred corridor. Factors were classified and weighted based on their potential to critically limit the progression of the corridor as the preferred option. In selecting the preferred corridor, consideration was given to following:

- cadastral data (including easements) provided by each local authority
- available electronic information for water, sewerage and drainage services
- Dial-Before-You-Dig information obtained from utility authorities (power, telecommunication and gas)
- terrain data from local authorities where available. The level of detail ranged from 5 m contour interval data to detailed photogrammetry levels and string data in some areas
- aerial photography
- geotechnical data based on a desktop study supplemented by field proving data where access has been obtained.

3.2.7 Preferred corridor

The preferred corridor tracks east through Forest Glen towards Bli Bli and Yandina, and then north through Eumundi before crossing the Bruce Highway and heading north at Eerwah Vale (Figure 1.1). A significant proportion of this corridor traverses low-lying agricultural land typically used for growing sugar cane.

The corridor solution was presented to relevant local authorities and the state government for approval in principle in May 2007. The corridor was subjected to further refinement following the results of field surveys, and a final preferred corridor was approved by SRWP Co in August 2007.

3.3 Justification and alternatives

3.3.1 Justification

The NPI is a drought contingency project that will supply a target of 65 ML/d of potable water to the SEQ water grid. To be undertaken in two stages, the NPI will also link existing and potential future water supplies between the Sunshine Coast and Brisbane.

The South East Queensland Regional Plan 2005-2026 (the Regional Plan) released in June 2005 (OUM 2005) set out a vision for the SEQ region for the coming two decades with the intent to provide a rational basis on which to plan and guide regional growth and development through to the year 2026. Important components of the Regional Plan highlight the need to plan and prioritise supporting infrastructure and provision of services including managing water demand.

A companion document is the recently released South East Queensland Infrastructure Plan and Program 2006–2026 which complements the Regional Plan and specifically mentions a Northern Regional Pipeline linking different water supply catchments.

3.3.2 Planning for changes in regional demographics

A major driver for these future planning studies has been a consistent 4–5% per annum population growth in the SEQ region. This trend is expected to continue into the foreseeable future (OUM 2005).

Such rates of expansion in population in SEQ will continue to exert great pressure on the continued viability and sustainability of its natural resources, as well as the ability of supporting infrastructure, particularly the supply of potable water, to service these growth rates. These matters are illustrated in the SEQ Regional Plan (OUM 2005) where the plan confirms that the demands for potable water from existing regional water storages will soon exceed sustainable yields and that alternative sources in concert with other methods (e.g. per capita use reductions) must be introduced.

3.3.3 Water supply security and climatic change

Current predictions suggest that SEQ is likely to experience significant drying trends under future climate change scenarios. Lower annual rainfall in more densely populated areas of Queensland will mean that the quantity of water collected for potable use may not be adequate for future requirements.

This is highlighted by the present drought, with dry conditions over the last five years (nominally March 2002 to October 2006) resulting in the cumulative effect of a rainfall deficit between 500 mm to 1000 mm below the long-term rainfall averages for the SEQ region. These deficits are in comparison to records from long-term regional rain gauges and represent only 70–80% of long-term average precipitation. The failure of significant summer rains in the period November 2006 to February 2007 has further highlighted the vulnerability of existing water supplies and resulted in severe water restrictions for local consumers.

The NPI network will provide additional supplies to address the current drought, and accommodates the future development and transfer of bulk water supplies from a recommissioned Ewen Maddock Dam, while balancing regional supplies between North Pine and Baroon Pocket Dams, and storages on the Mary River (including the Traveston Crossing Dam, should it be approved).

3.3.4 Alternatives

The need to adopt a regional approach in planning strategies to meet future water supply needs of SEQ has been recognised for several years. In 1999, a study funded by the state government and the South East Queensland Regional Organisation of Councils identified that further work was required to finalise a regional plan.

In May 2003, the Regional Catchment Coordination Committee for the SEQ 2021 project and South East Queensland Regional Organisation of Councils approved the development of the SEQRWSS.

Long-term supply options under investigation included:

- purified recycled water
- desalination
- new and recommissioned water storages
- increasing the capacity of existing water storages.

In 2006, NRW commissioned a planning study into options to provide connection of water supplies surplus to local demands on the north Sunshine Coast to Caboolture and further south. The report was prepared by JWP and finalised in November 2006.

The QWC was formed in 2006 and the NPI was transferred to the QWC to further progress this project. Between November 2006 and March 2007, QWC conducted further planning studies in consultation with the DoI and technical officers of Brisbane Water, CabWater, AquaGen, Maroochy Water and Noosa Water. A range of options was developed and the proposal presented herein was the result of that process.

Options considered and discarded in favour of the current proposal included:

- transfer of water from Noosa WTP to North Maroochy via a new coastal pipeline connection
- transfer of water from the Mary River to Somerset Dam and thereby to Wivenhoe Dam and Brisbane
- transfer of raw water to Lander's Shute WTP for treatment, thus enabling a greater rate of water transfer from Noosa to the south.

3.4 Construction and operation processes

3.4.1 Construction

Pipeline

Pipeline construction is linear production-line work with a number of crews operating at several different points along the alignment at a given time. Each crew targets daily rates which vary dramatically from flat, open country (200 m/d) to steep, rocky terrain (15 m/d). Activities are carried out sequentially, with each crew typically being separated by 4–5 days.

Typical activities to be undertaken include:

- construction of temporary facilities, such as work areas for equipment and pipe delivery, pipe storage and borrow pits, to source additional fill material (if required)

- construction of access roads to the pipeline easement and work areas
- clearing of vegetation and grading the right of way (ROW) to define and prepare for excavation
- trenching and placement of pipeline bedding material
- boring of road, rail and river crossings
- laydown of individual pipe sections along the trench margins (stringing)
- line-up of pipe sections and placement of rubber ring seals on connector points
- lowering in and backfilling
- hydro (pressure) testing of completed sections
- sequential site clean-up and ongoing rehabilitation, including restoration of drainage, stabilisation of exposed soils and revegetation.

A typical profile section of a ROW during pipeline installation appears below (Figure 3.1).

Pump stations

The installation of the three pump stations at Noosa WTP, Bli Bli and Eudlo will involve the following key steps:

- liaison with adjoining landowners
- site selection and survey
- land acquisition
- installation of temporary fencing for construction
- clearing of vegetation and grading of the site to prepare a safe construction working area and stockpiling topsoil
- establishing erosion and sediment control measures
- setting up of temporary facilities such as work areas for equipment delivery, storage and access roads
- laying concrete foundation slab to house the pump station and ancillary facilities
- erection of the building to house the pumps and related equipment
- installation of the pumps, electrical equipment, valves and associated instrumentation
- connection of the inlet and outlet sections of pipe
- completion of permanent fencing and gate access
- cleaning up and restoring adjacent areas and temporary facilities.

A similar process would be required for any additional pump stations.

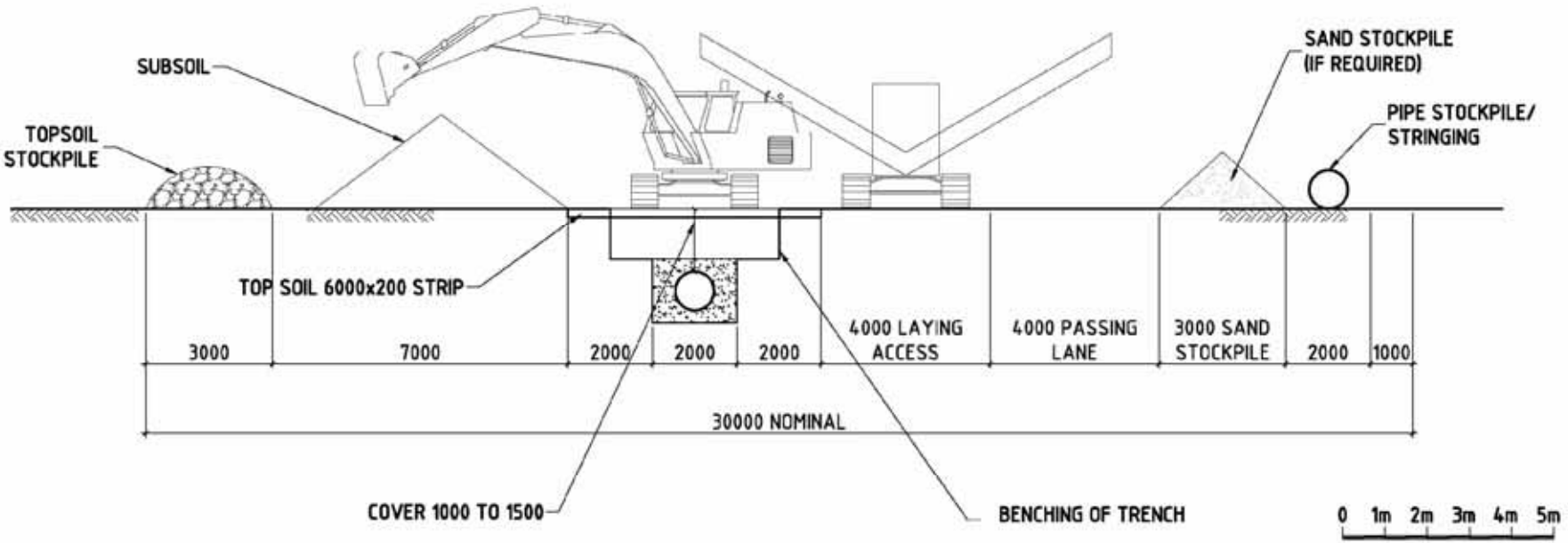
Balance tanks

The installation of the balance tank at Eudlo will involve the following steps:

- liaison with adjoining landowners
- site selection and survey
- land acquisition

- installation of temporary fencing for construction
- clearing of vegetation and grading of the site to prepare a safe construction working area
- setting up of temporary facilities such as work areas for equipment delivery, storage and access roads
- laying concrete foundation slab for tank and ancillary facilities
- erection of the tank and related equipment
- connection of the inlet and outlet sections of pipe
- completion of permanent fencing and gate access
- cleaning up and restoring adjacent areas and temporary facilities.

A similar process would be required for any additional balance tanks.



TYPICAL CORRIDOR CROSS SECTION
FULL WIDTH EASEMENT

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File Path: O:\BRS\Projects\BEG\BEG601- SRWP\T08 GIS Data\TOC5 Northern Interconnector\MapInfo\Workspaces\TOC5B\IAS\Figure 3.1 Construction Techniqies Full Width Easement.Wor

Date: 28 August 2007

3.4.2 Operation

Given that the pipeline will be predominantly underground, land users will generally be able to resume previous land use once construction and site rehabilitation have been completed. The only constraint to resuming former activities will be that these do not include excavation or ripping. Whilst deep-rooted vegetation cannot be re-established directly on top of the pipeline due to potential damage of the corrosion protection systems, shallow root cropping and grassland re-establishment is encouraged.

Typical operational activities following completion of construction and commencement of normal operations will include general operations, the SCADA system, prevention of pipeline damage and cathodic protection.

General operations

Routine operation and maintenance programs include ground and aerial patrols, repair of equipment, pigging and cleaning of the pipeline, corrosion monitoring and remediation, and easement and lease area maintenance including access roads. Aerial and/or ground inspections will include detection of third party activities on or near the ROW, detection and repair of areas of soil erosion, monitoring of rehabilitation programs and infill planting where needed, and the detection and control of weed species.

SCADA system

The design of the pipeline network includes installation of a SCADA system which will enable continuous monitoring of pipeline conditions such as pressure, temperature, water flow in and out, valve status, storage tank levels, pump station performance, cathodic protection and water quality. Remote video monitoring of premises and key items of equipment can also be included in the system. These continuous monitoring systems permit the automatic detection of out-of-normal-range events and from this provide timely alerts to supervisory staff who can then take action. Actions can include remote control of equipment to re-establish normal operations, shutdown of malfunctioning equipment and/or deployment of service crews to attend to specific failures of system components or security breaches. These monitoring systems are a normal part of modern industrial operations and optimise service planning as well as minimise the probability of severe interruption of services.

Prevention of pipeline damage

The primary line of defence against pipeline damage due to third party activity will be the depth of cover over the pipeline. This will be supplemented by regular signposting along the alignment including instructions to ‘Dial Before You Dig’ (common to all such subterranean infrastructure) and regular inspections. Security fencing, gates and locks will be provided around all major above-ground facilities. As mentioned, the SCADA system has the capacity to provide remote video monitoring of facilities that can provide valuable information on attempted illegal access to above-ground infrastructure.

Cathodic protection

Corrosion of metallic pipelines will be prevented by the protective external and internal coatings and cathodic protection systems.

3.4.3 Workforce accommodation

As urban centres are located relatively close to the pipeline route, it is unlikely that accommodation camps will be required for the workforce. It is anticipated that there will be one major site office which will act as a logistics base and storage depot for materials and earthmoving vehicles with an attached workshop area. This site will require power, water and sewerage.

3.4.4 Hours of operation

At this stage it is not anticipated that night work will be required for general pipe-laying activities. However, microtunnelled crossings are a continuous activity, and hence will require 24 hour operation until completed. Pipeline construction teams will work closely with relevant landowners to ensure they are notified prior to any night work and to ensure that any disruptions are minimised.

The construction of pump station and balance tank structures may require approved night works.

3.5 Waste management

3.5.1 Construction

Relatively small amounts of domestic and industrial waste will be generated during construction and operation of the pipeline.

A range of wastes are anticipated to be generated by pipeline construction activities. These are common to all civil construction projects. Their control and ongoing management will be specified in the waste management plan, which will form part of the construction EMP. The construction EMP will become part of contract documents that are enforceable conditions of the contract binding all site contractors. Typical issues addressed in such documents include the principles of ‘avoid, reduce, reuse, recycle and dispose’.

Opportunities for recycling materials will be implemented in the construction design program and implemented, where practicable, depending upon the availability of local facilities. These conditions of contract are accepted by all major civil works contractors and form an integral supplement to normal site occupational health and safety briefings of all contractor field staff.

In keeping with these standard legislative requirements and workplace procedures, all hazardous wastes will be securely stored in appropriate weatherproof housing where needed and, if liquid, will be contained in bunded areas well away from watercourses.

All waste disposal for the project will be carried out in consultation with the relevant shire/city council Environmental Health Officers. Only waste management procedures consistent with the relevant council requirements will be implemented.

3.5.2 Operation

Regulated wastes associated with water pipeline operations are usually low-volume, low-level-of-risk wastes, such as contaminated soil/gravel (e.g. from minor accidental spillage of chemicals or lubricants). The management guidelines, including spillage control and disposal of potential contaminated materials, will be included in the operational EMP. No site-specific waste management issues have been identified at this stage.

3.6 Hazard and risk

Pipelines are recognised as a safe and efficient means of transporting water. However all civil works projects have some level of risk. Risks associated with the pipeline and management of potential risks will be assessed in accordance with AS 4360. Anticipated risks include the normal generic issues for community water supply infrastructure—corrosion, bushfire; location specific issues—flooding, scouring; and potential external threats such as third party interference. A combination of physical and procedural measures will be applied to the pipeline to ensure design and management meet appropriate safety standards. Some of these have already been briefly described in previous sections of this report.

The identified risks during operations will be managed through a project-specific safety plan and an emergency response plan prepared in compliance with the *Workplace Health and Safety Act 1995*.

3.7 External infrastructure requirements

3.7.1 Water supplies

Initially, locally sourced raw or recycled water will be required for dust suppression, and smaller volumes of potable water will be required for domestic-equivalent use at the site office. At a later stage, potable water will be required for hydrotesting (pressure testing) the pipeline.

Sources of water for construction will be obtained from sources as close as possible to the point of use and managed under relevant approvals from local government suppliers (potable water) or other authorities (raw and/or recycled water). Potable water will not be used for general construction activity.

3.7.2 Road and rail links

There will be a range of heavy vehicles supplying construction materials (delivery of pipes, bedding material and equipment) associated with the project during the construction phase. Other local traffic will be associated with workforce movements to site.

Ideally, all-weather access will be provided and require construction at an early stage of site preparation, and maintenance of these temporary roadways will be an ongoing activity over the construction program. Some of these roads will be used in the operational phase as inspection rights of way. Road planning will take into account these future uses in order to minimise energy use in road construction over the lifetime of the pipeline.

The final selection of the transport option will be dependent on the availability of pipe within the required time frame. It is likely that the bulk of the pipe will be manufactured within Australia and rail freighted or shipped to Brisbane for delivery to construction sites by road. Given the proximity of the project area to the North Coast Railway, the possibility of transporting pipe and equipment to the Sunshine Coast by rail will be investigated, thereby limiting truck transport to local shuttling between railhead and laydown areas.

3.7.3 Electricity

Construction requirements will generally be supplied by portable generators on site. This will provide the necessary flexibility to supply construction teams as they move along the pipeline corridor.

Electricity will be required from the grid to supply power to pump stations and site offices. Alternatives to conventional power supplies will be investigated as part of detailed design for the project. Negotiations for power purchase agreements will be conducted with relevant supply authorities.

3.8 Economic indicators

SEQ is the fastest growing metropolitan region in Australia with growth rate consistently in excess of 5% per annum. In recognition of this, the Queensland Government released the Regional Plan in April 2005 to guide growth and development in the region through to 2026.

This plan details the infrastructure requirements to service regional growth, and the NPI is considered an essential piece of infrastructure to provide water to the identified demand nodes and potential industrial developments. Specifically the establishment of the NPI will give rise to a number of benefits including:

- adding to a regional network that complements existing water supply infrastructure
- allowing for the efficient integration of future bulk water supplies into the SEQ region
- ensuring a long-term diversity of supply
- providing a system that will result in greater flexibility, increased efficiency and improved reliability
- meeting the needs of the Regional Plan by allowing for supply of adequate quantities of high quality water to future nodes of urban growth and industrial development.

3.9 Employment opportunities

Local employment opportunities include manual labour, plant operators and hire, catering supplies, transport and courier services, fencing services and waste management contractors. In addition to direct opportunities, service sector expansion will be required that will generate further employment from vehicle hire, general fabrication and maintenance requirements, catering, transport servicing and expanded retail activity in the local business community.

It is estimated that at least 200 personnel will be employed during the construction phase of the project with actual employment numbers ultimately depending upon the construction schedule to be developed in the next phase of the project. Further personnel will be employed in the manufacture of pipeline materials.

Operation and maintenance of the pipeline will require a limited workforce. Approximately 20 workers will be responsible for NPI Stage 2 and will likely focus on operation of the entire NPI system.

3.10 Cost

The capital cost of the project is estimated at $400 million to be spent over a 2-year time frame. A detailed estimate of costs will be developed at a later stage.

3.11 Proposed environmental studies

Environmental investigations completed to date have been a combination of desktop and initial field investigations as part of initial constraints identification for route selection. Topic areas to be covered in greater detail in the EIS are listed in Table 2.1.

Table 2.1 List of proposed topic areas for detailed environmental studies

Discipline	Topic
Environment team	Route alignment optimisation
	Flora and fauna studies, including surveys of areas of EPBC, state and regional conservation significance for identification of rare and endangered species of plants and animals
	Investigation of potential contaminated sites
	Potential noise impacts of construction and operations
	Flooding studies
	A general air quality assessment
	Social impact assessment/economic analysis
	Studies of European and Aboriginal culture and heritage and preparation of associated cultural and heritage management plans
	Acid sulfate soils investigations
	Climate change, minimisation of greenhouse gas emissions and opportunities for sustainability of resources usage
	Terrain and soils evaluation for erosion hazard management planning
	Hazard and risk assessment
	Detailed studies of waterway crossing points
Engineering team (engineering associated activities that have environmental implications)	Engineering detailed design
	Logistics planning
	Traffic management planning
	Geotechnical surveys

4 EXISTING ENVIRONMENT

4.1 Natural features

4.1.1 Terrain

The project area comprises the floodplains of the Maroochy River, Petrie Creek and Eudlo Creek interspersed by a number of coastal ridges extending east–west from the Blackall Range. The main line commences in the rolling hills around Lake Macdonald and descends onto the floodplain of the North Maroochy River. To the west of Eumundi, the route crosses a steep ridge adjacent to the Bruce Highway, traverses along the western edge of Yandina township and onto the low-lying agricultural areas of the Maroochy River floodplain.

A second ridge extends into the coastal plain to the west of Bli Bli, and the preferred corridor crosses in the vicinity of Atkinson Road before descending to the flats around Petrie Creek and Didillibah. The corridor then follows Eudlo Creek west to Forest Glen before again ascending steeply to connect with the Stage 1 works at Nobels Road, Eudlo.

4.1.2 Land use

The ridges in the project area are steep and often retain a large proportion of their native vegetation. Land uses in these areas are generally limited to low-density rural residential properties. At a landscape scale, these vegetated ridges extend west from Mapleton State Forest and surrounds to the coast, forming a series of corridors which facilitate wildlife movement.

By contrast, the flats have been highly modified and are typically characterised by more intensive uses, including cropping, road and rail infrastructure, urban communities, industrial uses and rural residential properties. In these areas, vegetation typically persists as linear corridors along waterways or small, isolated patches.

Mid–high density residential areas along the route are located at Lake Macdonald and Yandina. Rural residential areas in close proximity to the route are present at Bridges and at Bli Bli.

Industrial uses are located at Chevallum, Forest Glen and to the west of Eumundi. The route also passes within close proximity of a clay quarry on Lake Macdonald Drive and the Cooroy brickworks.

Extensive areas around Petrie Creek and the Maroochy River are dominated by agricultural land predominantly used for growing sugar cane. These areas are typically flood-prone coastal lowlands where residential development is restricted.

Approximately one-third of the preferred corridor is located within an existing cleared Energex easement, which is intended to minimise the additional encumbrance on individual landholders.

4.1.3 Coastal waterways

The preferred corridor bisects a range of areas within the South-east Queensland Coastal Management District, including tidal rivers, creeks and lands under tidal influence. Assessment against the *Coastal Protection and Management Act 1995* will be required and a range of relevant statutory approvals will be necessary for construction of the pipeline within these areas.

These areas within the coastal management district form part of the nutrient and biological pathways that add to large coastal systems such as Moreton Bay and Pumicestone Passage. These large systems are recognised for their biological diversity and are protected and managed under a range of legislation, agreements and treaties, including Ramsar, marine park and migratory bird pathways (such as the Japan–Australia Migratory Bird Agreement and the China–Australia Migratory Bird Agreement).

Typically, coastal areas within or adjacent to the corridor of investigation contribute to a range of tidally influenced ecological processes and communities. These processes have resulted in the formation of extensive underlying acid sulfate soils (see below) and coastal habitats of ecological importance. The coastal habitats include colonising mangrove and saltmarsh communities that provide structural and foraging support for a range of species of state and national significance.

4.1.4 Acid sulfate soils

The proposed main line for the project will traverse low-lying agricultural lands at elevations below 5 m Australian Height Datum (AHD) in areas where acid sulfate soils (ASS) are known to occur. The area of concern is predominantly between Forest Glen and Yandina, where the route passes through the localities of Diddillibah, Bli Bli and Maroochy River.

Desktop and field studies will be carried out as part of the EIS to determine the nature and extent of ASS in the project area. The results of these studies will be incorporated into a comprehensive ASS management plan to be implemented during construction.

If potential ASS are exposed during excavation works, they have the potential to generate sulfuric acid on oxidation. On the other hand, ASS are already oxidised and contain sulfuric acid and pyrite (iron sulfides). If ASS/potential ASS are not appropriately managed they can cause significant environmental impacts. In particular, changes in water quality resulting from the entry of ASS to waterways may impact on aquatic life as well as concrete and steel infrastructure (e.g. drainage pipes and bridges).

Soil management guidelines prepared by NRW detail proven management principles for ASS, including preferred management strategies such as minimisation of disturbance, neutralisation and best practice environmental management.

4.1.5 Biological communities

The project area is located entirely within the SEQ bioregion, which is considered to have high biodiversity. It should be noted that the preferred Stage 2 corridor is frequently located in road reserves and other service corridors, which often form existing permanent barriers of varying significance for adjacent ecological communities.

Preliminary desktop studies were undertaken to identify potential biological constraints in close proximity to the corridor. Database searches were completed for an area up to 5 km wide on either side of the preferred corridor to ensure adequate representation of species, according to the accuracy of the database. Databases consulted include the Regional Ecosystem Description Database (REDD), EPBC Online Protected Matters Search Tool, the Environmental Protection Agency's Wildlife Online database, HERBRECS (Queensland Herbarium) and the Queensland Museum database.

Flora

Vegetation within existing public utility easements and roads is typically dominated by a mixture of native and exotic grasses and herb species. A range of native vegetation types are present within the project area, ranging from open eucalypt forests in elevated areas, melaleuca woodlands in moister lowlands, gallery rainforest along waterways and mangrove communities on tidal flats around Petrie Creek and the Maroochy River.

In Queensland, specific vegetation communities found in association with particular geological characteristics are referred to as 'regional ecosystems' (REs). A review of RE types for the proposed pipeline found 23 to occur within 3 km of the proposed corridor. Under the *Vegetation Management Act 1999* (VM Act), 11 of these REs are listed as 'not of concern', 11 as 'of concern' and one as 'endangered'.

Database searches (EPBC Online, Wildlife Online and HERBRECS) returned records for 27 flora species protected under Commonwealth and state legislation within 2 km of the preferred corridor. Prior to construction, detailed flora surveys will be carried out by a qualified botanist to determine whether any protected species occur within the proposed corridor.

Preliminary investigations have identified the potential for a substantial number of weed species to occur in the project area. The presence of declared weed species will be recorded during vegetation surveys conducted for the EIS. A weed management plan will be developed as part of the construction EMP to prevent the potential for establishment or spread of invasive species as a result of construction or ongoing operations.

Fauna

The project area supports a diverse array of habitats, ranging from aquatic environments to saltmarsh and mangrove communities in areas under tidal influence; melaleuca wetlands and vine forest communities on alluvial soils; and terrestrial woodland/open forest communities on slopes and ridges. The low-lying sugar cane areas are also habitat for some species. Reflecting this diversity, a large number of fauna groups are anticipated.

Searches of available databases, including records held by the Queensland Museum and Birds Australia and the EPBC Online Protected Matters database (using an area search approximately 5 km wide on either side of the corridor), returned records for 54 fauna species of conservation significance, including 30 bird, nine frog, six reptile, six mammal, two insect and one fish species. A number of the species of birds identified are migratory and listed under associated legislation and agreements.

The information derived from database searches will be used to identify preferred habitats for each species so that targeted surveys can be conducted to determine whether these species are likely to be present along the corridor. This will be completed as part of the preparation of the EIS. Key species expected to occur in the project area include the Water Mouse (*Xeromys myoides*), Australian Painted Snipe (*Rostratula benghalensis*) and Giant Barred Frog (*Mixophyes iteratus*).

4.2 Native title and cultural heritage

4.2.1 Native title

The SRWP Co will prepare a native title compliance schedule for the project to fulfil the procedural rights of native title parties under the *Native Title Act 1993*. A compliance plan has been prepared for Stage 1 of the NPI between Landers Shute WTP and Morayfield, and this will be expanded to include the Stage 2 corridor.

4.2.2 Cultural heritage

Under the provisions of the *Aboriginal Cultural Heritage Act 2003*, the relevant cultural heritage parties are identified via any group/s that make up a native title claim over the area in which the proposed development is to take place. For the proposed NPI corridor and associated infrastructure, Gubbi Gubbi #2 is considered the Aboriginal party.

A cultural heritage management plan covering the entire NPI project area has been endorsed by SRWP Co and the Aboriginal party, and approved by NRW. SRWP Co will continue to ensure that works for the project are undertaken in accordance with the plan.

4.3 Social and economic

The project covers the local government areas of Maroochy and Noosa shires. Land uses throughout the project area vary from rural to rural residential, residential and urban. A number of areas on or adjacent to the proposed route support residential or industrial land uses which may be affected by construction of the NPI.

4.4 Land tenure

While the route follows existing power easements wherever possible, other tenures likely to be crossed by the pipeline route include:

- freehold land in private ownership, or owned by the government or utility providers such as SEQ Water, Aquagen, SunWater and Energex
- state land under the control of local authorities, state departments and agencies in leaseholds, reserves or as roads, railways, waterways, tidal waters and unallocated state lands under the control of NRW
- easements held by private individuals, utility providers, local, state and Commonwealth governments.

5 POTENTIAL IMPACTS AND MANAGEMENT

This section of the IAS is a general overview of potential impacts and mitigation measures associated with the construction of a pipeline. This is a precursor to a specific construction EMP, which will be developed to manage on-site impacts during the construction phase and which will meet, as a minimum, the procedures outlined in the Australian Pipeline Industry Association code of environmental practice (APIA 2005).

A range of impacts may potentially occur during construction of a pipeline. SRWP Co has engaged the Southern Regional Water Pipeline Alliance to undertake thorough investigations and detailed planning throughout final route selection and engineering design processes to minimise potential adverse impacts. Additional studies are planned to refine the proposed pipeline alignment and determine the actual level of impacts associated with the construction and operation of the project, and these will be detailed in an EIS.

5.1 Physical alteration of the area

Where pipe laying occurs, a strip of land will be cleared of vegetation to create an optimum construction corridor up to 40 m wide. This is subject to some variation—the width of the corridor may be reduced in areas of high conservation significance, or increased for storage or laydown areas where major boring has to take place. Corridor variations will be undertaken in accordance with best practice for minimising/avoiding impacts on significant vegetation, minimising the practical width of clearing for construction, and keeping surface disturbance and soil removal to a minimum.

5.2 Land use

Interference with landholder activities should be minimal, and all landholders will be consulted regarding the project to discuss their specific requirements. The trench will be left open for the minimum amount of time practicable and should not pose a long-term hazard or barrier to stock. Temporary provisions such as fencing or access to water will be discussed with the landholder, and any existing fences impacted by the proposed pipeline or ancillary facilities will be reinstated to at least the original condition.

Additional tracks may be required in some areas to provide access to the right of way (ROW). The location and rehabilitation of the access tracks will be conducted in consultation with the landholder.

Disruption to local roads may occur during the construction of the proposed pipeline due to transport of pipe and equipment and the installation of the pipeline itself. Such activities will be coordinated in discussions with the local councils, Department of Main Roads and affected residents regarding the schedule of activities in order to minimise disruption. Local roads will be left in a condition at least equivalent to the existing condition at commencement of construction.

Any crossing of a major road or rail infrastructure will be carried out in consultation with the Department of Main Roads and Queensland Rail and in such a way as to minimise disturbance to traffic. Passage under major roads and railways is expected to be through microtunnelling.

5.3 Drainage and watercourses

Alteration to topography or drainage will be minimised during the clearing phase and rectified to original condition during clean-up and rehabilitation.

The construction corridor for the Stage 2 main line is located almost entirely within the Maroochy River catchment and extends slightly into the southern extent of the Mary River catchment and the northern boundary of the Mooloolah River catchment area.

Major rivers include:

- South Maroochy River
- North Maroochy River

Major creeks include:

- Eudlo Creek
- Paynter Creek
- Petrie Creek
- Caboolture Creek
- Browns Creek
- Running Creek
- Bunya Creek
- Gold Creek
- Caplick Creek
- Six Mile Creek

These waterways include both freshwater and marine-influenced systems. The EIS will assess the impacts of various crossings methods for these waterways, providing recommended options and mitigation strategies to reduce significant impacts.

A number of freshwater and tidal watercourse crossings will be required of the proposed pipeline. The actual location of these crossings will depend upon the final pipeline alignment, which in turn will be dependent upon geotechnical studies to be undertaken during the EIS. Construction of the pipeline will not permanently modify any watercourses, although there will be potential for temporary disruption during construction of the crossings.

Construction methods used for watercourse crossings will be determined by specific factors of the locale (e.g. hydrology, stream substrate and geology, environmental and cultural sensitivities, engineering feasibility), with the aim being to minimise environmental impacts during construction and to produce a stable outcome that will minimise the need for future remedial work during the operation phase of the proposed pipeline.

5.4 Erosion and water quality

Removal of vegetation can expose soil to wind and rain, increasing the potential for erosion and, in proximity to watercourses, reducing stream water quality by increasing turbidity and suspended solids. To limit the potential for erosion and sedimentation to occur, thus reducing the risk of adversely impacting water quality, weather conditions will be taken into account in the construction planning.

Restoration of work areas after construction will be an ongoing rolling process, with a sequence of clearance of the corridor just ahead of excavation of the trench, followed by placement of the pipeline. In turn, this will be followed by the return of excavated fill to cover the pipeline. In effect, the work will proceed as a geographically limited centre of activity that passes through the larger landscape over a relatively short time period. This approach of rapid re-establishment of cover is the standard procedure to minimise the potential for soil erosion and reduction of water quality from any unanticipated heavy rainfall and/or storm events.

Acid sulfate soils are expected to be encountered within the low-lying former sugar cane fields adjacent to the major creeks (Eudlo, Paynters and Petrie creeks) and rivers (Maroochy River main branch and north branch). These can be managed with proper planning, and while ASS could have been avoided by adopting a more inland route, alternative non-ASS routes were considered more difficult to construct and potentially would have higher impacts on native vegetation and fauna. Relevant sections of the pipeline will be managed in accordance with state government acid sulfate guidelines and a comprehensive acid sulfate management plan will be prepared.

The construction EMP will detail all appropriate sediment and erosion control requirements for the project. With the implementation of erosion control measures in accordance with the APIA code of environmental practice, the impacts on soil loss and water quality are expected to be low.

5.5 Flora and fauna

5.5.1 Ecosystems

Potential impacts from construction of a buried pipeline are those associated with fragmentation and disturbance due to vegetation clearing. These may be partially offset by diversification of habitats associated with edge effects that may favour some species. Wherever possible, the route follows existing cleared service corridors or traverses other highly modified environments to minimise the additional impact on remnant ecosystems. However, the pipeline has the potential to cause damage to some remnant vegetation including:

- eucalypt communities along ridgelines
- vine forest communities along waterways
- wetland communities
- tidal communities along the Maroochy River, Paynters Creek and Petrie Creek.

Where practical, the pipeline route will avoid as far as possible ecosystems protected by the Commonwealth, and REs listed as ‘endangered’ and ‘of concern’ under the *Vegetation Management Act 1999*. Should passage be required through such vegetation units, the final route alignment will examine practical methods to minimise effects by using existing easements through these units, minimising corridor widths where passage is unavoidably required and possibly, in extreme situations, tunnelling under short sections (e.g. major rivers) to completely avoid disturbance. The intent is to minimise fragmentation and protect the viability of remnant vegetation. Detailed studies and mapping of these aspects will be undertaken as part of the EIS process.

5.5.2 Flora

The impact of clearing a ROW up to 40 m wide is dependent upon the type and nature of vegetation to be disturbed, its function as fauna habitat or linkage, and topographical features such as slope and aspect. Much of the proposed ROW is already disturbed by agricultural clearance or is in a transmission easement. Wherever possible, large habitat trees encountered along the route will be avoided as such trees take many years to regenerate. Substitute actions to counter such effects will be discussed in the relevant EMPs and the EIS.

For the most part, impacts associated with construction are considered to be transient as there will be ongoing rehabilitation and revegetation measures. Detailed flora studies will be undertaken as part of the EIS process to enable impacts on common and scheduled species to be minimised.

5.5.3 Fauna

The main impacts of construction on fauna would be short-term increases in disturbance from construction noise, dust from excavation and vehicles, and potentially increased road-related mortality from greater frequency of traffic on local roads, including truck movements. Clearing of vegetation may also result in loss of habitat. However, significant isolated habitat trees should mostly be avoided by the final pipeline alignment. As noted above, the EMPs and EIS will address possible offsets such as salvage and relocation of any hollows to appropriate alternative hosts wherever possible.

Fauna mortality may also occur as a result of individual animals falling into the trench. Usually no more that 100 m of trench is left open at any one time. Open trenches will need to be secured and managed to ensure the risk to both humans and fauna species is minimised.

Analysis of preferred habitat requirements for each scheduled fauna species will be undertaken, as well as searches of the Birds Australia and Queensland Museum databases. An ecological field survey will be carried out as part of the EIS to determine if the terrain crossed by the pipeline contains ‘preferred habitat’ for any scheduled fauna species.

Due to the short duration of construction, the eventual re-establishment of the land surface along the preferred route, and the exercising of due care and attention, impacts on flora and fauna are expected to be manageable, acceptable and in most cases low. However, there is potential for short-term impacts on the feeding and foraging habitats of a number of migratory species.

5.6 Noise and vibration

Some disturbance will be experienced by residents when the preferred pipeline route passes near urban or rural residential areas. Although this will be of relatively short duration, community consultation during the planning of the route, prior to any activity and over the period of construction, will be an important priority. This will enable accommodation of any special needs and enable proactive management of impacts by local residents such as restricting working to shortened standard working hours when this involves noise and vibration.

Any impacts associated with the need for blasting of hard rock will be assessed in the EIS. Typically, a range of methods of rock removal will be considered, including blasting.

As noted in the initial description of the project, a proposed pump station will have fittings with a very low noise profile and will be surrounded by vegetated bunds. A low building profile will

also minimise noise impacts. Studies will be conducted during the EIS to review potential noise and vibration impacts.

5.7 Traffic

Increased traffic by heavy vehicles during construction can be anticipated on local roads for the transport of pipe sections and other equipment. Most of this heavy traffic for the construction phase will be along the ROW. Local car traffic along council roads adjacent to the proposed route will increase with workforce movements during construction activities. Councils will be advised when significant increases in vehicle use on minor roads are expected. To assist councils in planning for these eventualities, a project traffic management report will be prepared and implemented as part of the EIS.

5.8 Air quality

The main impact to air quality from the project would be associated with dust generation along unsealed roads during construction, particularly where the ROW passes in close proximity to residences. This will be mitigated by the use of water trucks as necessary, together with wetting and coverage of loads of excavated material being moved off site. These and similar measures will be described in the EMP and EIS. These impacts are manageable and will generally be of short-term duration as the construction team works through the area.

Air quality could also potentially be affected by exhaust emissions from equipment and vehicles during construction. However, given the open countryside where most construction will be occurring, this is unlikely to be of concern. As part of the EMP and as a condition of contract, all contractor equipment and vehicles will be required to be properly maintained and in sound working order.

Given the nature of potential emission generation, impacts on air quality associated with the project are expected to be low.

5.9 Visual amenity

Clearing of the ROW through formerly timbered areas will have a visual impact from locations where works are visible from roads or by individual residences. These concerns will be avoided as far as possible by optimising the route alignment to follow existing cleared easements and farm paddocks. Additional clearing is expected to be minimal. By ensuring that restoration works adhere to soundly based criteria as specified in the construction EMP, negative aesthetics of any additional clearing are expected to be quickly reduced to a practical minimum.

As the opportunity for public viewing of construction activities will be limited to areas of already cleared vegetation, short-term impacts on visual amenity are expected to be low. Due to the proposed revegetation program no long-term impacts are expected.

5.10 Community consultation

A comprehensive community consultation programme is essential to the overall success of this project. To this end, a comprehensive community consultation and awareness program will be developed and implemented. This will inform communities about the nature of the project, the construction and operational impacts, and the derived benefits.

Furthermore, the consultation program will seek input from the community, and this information will be taken into account during design planning and construction in order to achieve the optimal outcome for all parties.

It should be noted that the preliminary route identified earlier in this document has already focused on avoiding residential areas where possible and using, where possible, existing infrastructure corridors in an effort to minimise visual and other impacts to the wider community.

5.10.1 Purpose

The purpose of the community stakeholder management plan (CSMP) will be to facilitate input from stakeholders by providing:

- a clear understanding of the project, the potential impact and benefits, and the time lines
- information exchange mechanisms and suitable methods of identifying and servicing their concerns.

5.10.2 Program

The CSMP will be undertaken in an ordered fashion. The elements of the program are described below:

Identification of key stakeholders—SRWP Co is currently identifying all stakeholders who may be impacted by the project (e.g. landowners, mining interests, community and environmental groups). Preliminary discussions have been held with the relevant local authorities and the Department of State Development. An appropriate database of stakeholders will be compiled to be added to as the project time lines progress.

Community consultation process—DoI and SRWP Co are committed to taking a proactive approach to seeking community views and to ensuring that adequate means of communication are provided. To this end, a consultation team comprising people with expertise in community consultation, the environment, cultural heritage, land valuation, engineering and public relations will be established to work with the technical design team to implement an appropriate strategy for the project. It should be noted that a detailed CSMP has been compiled for Stage 1 of the NPI, and these procedures will continue into this second stage. A CSMP is an integral part of the documentation associated with the business case of the NPI.

Stakeholders will be provided with a clear understanding of the nature of the project, its parameters, its benefits, its time lines and impacts. They will be kept informed of the progress of the project through regular and advertised public meetings, personal contact, correspondence, fact sheets, a website, and a free call hotline. During this campaign the stakeholders will be given every opportunity to express their concerns and requirements.

EIS consultation—The project will follow specific requirements of the relevant Act to conduct regulatory consultation in the EIS process as coordinated by DoI.

Cultural heritage and native title—Similarly, the consultation team will seek expert input on cultural heritage and native title issues with the assistance of the Cultural Heritage Coordination Unit of NRW. Appropriate interest groups will be identified and negotiations undertaken.

5.10.3 Land acquisition

For the majority of the corridor, it is intended to attempt to obtain all land, easements and access to land for investigations by negotiated agreement with the owners. This is socially and politically the most acceptable process. In order to provide a level of certainty for the acquisition process, negotiated agreements will be sought in conjunction with the formalised compulsory process.

The state government has amended the SDPWOA to facilitate the inclusion of new infrastructure into an existing infrastructure easement. This amendment relates to land that is burdened by a relevant public utility easement in an area where a critical infrastructure project is proposed. In these circumstances the CG may register a critical infrastructure easement in favour of the state.

5.11 Potential impacts and management—operation and maintenance

A range of largely non-intrusive activities will take place during the operational stage of the pipeline, including final compensation negotiations, any follow-up rehabilitation (trench subsidence), monitoring and maintenance works. These will be managed through an operations EMP that will be prepared at a later stage of the present process.

6 STATUTORY REQUIREMENTS

6.1 General

Through this IAS, SRWP Co will seek a 'significant project' declaration under the SDPWOA for the project. Under this designation, the SDPWOA sets out the requirements for environmental assessment and public review.

In addition to providing a mechanism for consolidating community, social, biological and environmental concerns for the project, a significant project declaration provides:

- the necessary justification for an application to clear vegetation for an ongoing purpose under the VM Act
- a link with the Commonwealth Department of the Environment and Water Resources under a bilateral agreement for the assessment of actions under the *Environment Protection and Biodiversity Conservation Act 1999*.

Under s.76E(1) of the SDPWOA, the Minister may declare the project a prescribed project and a critical infrastructure project. The declaration is effective once a gazette notice is published.

The main benefit of a 'prescribed project' declaration is to allow the CG to have a closer involvement in the timing of State approvals processes. Namely, the CG has amended the SDPWOA to issue progression notices, notices to decide and step-in notices.

A 'critical infrastructure project' declaration, under s.153A SDPWOA, would enable the CG to then register a critical infrastructure easement over land with an existing public utility easement. A declared critical infrastructure project may be constructed within a critical infrastructure easement in favour of the CG.

6.2 Other legislation

The project is potentially assessable under a range of state, federal and local government approval processes. Schedule 9 of the *Integrated Planning Act 1997* (IPA) lists development that is exempt from assessment against a planning scheme. Amendments to the *Water Act 2000* and the Water Regulation 2002 direct that works be carried out under state law to complete the NPI by the 31 December 2008. As such, the NPI has been determined to fall within the exemptions of Schedule 9 where Table 5 Item 4 states that 'all aspects of a development a person is directed to carry out under a notice, order or direction made under a State law' constitute exempt development.

As such, the NPI project does not constitute assessable development under the Noosa and Maroochy planning schemes. However, approval may need to be sought from councils where some aspect of the development is regulated under a local law. In any case, the project will require approval for activities under a range of processes. These include, but are not limited to:

Federal

- *Environment Protection and Biodiversity Conservation Act 1999*
- *Australian Heritage Council Act 2003*

State

- *State Development and Public Works Organisation Act 1971*
- *Integrated Planning Act 1997*
- *Aboriginal Cultural Heritage Act 2003*
- *Water Act 2000*
- *Environmental Protection Act 1994* and Regulation
- *Coastal Protection and Management Act 1995* and Regulation
- Nature Conservation (Wildlife) Regulation 1994
- *Fisheries Act 1994*
- *Vegetation Management Act 1999*
- *Acquisition of Land Act 1967*
- *Native Title (Queensland) Act 1993*
- *Local Government Act 1993*

6.3 Codes of practice

The Australian Pipeline Industry Association Code of Environmental Practice demonstrates industry best practice management to mitigate environmental impacts from construction and operation of pipelines. The association advocates this document as an appropriate code of practice for the industry. Section 4 of the code details mitigation strategies that should be incorporated in an EMP for the project.

6.4 Complexity of statutory requirements and negotiations

The project is expected to involve a high level of complexity, including:

- negotiations with local authorities and a corporate entity for relevant statutory approvals
- variety of land tenures including:
  - freehold, leasehold and state land
  - mining tenures
  - existing easements
- negotiations with numerous infrastructure providers including:
  - Energex
  - Department of Main Roads
  - Queensland Rail
  - water authorities
- the need to address local and state government approvals and/or legislative requirements (e.g. local approvals for temporary road closure, state government licences and permit applications)
- numerous environmental approvals and licences from departments and agencies, as outlined in Section 6.2

7 CONCLUSIONS

This IAS has provided a broad range of information compiled from remote sensing, desktop assessment of available data and supplemented by limited field inspections and surveys. The latter have been concentrated primarily on specific areas of sensitivity as part of better delineating the potential impacts of the construction and operation of the project.

Within this document, this IAS has identified that potential impacts could include:

- removal and modification of flora and fauna habitat, especially lands within the South-east Queensland Coastal Management District
- potential impact on wildlife protected under state and Commonwealth legislation. Specifically, matters of national environmental significance under the EPBC Act such as migratory species and threatened species
- weed dispersion
- dust generation
- traffic impacts
- noise and vibration impacts
- water quality
- dislocation of some rural activities
- establishment of new easements on public and private lands.

As set out in the introduction to this document, the purpose of an IAS is to highlight issues relating to the proposed development and make recommendations as to the need for further studies, in particular an EIS.

From experience with similar water pipelines in the SEQ region, SRWP Co is confident that with careful planning, construction management including workforce training and the implementation of an appropriate construction EMP, overall impacts from the proposal can be managed.

This is in keeping with the wider experience in the pipeline industry which in recent years has successfully constructed a number of major pipeline projects around Australia. The methods and protocols of environmental management that have become firmly established within the industry (as seen in the APIA guidelines) are accepted and willingly followed. This provides the confidence to ensure that a range of management techniques based on current best pipeline practice will be implemented through a project-wide construction EMP and regular site audits.

7.1 Benefits

The project will give rise to a number of benefits, including:

- providing a regional network that will expand the capacity of existing water supply infrastructure
- allowing for the efficient integration of future bulk water supplies throughout the SEQ region
- ensuring a diversity of supply and thereby assisting Sunshine Coast councils to confidently plan for continued supporting infrastructure for urban development over the longer term
- providing a system that will result in greater flexibility, increased efficiency, contingency supply and improved reliability
- meeting the regulatory requirements of the current drought emergency legislation and the needs of the state planning instruments for supply of water to growth nodes and industrial developments.

8 REFERENCES

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