Executive summary

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TITLE OF PROJECT

Environmental Impact Statement (EIS) for the Northern Pipeline Interconnector Stage 1—Landers Shute Water Treatment Plant Main Line to the Morayfield Reservoirs.

NAME AND ADDRESS OF PROPONENT

The proponent for this project is the Southern Regional Water Pipeline Company (SRWP Co). The SRWP Co was incorporated under the *Corporations Act 2001* (Cwlth) to manage and oversee delivery of bulk water infrastructure networks such as the Southern Regional Water Pipeline (SRWP), a drought contingency project to be constructed between western Brisbane (Mt Crosby) and the Gold Coast. Subsequently, the state has asked SRWP Co to manage the Northern Pipeline Interconnector (NPI) and Eastern Interconnector.

Shareholders of the company include SEQWater and the councils of Brisbane, Ipswich, Logan and Gold Coast cities, as well as Beaudesert Shire Council.

Contact:

Southern Regional Water Pipeline Company
Level 5, 200 Creek Street, City East Qld 4002
ACN 117 898 174
www.srwpalliance.com.au

PROJECT DESCRIPTION AND OBJECTIVES

The NPI is a drought contingency project that will provide a bulk fresh water supply of up to 65 ML/d between the Sunshine Coast and Brisbane. To be undertaken in several stages, the project relies on the collection and transportation of available capacity from existing water allocations at supply sources throughout the Sunshine Coast.

The NPI will provide a direct response to the current drought emergency as well as a long-term primary mechanism to support expected increased demands in urban water consumption. The philosophy underlying the project is the provision of an interconnected water transfer system linking existing water infrastructure to a new pipeline delivery system.

The objectives of the NPI project are the timely investigation, design, procurement, delivery and commissioning of an emergency water transport solution for the region. These objectives will be achieved by:

- providing a response to the current emergency water supply in the region as well as future demands in water consumption
- ensuring the efficient and effective use of existing and planned infrastructure and associated systems
- accommodating a future reverse-flow capability as well as linkages with new water sources
- providing efficient and effective system operations and maintenance, to ensure continued and timely delivery of potable water.

The first stage (Stage 1), which is the subject of this EIS, will link the main supply line from the Landers Shute Water Treatment Plant (WTP) through a new section of pipe to the Morayfield reservoirs near Caboolture. This system feeds into the Brisbane system via North Pine Dam. A second stage, to be considered under a separate EIS, will involve new pipelines north from Landers Shute WTP to Cooroy and the Noosa WTP.

Stage 1 of the NPI must accommodate water from potential future sources, including the proposed Traveston Crossing Dam should it be approved. Further, Stage 1 will be designed with a reverse-flow capacity to transport water from Brisbane to the Sunshine Coast. Neither of these design features is necessary for delivery of the emergency scope detailed in the Water Regulation 2002.

WATER SUPPLY AND ALLOCATIONS

Baroon Pocket Dam is located on Obi Obi Creek, which forms part of the Mary River catchment. AquaGen currently manages the dam under the interim Resource Operations Licence (iROL) for the Baroon Pocket Water Supply Scheme 2004. The requirements of the iROL to provide water to the Landers Shute WTP, for environmental flows and for downstream irrigators will continue until the final Resource Operations Plan is approved for the Mary Basin, when iROLs will be converted to Resource Operations Licences (ROLs).

Stage 1 of the NPI does not involve any new water allocations or any changes to existing allocations for Baroon Pocket Dam or other sources within the Mary River catchment. Therefore, the project will have no impact, directly or indirectly, on the environmental flows required by the iROL to be released to Obi Obi Creek downstream of Landers Shute WTP.

This EIS considers the construction and operation of Stage 1 of the NPI to facilitate the distribution of water within south-east Queensland (SEQ) as part of a regional water grid. It is important to note that water allocations are governed separately under the *Water Act 2000*. A Water Grid Manager will be appointed by the state to administer the availability of all bulk water.

NEED FOR THE PROJECT

The South East Queensland Regional Plan predicts population increases above previous projections for the region. The state government and Queensland Water Commission have also reviewed the capacity of the existing and planned future water infrastructure to supply the water needs of south-east Queensland in light of the current long-term drought. Due to projected increased demand and prolonged drought conditions, it was identified that an expanded water supply capacity was required to ensure continuation of potable water supply to consumers.

The proposed NPI will:

- deliver a critical component of the proposed South East Queensland water grid to supply emergency water into the northern suburbs of the greater Brisbane area
- expand the source base for water supply to the Brisbane area in the short term (Landers Shute WTP draws on an approved water allocation from the Baroon Pocket Dam, fed from the Obi Obi Creek sub-catchment of the Mary River system)
- lead to the development of a system capable of reverse flow on the NPI. This will enable water from Brisbane or other sources to be directed to the Sunshine Coast and Brisbane, if needed, under different drought or demand management situations in the future.

ALTERNATIVE OPTIONS AND ROUTE SELECTION

Alternatives to construction of the NPI would require resource sharing between regional water supplies. These alternatives would necessitate the provision of up to 55 ML of water per day. They include:

- water consumption reduction by users of existing supplies—an option that is already being implemented through water restrictions, encouragement of water efficient plumbing appliances and use of rainwater collection tanks, and an option that will receive further encouragement under the regional plan

- further encouragement of alternative water sources for industrial use through extraction and on-site purification of treated sewage and discharge back to sewer after use, stormwater harvesting etc.
- increased groundwater harvesting to supplement potable water storages
- new water supply dams in coastal catchments
- desalination.

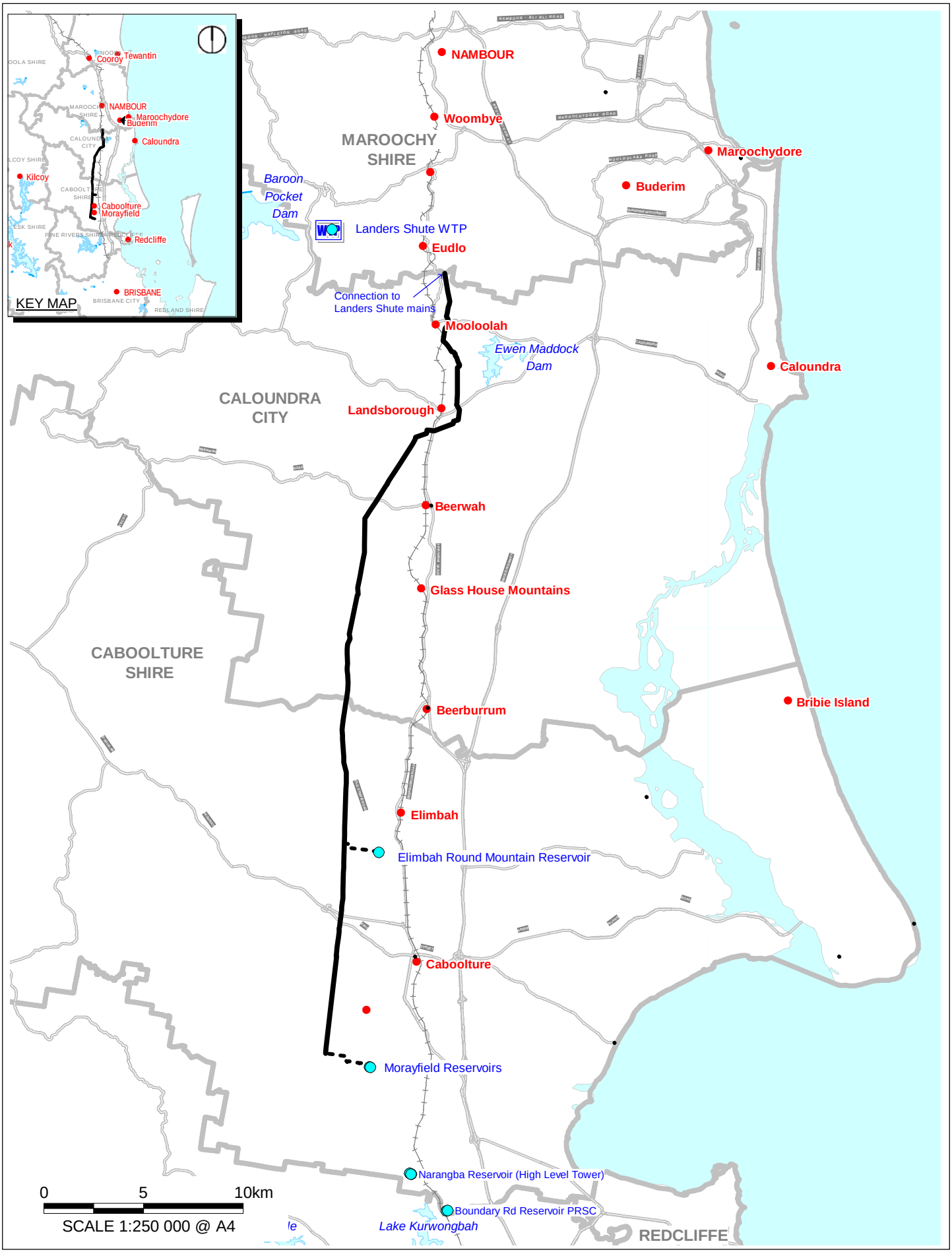
All of the above alternatives may eventually be exercised should any one of the following occur:

- population expansion continues beyond present expectations
- water demand exceeds present water supply options
- drought conditions persist in the Wivenhoe, Somerset and other catchments.

These options entail a greater cost per unit volume to consumers and their implementation will take a longer time to become effective. In this context, the NPI provides a buffer to enable reasonable phasing in of future options so that undue hardship to consumers is avoided. Further, under the current legislative direction, there is no option not to proceed with the NPI. The project is declared under a relevant State Law and must be completed within a regulated time frame.

For Stage 1 from Landers Shute WTP to Morayfield, five pipeline route options were assessed (KBR 2006, JWP 2006). These options included the Bruce Highway, old Bruce Highway/Queensland Rail corridor, other minor roads and a western and central power corridor route. Following a field verification phase, the current corridor was selected because it:

- is relatively flat and wide
- is not congested with other services
- has smaller pumping requirements for future reverse-flow
- is largely cleared except for some creek and gully crossings
- has no fatal flaws from an environmental, engineering, social or cultural heritage perspective.



Source: Base data supplied by Department of Natural Resources and Water

Projection: GDA94 (MGA56)

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Date: 18 June 2007 (Rev G)

northern pipeline inter connector

NORTHERN PIPELINE INTERCONNECTOR

LOCALITY MAP

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The proposed corridor (Figure 1) has been defined based on desktop assessment and several field inspections. Detailed geotechnical and survey assessments are currently being completed.

Some of the major factors in the pipeline route evaluation and selection included:

- minimising, and if possible avoiding, adverse environmental, cultural heritage and social impacts
- minimising route length
- minimising project cost
- minimising pumping requirements, while acknowledging that pumping would be required to give sufficient head for the water to flow to Brisbane
- finding a route where the pipeline could be constructed at a reasonable rate.

The corridor was initially established based on previous feasibility and planning studies, given considerations of local council offtake points, demand nodes and environmental features. The route was refined by incorporating environmental, construction, design, social and property considerations.

The proposed pipeline route aims to minimise impacts on environmentally sensitive areas. Minor adjustments of the route may be made as a result of detailed design, specific technical investigations and discussions with landowners.

LEGISLATIVE FRAMEWORK AND APPROVALS

The NPI is part of the SEQ drought emergency strategy. On 8 August 2006, a water supply emergency regulation (the Water Regulation 2002) under the *Water Act 2000* directed that works be undertaken to complete the NPI by 31 December 2008. For the purposes of the Water Regulation 2002, the NPI project is defined as that project summarised in the *Report on Drought Contingency Projects*, held by the Department of Infrastructure (DOI). Stage 1 of the NPI is anticipated to cost in the order of $300 million; however, detailed estimates of capital expenditure for the project are currently being prepared.

In addition to the direction under the *Water Act 2000*, the nominated service provider is authorised to undertake works under s.100 of the *State Development and Public Works Organisation Act 1971* (SDPWOA).

The project was also declared a 'significant project' for which an EIS is required on 5 April 2007, with gazette notification on 13 April 2007. Accordingly, the process for assessment of

the EIS is determined under the SDPWOA with the relevant authority being the Coordinator-General. In addition to coordinating all submissions from local and state government agencies and other interested parties, the Coordinator-General will prepare a report evaluating the EIS.

The NPI project is assessable under a range of local and state government approval processes. A number of significant approvals, licences and permits will be required prior to construction works commencing (see Table 1).

Table 1 Summary of approvals

Legislation	Agency	Trigger	Type of approval
Aboriginal Cultural Heritage Act 2003	Department of Natural Resources & Water (NRW)	Duty of care for cultural heritage	Cultural heritage management plan
Vegetation Management Act 1999	NRW	Clearing mapped vegetation	Ongoing clearing permit
Fire and Rescue Service Act 1990	Queensland Fire and Rescue Service	Storing dangerous goods during the project	Permit required
Land Act 1994	NRW	Occupying unallocated state land, a reserve or a road	Permit to occupy
Nature Conservation Act 1992 and Nature Conservation Regulation 1994	Environmental Protection Agency	Taking, using or interfering with protected plants	Permit to affect protected plants
Transport Infrastructure Act 1994	Queensland Transport	Works or encroachment upon a state-controlled road	Ancillary works approval
Water Act 2000	NRW	Clearing vegetation within a watercourse and/or excavating or placing fill in a watercourse	Riverine protection permit

The Commonwealth Minister for the Environment and Water Resources has considered a referral assessment for the project under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). On 20 April 2007, the Minister determined that the project was not a controlled action and no further approval would be required. Following submissions from community groups in the Mary River catchment, the Minister reconsidered this determination and, in June 2007, again concluded that the project was not a controlled action.

SUBMISSIONS

Written responses on this EIS are invited from interested parties. Submissions should be received by the publicly advertised closing date and addressed to:

EIS Project Manager–Northern Pipeline Interconnector
Major Projects Division
Department of Infrastructure
PO Box 15009
CITY EAST QLD 4002

DESIGN AND CONSTRUCTION

The pipeline will be buried with a cover of approximately 900 mm to 1200 mm for the bulk of its alignment and consists of pipe ranging from 1290 mm to 750 mm in diameter. It is expected that the pipe will be supplied in 12 m lengths and will be rubber ring jointed at connection points.

A range of pipe materials and pipe coatings (where required) are being considered, including steel (with cement or epoxy internal lining) and glass-reinforced thermosetting plastic. Cathodic protection will be provided for metallic pipelines to supplement the protective coating. The pipeline will be operated at a maximum allowable operating pressure of 1.6 MPa.

Construction methods

The construction of the pipeline will require the use of a number of working cross-sections. A particular cross-section will be determined based on the area available to work in typical unconstrained (open and cleared) and constrained (steep or urban) areas.

Construction of the pipeline will involve the refinement and survey of the route to determine the right of way (ROW). In open, cleared areas the ROW may not require any clearing of intact native vegetation communities. Alternatively, other areas may require some clearing of vegetation and grading to prepare a safe construction platform. In these areas, the separation and stockpiling of topsoil and subsoil will be managed to protect and preserve topsoil for later restoration activities.

Generally, a corridor of up to 30 m width is required to allow construction to be completed efficiently and safely with minimal impact on site-based activities and adjacent landowners. In some cases, the easement width will be reduced because of overriding engineering, environmental or social constraints.

The main construction phase will involve the establishment of a trench to lay the pipeline. This may be undertaken by a trenching machine, rock saws, excavator, rock hammers or blasting depending on ground conditions. A combination of these techniques in most areas is likely with very limited areas of blasting required. These techniques will be determined at the detailed design phase.

The crossing methodologies proposed for major waterways, major roads and railway lines included a high level of assessment to select the most appropriate method. Generally, the methods selected will result in minor disturbance to biological features with potential impacts mitigated through the environmental management plan (EMP). Proposed methods include trenching, thrust boring or microtunnelling techniques and will be applied to the construction depending on the type and nature of the crossing.

Prior to construction, a series of management plans will be implemented to mitigate the potential for significant long-term impact on the environment. These management plans will be prepared according to statutory and/or state and Commonwealth policies as well as according to best practice principles. Particular management plans will include performance objectives, monitoring protocols, delegation of responsibility and reporting and corrective action processes to be implemented.

POTENTIAL IMPACTS AND MITIGATION

Climate and natural disasters

To accommodate the summer rainfall pattern predominating in south-east Queensland, construction in low-lying areas will typically be timed for completion during the drier winter months. The adverse impacts of extreme weather events will be minimised by postponing all works until these events have passed. A crisis management plan will also be developed to ensure unforeseen events are managed to minimise impacts on personnel and the environment. This plan will include, amongst other things:

- location of temporary site offices, plant and equipment above known flood levels wherever possible
- measures to minimise the risk and/or adverse impact of bushfire in fire-prone areas
- measures to ensure slope stability in high-risk landslide areas to the north of Landsborough.

Land use and infrastructure

A variety of land uses occur along the easement. Residential subdivisions in close proximity to the corridor are located to the north and north-west of Caboolture and to the south of Landsborough. Other affected land uses include agriculture, forestry and a hard rock quarry near Beerwah.

A range of existing services occur along the route, including water mains, telecommunications infrastructure and electricity supply lines. The corridor has also been designed with

consideration given to the North Coast Rail Line upgrades between Caboolture and Nambour, and a future road bridge across the Caboolture River.

The co-location of the NPI within existing maintained service corridors is intended to reduce the impact on land uses in the project area. The route will continue to be refined to ensure the impact on existing and proposed infrastructure, and on individual landholders is minimised wherever possible. Where impacts on existing land uses cannot be avoided, landholders will be compensated for any loss incurred.

Geology and landforms

The pipeline corridor traverses a range of topographical settings and soil types, although the project area is predominantly underlain by the Landsborough Sandstone formation. For most of its length, the corridor traverses the Nambour basin, a generally flat sedimentary feature broken only by east-west flowing rivers and their associated flood plains and the steeply inclined, intrusive volcanic hills of the Glass House Mountains. Towards the northern end of the route, remnant, steep-sided ridge, spur and gully slopes of higher elevation Landsborough Sandstone survive either side of the Mooloolah flood plain.

Potential impacts include erosion as a result of vegetation clearing and landform destabilisation, damage to good quality agricultural land (GQAL), and contaminated lands. The potential occurrence of acid sulfate soils within the project area is negligible. Route selection has focused on avoiding high-risk areas for erosion, GQAL and contaminated lands where possible. The residual impacts will be managed through the implementation of the construction EMP, which will include:

- a soil and water management plan containing erosion and sediment control measures, including specific erosion and sediment control plans for individual construction sites
- a contaminated lands management plan, containing soil management measures for known contaminated sites and mitigation strategies to limit the potential for contamination from construction activities
- measures to manage acid sulfate soils, in the unlikely event that these are found to occur within the project area.

Nature conservation

The majority of the proposed corridor has been cleared previously for agricultural, urban and associated infrastructure development. Remnant vegetation of varying conservation values occurs within the vicinity of the proposed pipeline corridor, but is generally not present within the corridor, apart from deeper gullies and creek crossings.

Intact or near-intact stands of vegetation of varying quality exist adjacent to the existing energy easement, along waterways and in the steeper gullies to the north of Landsborough. Riparian communities are an important feature of vegetation within the project area. While many creeks are degraded within the easement, most retain sufficient vegetation to act as corridors between intact habitat patches. These narrow corridors also contain important (and frequently unmapped) remnants of the endangered regional ecosystem 12.3.1, which are often in excellent condition despite the pressures imposed by adjacent land uses. Only one significant species, *Eucalyptus curtisii* (Plunkett Mallee), has been confirmed within the existing easement at the base of Mt Coochin.

A number of significant fauna species have been confirmed for the project area or are considered likely to occur along the route. Key habitat areas are located at the Caboolture River and Mooloolah River, with other listed species confirmed at Lagoon Creek, Beerburrum Forest Reserve and Pinelands Drive, Landsborough. The project area also traverses a number of locally and regionally significant corridor linkages providing for the movement of local fauna.

Route selection has focused on avoiding areas of environmental significance wherever possible. Where impacts cannot be avoided through careful route selection, a range of impact mitigation measures can be implemented through the development of fauna and vegetation management plans. Measures will include:

- minimising clearing in all situations, but particularly when working in endangered communities, significant species' habitats or communities that are especially vulnerable to disturbance
- minimising clearing of hollow-bearing trees providing habitat for local fauna
- rapidly rehabilitating impacted communities to minimise the opportunity for the establishment and spread of weeds.

Water resources

The project area encompasses the catchment areas of the Caboolture and Mooloolah rivers, and the Pumicestone Passage catchment. The proposed route crosses a number of waterways, including rivers, smaller creeks and drainage lines. These waterways provide surface water flows of importance for local agricultural and recreational land use as well as the ecosystem process.

As most waterways run west-east across the right of way, it is not possible to avoid crossing them. Most crossings will be subterranean and are unlikely to have a long-term impact on surface water flow or pose an unacceptable flood risk to upstream properties. Where above-ground (piled) crossings are proposed, detailed flood modelling will be undertaken to inform

the crossing design. The potential impacts on water resources in the project area will be managed through the soil and water management plan and a specific water crossings management plan which will include:

- measures to minimise changes to channel morphology resulting in changes to flood levels or scour and erosion of waterway channels
- measures to minimise adverse impacts on water quality arising from the release of sediment into waterways
- measures to minimise the potential for contamination of surface waters or groundwater resources.

Potential contamination from the release of commissioning waters will be controlled in accordance with guidelines to be developed in consultation with the Queensland EPA.

Air quality

The main impact to air quality from the project will be as a result of dust generation during construction. This will be mitigated by the use of water trucks as necessary. Dust control may be appropriate where the ROW follows existing roads, or where the ROW is in close proximity to residences. Increased vehicle use on unsealed roads may also cause localised dust impacts to residences located adjacent to haul routes. These impacts will generally be short term as the construction team works through the area.

Air quality may be affected locally by emissions generated from equipment and vehicles during construction. The effect on air quality will be minimised by ensuring the contractor only uses equipment that is 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 and manageable through accepted practices.

Waste

The volume and variability of waste generated by this project will be reasonably small when compared with similar scale construction projects. Many of the waste materials generated can be reduced, reused or recycled. The treatment of specific waste streams will be managed through a waste management plan, which will include:

- a hierarchy that prioritises waste avoidance, reuse and recycling over transport of waste to landfill operations for disposal
- key construction waste streams and potential treatment measures

- transport of all wastes, including hazardous waste materials.

For the operations phase, a maintenance schedule will be prepared to ensure that the longevity, safety and operational capacity of pumping infrastructure and equipment are extended, minimising the whole-of-lifetime environmental impacts.

The NPI has a life expectancy of between 70 and 100 years. It is most likely that the pipeline would be reconditioned for further use rather than decommissioned. Any waste from decommissioning will be managed in accordance with best practice waste disposal methods at that time.

Noise and vibration

For portions of the proposed corridor, the pipeline route is in close proximity to urban or rural residential areas. Some disturbance will be experienced by residents during the construction phase of the project, but this will be temporary and of short duration. Consultation with residents in the vicinity of the pipeline will occur prior to construction and any special needs will be noted. A noise and vibration management plan to be developed as part of the construction EMP will include:

- limited construction hours to minimise adverse impacts on sensitive receptors
- measures to comply with noise criteria set by the EPA
- a specific blast management plan to ensure potential vibration impacts are managed during blasting activities.

Potential locations for pump stations to facilitate reverse flow have been identified and are located away from dense residential areas. Acoustic fittings to minimise noise impact will be included in the design of pump stations.

Traffic

An increase in haulage vehicles transporting materials and other equipment via local roads will occur. Furthermore, local traffic along council roads adjacent to the proposed route may increase as a result of the construction activity, particularly where the pipeline is located in road corridors. Where possible, the majority of traffic for the construction phase will be along the ROW itself. All traffic impacts will be assessed through appropriate management plans. Alternative transport options, such as rail, are being investigated for the movement of plant and materials.

Historic and cultural heritage

Aboriginal cultural heritage in the project area will be managed through a cultural heritage management plan (CHMP) which was agreed with the endorsed Aboriginal party (Gubbi Gubbi #2) in early April 2007. This party will be available as a subconsultant to assist across a range of activities relating to the preservation of cultural heritage. Field staff will also be on hand to deal with any European heritage that may be unearthed during clearing activities.

Visual amenity

Clearing of the ROW through formerly timbered areas will have a visual impact from roads, or near individual areas. By ensuring that restoration works adhere to a sound and responsible EMP, the negative aesthetics of a landscape with a cleared ROW can be quickly reduced. As the opportunity for public viewing of construction activities will be limited generally to areas of already cleared vegetation, short-term impacts on visual amenity are expected to be low.

Future pump stations will generally be located away from residential areas. They will be designed with a low profile, will have vegetated bunds surrounding them, and will have a shape, profile and colour to blend with the local environment. Balance tanks will be similarly located and screened.

It is anticipated that, with the measures described above, the visual impact of any pump stations and balance tanks will be low.

ENVIRONMENTAL IMPACT MANAGEMENT

The draft EMP establishes an initial framework for implementing measures to manage the impacts identified in the EIS. These impacts are discussed in terms of commitments to achieve performance criteria that will measure the success of management and mitigation measures. The EMP includes achievable objectives based on realistic methodologies and the key findings of the EIS. These key findings relate to specific objectives and commitments that will guide the development of performance criteria.

The draft EMP is compatible with best practice approaches to environmental management and conforms to accepted principles for impact mitigation. The draft EMP will be developed further as detailed design and construction methodologies are refined. Continuous improvement will occur throughout the life of the EMP to reflect inputs from state and Commonwealth agencies as well as amendments to relevant legislation, policy and best practice approaches.

The draft EMP identifies objectives and performance criteria, describes a series of environmental work methods (EMs) and strategies to manage impact, and outlines procedures for monitoring, auditing and reporting. Post-construction issues are also considered.

It is the intent of the project to maintain and further develop the EMP as a practical and useful working document to guide construction and training of personnel. For construction, site-specific plans will consist largely of a plan or drawing with the relevant EMs indicated at the appropriate locations. The plan or drawing will then require sign-off by the contractor as each EM is completed, thus providing a simple auditable record. Training will be provided as required or as identified in the EMP.

The objective of the draft EMP is to ensure that all potential environmental impacts that could reasonably be expected to occur during the project are minimised and fall within acceptable and agreed limits. This will be achieved through pro-active environmental management. Accordingly, emphasis is placed upon integrating environmental management planning with design, construction methods and operation planning.

The requirements of the EMP are applicable to all on-site work carried out. All subcontractors and suppliers will be bound to comply with the requirements of the EMP, insofar as these are applicable to the nature and scope of their work.

The scope of the EMP embraces the impacts created by the design of the project, the short-term impacts that the work will create during the construction and any long-term impacts that are influenced by the construction methods.

In particular it will provide:

- evidence of practical and achievable plans for managing the project to ensure that environmental requirements are complied with
- an integrated planning framework for comprehensive monitoring and control of construction and operational impacts
- a framework to confirm compliance with the policies and requirements of relevant local, state and Commonwealth authorities
- evidence for the community that the project is being managed in an environmentally acceptable manner.

An EMP for operation of the NPI will be developed in the later phases of construction.