

3.0 EXISTING ENVIRONMENT

3.1 NATURAL

3.1.1 Terrain

A preliminary assessment of terrain condition has been conducted and is detailed in the REF. In summary there is a diverse range of geological regimes and landform units, comprising mainly gently to moderately undulating rises with occurrences of moderately intensively dissected low hilly to hilly lands. There are broad near-flat to gently inclined alluvial terraces and floodplains adjacent to the six major river crossings.

3.1.2 Bioregions

The entirety of the SRWP will be constructed in the south-east Queensland Bioregion. This Bioregion has a rainfall of 800-1500 m/yr and is considered to have high biodiversity. Population expansion, clearing, weeds and feral animals are major threats to the Bioregion's diversity.

It should be noted that the SRWP alignment is frequently within or immediately adjacent to road and/or other service corridors including power line easements. These easements provide permanent physical barriers of variable significance for adjacent ecological communities.

3.1.3 Regional Ecosystems/Ecological Communities

Specific vegetation communities found in association with certain geological characteristics are referred to as 'Regional Ecosystems' (REs). A review of Res for the proposed pipeline route found 69 occur within a 10 km radius. (See Appendix A)

Under the Queensland *Vegetation Management Act (VMA) 1999*, 41 of the Res are listed as 'Not of Concern', 20 as 'Of Concern' and 8 as 'Endangered'.

The extent and condition of these communities will be determined through detailed on-ground investigations as part of the EIS. Protection of these communities will be taken into account in determining the final pipeline alignment within the proposed corridor.

Threatened ecological communities are of significance under the Environment Protection and Biodiversity Conservation (EPBC) Act. Currently there are 27 ecological communities listed as 'threatened' under the Act, although none occur within the study area.

Karawatha Forest is listed on the Register of the National Estate under the provisions of the Environment and Heritage Legislation *Amendment Act 2003*.



3.1.4 Flora

Searches of the EPBC database and EPA's HERBRECS database for the area encompassing the pipeline corridor revealed thirty-eight species listed under the State and Commonwealth legislation as having the potential within the wider study area (Appendix B).

As part of the EIS process, preferred habitats for each listed flora species will be identified and a targeted botanical survey conducted along the pipeline route to determine whether any of the listed species are actually present.

3.1.5 Weeds

Preliminary investigations have identified the potential for a substantial number of weeds to occur in the area. These include the Declared Species listed in Table 3.1. The presence of these species and other declared plants will be conducted as part of the EIS. A Weed Management Plan will be developed for the project and management measures will be implemented on the proposed pipeline ROW to prevent the potential for further spread of these species during field studies and construction, operation and maintenance activities.

Table 3.1 List of weed species recorded within the study area

Common Name	Scientific Name
Groundsel bush	<i>Baccharis halimifolia</i>
Mother-of-millions	<i>Bryophyllum sp</i>
Prickly pear	<i>Opuntia sp</i>
Asparagus fern	<i>Asparagus spp</i>
African tulip tree	<i>Spathodea campanulatum</i>
Blackberry	<i>Rubus sp</i>
Broad-leaved pepper tree	<i>Schinus terebinthifolius</i>
Camphor laurel	<i>Cinnamomum camphora</i>
Chinese elm	<i>Celtis sinensis</i>
Lantana	<i>Lantana spp</i>
Privets	<i>Ligustrum sp</i>
Singapore daisy	<i>Spagneticola trilobata</i>
Balloon vine	<i>Cardiospermum grandiflorum</i>
Madeira vine	<i>Androdera cordifolia</i>
Balloon cotton	<i>Gomphocarpus physocarpus</i>
Ochna	<i>Ochna serrulata</i>
Pines	<i>Pinus spp</i>
Castor oil plant	<i>Ricinus communis</i>
Cassia	<i>Senna pendula</i>

3.1.6 Fauna

Searches of the EPBC database and Queensland EPA's Wildnet database for the area encompassing the pipeline corridor revealed thirty-five species listed under the State and Commonwealth legislation provisions as having the potential to occur in the wider study area (Appendix B). This includes 22 birds, 5 mammals, 3 reptiles, 3 frogs, the remainder comprising 1 insect and 1 fish.



A limited fauna trapping exercise was also conducted at locations at Mt Crosby, Logan Smart Tip and Karawatha Forest. These exercises are detailed in the REF. They recorded 97 birds, 26 mammals, 17 reptiles and 6 amphibians.

Searches of the Birds Australia and the Queensland Museum's database will also be undertaken as part of the EIS process. Once this has been completed, the preferred habitats for each listed species will be identified and targeted surveys will be conducted where necessary along the pipeline route to determine whether any of the listed species are actually present or likely to be present.

3.2 NATIVE TITLE AND CULTURAL HERITAGE

3.2.1 Native Title

A search of the National Native Title Tribunal database identified a number of native title claimant groups with an interest in the area traversed by the proposed pipeline route, namely:

- *Jagera People No2 QC03/15*: The alignment from Mt Crosby to the Logan River
- *Turrbal People QC98/26*: Logan Shire and Brisbane City
- *Jinibara People QC98/45*: The alignment from Mt Crosby to the Warrego Highway.

There are no registered native title claims in the Gold Coast City area. The following groups have an interest in the area; the interests overlap.

- *Eastern Yugambah Group*: Logan River to Tweed Heads
- *Yugambah Museum Group*: Logan River to Tweed Heads
- *Ngerangwal Group*: Albert River south-east to Tweed Heads.

SRWPCo will implement a comprehensive community consultation program (see Section 6.0) as part of its overall development program. Indigenous peoples with a registered interest in the area will be included in the process and SRWPCo will seek the support of all the groups affected on an inclusive basis to negotiate an Indigenous Land Use Agreement or Cultural Heritage management Plan with SRWPCo for affected sections of the pipeline route. These groups will also be consulted on an inclusive basis in relation to the cultural heritage surveys, easement access, and monitoring during construction.

3.2.2 Cultural Heritage (including Non-indigenous Heritage)

SRWPCo is committed to the protection of cultural heritage sites and the sensitive handling of any accidental discovery of sites.

Cultural and heritage surveys will be conducted to determine whether the proposed route will impact any anthropological issues or sites. The outcome of the investigations will allow for the final pipeline route to be aligned avoiding significant areas. These investigations will be conducted in consultation with indigenous peoples/groups that have an interest in the area.

SRWPCo will negotiate the development of a Cultural Heritage Management Plan (CHMP) with affected indigenous peoples. This plan will document the procedures to be followed during construction to ensure the ongoing protection of any identified sites of significance.



All studies, consultation and development of the CHMP will be in accordance with the duty of care requirements of the *Aboriginal Cultural Heritage Act 2003*.

3.3 SOCIAL AND ECONOMIC

The proposed pipeline network passes through five local authorities of Brisbane City, Ipswich City, Logan City, Gold Coast City and Beaudesert Shire. Only Beaudesert would be classified as rural in nature, the other are predominantly residential.

Ipswich has some large industry with the potential for increased industrial activity being located in the Swanbank Enterprise Park. The areas to the south and west of Ipswich (Ripley and Ebenezer) are designated by the OUM as areas of future residential growth.

Both Logan and Beaudesert have areas under investigation by the OUM for planned residential expansion, and the latter is also reviewing the potential for industrial expansion at Bromelton. Gold Coast City continues to experience growth in excess of 5% per annum as residential estates and apartment complexes expand.

Infrastructure is required to assist these growth areas and the provision of potable water will be essential to the level of economic activity.

3.4 LAND TENURE

Most of the land that would be occupied by the pipeline is roadway – approximately 55%.

The pipeline will traverse three areas under public management at Mt Crosby (Brisbane Water); Karawatha Forest (Brisbane City Council) and Logan Smart Tip (Logan City).

Most of the remaining land is freehold, although significant sections of the pipeline would share easements occupied by Powerlink or Energex (See Figure 3.1).

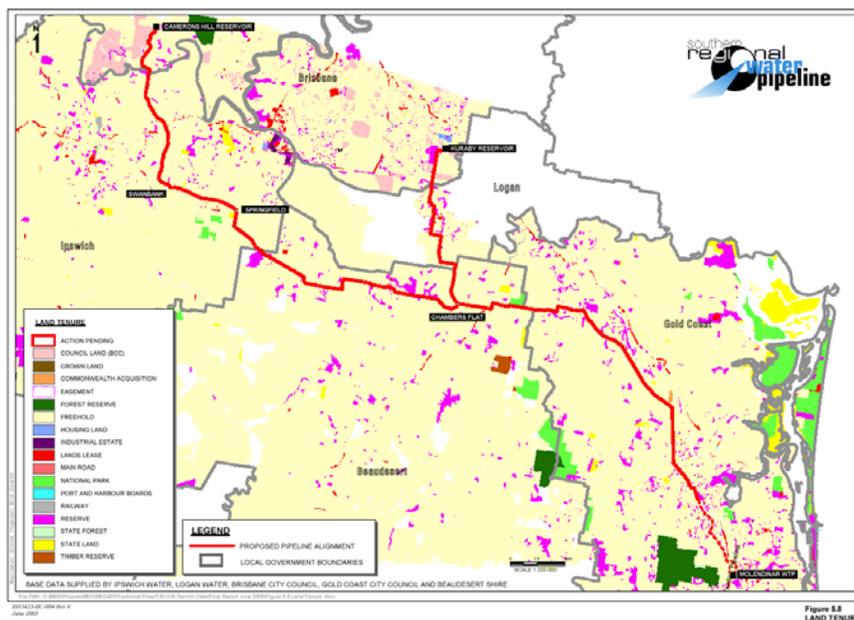


FIGURE 3.1 Land Tenure

3.5 PLANNING SCHEMES

Planning schemes will be investigated during the EIS process.



4.0 POTENTIAL IMPACTS & MANAGEMENT – CONSTRUCTION

This section of the IAS provides a general overview of potential impacts and mitigation measures associated with the construction of a pipeline.

A range of impacts may potentially occur due to the construction of a pipeline. SRWPCo intends to undertake thorough investigations and detailed planning through the final route selection and engineering design processes to minimize potential adverse impacts. Additional studies are planned to refine the proposed pipeline route alignment and determine the actual level of impacts associated with the construction and operation of the Project

4.1 PHYSICAL ALTERATION OF THE AREA

A strip of land will be cleared of vegetation, where required, to a width of thirty metres along the pipeline ROW. This will be undertaken in accordance with best practice for minimizing/avoiding impacts on significant vegetation, minimizing the practical width of clearing for construction, and keeping surface disturbance and soil removal to a minimum.

4.2 LAND USE

Interference to landholder activities should be minimal and each landholder will be consulted regarding the project to discuss their specific requirements. There will be no displacement of residents during construction of the project and displacement of existing forms of land use will only be temporary. 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 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 SRWPCo will liaise with the relevant local councils, Main Roads and affected residents regarding the schedule of activities to minimize 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 minimize disturbance to traffic.



4.3 DRAINAGE AND WATERCOURSES

Alteration to topography or drainage will be minimized during the clearing phase and rectified to original condition during cleanup and rehabilitation.

A number of watercourse and river crossings will be required of the proposed pipeline. The actual location of the crossings will be dependent on the final pipeline alignment and be dependent on geotechnical studies to be undertaken during the EIS. The construction of the pipeline will not permanently modify any watercourses, although there will be potential for temporary disruption during construction of the crossings.

The construction method for watercourse crossings will be dependent on site factors (e.g. hydrology, stream substrate and geology, environmental and cultural sensitivities and engineering feasibility), with the aim to minimize both environmental impacts during construction and the need for future remedial work during the operation of the proposed pipeline.

4.4 EROSION AND WATER QUALITY

Clearing of the land exposes soil to wind and rain increasing the potential for erosion and, in proximity to watercourses, reduction in stream quality (e.g. increased turbidity and suspended solids). Construction planning will take into account weather conditions with the view of minimizing the potential for erosion and sedimentation to occur, thus reducing the risk of adversely impacting water quality.

Restoration will be managed to minimize the duration the trench will be open so as to limit the potential for soil erosion and reduction of water quality from any unanticipated adverse weather conditions.

Potential for Acid Sulfate Soils (ASS) to be encountered within the southern sectors of the SRW has been identified, particularly at the Coomera River crossing. Directional drilling in this crossing is likely to generate ASS that would require appropriate management and disposal.

The potential for ASS will be identified during the EIS process and, where encountered, relevant sections of the pipeline will be managed in accordance with NR&M soil Management Guidelines.

The 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* impacts on soil loss and water quality are expected to be low.

4.5 FLORA AND FAUNA

4.5.1 Ecosystems

Potential impacts from construction of a buried pipeline are associated with fragmentation due to vegetation clearing and disturbance associated with edge effects. Based on the EPA RE data, there are a limited number of locations where the proposed pipeline has the potential to fragment remnant RE patches.



These include:

- Eucalypt Communities
- Melaleuca Woodland
- Wet heathland (Karawatha Forest).

Where practicable the pipeline route will avoid ecosystems protected by the Commonwealth and RE's listed as 'Endangered' and 'Of Concern' under the Queensland VMA and selection of the final route alignment will take into account minimization of fragmentation to protect the viability of remnant vegetation. Detailed studies and mapping will be undertaken as part of the EIS process.

4.5.2 Flora

The impact of clearing a ROW up to 30 m is dependent on the type and nature of vegetation to be disturbed, its function as fauna habitat or linkage and topographical features such as slope and aspect. If large trees are removed these species would take many years to regenerate and this will be avoided wherever possible.

However most impacts are considered to be temporary especially where proactive rehabilitation measures are put in place. Detailed flora studies will be undertaken as part of the EIS process to enable impacts on common and scheduled species to be minimized.

4.5.3 Fauna

The main impacts of construction on fauna would be short term increases in disturbance from construction noise, vehicle movements and dust production or mortality from traffic and truck movement. Clearing of vegetation may also result in loss of habitat. It is anticipated that in most cases significant isolated habitat trees will be able to be avoided by the final pipeline alignment. Where such trees cannot be avoided, where possible, any hollows will be salvaged and relocated to appropriate alternative hosts.

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

Impacts on flora and fauna are expected to be low.

4.6 NOISE AND VIBRATION

For portions of the traverse the pipeline route comes in to close proximity to urban or rural residential areas. Some disturbance will be experienced by residents but this will be temporary and of short duration. Consultation with all impacted residents will occur prior to construction and any special needs will be noted. Impacts will be mitigated by restricting working hours in noise and vibration sensitive hours.

Pump stations are located away from residential areas; will have a low profile; be surrounded by vegetated bunds; and have acoustic fittings to minimize noise impacts. Studies will be conducted during the EIS to review potential noise and vibration impacts.



4.7 TRAFFIC

An increase in haulage vehicles transporting pipe sections 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, although the vast majority of traffic for the construction phase will be along the ROW itself. Councils will be advised if significant increases in vehicle use on minor roads are expected.

4.8 AIR QUALITY

The main impact to air quality from the Project would 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 passes in close proximity to residences. Increased vehicle use on unsealed roads may also cause localized dust impacts to residences located adjacent to haul routes. These impacts will generally be of short-term duration as the construction team works through the area.

Air quality may also potentially be affected by emissions generated from equipment and vehicles utilized during construction however this will be of a localised nature only. The effect on air quality will be minimized through 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.

4.9 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 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 and greatly reduced. This can be facilitated by respreading or disposing of vegetative debris and incorporating a pasture reseeding component as part of the restoration process.

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.

Pump stations, as indicated previously, will be located away from residential areas. They will be designed with a low profile, have vegetated bunds surrounding them and have a shape, profile and colour to blend with the local environment.

The balance tanks will be similarly located. At the NBBT site a buffer of existing vegetation will screen the vista from most directions. In addition a 15 m high batter will be constructed and revegetated. The Stapylton tank will likely be constructed within an existing quarrying area. The tank will be surrounded by a 20 m batter which will be revegetated.

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

