Transport and Main Roads

Southern Freight Rail Corridor Study

Revised Assessment Report
Volume 1: Summary Document
March 2010

Creating a diverse economy powered by bright ideas

Toward Q Tomorrow's Queensland

Queensland Government

Southern Freight Rail Corridor Study

Department of Transport and Main Roads

12 March 2010

Revised Assessment Report

Volume 1 - Summary Document

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Prepared for

Department of Transport and Main Roads

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12 March 2010

60028616

Quality Information

Document Revised Assessment Report

Ref 60028616

Date 12 March 2010

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Revision History

Revision	Revision Date	Details	Authorised	
			Name/Position	Signature
A	25/08/2009	Draft	Todd Battley Project Manager	Original Signed
B	21/10/2009	Draft for review	Todd Battley Project Manager	Original Signed
0	12/03/2010	Final for Public Consultation	Todd Battley Project Manager	

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List of Abbreviations

ACHA	*Aboriginal Cultural Heritage Act 2003* (Qld)
ALA	*Acquisition of Land Act 1967* (Qld)
AMA	Area Management Advice
AMH	Australian Meat Holdings
AMO	Authorised Maintenance Organisation
ANZECC	Australia and New Zealand Environment Conservation Council
API	Aerial photograph interpretation
ARG	Agency Reference Group
ARI	Average Recurrence Interval
ARTC	Australian Rail Track Corporation
AS	Australian Standard
ASS	Acid Sulfate Soils
BMT	Brisbane Multimodal Terminal
BOM	Bureau of Meteorology
BR	Bremer River character zone
C	Celsius
CBA	Cost Benefit Analysis
CEMP	Construction Environmental Management Plan
CG	Coordinator-General
Ch	Chainage
CHMA	Cultural Heritage Management Agreement
CID	Community Infrastructure Designation
CLR	Contaminated Land Register
CMP	Conservation Management Plan
CO	Carbon Monoxide
Cth	Commonwealth
dB(A)	Decibels (A-weighted)
DERM	Department of Environment and Resource Management (Qld)
DEWHA	Department of Environment, Water and Heritage and the Arts (Cth)
DIP	Department of Infrastructure and Planning (Qld)
DLGPSR	Department of Local Government, Planning, Sport and Recreation (Qld)
DNRW	Department of Natural Resources and Water (Qld)
DoTARS	Department of Transport and Regional Services (Cth)
DPIF	Department of Primary Industries and Fisheries (Qld)
EHMP	Ecosystem Health Monitoring Program
EMP	Environmental Management Plan
EMR	Environmental Management Register
EPA	Environmental Protection Agency (Qld)
EP Act	*Environmental Protection Act 1994* (Qld)
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cth)
EPP	Environmental Protection Policy
ERA	Environmentally Relevant Activity
FW	Fieldwork (ID)

GIS	Geographic Information Systems
GQAL	Good Quality Agricultural Land
ICC	Ipswich City Council
ID	Identification
IDAS	Integrated Development Assessment System
IFT	Intermodal freight terminal
IP Act	*Integrated Planning Act 1997* (Qld)
IRCC	Ivory's Rock Conference Centre
ITP	Integrated Transport Planning
KCA	Koala Conservation Area, recognised under the *Nature Conservation (Koala) Conservation Plan 2006 and Management Program 2006-2016*
Km	Kilometre
m	Metre
mm	Millimetre
MNES	Matter of National Environmental Significance (EPBC Act)
Mt	Megatonne (1 million tonnes)
NATA	National Association of Testing Authorities
NCA	*Nature Conservation Act 1992* (Qld)
NEPM	National Environmental Protection Measure
NO_x	Nitrogen oxide
NT Act	*Native Title Act 1993* (Cth)
NTK	Nett Tonne Kilometre
NTU	In-situ turbidity
OUM	Office of Urban Management
PM_{10}	Particulate matter less than 10 microns
PR	Performance Requirement
PSC	Project Steering Committee
PV	Present Value
QFRS	Queensland Fire and Rescue Service
QHR	Queensland Heritage Register
Qld	Queensland
QR	Queensland Rail
QT	Queensland Transport (now Department of Transport and Main Roads)
RDA	Regional Development Area
RE	Regional Ecosystem
SDA	State Development Area
SEQ	South-East Queensland
SEQIPP	*South East Queensland Infrastructure Plan and Program 2009-2026*
SEQRP	*South East Queensland Regional Plan 2009-2031*
SEQRTS	South East Queensland Regional Trails Strategy
SFRC	Southern Freight Rail Corridor
SGR	Standard Gauge Rail
SIA	Social Impact Assessment
SIC	Southern Infrastructure Corridor
SO_x	Sulphur oxide

SP	Settled Pastures character zone
SRRC	Scenic Rim Regional Council
TEU	Twenty foot Equivalent Unit (Container)
TI Act	*Transport Infrastructure Act 1994* (Qld)
TMR	Department of Transport and Main Roads
ToR	Terms of Reference
TPEF	Transport Portfolio Environmental Framework
UR	Upland Ranges character zone
UXO	Unexploded Ordnance
VMA	*Vegetation Management Act 1999* (Qld)
VOC	Volatile Organic Compound
WC	Warrill Creek character zone
ZVI	Zone of Visual Influence

Glossary

Term	Definition
Acoustic	Pertaining to the sense or organs of hearing, to sound, or to the science of sound.
Acoustic treatment	Modifications to a property to achieve a more desirable relationship with the acoustic environment.
Adjoining Property	A property directly abutting (or directly across the road from) a property subject to land requirements for the project.
Afflux	An upward rush of fluid.
Agency Reference Group	A group formed for the study to create key links with government agencies and local government. The purpose of the ARG was to ensure the easy flow of information between representatives of each of the parent organisations represented on the group.
Airshed	An area bounded by topographical and/or meteorological features in which a containment, once emitted, is contained.
Alluvium	Sediments deposited by erosional processes, usually by streams.
Ambient air quality	The air quality of the surrounding area or environment.
Anticline	A fold with strata sloping downward on both sides from a common crest.
Aquatic	Relating to, consisting of, or being in water.
Aquifer	Permeable layers of underground rock, or sand that hold or transmit groundwater below the water table that will yield water in sufficient quantities to produce water for beneficial use.
Arboreal	Living in trees.
Arborist	A specialist in treating damaged trees.
Archival	Material that has lasted for many years.
Auslink Network	Road and railway links throughout Australia managed by the Australian Department of Infrastructure, Transport, Regional Development and Local Government.
Australia Trade Coast	A trade and industry precinct in Brisbane, including the Port of Brisbane and Brisbane Airport.
Average recurrence interval	The average, or expected, value of the periods between exceedances of a given rainfall total accumulated over a given duration.
Axle load	The load which comes on an axle of a locomotive and is in turn transferred to the structure.
Ballast	Gravel, broken stone, etc. placed between and under the ties of a railroad to give stability, provide drainage and distribute loads.
Biodiesel	A fuel made from plant oils that can be used in a conventional diesel engine.
Blue-collar worker	A general term for members of the workforce employed in a trade.
Broad-acre agriculture	Large-scale agricultural operations.
Bushland Habitat	Identified in the South East Queensland Koala Habitat Assessment and Mapping Project (DERM 2009) as forested or woodland areas in SEQ where koalas occur, or have the potential to occur. These areas are regarded as the most important habitat for koalas.
Business case	A document prepared to establish the merits and desirability of a project and justification for further project definition.
C3 Route Option	The broad route option identified in the Southern Infrastructure Corridor Study (2005) as the most appropriate for achieving a freight connection between the western and interstate railway lines. Formed the basis for identifying the SFRC corridor of interest.
Calibration	The process of adjusting an instrument so that its reading can be correlated to the actual value being measured.
Carbon footprint	A measure in units of carbon dioxide of the amount of greenhouse gases we emit directly and indirectly through our daily actions.

Term	Definition
Catchment	The area from which a stream or waterway and reservoir receives surface flow which originates as precipitation.
Chainage	A unit of measurement enabling reference to a particular point along the SFRC preferred alignment (based on the number of metres from the western tie-in).
CID Area	The area subject to Community Infrastructure Designation.
CID Checklist	Included in the CID Guidelines, and identifies all relevant environmental aspects which must be addressed by the environmental reporting as part of the CID process.
CID guidelines	The *Guidelines about Environmental Assessment and Public Consultation Procedures for Designating Land for Community Infrastructure*. Outline the way to manage the CID process through community engagement and environmental studies.
CID Plan	Drawings showing the SFRC preferred alignment, preliminary earthworks boundary and CID boundary. Included in Appendix B.
Climate	The weather in some location averaged over some long period of time.
Climate change	The significant altering of the Earth's climate as a result of natural causes or human activities.
Community Infrastructure	A group of people living in a particular local area.
Conservation Management Plan	A plan intended to provide instructions to contractors and proponents of the project on obligations and duty of care in relation to protecting matters of European Cultural Heritage along the SFRC.
Controlled Action	An activity deemed by the Minister to have the potential to cause a significant impact to one or more MNES, as protected under the EPBC Act. A controlled action must be assessed and approved under the EPBC Act before it can proceed.
corridor of interest	A 55km-long, 2km-wide study area for the SFRC, within which the preferred alignment was designed.
Cost Benefit Analysis	A technique for the evaluation of projects, where all costs and benefits (direct and indirect) are considered. Costs and benefits are quantified, with the aim of identifying if the projected benefits are sufficient to warrant expenditure on the project.
Critically Endangered	A taxon identified under the EPBC Act as facing extremely high risk of extinction in the wild in the immediate future.
Cumulative impact	The environmental impacts of a proposed action in combination with the impacts of other past, existing and proposed action.
Demographic profile	An outline of particular characteristics of an area's population.
Design criteria	Criteria that engineers must meet in designing the SFRC.
Desktop assessment	Preliminary studies undertaken for environmental investigations. Often based on previous studies and searches of registers, databases and published literature. Usually verified and built upon through field study.
Development constraint overlay	An aspect of the environment which is used in local government planning schemes to prohibit or condition particular development applications in implicated areas.
Dewatering	Elimination of water from a lake, river, stream, reservoir, or containment.
Direct impact	An immediately perceivable impact.
Dislocation (social)	Displacement of sections of society.
Double-stacked container freight	Rail freight characterised by rolling stock with one shipping container stacked upon another.
Draft Assessment Report	This report, comprising Volumes 1 and 2, which describes the SFRC project and investigates the environmental impacts associated with the SFRC, as per the requirements of an Initial Assessment Report in the CID process.
Dual gauge	A mixed track gauge, often seen at interchange points between standard gauge and narrow gauge railroads. Designed to allow both standard gauge and narrow gauge

Term	Definition
	trains to operate on the railway.
Duty of care	A statutory obligation for land owners to appropriately manage natural resources, through taking all reasonable and practical steps to prevent harm to the environment as described in s 319 of the EP Act.
Earth berm	A mound or bank of earth placed to provide protection.
Earthwork	Any operations involved in altering or movement of earth.
Ebenezer loop	The current railway spur located off the western railway line in Ebenezer and used for the transportation of coal from the Ebenezer and Jeebropilly coal mines.
Ecological	Relating to the study of the relations of organisms to their environment, including other organisms.
Ecological character	The sum of the biological, physical and chemical components of a particular ecosystem, and their interactions.
Ecological community	Biotic communities that are identified through a distinctive combination of parameters, including species composition, structure and habitat.
Economic indicator	A statistic that indicates trends relating to a particular aspect of the economy.
Edge effect	The various consequences, on vegetation and wildlife, that occur as a result of one type of vegetation sharing a border with another (e.g. cleared pasture abutting forest or a railway through a forest).
El Nino	A warm ocean current of variable intensity that develops after late December along the coast of Ecuador and Peru and sometimes causes catastrophic weather conditions.
Endangered RE	A Regional Ecosystem characterised by remnant vegetation accounting for less than 10% of its pre-clearing extent across the bioregion or 10-30% of its pre-clearing extent remains and the remnant vegetation is less than 10,000 hectares.
Environmental Management Plan	A document designed to highlight management approaches to prevent, mitigate, and monitor potential impacts during the design, construction, and operational phases of a project.
Environmentally Relevant Activity	An activity that has been identified as one that will, or has the potential to, release contaminants into the environment causing environmental harm.
Ephemeral	Lasting a very short time; short-lived.
Essential Habitat	Vegetation in which a species that is endangered, vulnerable, rare or near threatened has been known to occur, and is mapped by the EPA.
Estuarine	Relating to that part of the mouth or lower course of a river in which the river's current meets the sea's tide.
Ethnographic	Relating to a branch of anthropology dealing with the scientific description of individual cultures.
Extinguishment	The loss of Native Title rights by means of the *Native Title Act 1993*.
Façade	Any side of a building facing a public way or space.
Fauna-sensitive design	Incorporation of the needs of fauna into infrastructure design, so that the impacts of the infrastructure upon surrounding fauna are minimised.
Field study	An on-ground investigation of particular environmental characteristics of an area or site.
Final Assessment Report	The report produced in step 5 of the CID process, and submitted to the Minister who must make a decision on the designation based on the information contained within the report.
Fluvial processes	The processes associated with a dynamic river environment.
Gazette	An official publication of the State Government.
General environmental duty	Refer to "duty of care".
Generally Not Suitable	Areas identified in the South East Queensland Koala Habitat Assessment and Mapping Project (DERM 2009) which are generally not suitable for koalas. May include

Term	Definition
	impervious surfaces and pine plantations.
Geomorphological regime	An era of time in the formation and development of landforms.
Geotechnical	The practical applications of geological science; the study of the origin, history, and structure of the earth.
Good Quality Agricultural Land	Land which is capable of sustainable use for agriculture, with a reasonable level of inputs, and without causing degradation of land or other natural resources.
Grade separation	Separation of the levels at which roads, railroads, paths, etc. cross one another in order to prevent conflicting rows of traffic or the possibility of accidents.
Greenhouse gas	Any of the gases whose absorption of solar radiation is responsible for the greenhouse effect, including carbon dioxide, methane, ozone and fluorocarbons.
Groundwater	The water beneath the surface of the ground, consisting largely of surface water that has seeped down.
Hydraulic	The movement of water or other liquids.
Hydrologic	Relating to the occurrence, circulation, distribution and properties of the waters of the earth and its atmosphere.
Igneous	Produced under conditions involving intense heat, as rocks of volcanic origin or rocks crystallised from molten magma.
In-situ	Situated in the original, natural or existing place or position.
Indirect impact	An impact which is not immediately perceivable.
Initial Assessment Report	A report required under the *Sustainable Planning Act 2009* for all projects seeking CID. The report is required to adequately assess the social, environmental and economic impacts of the project. The draft assessment report (2008) met the requirements of an Initial Assessment Report.
Inland Railway	A potential future freight railway line for the transport of freight between Melbourne and Brisbane. The SFRC is a key component of the SEQ section of the Inland Railway.
Integrated Development Assessment System	The process under the *Sustainable Planning Act 2009* for assessing and deciding Queensland development applications.
Intermodal freight terminal	Also referred to as an inland port. A place where transported freight can be loaded from one form of transport to another (i.e. from rail to road and vice versa).
Interstate Railway Line	The railway line used primarily for freight transport between Sydney and Brisbane. The SFRC ties into this railway line near Kagaru.
Jagera People	The traditional owners of the SFRC study area, and the active Native Title claimants for the area.
Key settlement	Defined townships or cities, distinguished by the goods and services they offer to the surrounding communities.
Koala Conservation Area	Important areas of koala habitat with high koala population densities. Afforded the highest level of protection through the Koala Plan.
Koala habitat tree	Trees providing food and shelter for koalas. In SEQ, various species of *Eucalyptus* are considered koala habitat trees.
Koala Plan	The *Nature Conservation (Koala) Conservation Plan 2006 and Management Program 2006-2016* which addresses key threats facing koalas and sets out strategies to stop the decline of koala numbers and assist the species' recovery.
L_{A90}	The level of noise exceeded for 90% of the time period. The bottom 10% of the sample is the L_{A90} noise level expressed in units of dB(A).
L_{Amax}	The maximum sound pressure level measured over a given period, expressed in units of dB(A).
La Nina	A cooling of the ocean surface off the western coast of South America, occurring

Term	Definition
	periodically every 4 to 12 years and affecting Pacific and other weather patterns.
Landscape character zone	Classification of land based on both natural and cultural similarities.
Level crossing	The crossing on one level of a railway by a road, path or another railroad.
Listed migratory species	The various migratory species listed under international conventions and agreements Australia is party to, and protected under the EPBC Act.
Lithosol	A group of shallow soils lacking well-defined horizons, especially an entisol consisting of partially weathered rock fragments, usually on steep slopes.
Livestock Dip	A fenced structure used to apply chemical treatments such as insecticide on livestock.
Major Development Area	A major greenfield or regionally significant redevelopment area, as identified through Local Growth Management Strategies, planning schemes or by the regional planning Minister.
Mass wasting	The geomorphic process by which soil, regolith and rock move downslope under the force of gravity.
Matter of National Environmental Significance	As identified by the *Environment Protection and Biodiversity Conservation Act 1999*, to include listed threatened species and communities, listed migratory species, Ramsar wetlands, the Commonwealth marine environment, World Heritage properties, National Heritage places and nuclear actions.
Minimum engineering standards	Lowest acceptable engineering criteria that the design of the SFRC must meet.
Model	A simplified representation of a system or phenomenon, with any hypotheses required to describe the system or explain the phenomenon, often mathematically (e.g. an acoustic model).
Narrow gauge	A railroad track narrower than the standard width of 56.5 inches (1435mm). Narrow gauge in Queensland is a width of 42 inches (1067mm).
Native Title	A concept in the law of Australia that recognises the continued ownership of land by local indigenous Australians.
Net benefit	Residual positive impacts after all adverse impacts are taken account of.
Nett Tonne Kilometre	A unit of measurement; the total net tonnes of freight multiplied by the distance of the train service.
Not of Concern RE	A Regional Ecosystem where remnant vegetation is over 30% of its pre-clearing extent across the bioregion; and the remnant area is greater than 10,000 hectares.
Occupational Crossing	Unprotected level crossing with no active or passive warning provided. Usually a field or farm crossing for access to or within an individual property.
Of Concern RE	A Regional Ecosystem where remnant vegetation is 10-30% of its pre-clearing extent across the bioregion, or more than 30% of its pre-clearing extent remains and the remnant extent is less than 10,000 hectares.
Offset	Something that counterbalances, counteracts, or compensates for something else (e.g. vegetation offsets to counter vegetation removal).
Olfactory	Relating to the sense of smell.
Oral traditional history	Aboriginal historical events, passed down from generation to generation through oral recounting.
Other Areas of Value	Areas identified in the South East Queensland Koala Habitat Assessment and Mapping Project (DERM 2009) which generally correspond with urban landscapes where koalas occur, or have the potential to occur. May include fragmented patches of bushland, parklands, schools and suburban backyards.
Other parties	Stakeholders (other than local governments and public sector entities) who have an interest in a CID project. Includes property owners.
Overbank	Water flow over the top of a bank.

Term	Definition
Overbridge	A bridge crossing over railway property.
Parent material	The mineral or organic matter from which the upper layers of soil are formed.
Passing loop	A place on a single line railway where trains in opposing directions can pass each other.
pH	The measure of the acidity or alkalinity of a solution, based on the hydrogen ion concentration.
Podzolic	A leached soil formed mainly in cool, humid climates.
Population (ecological)	A collection of inter-breeding organisms of a particular species; a group of species within a defined location.
Population projection	An educated estimation of an area's population at some time in the future.
Prairie soil	A soil that forms in subhumid, temperate regions with tall grass as native vegetation.
Predictive Model	A model used to determine the most likely locations where objects of Aboriginal Cultural Heritage Significance might be found. Based on known characteristics of significant sites (e.g. topography and landscape).
Preferred alignment	The preferred rail alignment for the SFRC within the corridor of interest, determined based on design criteria adopted for the project, and constraints identified by the technical investigations undertaken for this draft assessment report.
Preliminary alignment	The alignment used at the beginning of the SFRC Study, around which the corridor of interest was based (i.e. the centre-line of the corridor of interest).
Principal submitter	A person who has made a submission about a project. The principal submitter is the first person named on the submission.
Project Steering Committee	A group formed for the SFRC Study, comprising QT, Queensland Rail - Network Access Group (QR) and the Department of Infrastructure and Planning (DIP).
Proxy	A substitute.
Pyrite	A silver to yellow, metallic, cubic mineral. Occurs in most types of rocks, and is a source of iron.
Quartzose	A substance containing quartz as a principal.
Ramsar Wetland	An area designated as a wetland of international importance because of its importance for preserving biological diversity or because it is a representative, rare and unique wetland type.
Referral	The referring of a project to the Commonwealth Minister of DEWHA for assessment by the proponent if they believe the project may have a significant impact upon a MNES.
Regional Development Area	Areas fundamental to the delivery of dwelling and employment targets in the SEQRP. RDAs are expected to require substantial state infrastructure and are expected to yield regionally significant employment and dwelling figures.
Regional Ecosystem	Vegetation communities in a bioregion that are consistently associated with a particular combination of geology, landform and soil.
Remnant Vegetation	Vegetation where the dominant canopy has greater than 70% of the height and greater than 50% of the cover relative to the undisturbed height and cover of that stratum and dominated by species characteristic of the vegetation's undisturbed canopy.
Riparian	Of, on, or relating to the banks of a natural course of water.
Rolling-stock	Collection of wheeled vehicles owned by a railroad or motor carrier.
Sediment load	The solid material that is transported by a natural agent, such as water.
Sedimentary	Formed by the deposition of sediment (e.g. rocks).
Selective planting	Tree planting and reseeding as part of a landscaping program.
Sensitive land use	Residential dwellings, major recreational areas, tourism and ecotourism facilities, childcare facilities, aged persons facilities, educational facilities, health facilities, and other uses involving accommodation and any other use likely to be affected by proximity to the SFRC alignment.

Term	Definition
Service centre	A city or township providing goods and services for the surrounding communities.
Service road	A local road that runs parallel to larger infrastructure (in this case, the SFRC) and provides access to the properties bordering it.
Sharpening groove	An Aboriginal artefact once used to sharpen tools.
Significant impact	An impact that is important, notable or of consequence having regard to its context or intensity.
Single-user occupational crossing	A railway crossing designed specifically for the use of one landowner in order to allow them to continue their occupation (e.g. a railway crossing enabling a farmer to move livestock from land on one side of the railway line to the other).
Sleeper	A cross brace that supports the rails on a railway track.
Soffit	The underside of a structural component, such as a beam or arch.
Solodic	Leached, formerly saline soil, associated with semi-arid tropical environments.
South-East Queensland	A region in the south-east of Queensland constituting 11 city and regional councils. The fastest-growing region in Australia, stretching from Noosa in the north to Cooloongatta in the south and Toowoomba in the west.
South East Queensland Infrastructure Plan and Program 2009	A document updated annually which outlines the key infrastructure priorities for the SEQ region. Complements the SEQRP, and outlines the infrastructure projects through which the goals of the SEQRP are to be achieved. Describes the need for a detailed study into the SFRC (this revised assessment report).
South East Queensland Regional Plan 2009-2031	A statutory framework for managing growth in the SEQ region. Identifies the need for a connection between the western and interstate railway lines, through broadly indicating the Southern Infrastructure Corridor (an earlier stage of the Southern Freight Rail Corridor).
Southern Freight Rail Corridor	A 55km-long freight railway corridor, connecting to the narrow gauge western railway south of Rosewood, and the standard gauge interstate railway near Kagaru.
Southern Infrastructure Corridor	Former name for the Southern Freight Rail Corridor, identified in the *South East Queensland Regional Plan 2005-2026*.
Species	The basic category of biological classification, composed of related individuals that resemble one another, are able to breed among themselves, but are not able to breed with members of another species.
Species diversity	The number and distribution of species in one location.
Spotter/Catcher	People employed to, among other things, inspect trees and evacuate wildlife safely prior to tree felling.
Spray Race	See Livestock Dip.
Standard gauge	A specification of the width of railway tracks of 56.5 inches (1435mm).
State Development Area	Areas set aside under the *State Development and Public Works Organisation Act 1971* for the preservation, planning and development of land for large industrial uses and high impact industrial uses that can be separated from residential and incompatible land uses through a large permanent buffer.
Stratigraphy	A branch of geology dealing with the classification, nomenclature, correlation and interpretation of stratified rocks.
Structure plan	Strategic planning policies for development and other land uses for a particular area.
Submissions Report	An appendix to this revised assessment report (Appendix D), which contains a breakdown of submissions received for the draft assessment report, categorises issues raised in submissions, responds to these issues, and directs the reader to relevant parts of this revised assessment report for reference.
Suitable for Rehabilitation	Areas recognised in the South East Queensland Koala Habitat Assessment and Mapping Project (DERM 2009) which are generally cleared and lack closed canopy forest or woodland. If rehabilitated with appropriate tree species, have the potential to provide important habitat for koalas.

Term	Definition
Summary Document	A report prepared for Volume 1 of the revised assessment report which provides a description of the SFRC and summarises the findings contained within the technical papers of Volume 2.
Syncline	A fold in rocks in which the rock layers dip inward from both sides towards the axis.
Technical Paper	A report prepared for Volume 2 of this revised assessment report which investigates the potential impacts of the SFRC upon a particular environmental element.
Terra nullius	Land belonging to no-one.
Terrestrial	Of, or pertaining to, land as distinct from water.
Tie-in	The joining of two different sections of rail (e.g. the SFRC tie-ins with the western railway line south of Rosewood and the interstate railway line near Kagaru).
Transport Portfolio Environmental Framework	The environmental framework which Queensland Transport operates under. The framework aims to ensure sustained improvements in the environmental performance of Queensland's transport system.
Tributary	A stream that flows to a larger stream or other body of water.
Trigger	Anything, as an act or event, that serves as a stimulus and initiates or precipitates a reaction or series of reactions.
Turbidity	The degree of sediment or foreign particles suspended in water.
Turnout	A short side track, space, spur, etc. that enables trains to pass one another.
Twenty Foot Equivalent Unit (Container) (TEU)	A unit of measurement equivalent to one twenty-foot shipping container.
Underbridge	A bridge crossing under railway property.
Unexploded Ordnance	Explosive weapons (bombs, bullets, shells, grenades, land mines, etc.) that did not explode when they were employed and still pose a risk of detonation.
Urban fringe	The outskirts of an urbanised area, between suburban and outlying rural areas.
Urbanisation	The social process whereby cities grow and societies become more urban.
Volatile Organic Compound	An organic chemical compound that has high enough vapour pressures under normal conditions to significantly vaporise and enter the atmosphere.
Western Railway Line	The railway corridor extending from Corinda, west through Ipswich, Rosewood and to Toowoomba.
White-collar worker	A general term for a salaried professional or an educated worker who performs semi-professional office, administrative, and sales coordination tasks.
Wildlife corridor	A strip of habitat connecting wildlife populations separated by human activities.
Zoning plan	Plans used in local government planning schemes which categorise land into land use classifications (zones) based on present and intended future use of the land.

Executive summary

Background

In mid 2007, the Department of Transport and Main Roads (TMR) (formerly Queensland Transport (QT)) initiated the *Southern Freight Rail Corridor Study* (SFRC). The study seeks to identify a preferred rail connection between the existing narrow gauge Western Rail Line near Rosewood and the existing Interstate standard gauge rail corridor (SGR) near Kagaru.

The SFRC is proposed as a "freight only" railway and would form a key link from the proposed Melbourne to Brisbane Inland Railway to the SGR north of Beaudesert, providing an alternative route to existing freight centres at Acacia Ridge and the Brisbane Multimodal Terminal (Port of Brisbane). The SFRC will also provide dual gauge rail access to proposed logistics hubs and industrial developments in the Ebenezer and Bromelton areas.

The purpose of this *planning study* is for the forward identification of a future rail corridor (including rail alignment, earthworks footprint and community infrastructure designation (CID) area), so that the land required for a future railway line can be designated as "*community infrastructure*" under the *Sustainable Planning Act 2009* (SP Act). The designation will effectively ensure that any future development in the area is consistent with the rail corridor. The CID will provide local governments with guidance for future land use decisions and will assist in facilitating ideal planning outcomes for the future. Notwithstanding that it is unknown when the SFRC will be constructed, this study provides adequate rigour to ensure the forward identification of the SFRC, with the understanding that the detailed design, construction and operation phases will occur some time in the future.

The SFRC study originally involved an investigation within a 55km-long and 2km-wide corridor of interest which was developed from previous preliminary studies undertaken in 2005. The study area for the SFRC draft assessment report included the corridor of interest and its surrounding environs.

In October 2008, the SFRC draft assessment report was released for public consultation, and included information about a preferred rail alignment (and preliminary earthworks plan) within the corridor of interest. The feedback provided by stakeholders was informative, and all questions and concerns about the SFRC raised in the submissions have been taken into consideration by the study team. Responses to these questions and concerns are included in the submissions report (Appendix D).

Since the release of the draft assessment report in October 2008, new information from the public (including the high value placed on the koala habitat in Ebenezer) and from the Department of Environment and Resource Management (DERM) (including the importance of the Ebenezer area in the South East Queensland Koala Habitat Assessment and Mapping Project) prompted the SFRC study team to investigate alternative alignments for the SFRC in this area. The alignment has been revised to largely avoid core koala habitat (mapped as high value bushland by DERM), and is now positioned up to 2km north of its previous location through Ebenezer, to the south of Paynes Road (see Appendix B – CID Plans).

The submissions report (Appendix D) also provides information about the changes between the SFRC Draft Assessment Report (2008) and this Revised Assessment Report (2009), and directs the reader to where these changes can be found in this report.

Draft Assessment Report

A draft assessment report was prepared in 2008 to fulfil the requirements of an Initial Assessment Report, as step 1 of the CID process under the SP Act (see Section 2.2). The draft assessment report included:

- an outline of the project
- a description of the legislative requirements of the project
- a physical description of the project
- an outline of the community engagement activities for the project
- investigations into the existing environmental values of the study area, the likely environmental impacts attributable to the project, and the mitigation measures proposed to minimise or negate these impacts
- an Environmental Management Plan (EMP) designed to guide the future phases of the project (detailed design, construction and operation) such that environmental impacts are minimised

Volume 2 of the draft assessment report contained twelve (12) technical papers, these being detailed investigations into various environmental elements. Generally, the technical papers investigated the existing environmental values of the study area, the potential environmental impacts as a result of the project, and the mitigation measures proposed to minimise or negate these impacts.

The draft assessment report was released for public comment on 6 October 2008. Requests from stakeholders resulted in the submission period being extended from 20 to 50 business days, and ending on 12 December 2008.

Information received from stakeholders and government agencies during the submission period for the draft assessment report has prompted updates to information contained within the draft assessment report. This revised assessment report contains these updates, which include:

- a revision to the original alignment in the Ebenezer area, and justification for the changes to the alignment that was presented in the draft assessment report
- a submissions report which lists categorised submissions to the draft assessment report and contains responses from the study team to these submissions. The submissions report also assists the reader to locate and identify the most significant changes to this revised assessment report since the release of the draft assessment report
- updates to the technical papers, based on the submissions received and investigations into the potential environmental effects of the revised alignment

This revised assessment report has been prepared to fulfil the requirements of a Finalised Initial Assessment Report, in accordance with step 3 of the CID process (see Section 2.2).

Relationship to other projects

The SFRC is closely related to the Melbourne-Brisbane Inland Railway project, which was investigated through the North-South Rail Corridor Study (Ernst & Young, 2006) and the Inland Rail Study (ARTC, 2009). The Inland Railway will result in a significant increase in rail freight between Melbourne and Brisbane. This increase in freight volumes would place substantial pressure upon existing freight rail infrastructure in south-east Queensland.

Since 2005, TMR has been exploring options for alternative routes for a future dual gauge connection to the possible Inland Railway, based on the difficulty that would be associated with upgrading the existing route. These conflicts include issues associated with the electrified passenger network, impacts on urban areas and existing capacity constraints. The SFRC is considered to be an important component of a future Inland Railway, as it functions as a key connection between the narrow gauge Western Railway Line (near Rosewood), and the standard gauge Interstate Railway Line (near Kagaru), allowing access to current intermodal freight terminals at Acacia Ridge and the Port of Brisbane, in addition to potential future freight terminals at the Bromelton State Development Area, and the Ebenezer Regional Development Area (as identified in the *South East Queensland Regional Plan 2009-2031*).

The SFRC study is the evolution of previous studies commissioned by the Queensland Government into the Southern Infrastructure Corridor (SIC). The SIC Study (2005) was commissioned by the Office of Urban Management to investigate broad potential routes for the SIC. That study examined the feasibility of routes for a freight railway, which are typically highly constrained by terrain. The SIC Study investigated eight (8) route options in total, and recommended that further investigation be undertaken regarding options N1 and C3. Option N1 was later considered inappropriate by the Queensland Government, due to its proximity to existing urban areas and the planned future residential areas of Springfield, Ripley and Camira. Therefore, C3 was determined to represent the optimum route for further investigation, and was selected by the Queensland Government to form the basis for this current study. Accordingly, the C3 Option from the SIC Study was used as a starting point for the SFRC Study.

Minor modifications to the C3 Option resulted in a preliminary alignment, which formed the centre line for the 2km-wide corridor of interest adopted for this study (see Figure 1). An investigation of valuable features, key constraints and sensitive receptors throughout the corridor of interest was undertaken. The findings of the investigations provided an understanding of the social, environmental and economic constraints within the corridor of interest that would ultimately influence the alignment development process. These factors were given suitable consideration within the constraints posed by the desired and minimum engineering standards for the railway.

Based on the design criteria and the investigations of the relevant social, environmental and economic factors, a preferred alignment for the SFRC was developed. As previously mentioned, feedback on the preferred alignment contained within the draft assessment report has prompted a revision to the SFRC alignment in the Ebenezer area to minimise potential impacts on vegetation and koala habitat. Detailed CID Plans of the revised alignment are provided in Appendix B of this report. The plans include long sections which illustrate the position of the railway relative to natural ground level as well as annotations of key features such as bridges, road realignments and creek crossings.

The alignment design has been progressed to a level suitable to enable an appropriate level of confidence in the defined rail corridor boundaries. The earthworks for the final alignment design may vary slightly, depending on further geotechnical and hydraulic studies to be undertaken during the detailed design phase.

CID guidelines – community engagement and environmental assessment

Before designating land for Community Infrastructure, the Minister must be convinced that appropriate community engagement and environmental investigations have taken place. Accordingly, the community engagement and environmental assessment for the SFRC is being delivered in accordance with the *Guidelines about Environmental Assessment and Public Consultation Procedures for Designating Land for Community Infrastructure* (CID guidelines). The public release of this revised assessment report represents step 4 in the six (6) step CID process. There are 123 properties that are subject to land requirements for the project (i.e. traversed by the SFRC CID area).

It is submitted that the environmental investigations undertaken for the SFRC are adequate to meet the requirements set out in the CID guidelines. Twelve (12) specific environmental studies were conducted for the SFRC, and the main conclusions for these studies with respect to the likely impact of the SFRC are provided below.

Topography, geology, soils and groundwater

Following the implementation of recommended mitigation measures, it is anticipated that the risk of topographical, geological and/or soil-based potential impacts occurring will be managed within acceptable (at least to statutory) standards. Given the implementation of adequate management strategies, limited long-term impacts on groundwater quality and quantity are expected. This is largely due to the nature of the proposed works despite the vulnerability rating assigned to alluvial deposits within the flood plains of local waterways.

Nature conservation

The SFRC alignment has been revised to minimise potential impacts upon high value bushland koala habitat in the Ebenezer area. Provided that effective north/south movement of koalas is facilitated through effective detailed design measures, this realignment represents a significant positive outcome for the nature conservation values of this area when compared with the previous SFRC alignment.

Nevertheless, construction of the SFRC along the preferred alignment will potentially have a significant impact on the nature conservation values of the area (potentially including Matters of National Environmental Significance). As such, a referral to the Department of Environment, Water, Heritage and the Arts (DEWHA) is likely to be required during detailed design. Approval is also required from the Queensland Government for the clearing of remnant vegetation, high value regrowth and essential habitat. Strict obligations apply under the *Vegetation Management Act 1999* that can be addressed through the provision of offsets. However, meeting the mandatory offset requirements will require liaison with the appropriate authorities to achieve an acceptable outcome for the Project, the environment and the community. This would be a matter that would need further assessment during the detailed design phase of the project.

The long lead time to construction provides an ideal opportunity for a project-specific offsets strategy to be developed well in advance of construction (such as when there is a firm commitment to construct the SFRC). This would allow offset areas to mature prior to construction of the SFRC, and would maximise the effectiveness of the offsets strategy.

Surface water

Overall, the construction of the SFRC preferred alignment would have a short-term negative impact on riparian zones where the preferred alignment crosses waterways. The operation of the SFRC is not expected to affect water quality and/or riparian areas over the longer term.

Hydraulic study

Construction of the SFRC preferred alignment will result in increased peak flood levels upstream of proposed waterway crossings due to constriction of the waterway. However, the hydraulic modelling indicates that the estimated increases are not expected to result in adverse impact to existing infrastructure. Targeted flood mitigation measures, if required, would be explored as part of future detailed investigations.

Land use and planning

The SFRC revised alignment has been designed to avoid conflicting land use impacts as much as possible. Through introducing freight rail traffic into the area and potentially catalysing development of regional industry and an intermodal freight terminal, the SFRC is likely to change sections of the quiet rural nature and character of parts of the study area.

With the transformation of character as the overarching impact, a number of other impacts upon the study area will remain despite attempts to mitigate these. These impacts include relocation of residents within the alignment, disruptions to connections between properties and local roads, changes to the local transportation network, disruptions to rural activities and potential decreases in local biodiversity.

With respect to future development, the SFRC complements the future planning intent for much of the study area. The future industrial precincts of Ebenezer and Purga are proposed to be located adjacent to the SFRC, with the high possibility of an intermodal freight terminal along the corridor. This freight terminal would potentially act as a major catalyst for industry and logistics in the Western Corridor, generating significant employment and promoting the development of the future residential precinct of Ripley Valley.

Nevertheless, the impact that the SFRC will have upon the local communities in the study area is significant. In light of the considerable regional benefits of the project it is reasonable to require that considerable effort be put into mitigating localised negative impacts through the implementation of appropriate design responses to particular issues and fair and reasonable compensation for landowners with a land requirement on their property as a result of the SFRC. In general terms, the project should seek to leave a positive legacy for local communities through the provision of the best achievable design outcomes and external community improvement projects considered appropriate at the time of construction.

Air quality, climate and climatic trends

The construction of the SFRC preferred alignment will have a potentially minor short-term impact on local air quality. Operations of the SFRC will potentially have a minor intermittent impact from exhaust gases and possible odour from passing trains. This is only expected to affect receptors immediately adjacent to the preferred alignment during the time of the particular event.

Visual impact assessment

The SFRC preferred alignment is likely to have impacts upon the visual amenity of the study area. Some landscape and visual impacts have been partially mitigated in the current engineering proposal of the preferred alignment through the development of two tunnels through areas of high scenic visual amenity in the eastern part of the corridor that will minimise the visual (and intrinsically-linked landscape) impact. Additional opportunities to address adverse impacts of the preferred alignment have been identified and should be integrated into the detailed design phase of the project. Further, it is suggested that a Landscape Integration Strategy and Landscape, Revegetation and Urban Design Guidelines be developed during detailed design.

Noise and vibration

The existing acoustic environmental values were quantified by a background noise monitoring program, with the existing acoustic environment in the area considered low.

A review of operational noise criteria was assessed using the *EPP* (*Noise*), the QR *Code of Practice – Railway Noise Management*, and the TMR internal noise criterion, as identified in *Queensland Transport's Interest in Planning Schemes* (QTIPS). These criteria were adopted for the purposes of this planning study. It is suggested that a re-evaluation of these criteria should be undertaken during detailed design.

The assessment indicated that the operational noise impacts will impact approximately 15 residential dwellings with forecasted exceedances above statutory QR external criteria, and a further 455 residential dwellings forecast to exceed the TMR internal noise criterion where the bedroom windows of these dwellings remain open. In relation to operational vibration; this being based on measurements of existing diesel locomotive hauled rail movements, the results indicated that a buffer distance of 20 metres from a preferred alignment would be

required to achieve forecast compliance with operational vibration criteria. Construction noise and vibration guidelines are to be outlined in the Construction Environmental Management Plan (CEMP).

Ivory's Rock Conference Centre (IRCC) is a unique land use within the study area. Considering that IRCC is largely an outdoor conference centre and is dependent upon a quiet rural amenity, IRCC is characterised by a noise sensitivity that is different to many of the other land uses within the area. It is recognised that the treatment measures identified in the noise and vibration technical paper are not appropriate for the mitigation of noise impacts on Ivory's Rock Conference Centre, and are primarily suited to standard residential buildings. Accordingly, it is recommended that further detailed investigation be undertaken during later project stages to develop appropriate at-source noise mitigation measures for this section of the alignment. Such measures would also assist with mitigating noise impacts on the Peak Crossing township. Review of the alignment in the vicinity of IRCC shows that the alignment exits cutting at Ch 24250 and re-enters cutting at Ch 27750. Implementation of at-source mitigation measures for this section of the alignment between these two cuttings would likely assist with mitigation of impacts upon IRCC and the Peak Crossing Township. Mitigation measures to be explored for this area include earth mounding and acoustic barriers.

Further detailed modelling is required to confirm the extent of residual impact during detailed design, based on the appropriate criteria at the time of assessment. During detailed design, appropriate efforts should be made to reduce the noise impacts of the SFRC on the IRCC and other sensitive uses as far as practical, to the extent that any residual impacts are manageable.

Aboriginal cultural heritage

Twenty-five (25) sites of Aboriginal Cultural Heritage Significance were identified and recorded within the study area during the desktop research and field survey. A further four (4) areas of interest were identified as having a high potential to contain sites and objects of Aboriginal Cultural Heritage Significance. While the field survey was able to confirm the existence of a considerable number of sites and objects, further cultural heritage surveys should be completed.

Recommendations for the mitigation of impacts on cultural heritage include preparing a Cultural Heritage Management Plan as soon as is practicable, completing a comprehensive Aboriginal Cultural Heritage survey, undertaking appropriate mitigation of any potential impacts from the SFRC upon sites or objects of Aboriginal Cultural Heritage Significance (depending on the nature of the site or object) so as to retain their cultural value despite the construction and operation of the SFRC, and specific Indigenous engagement within the community engagement stages of the CID process.

Based on the high-level study undertaken for the SFRC, the preferred alignment is considered to be located suitably for the preservation of Aboriginal Cultural Heritage.

European cultural heritage

A number of potential impacts upon European Cultural Heritage are likely as a result of the construction and operation of the SFRC. Most significantly, Undullah Homestead will be directly impacted by noise and vibration caused by the construction of the SFRC, potentially making it uninhabitable and necessitating its relocation. It is recommended a Conservation Management Plan be prepared for Undullah Homestead that will limit the diminution of its cultural significance. While there are no other places of European Cultural Heritage that will be directly impacted, there are a number of potential indirect impacts on heritage places, character precincts and the general environmental setting. These potential impacts include the introduction of new environmental elements such as noise, altered visual aspects, changes in air quality, and alterations to land use patterns in the area as a result of the SFRC. The impact of these changes is considered to be manageable.

Social impact assessment

The SFRC is likely to create a number of national, state-wide and regional positive impacts, whilst also creating a number of localised negative impacts. These localised negative impacts are likely to include changes in accessibility, amenity, character, property acquisition and replacement, and perceived safety risks.

Economic analysis

There are net benefits of reserving the SFRC now, provided that there is a future dual gauge rail link between Ipswich and Toowoomba (west of Rosewood) and the Brisbane-Sydney standard gauge Interstate Rail Line/Acacia Ridge intermodal terminal. However, the economic analysis indicated that if it is was highly likely that the infrastructure was not going to be developed, the cost disadvantage of preserving the SFRC now may be greater than the expected benefits. Local economic impacts from building the rail line are likely to be limited

unless a freight terminal is also developed; however the investigation of the terminal is outside the scope of this project. There will be significant regional benefits from the rail line and state and national benefits if the rail line is integrated with the Melbourne-Brisbane Inland Rail.

Environmental management plan

An Environmental Management Plan (EMP) was developed to provide advice on the environmental management measures to be considered and included during the design, construction and operation of the SFRC.

Conclusion

The SFRC is an important project for the western corridor of SEQ, the wider SEQ region, Queensland and Australia. When coupled with the future inland railway, the project provides benefits within an economic, freight transportation, social and land use planning context. The SFRC will ensure that heavy rail freight does not congest the Brisbane metropolitan network, and will provide logistics operators a competitive alternative to road transport for interstate freight movements.

At the national, state, regional, and local government level, the SFRC (when coupled with the proposed inland railway) is an important and practical development initiative of the Department of Transport and Main Roads.

This revised assessment report has shown that the SFRC has the potential to cause a number of impacts upon the local environment. However, through the use of appropriate mitigation strategies, it is expected that these potential impacts will be effectively managed. Fundamental to the effective management of potential impacts of the SFRC project will be the investigations undertaken at the detailed design phase of the project. This revised assessment report has identified areas where further investigation will be required at the detailed design phase, so that potential impacts can be identified and effectively mitigated. This revised assessment report, prepared as part of the planning phase of the project, has not identified any potential impacts which are considered so significant that they are likely to prevent the future construction and operation of the SFRC.

Chapter 1
Introduction

1.0 Introduction

The purpose of this section of the revised assessment report is to provide an outline of the project, including discussion of the project scope and objectives, project proponent, administrative arrangements and structure of the report.

1.1 Project outline

1.1.1 Overview

In mid 2007, the Department of Transport and Main Roads (TMR), formerly Queensland Transport (QT)) initiated the *Southern Freight Rail Corridor* (SFRC) Study. The study seeks to identify a preferred rail connection between the existing narrow gauge Western Rail Line near Rosewood and the existing Interstate standard gauge rail corridor (SGR) near Kagaru. Investigations to provide this connection have generally been undertaken within a 55km-long and 2km-wide corridor of interest (see Figure 1) which was developed from previous preliminary studies undertaken in 2005. Due to constraints in some areas, these investigations have extended slightly beyond the original corridor of interest, most notably in Ebenezer and at the eastern end of the corridor near Kagaru.

Figure 1 Original corridor of interest

The SFRC is proposed as a "freight only" railway and would form a key link from the proposed Melbourne to Brisbane Inland Railway to the SGR north of Beaudesert, providing an alternative route to existing freight centres at Acacia Ridge and the Brisbane Multimodal Terminal (Port of Brisbane). The SFRC will also provide dual gauge rail access to proposed logistics hubs and industrial developments in the Ebenezer and Bromelton areas.

Initially the railway would be designed as a single track with passing loop/s, to contemporary freight railway design standards, including allowance for the double-stacking of containerised freight. Increasing freight volumes may justify the eventual duplication of the alignment.

In October 2008, a draft assessment report was released for the SFRC Study. The draft assessment report identified a preferred alignment through the study area, and provided an analysis of potential environmental impacts and mitigation measures to minimise or prevent these impacts. Information received from stakeholders and government agencies during the submission period for the draft assessment report has prompted updates to information contained within the draft assessment report.

This revised assessment report contains these updates, which include:

- a revision to the original alignment in the Ebenezer area
- justifications for the changes to the alignment that was presented in the draft assessment report (see Section 4.3)
- a submissions report which lists categorised submissions to the draft assessment report and contains responses from the study team to these submissions (see Appendix D)
- updates to the technical papers, based on the submissions received and investigations into the potential environmental effects of the revised alignment (see Volume 2)

The study area has been expanded in the Ebenezer area in order to accommodate the revisions to the alignment discussed above. The original corridor of interest, previously preferred alignment, revised alignment and revised study area can be seen graphically in Figure 13 (see Section 4.3). The content of this report includes consideration of the environmental, social and economic values of this expanded study area.

This revised assessment report has been prepared to fulfil the requirements of a Finalised Initial Assessment Report, in accordance with step 3 of the community infrastructure designation (CID) process under the *Sustainable Planning Act 2009* (SP Act) (see Section 2.2).

1.1.2 Key project considerations

The Southern Freight Rail Corridor Study has been undertaken with a number of key assumptions and exclusions relating to project timing, relationship to other projects and scope of investigations. This section outlines the assumptions made in relation to project timing, and also references the appropriate sections of the revised assessment report where all other assumptions and exclusions are identified.

Timing

The purpose of this *planning study* is for the forward identification of a future rail corridor (including rail alignment, preliminary earthworks footprint and CID Area), such that the land required for a future railway line can be designated as community infrastructure under the SP Act. The resultant designation will effectively ensure that any future development does not encroach on the land within the future rail corridor, thereby enabling the railway's construction at some time in the future. In this respect, it should be noted that the broader study area is a dynamic environment, and that significant land use changes are likely to occur between now and the time that the SFRC is to be constructed. Anticipated future land use includes the development of Purga and Ebenezer[1] for regionally-significant industry, Amberley Air Base and Aerospace Park, Ripley Valley residential area, Swanbank Enterprise Park, and Bromelton State Development Area. These and other future developments are likely to place significant development pressure on other land within the study area.

With the understanding that the SFRC is a key part of the Toowoomba to Brisbane link of the Inland Railway project, it is not known at this point when the detailed design, construction and operation phases of the SFRC would occur. However, this current study provides adequate rigour to ensure the forward identification and protection of the SFRC, with the understanding that the detailed design, construction and operation phases will occur at some time in the future.

[1] The location of the SFRC alignment will be an important consideration for the master planning of the Ebenezer industrial area.

Given the long-term strategic planning nature of this study, it is important to note that further detailed investigations into various environmental elements will be required at a time when there is a firm commitment to construct the SFRC. These investigations will ideally complement and inform the detailed design phase of the project. Such an approach will guarantee that appropriate and current information on the environmental values of the study area is obtained at a time closer to the construction of the railway line, and that any changes to land use patterns and environmental elements between now and construction are included in the environmental assessment process.

Assumptions

The assumptions which form the basis of much of the work undertaken for this revised assessment report are outlined in Section 4.3.

Exclusions

The SFRC is closely associated with other railway projects (i.e. the Inland Rail) and also has implications for future intermodal freight terminal planning. In addition, there are various technical elements of the study where detailed investigations are recommended for the future detailed design phase. With respect to other rail studies, future planning investigations and scope of technical investigations, it is important to acknowledge those aspects which are outside the scope of this study and this revised assessment report.

These exclusions are identified below, with respect to topic and a reference to the relevant section of the report in which they are described in further detail. They are:

- inland railway – Section 4.1.2
- intermodal freight terminals – Section 4.1.3
- stormwater drainage systems for construction and operation phases – Section 4.4.3
- detailed design of the two sections of tunnel – Section 4.4.3
- analysis of interfaces between the SFRC and local roads – Section 4.4.3
- interfaces with major infrastructure such as Moonie-Brisbane Oil Pipeline – Section 4.4.3
- access and stock movement requirements of individual properties – Section 4.5

1.1.3 Administrative details

The SFRC traverses land under the jurisdiction and interest of multiple Local and State Government Agencies. TMR is the lead agency for the Study, which has been managed through a Project Steering Committee (PSC), comprising TMR, Queensland Rail - Network Access Group (QR) and the Department of Infrastructure and Planning (DIP).

TMR are seeking a CID for the proposed rail corridor in accordance with Chapter 5 of the SP Act. Before designating land, the Minister must be satisfied that there has been adequate environmental assessment and public consultation, and that suitable account has been given to issues raised during public consultation. One way this requirement can be met is for the assessment of the proposed infrastructure to be carried out in accordance with the *"Guidelines about Environmental Assessment and Public Consultation Procedures for Designating Land for Community Infrastructure"* prepared under Section 760 of the SP Act. Further information regarding the CID process is provided in Section 2.2 of this report.

A body of State and Local Government representatives and other appropriate authorities have been involved in an Agency Reference Group (ARG) for the project, which has met at key points throughout the study. It was originally intended that a referral will be submitted to the Department of Environment, Water, Heritage and the Arts (DEWHA), in accordance with the provisions of the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) during the CID process. However, discussions between the study team and DEWHA representatives following the release of the draft assessment report has led to the understanding that a referral will be required during the detailed design phase of the project.

To build and operate the rail link, the Chief Executive of TMR will, by written notice to the relevant Local Government and in the Gazette, indicate that the land is intended to be used for a railway, pursuant to Section 242 of the *Transport Infrastructure Act 1994.* Section 258B of the TI Act allows the Director General of TMR to make guidelines which have the effect of placing the corridor on Integrated Development Assessment System (IDAS) mapping – which provides TMR with a referral trigger. Section 258 of the Act allows TMR – in its role as a referral agency – to assess the impacts of any development applications on "future railways". In this way,

the TI Act allows TMR to provide input into the assessment of future development which poses potential conflicts with the SFRC.

1.1.4 Proponent

TMR, formerly QT, is the proponent of the SFRC Study.

TMR coordinates transport policy, strategy, funding and investment initiatives in relation to transport network planning, corridor investigations, rail, ports and freight. TMR develops and implements policies, regulations and strategic plans to promote more effective and efficient rail, port and freight systems in Queensland and to facilitate internationally competitive freight logistics practices. TMR negotiates contracts for the delivery of Community Service Obligations by Queensland Rail or other rail service providers, and fosters productivity and efficiency improvements through cost-effective transport solutions.

In addition to its statutory obligations, TMR conducts its operations with reference to the Transport Portfolio Environmental Framework (TPEF). The TPEF initiative aims to ensure sustained improvements in the environmental performance of Queensland's transport system. The framework provides a process for bringing together Queensland's transport portfolio partners and stakeholders.

The aim of the framework is to foster improved information exchange and understanding, agency and stakeholder cooperation and involvement, and environmental performance reporting. Key products developed to achieve these outcomes include - a Portfolio Environmental Policy and accompanying Portfolio Environmental Action Plan and a Portfolio Environmental Report (see Figure 2).

Figure 2 **Transport Portfolio Environmental Framework**

1.2 Project objectives and scope

The objectives of the SFRC Study are to:

a) identify the preferred freight-only rail corridor alignment from the existing narrow gauge Western Rail Line near Rosewood to the SGR near Kagaru, including identification of land required

b) prepare environmental reporting for the project in accordance with the *Guidelines about Environmental Assessment and Public Consultation Procedures for Designating Land for Community Infrastructure,* for the purposes of providing:

- for interested parties, a basis for understanding the project, alternatives for the proposed project, the existing environment that it would affect, and in relation to other major social and engineering infrastructure coordination, the impacts that may occur and the measures to be taken to mitigate all adverse impacts, and possible legislative approvals and delivery mechanisms

- for groups or persons with rights or interest in land, an indication of project impacts on that land including access and measures to mitigate identified adverse impacts
- consideration of the economic, social and environmental aspects of the project in view of legislative and policy provisions

c) undertake a sufficient level of design for the project to allow the identification of land required for the corridor, including an assessment of initial rail construction costs

1.3 Objectives of the revised assessment report

The objectives of the revised assessment report are to:

- identify potential environmental, social and economic impacts and articulate measures to avoid, mitigate or manage adverse impacts where possible
- identify potential community benefits, including environmental, social and economic benefits
- update information provided in the draft assessment report, based on information received through the submission process, and any changes to the proposed alignment

Where likely impacts (direct, indirect and cumulative) are unavoidable, they are examined and remedial measures proposed, so that the development of the project, including the selection of the final project specification, is based on sound economic, social and environmental protection and management criteria. Consistent with this objective, the revised assessment report is a stand-alone and comprehensive document containing sufficient information to make an informed decision on the potential impacts of the project.

The document provides a framework against which to:

- consider the economic, social and environmental aspects of the project in view of legislative and policy provisions
- set conditions for approval, as appropriate, to seek to achieve economically, socially and environmentally sustainable development
- where necessary, recommend an environmental management and monitoring program

Ultimately this document provides information necessary for the Government to decide whether the project can proceed or not.

1.3.1 Differences between this report and draft assessment report

This revised assessment report has been prepared in accordance with the requirements of Stage 3 of the CID process and for consultation as per step 4 of the CID process (see Section 2.2). As an updated version of the original draft assessment report, the revised assessment report includes the information within the draft assessment report, plus any updates to the SFRC study since October 2008. These updates include:

- a revised SFRC alignment, based on feedback received during the submission period for the draft assessment report, and information received from the South East Queensland Koala Habitat Assessment and Mapping Project (DERM 2009)
- a thorough assessment of the potential environmental impacts of the revised alignment, including:
  - a revised flood model for the crossing of Warrill Creek
  - a revised acoustic model for the SFRC preferred alignment
- updates to relevant legislation, including the introduction of the *Sustainable Planning Act 2009*, replacing the *Integrated Planning Act 1997*
- a submissions report detailing the feedback received as part of the consultation process, and responses to this feedback (see Appendix D). In some cases, this feedback has prompted alterations/additions to the text in the revised assessment report

The revised alignment is discussed in further detail in Section 4.3.3. The original corridor of interest, previous alignment, revised alignment and revised study area can be seen graphically in Figure 13 (see Section 4.3.3).

1.4 Structure of report

The revised assessment report is made up of two (2) Volumes as outlined in Table 1. The structure is designed to allow easy access by interested parties to those elements of the study relevant to them. Volume 1 is a concise summary document designed to provide a detailed overview of the key issues associated with the project.

Volume 1 is supported by detailed technical papers covering the various environmental facets of the project in Volume 2.

Table 1 Revised Assessment Report Structure

Volume 1: Summary Document	Volume 2: Technical Papers
Introduction	Individual technical papers on 12 environmental values: Topography, Geology, Soils and Groundwater; Nature Conservation; Water Quality; Hydraulic Study; Land Use and Planning; Air Quality, Climate and Climatic Trends; Visual Impact Assessment; Noise and Vibration; Indigenous Cultural Heritage; European Cultural Heritage; Social Impact Assessment; and Economic Analysis.
Community Infrastructure Designation	
Legislative Framework	
Project Description	
Community Consultation	
Environmental Impacts and Mitigation Measures (including summaries of each technical paper)	
Environmental Management Plan	
Appendix A: Community Infrastructure Designation Checklist	
Appendix B: CID Plans	
Appendix C: Community Consultation Correspondence	
Appendix D: Submissions Report	

Chapter 2
Community infrastructure designation

2.0 Community infrastructure designation

The purpose of this section of the revised assessment report is to discuss the community infrastructure designation (CID) process, key requirements for environmental assessment and community consultation required by the CID guidelines, and issues relating to the adoption of CID for the SFRC.

2.1 Background and legislative framework

TMR are seeking to designate the SFRC as community infrastructure in accordance with Chapter 5 of the SP Act. CID provides for the forward identification of land for community infrastructure in order to facilitate the integration of land use and infrastructure planning, and the efficient and cost-effective provision of the infrastructure.

In accordance with section 201 of the SP Act, land may be designated for community infrastructure only if the designator is satisfied the community infrastructure will:

a) facilitate the implementation of legislation and policies about environmental protection or ecological sustainability; or

b) facilitate the efficient allocation of resources; or

c) satisfy statutory requirements or budgetary commitments of the State or Local Government for the supply of community infrastructure; or

d) satisfy the community's expectations for the efficient and timely supply of the infrastructure.

Furthermore, section 207 of the Act specifies that before designating land, the Minister must be satisfied that: (for the development, the subject of the proposed designation)

a) adequate environmental assessment has been carried out; and

b) in carrying out environmental assessment under paragraph (a), there was adequate public consultation; and

c) adequate account has been taken of issues raised during the public consultation.

It is important to note that since the inception of the study and prior to seeking CID, a range of community engagement activities were undertaken by the study team. These activities included one-on-one landowner briefings (for landowners within the original corridor of interest) and community information days (for the wider community) (see Section 5.3.5). These activities are additional to the minimum environmental assessment and consultation procedures set out in the CID guidelines, and described in Section 2.2.

Community engagement for the draft assessment report was undertaken in accordance with the requirements of step 2 of the CID process, and included one-on-one briefings with the majority of impacted landowners and Community Information Days (see Section 5.4).

2.2 Environmental assessment and consultation procedures under the CID guidelines

Section 207 (3)(a) of the SP Act states that one way of meeting the assessment requirements outlined above is to adopt the assessment process outlined in the *Guidelines about Environmental Assessment and Public Consultation Procedures for Designating Land for Community Infrastructure* (the CID guidelines) (DLGPSR, 2006), and shown in Figure 3.

The Environmental Assessment and Consultation Procedures under the CID guidelines are divided into six (6) discrete steps, beginning with the preparation of an Initial Assessment Report, and concluding with the forwarding of the Final Assessment Report to the Minister to proceed with the designation. These six steps are detailed in the following pages.

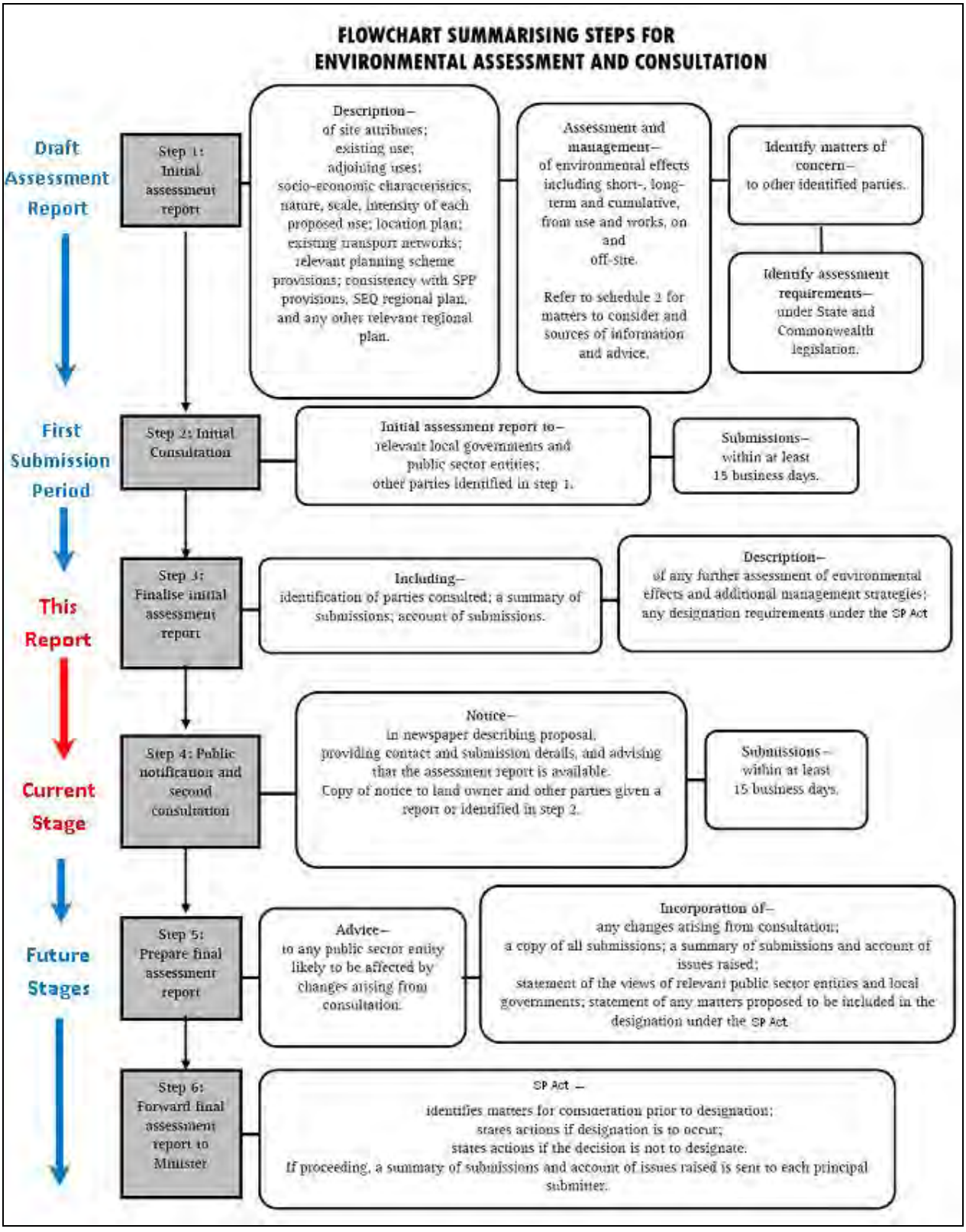


Figure 3 CID Environmental Assessment and Public Consultation Process, showing its application to the SFRC.

Step 1 – Preparation of initial assessment report

CID Requirements

The purpose of the initial assessment report is to present the findings from first-round assessment as a basis for initial consultation. This includes:

- description of the proposed community infrastructure and the site within its context
- assessment of the environmental effects and ways of managing those effects
- identification of matters likely to be of concern to other parties
- identification of State assessment requirements and applicable Commonwealth legislation

SFRC Study

The level and depth of study undertaken for the draft assessment report far exceeded the requirements of the CID guidelines. As such, the report did not merely represent a high level, brief assessment of the likely impacts of the SFRC, but rather it was an appropriate assessment of the relevant environmental aspects of the SFRC. Further discussion regarding the compatibility of the adopted assessment process with the CID Guideline assessment process is provided in Section 2.3. For the purposes of this project, the draft assessment report released in October 2008 represented the "Initial Assessment Report" under the CID process.

Step 2 – Initial consultation with other parties

CID requirements

As a minimum, the initial assessment report prepared in step 1 is required to be given to the relevant Local Governments and relevant public sector entities. Any other parties identified in the Initial Assessment Report are also advised that a copy of that report is available for viewing, purchase or access via a website. If practicable considering the number of parties involved, advice is given by name and in writing to each party, otherwise by an alternative means such as public notice or letterbox drop.

Written submissions are invited from all parties within a period of at least 15 business days from the date the advice is given. Any other consultation considered appropriate may also be undertaken.

SFRC Study

As previously indicated, the history of community engagement for the SFRC has been extensive. Activities prior to the release of the draft assessment report included letters to landowners, individual briefings with landowners and elected representatives, community information days for the wider community, the preparation and distribution of a project newsletter, and the maintenance of a project website.

The draft assessment report was provided to Ipswich City Council and Scenic Rim Regional Council, and was made available for viewing by the public in four (4) accessible and central locations throughout the study area. The SFRC website also contained the report for download electronically. All landowners within the original corridor of interest were notified of the release of the report and provided with a CD copy of the draft assessment report.

Advertisements were placed in local newspapers encouraging members of the community to view the document at the public viewing places, or on the project website, and to make a submission during the submission period.

At the request of the community, and due to the size and content of the draft assessment report, the submission period was extended from 20 business days to 50 business days; spanning 6 October 2008 to 12 December 2008.

Step 3 – Finalisation of initial assessment report for public notification and second consultation with stakeholders

CID requirements

The initial assessment report prepared in step 1 is modified and added to, as appropriate, following step 2, and includes:

- a list of the parties consulted (subject to their permission)
- a summary of all submissions and the account taken of the issues raised
- any further assessment of environmental effects of the proposal
- any additional strategies for managing the environmental effects
- a statement of any matters proposed to be included in the designation under the SP Act, section 202

Section 202 of the SP Act states that designations may include:

(a) Requirements about works or the use of the land for the community infrastructure, including the height, shape, bulk or location of the works on the land, vehicular access to the land, vehicular and pedestrian circulation on the land, hours of operation of the use, landscaping on the land and ancillary uses of the land; and

(b) Other requirements designed to lessen the impacts of the works or the use of the land for community infrastructure, including procedures for environmental management.

SFRC Study

This revised assessment report has been prepared for the purposes of step 3 of the CID process, and incorporates information received from submitters and other stakeholders during step 2 of the process. Notably, this report contains a revised alignment in one section of the study area, based on information provided to the study team about the significance of an area of vegetation in providing habitat for koalas and other species. This revised assessment report contains all relevant information from the draft assessment report, an updated environmental assessment based on the revised alignment, and any other information, clarification and corrections deemed necessary by the study team after considering the submissions.

The following list identifies how the CID requirements for step 3 are met by this revised assessment report:

- A list of the parties consulted (subject to their permission) – Each submission received for the draft assessment report has been given a unique submission number in the **submissions report (Appendix D)**, and the corresponding submitter's initials have been listed in the submissions report.
- A summary of all submissions and the account taken of the issues raised – Each issue raised within each submission has been categorised according to topic, and is provided in the **submissions report (Appendix D)**. The submissions report also includes a response to each of these issues.
- Any further assessment of environmental effects of the proposal – Further assessment (if any was deemed warranted) of the environmental effects of the SFRC is included in **Sections 7.0-18.0 of this Volume 1 Summary Document**, and in **Technical Papers 1-12 within Volume 2**.
- Any additional strategies for managing the environmental effects – Any additional strategies for managing environmental effects of the SFRC are identified in the "mitigation measures" section of **each technical paper (Volume 2)**, as well as within the **Environmental Management Plan (Section 19.0 of this Volume 1 Summary Document)**.
- A statement of any matters proposed to be included in the designation under the SP Act, section 202 – **the designation includes all activities associated with the development of the proposed rail infrastructure (as described in Sections 4.4 and 4.5), as well as any ancillary activities necessary to implement the mitigation strategies outlined in this report (e.g. acoustic treatments, road and service realignments) where contained within the designated corridor.**

Step 4 – Public notification and second consultation with other parties

CID requirements

The release of this assessment report coincides with the second formal round of consultation under the CID process, involving as a minimum:

- the proposed designation of land for community infrastructure is notified in a newspaper
- the owner of the land is given the same notice as in the newspaper
- if practicable considering the number of parties involved, each other party notified or given a copy of the report in step 2 is given the same notice as in the newspaper, preferably by personal mail otherwise by letterbox drop

The notice is given to the owner of the land and to each party at a time which coincides with the notice published in the newspaper. Written submissions are invited within a period of at least 15 business days taken from the day of public notification or the day the notice is given, whichever occurs later.

SFRC Study

Prior to the release of this revised assessment report, landowners who have a land requirement on their property as a result of the revision to the SFRC alignment will have been actively contacted by the study team. All other landowners within the study area will have been notified about the imminent release of the report. The intent is to ensure that these people are adequately informed of the changes to the alignment, and are adequately prepared to review these changes upon release of the revised assessment report, such that they can make a submission to the report during the submission period.

Step 5 – Preparation of final assessment report for Minister

CID requirements

Before the Assessment Report prepared in step 3 is finalised for the Minister, any public sector entity likely to be affected by any changes to the proposal arising from consultation under step 4 is advised and comments invited.

Also, if there is a period of three months or more between giving a notice to the owner of the land under step 4 and forwarding a report to the Minister under this step 5:

- the owners' names are checked to identify any change in ownership
- each new owner is given the same notice as previously placed in the newspaper except for the day by which submissions may be made
- each new owner has 15 business days from the date the notice is given to make a written submission

The final assessment report provided to the Minister incorporates the following:

- a summary of any changes to the proposal arising from the consultation
- a copy of all submissions received in step 4
- a summary of all submissions in step 4 and the account taken of the issues raised
- a statement of the expressed views of each relevant public sector entity and each relevant Local Government
- a statement of any matters proposed to be included in the designation under the SP Act, section 202

Step 6 – Forwarding of final assessment report to the Minister to proceed under the SP Act

CID requirements

The final assessment report is forwarded to the Minister for consideration under the SP Act, section 207. If the Minister decides to designate, the SP Act, section 208 states what the Minister must do in relation to giving notice of the designation. Section 209 states that a notice is also to be given if the decision is not to proceed with a proposed designation.

If the Minister decides to proceed with the designation, the following is sent to each principal submitter – the summary of submissions and the account taken of the issues raised included in the Final Assessment Report in step 5. "Principal submitter" has the meaning given under the SP Act, Schedule 3, and is the person making a one-person submission, or the person identified as the principal submitter of a submission made by more than one person.

2.2.1 Checklist of relevant matters to assess environmental effects

The CID guidelines contain a checklist for identifying relevant matters to assess environmental effects of a project. This has been adapted to suit the SFRC, and is tabulated in Appendix A. The checklist identifies the matters to be addressed, and the relevant sections in this Summary Document (Volume 1), and the technical papers (Volume 2) which address each matter.

2.3 Compliance of study process with CID process

The decision to pursue CID for the SFRC was made after commencement of the study. As such, the process to be followed for the remainder of the study was adapted to suit the assessment requirements under the CID Guideline. A summary of the key differences between the adopted assessment process and guideline assessment process is provided in Table 2. As can be seen, the adopted process for the study either meets or exceeds the requirements of the guideline.

Table 2 Compliance of Study Process with CID Process

Stage	CID Guideline Process	Adopted Study Process	Timing
Prelim	**N/A**	**Preliminary Consultation**	**September 2007 - March 2008**
		Newsletter	
		4 Community Information Days	
		Elected Representative Briefings	
		Landowner Briefings	
		Study Website and Email Address	
		Focus Groups	
		1800 Free Call Number	
		Study Update Sheet	
Step 1	**Initial Assessment Report (IAR)**	**Draft Assessment Report**	**April 2008 - September 2008**
	First Round Assessment	Draft Assessment Report	
	Identify Interested Parties	Identify Interested Parties	
Step 2	**Initial Consultation**	**Initial Consultation (expanded based on previous commitments)**	**October 2008 - December 2008**
	Copies of IAR to Interested Parties	3 Community Information Days	
	15-day submission period	Newsletter	
	Website release	Elected Representative Briefings	
		50-day submission period	
		Copies of Draft Assessment Report to Interested Parties	
		Landowner Briefings	
		Website update	
Step 3	**Finalise IAR**	**Revised Assessment Report**	**January 2009– March 2010**
	Update IAR based on submissions	Update Draft Assessment Report based on submissions	
	Summary of submission outcomes	Summary of submission outcomes	
	Matters for inclusion in designation	Matters for inclusion in designation	
Step 4	**Public Notification and Second Consultation**	**Public Notification and Second Consultation**	**March 2010 – May 2010**
	Copies of IAR to Interested Parties	Copies of Revised Assessment Report to Interested Parties	
	15-day submission period	Submission period (no less than 15 days)	
	Website release	Website update	
	Public notice in newspaper	Public notice in newspaper	
Step 5	**Prepare Final Assessment Report (FAR)**	**Prepare Final Assessment Report (FAR)**	**May 2010 – June 2010**
	Update IAR based on submissions	Update Assessment Report based on submissions	
	Summary of submission outcomes	Summary of submission outcomes	
	Matters for inclusion in designation	Matters for inclusion in designation	
Step 6	**Forward FAR to Minister**	**Forward FAR to Minister**	**June 2010**
	FAR to minister for approval	FAR to minister for approval	

Chapter 3
Legislative framework

3.0 Legislative and policy framework

The SFRC has the potential to trigger a variety of legislation, conventions and policy which operate at different levels of jurisdiction. These include:

- legislation, conventions and agreements which operate at a Commonwealth level and have particular relevance to the SFRC
- state legislation and policies which will be triggered (or have the potential to be triggered) by the SFRC
- local government policy documents and planning instruments

This chapter introduces and reviews the government policy and legislation relevant to the SFRC study. It should be noted that more detailed consideration is given to relevant legislation, policy and standards in each technical paper in Volume 2 of the revised assessment report. The discussion provided below is intended to be an overview of the applicable instruments.

3.1 Relationship to government policy

3.1.1 Commonwealth

Auslink

The National Land Transport (AusLink) Network is a single integrated network of land transport linkages of strategic national importance, which is funded by Federal, State and Territory Governments. The AusLink Network is based on national and inter-regional transport corridors including connections through urban areas, links to ports and airports, rail, road and intermodal connections that together are of critical importance to national and regional economic growth development and connectivity.

An important facet of the AusLink program is a long-term multimodal planning framework aimed at ensuring that Australian Government funding is targeted at projects on the AusLink Network that deliver high levels of national benefit. Key to this planning framework are the corridor strategies that have been prepared for each of the 24 corridors on the AusLink Network.

As discussed in Section 4.1.2, the then Commonwealth Department of Transport and Regional Services (DoTARS) released the North-South Rail Corridor Study in 2005 investigating the Melbourne-Sydney, Sydney-Brisbane and Melbourne-Brisbane AusLink rail corridors. The key finding of the report was a recommendation that the far western-sub corridor alignment be further investigated for a new inland rail connection between Melbourne and Brisbane.

On the 28th of March 2008 the Federal Government announced a further $15million in AusLink funding for the Australian Rail Track Corporation (ARTC) to undertake investigations focused on the far western sub-corridor. This study is building upon the earlier work to determine the optimum alignment of any future inland railway after taking into account the needs of potential users as well as possible engineering, planning and environmental considerations.

The Stage 1 findings of the Inland Rail Study were released by ARTC in May 2009, and are discussed in further detail in Section 4.1.2.

3.1.2 State

South East Queensland Regional Plan 2009-2031

The *South East Queensland Regional Plan 2009-2031* (SEQRP) has been prepared in accordance with the SP Act. The SEQRP is a statutory document under the *Statutory Instruments Act 1992*, and also a planning instrument under the SP Act. The SEQRP has a direct effect upon development in its own right, as well as an indirect effect on development through the adjustment and configuration of Local Government planning schemes and State plans and policies.

Under the SP Act, the SEQRP prevails when there is any conflict or inconsistency with any other plan, policy or code. However, the SEQRP has been designed to complement other applicable planning instruments rather than override these.

The SEQRP classifies the land throughout the region into different "regional land use categories". Depending upon the regional land use category, certain development may be subject to the Regulatory Provisions contained within the SEQRP document. These Regulatory Provisions outline assessment requirements for particular developments within certain regional land use categories.

All Community Infrastructure development under the SP Act is exempt from assessment against the Regulatory Provisions of the SEQRP. A discussion on how the planning provisions of the SEQRP relate to the SFRC is provided in Technical Paper 5 – Land Use and Planning (Volume 2). It should be noted that although Community Infrastructure is exempt from assessment against the Regulatory Provisions, there is a requirement for Community Infrastructure to meet the desired regional outcomes, principles and policies within the SEQRP. These relate to the following categories:

- sustainability and climate change
- natural environment
- regional landscape
- natural resources
- rural futures
- strong communities
- engaging Aboriginal and Torres Strait Islander peoples
- compact settlement
- employment location
- infrastructure
- water management
- integrated transport

The desired regional outcomes, principles and policies within the SEQRP are generally reflected in the CID Checklist (Appendix A). This checklist outlines requirements for environmental assessment of a CID project, and identifies where these requirements are met in the revised assessment report.

South East Queensland Infrastructure Plan and Program 2009-2026

The South East Queensland Infrastructure Plan and Program (SEQIPP) is a document updated annually which identifies the key infrastructure priorities for the south-east Queensland region. The SEQIPP 2009-2026 plans for over $107 billion of infrastructure investment in the region over the next 20 years. The SEQIPP complements the SEQRP, and is intended to assist the SEQRP in achieving its objectives through ensuring the adequate strategic long-term planning of infrastructure throughout south-east Queensland. A discussion of the SEQIPP and how it relates to the SFRC is provided in Technical Paper 5 – Land Use and Planning (Volume 2).

3.1.3 Local

In addition to their local planning schemes, the two Local Governments affected by the study (Ipswich City Council and Scenic Rim Regional Council) have in place a range of policies that influence the future development of the study area. These include:

- Ipswich 2020
- Ipswich City Council Nature Conservation Strategy 2000
- Boonah Rural Futures
- Beaudesert Community Plan
- Beaudesert Draft Planning Vision

Whilst these policies are not of direct relevance to the overall assessment of the SFRC, they do provide useful background information regarding the local community values and environmental characteristics of the study area. Accordingly, they have been given further consideration in Technical Paper 2 – Nature Conservation, Technical Paper 5 – Land Use and Planning and Technical Paper 11 – Social Impact Assessment (Volume 2).

3.2 Legislation

3.2.1 Commonwealth

Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity and Conservation Act 1999* (EPBC Act) establishes a process for environmental assessment and approval of proposed actions that are likely to have a significant impact on Matters of National Environmental Significance (MNES) or on Commonwealth land.

MNES are outlined in the EPBC Act to include:

- the world heritage values of a declared World Heritage area
- places of National Heritage
- the ecological character of Ramsar wetlands of international importance
- listed migratory species
- listed threatened species and ecological communities (discussed in Technical Paper 2 – Nature Conservation (Volume 2))
- nuclear actions
- Commonwealth marine areas

According to the EPBC Act Policy Statement 1.1 – Significant Impact Guidelines (DEWHA 2006), a "significant impact" is an impact which is important, notable, or of consequence, having regard to its context or intensity. The likelihood of an action having a significant impact depends upon the sensitivity, value, and quality of the environment affected, and upon the intensity, duration, magnitude and geographic extent of the impacts. Further, a significant impact is considered "likely" if it is a real or not remote possibility; it is not necessary for a significant impact to have greater than a 50% chance of happening.

Consideration of the potential impact of the SFRC on a range of MNES is provided in Technical Paper 2 - Nature Conservation (Volume 2). This assessment relates primarily to listed threatened species and ecological communities and listed migratory species. The SFRC is unlikely to have any impact on World Heritage areas, places of National Heritage, Ramsar Wetlands and/or Commonwealth Marine areas and does not constitute a nuclear action.

The study team has held discussions with the Department of Environment, Water, Heritage and the Arts (DEWHA) regarding the potential for the SFRC to be classed as a "controlled action" under the EPBC Act. The study team has been advised that DEWHA does not require a referral for the project under the EPBC Act until such time as the detailed design of the project has been undertaken, and the construction of the SFRC is imminent. However, addressing DEWHA's interests by ensuring avoidance and mitigation of impacts upon MNES has been a primary concern for the study team. This consideration has underpinned the planning and design stages of the SFRC study.

Native Title Act 1993

The *Native Title Act 1993* (NT Act) was introduced to address the implications of the Mabo High Court decision, which dismissed the notion of "terra nullius" and recognised the prior rights of indigenous Australians as being similar to those of indigenous groups in other parts of the world. The NT Act set up a process through which indigenous Australian groups can lay claim to pre-existing ownership (native title) rights over areas in Australia and the Torres Strait.

These native title claims are then assessed by the National Native Title Tribunal, which makes a decision on the merits of the claim, and (depending upon the decision) may place the claim on the National Native Title Register. Successful native title claims are required to exhibit:

- that the indigenous group has maintained a traditional connection with the land since 1788
- that the interests of the indigenous group have not been "extinguished" by inconsistent acts (for example, the granting of freehold title)

While there are no formally recognised native title rights over the study area, both Local Government areas (Ipswich City and Scenic Rim Regional Councils) are subject to active claims. In particular, the study area is subject to the Jagera People #2 Claim (Ref: QC03/15). This claim covers a large area extending from Toowoomba in the west, Redlands in the east and Esk in the north.

Consideration of the potential application of Native Title to the SFRC is provided in Technical Paper 5 - Land Use and Planning (Volume 2). The Jagera people have been actively involved in the SFRC Study, and have authored Technical Paper 9 - Aboriginal Cultural Heritage (Volume 2).

3.2.2 State

Transport Infrastructure Act 1994

The objective of the *Transport Infrastructure Act 1994* (TI Act) is to provide a regime that allows for and encourages effective integrated planning and efficient management of a system of transport infrastructure. For rail transport, the objectives of the TI Act under section 2 (d) include establishing a regime that, among other things, contributes to overall transport effectiveness and efficiency, provides for adequate levels of safety, and provides a high level of accountability.

To this end, Chapter 7 of the Act deals with rail transport infrastructure:

- Part 2 outlines the process for investigating potential rail corridors (for studies such as the SFRC)
- Part 7 outlines the regulatory processes designed to deal with the administration of railway land

Sustainable Planning Act 2009

The *Sustainable Planning Act 2009* (SP Act) was enacted on 18 December 2009, and together with the *Sustainable Planning Regulation 2009* (SP Regulation), replaced the *Integrated Planning Act 1997* as the primary planning legislation for Queensland. The SP Act oversees the Integrated Development Assessment System (IDAS), which integrates a range of approval requirements previously dealt with under a variety of State legislation. The SP Act also requires each local government to prepare a local planning scheme which deals with the assessment of development within the local government area.

As outlined in Section 2.0, TMR is seeking a CID for the SFRC in accordance with Chapter 5 of the SP Act. The CID process provides for the forward identification of future land requirements for infrastructure development, thus providing certainty to landowners, local governments and State Government agencies alike. The designation will effectively ensure that any future development in the area is consistent with the rail corridor. The CID will provide local governments with guidance for future land use decisions and will assist in facilitating ideal planning outcomes for the future.

In addition to protecting the corridor for the future, CID has the effect of exempting construction of the rail line from assessment under the applicable Local Government planning scheme/s. This is appropriate for large-scale linear projects such as the SFRC. Furthermore, under section 231 of the SP Act, Operational Work for the purposes of this project is "exempt development", as it does not qualify as self-assessable development, development requiring compliance assessment, assessable development, or prohibited development under Schedule 3 of the *Sustainable Planning Regulation 2009* (SP Regulation).

It is important to note that there may be approvals required for a range of other uses required during the construction phase of the project (such as work camps, quarries and borrow pits) the location of which cannot be determined at this early stage. These uses would not be covered by the CID currently proposed and as such would potentially require approval under the local planning schemes.

Regardless, a range of approvals required under other State legislation may still be triggered under the SP Regulation. These are listed in Table 4, in addition to other relevant licensing and permit requirements.

Koala conservation

The statutory framework concerning koala conservation in South East Queensland is relatively complex. The *Nature Conservation (Koala) Conservation Plan 2006 and Management Program 2006-2016* (Koala Plan) came into effect in 2006. The Koala Plan is accompanied by the *Draft South East Queensland Koala State Planning Regulatory Provisions* (Interim SPRPs), which came into effect in November 2009. However, recent studies have shown that koala populations within SEQ are continuing to decline, despite the implementation of the Koala Plan and Regulatory Provisions. Based on an extensive koala habitat assessment and mapping project within SEQ, the Department of Environment and Resource Management (DERM) released a *Draft South East Queensland Koala Conservation State Planning Policy* (Draft SPP) and accompanying *Draft South East Queensland Koala Conservation State Planning Regulatory Provisions* in December 2009 (Draft SPRPs). The Draft SPP and Draft SPRPs produced in 2009 do not currently have legislative effect, with the second period for public comment recently expiring on 28 February, 2010. The koala conservation statutory instruments identified above are described in Table 3.

Table 3 Koala conservation statutory instruments in SEQ

Instrument	Present Status	Description
Nature Conservation (Koala) Conservation Plan 2006 and Management Program 2006-2016 (Koala Plan)	In effect – Interim Development Control.	The Koala Plan, subordinate to the *Nature Conservation Act 1992*, was prepared to address the key threats facing koalas and sets out strategies to stop the decline of koala numbers and set in train the species' recovery. Issues addressed in the Koala Plan include: habitat protection and vegetation clearing; development; State Government infrastructure; vehicle mortality; dog attacks; translocation; research; zoos; public education and the rehabilitation of sick, injured and orphaned koalas.
Draft South East Queensland Koala State Planning Regulatory Provisions November 2009 (Interim SPRPs)	In effect – Interim Development Control.	The Interim SPRPs prescribe which development may occur within protected koala bushland habitat areas and in interim koala habitat protection areas. The Interim SPRPs were updated in November 2009 to bring forward the protection of high value bushland areas, identified through the Koala Habitat Assessment and Mapping Project.
Draft South East Queensland Koala Conservation State Planning Policy 2009 (Draft SPP)	Not in effect – in draft form, to be finalised following public comment.	The Draft SPP complements the Draft SPRPs by providing direction to local governments and State agencies on how land use planning must consider koala conservation and habitat protection outcomes. The Draft SPP will inform the preparation and amendment of local planning schemes, master planning/structure planning processes and the designation of land for community infrastructure purposes. A key goal of the Draft SPP is to maintain the viability of all major koala populations across the region by increasing the size of their habitat. It will reflect: • The latest koala habitat mapping; and • The koala conservation policies contained in the South East Queensland Regional Plan.
Draft South East Queensland Koala Conservation State	Not in effect – in draft form, to be	The Draft SPRPs propose to: • Apply different regulatory controls to different

Instrument	Present Status	Description
Planning Regulatory Provisions 2009 (Draft SPRPs)	finalised following public comment.	areas, depending on the level of protection needed for koalas and their habitat; • Specify requirements for assessable development that falls within specified trigger thresholds; • Require Koala Safety Fencing and Measures guidelines to be incorporated into all development in the SEQ Koala Protection Area.

Although they do not presently have legislative effect, the Draft SPP and Draft SPRPs are important statutory instruments for consideration in the SFRC Study for three main reasons:

- they are based on the most comprehensive mapping project undertaken for koala habitat in the SEQ region
- they reflect the most recent policy approaches to koala management within SEQ
- they are likely to supersede the Koala Plan and SPRPs, and may have statutory effect in the future when there is a commitment to construct the SFRC

Table 4 Approvals and permits required under the *Sustainable Planning Act 2009* and other legislation

Legislation	Administering Authority	Trigger	Application
Environmental Protection Act 1994	DERM	General Environmental Duty	Section 319 of the EP Act imposes a **general environmental duty** which specifies that a person must not undertake any activity that may harm the environment without taking reasonable and practical measures to prevent or minimise the harm.
		Proposed undertaking of an Environmentally Relevant Activity (ERA).	ERAs which may potentially occur as part of the construction process include ERA 19 – Dredging, ERA 20 – extracting rock, sand, clay, gravel or other material, and ERA 22 – screening, washing, crushing material extracted from the earth using plant or machinery with a design capacity of >50t. It is presumed that the concrete rail sleepers will be made at a licensed premises, however should concrete batching of >100 tonnes be required, ERA 60 – Cement manufacturing will also be triggered.
Vegetation Management Act 1999	DERM	Clearing of Native Vegetation Subject to the VMA.	The SFRC is likely to involve the clearing of vegetation. Regional Ecosystems (REs) in the study area include Endangered, Of Concern, and Not Of Concern. If the SFRC requires clearing of Endangered and/or Of Concern REs, an approval for clearing for ongoing purposes is required from DERM. This application must be prepared in accordance with the relevant code (Regional Vegetation Management Code for Ongoing Clearing Purposes: South East Queensland), and with a legally binding offset strategy. A decision on an application typically takes about 6 months.
Water Act 2000	DERM	Destroying vegetation, placing fill or excavating in a water course.	Riverine Protection Permit required for creek and river crossings.
		Dredging within watercourse	Approval required for interfering with quarry material within a watercourse.
Nature Conservation Act 1992; Nature Conservation (Wildlife) Regulation 2006	DERM	Destroying a vulnerable flora species	Approval required from DERM for interfering with vulnerable flora species.
		Moving native and exotic wildlife.	The SFRC is likely to require the relocation of a variety of native animal species. The NCA requires permits to be granted in order to move protected animals from one location to another. The species for which this requirement applies are identified as Endangered, Vulnerable or Rare in the *Nature*

Legislation	Administering Authority	Trigger	Application
			Conservation (Wildlife) Regulation 2006.
Nature Conservation (Koala) Conservation Plan 2006 and Management Program 2006-2016 (Subordinate to the NCA).	DERM	Development in Koala Conservation Areas and Koala Sustainability Areas.	The SFRC passes through land classified as koala conservation area and koala living area under the Koala Plan. An assessment of the project against the Koala Plan has been provided in the Technical Paper 2 - Nature Conservation (Volume 2).
Aboriginal Cultural Heritage Act 2003	DERM	Development affecting any aspect of Aboriginal cultural heritage.	The ACHA binds all persons (including the State) to provide effective recognition, protection and conservation of Aboriginal cultural heritage.
Acquisition of Land Act 1967	DERM	Acquisition of freehold land for public works and other public purposes.	At some future point the land required for the SFRC will be acquired under the ALA by TMR in order to allow construction of the SFRC to occur. Section 5 (1) of the ALA states that the Crown may take land for any purpose listed in the Schedule, which includes bridges, drainage infrastructure, railway and associated purposes, roads, or for any public works or other work.

Other Legislation

In addition to those listed in Table 4, there are other legislation and policies with the potential to be triggered by the SFRC. Whilst not as pivotal as those dealt with above, consideration still needs to be given to their potential influence on the project. These include:

- the *Animal Care and Protection Act 2001*
- the *Dangerous Goods Safety Management Act 2001*
- the *Dangerous Goods Safety Management Regulation 2001*
- the *Fisheries Act 1994*
- the *Land Protection (Pest and Stock Route Management) Act 2002*
- the *Lands Act 1994*
- the *Local Government Act 1993*
- the *Queensland Heritage Act 1992*
- the *Soil Conservation Act 1986*
- the *Transport Operations (Road Use Management – Dangerous Goods) Regulation 2008*
- the *Workplace Health and Safety Act 1995*
- the *Workplace Health and Safety Regulation 2008*

There is also a range of subordinate legislation developed under the *Environmental Protection Act 1994* of relevance to the SFRC, including:

- *Environmental Protection Regulation 2008* which details with activities that require approval for being carried out, environmental nuisance, ozone depleting substances, national pollutant inventory, used packaging materials, quality standards for petrol and diesel, administration, provisions and prescribed periods
- *Environmental Protection (Water) Policy 2009* which states legally binding standards for water quality
- *Environmental Protection (Noise) Policy 2008* which states legally binding standards for noise nuisance
- *Environmental Protection (Air) Policy 2008* which states legally binding standards for air quality
- *Environmental Protection (Waste Management) Policy 2000* which sets out waste management requirements for local and state governments
- *Environmental Protection (Waste Management) Regulation 2000* which sets out requirements for waste disposal and receival, waste tracking and management of special wastes

Chapter 4
Project description

4.0 Project description

The purpose of this section of the revised assessment report is to provide a description of the project through the various project phases of planning, construction and operation. Particular emphasis has been given to the background of the SFRC and its relationship with other proposed projects. Other issues reported include:

- the alignment development and engineering process including discussion of the guiding design criteria
- detailed description of the proposed alignment
- project substantiation, discussion of alternatives and the need for the project

The SFRC is approximately 55km long, connecting the western railway line (south of Rosewood) with the interstate railway line at Kagaru. The SFRC crosses a number of waterways, including Western Creek, the Bremer River, Warrill, Purga, Sandy, Dugandan and Wild Pig Creeks. Bridge structures will be required for these waterway crossings. The SFRC also passes through the Flinders-Goolman Range, which is characterised by relatively steep elevations. Two tunnels (1050m and 200m respectively) will be required where the SFRC passes through the Flinders-Goolman Range. The SFRC alignment is described in greater detail in the following sections.

It should be recognised that the level of detail provided in various sections of the project description reflects the preliminary level of alignment design that has been undertaken as part of the study. Where appropriate, suitable recommendations have been made through the Environmental Management Plan (EMP) for impact mitigation measures required to be addressed during the detailed design phase.

4.1 Background

The Southern Freight Rail Corridor was first identified as a concept with the release in 2005 of the *South East Queensland Regional Plan 2005-2026* (SEQRP) and subsequent *South East Queensland Infrastructure Plan and Program 2005-2026* (SEQIPP). The project was at that stage known as the Southern Infrastructure Corridor (SIC), with the corridor seen as potentially supporting a variety of infrastructure including, road, rail and utilities. The SEQRP and SEQIPP did not show an accurate route for the SIC with the included plans intended to illustrate, at a regional scale, a potential connection between a possible future intermodal freight terminal at Purga (also identified in the SEQRP) and the SGR.

4.1.1 Previous studies

Parallel to the release of the SEQRP and SEQIPP, the then Office of Urban Management (OUM) commissioned the Southern Infrastructure Corridor Study (Maunsell, 2005b) which investigated at a broad level, potential routes for the SIC. The study focused on the feasibility of routes for a freight railway, as this infrastructure is more highly constrained by terrain (horizontal and vertical geometry) when compared to road and other utilities such as pipelines and powerlines.

At a similar time, The Coordinator-General (CG) commissioned the Purga Site Investigation Study (Maunsell, 2005a) which investigated the pre-feasibility of the Purga Identified Growth Area, as identified in the SEQRP, for industrial land uses including an Intermodal Freight Terminal (IFT) and a possible extension of the proposed Amberley Aerospace Park.

The Southern Infrastructure Corridor Study investigated eight (8) route options in total (3 northern, 4 central and 1 southern) for connecting the Western Rail Line to the Interstate SGR. All options included allowance for a potential IFT within the Purga Identified Growth Area and connected to the existing Western Railway via the Ebenezer rail loop (see Figure 4). The presence of the Goolman/Flinders Range was a major challenge for all options.

The study recommended that further investigation be undertaken with the focus being on options N1 and C3. The N1 option was subsequently deemed to be undesirable by Government, due to its proximity to existing urban areas and the planned future residential areas of Springfield, Ripley and Camira that were identified in the SEQRP. The N1 route option also posed potential conflict with the proposed Darra to Springfield passenger-only rail line.

It was considered that of the 8 options, the C3 route option represented the optimum route option for further investigation as it was removed from existing and planned urban areas, would avoid freight rail conflicting with the passenger network, and would ensure that both freight and passenger services could be operated in a timely and efficient manner. Accordingly, the C3 route option was selected by Government to form the basis for the current study.

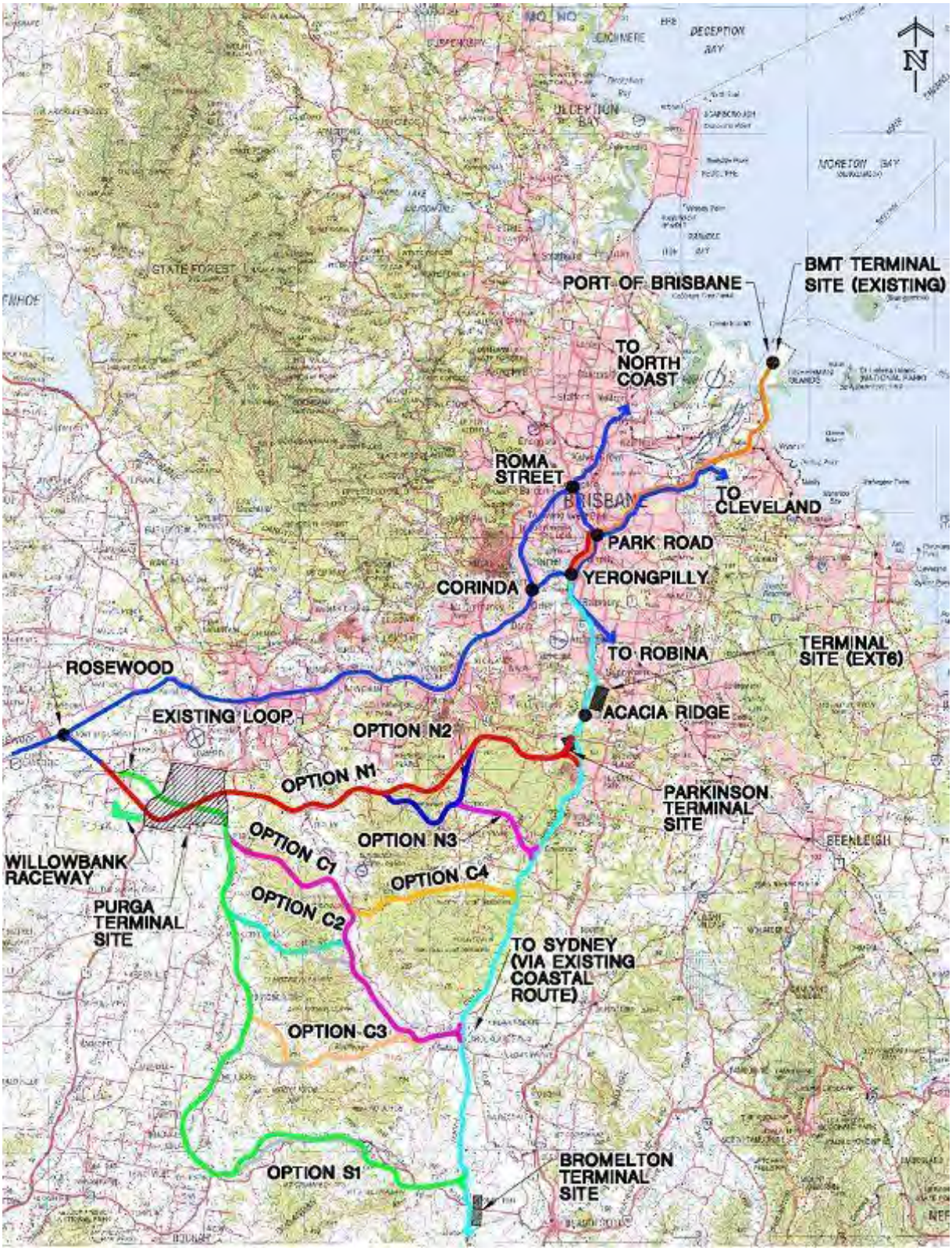


Figure 4 **Route Options from the Southern Infrastructure Corridor Study, 2005**

4.1.2 Inland rail

Background

In June 2006 the Australian Government released the North-South Rail Corridor Study (Ernst & Young, 2006), which presented a high-level analysis of the various corridors and routes which had been proposed for a new Inland Railway between Melbourne and Brisbane. A large number of route (and in some cases alignment) options had been generated by various parties prior to 2006. From this base, the study developed a wide range of route combinations and then calculated the costs and benefits of various permutations and options. The study found that the preferred route for further investigation was the far western sub-corridor as shown in Figure 5.

The study also found that:

"Rail freight market share on the Melbourne to Brisbane route is estimated to increase from 30% to approximately….73% for the inland route. The rail tonnage is projected to increase to 8.6 million tonnes for the inland route (7.9 million tonnes on the inland route and a residual 0.7 million tonnes on the coastal route) by 2029. These tonnages would be somewhat lower with one of the route variants: namely, constructing an inland route from Melbourne to a point near Toowoomba and transferring the freight to trucks for the remainder of the journey to Brisbane. It is unlikely that building and operating a terminal close to Toowoomba and completing journeys through to Brisbane by truck would meet the expectations and requirements of customers." (Ernst & Young, 2006)

On the 28th of March 2008 the Federal Government announced $15million in funding for the Australian Rail Track Corporation (ARTC) to undertake further investigations focused on the far western sub-corridor. The Inland Rail Study builds upon the earlier work and is intended to determine the optimum alignment of any future Inland Railway after taking into account the needs of potential users as well as possible engineering, planning and environmental considerations. As well as determining the route alignment, the ARTC study provides both the Government and private sector with information that will help guide their future investment decisions, including likely demand and an estimated construction cost.

The stated objectives of the study from the advertised Terms of Reference were to determine:

- the optimum alignment of the Inland Railway, taking into account user requirements and the economic, engineering, statutory planning and environmental constraints. The alignment will be sufficiently proven up so it can be quickly taken through the statutory planning and approval process and into detailed engineering design and construction, should a decision be taken to proceed
- the likely order of construction costs +/- 20%
- the likely order of below rail (infrastructure) operating and maintenance costs
- above rail operational benefits
- the level and degree of certainty of market take up of the alignment
- a project development and delivery timetable
- a basis for evaluating the level of private sector support for the project

The Stage 1 findings of the Inland Rail Study were released by ARTC in May 2009:

"After examining more than 50 options, the finding of the study is that the railway should follow existing rail lines from Melbourne via Albury to Cootamundra, Parkes, Narromine, Dubbo, Werris Creek and Moree to North Star near Goondiwindi; with new construction from North Star to Brisbane via Toowoomba. North of Parks the railway would require the upgrading of parts of the existing route, including minor deviations to improve its alignment.

Some sections of the route will be finalised in later stages of the study, including between Junee and Stockinbingal; a possible route from Premer to Emerald Hill avoiding Werris Creek; North Star to Yelarbon near Inglewood; and in the vicinity of Toowoomba.

Assessment of the proposed railway's financial and economic performance is at an early stage. Work in Stage 1 was aimed at providing sufficient information for selection of the route. The route chosen for further analysis has the lowest overall capital cost. All options considered in a preliminary forward assessment do not appear to be financially, or economically, viable.

The cost of the project is driven largely by the difficult terrain from Toowoomba towards Brisbane. The capital cost of the route to be further analysed at its lowest preliminary estimate ranges from $2.8 billion to $3.6 billion." (ARTC, 2009)

Figure 6 illustrates the route selected for further analysis in later stages of the Inland Rail Study, as well as the sections still to be finalised.

Figure 5 Far Western Sub-Corridor Option from North-South Rail Corridor Study, (Ernst & Young, 2005)

Figure 6 **Inland Rail alignment for further study, including existing track and new track (ARTC, 2009)**

Relationship to SFRC

Since 2005, TMR has been exploring options for alternative routes for a future dual gauge connection to a possible Inland Rail based on the difficulty that would be associated with upgrading the existing route, including conflicts associated with the electrified passenger network, impacts on urban areas and existing capacity constraints.

As mentioned above, the North-South Rail Corridor Study (Ernst & Young, 2006) outlined that connection of a future Inland Railway to Toowoomba with connection by road to Brisbane is unlikely to meet the expectations and requirements of potential users. Connection by rail from Toowoomba to Brisbane, and specifically Acacia Ridge and the Port of Brisbane, consists of two (2) main sections:

- upgrade of the existing narrow gauge rail alignment from Gowrie (west of Toowoomba) to Grandchester (west of Rosewood)
- provision of a new linkage from Grandchester to the existing Interstate standard gauge route (SGR)

Rail freight travelling from south-western Queensland to Acacia Ridge and the Port of Brisbane currently travels via Toowoomba, Rosewood, Corinda and Yeerongpilly. Upgrade of the Western Line from Rosewood to Yeerongpilly to cater for standard gauge trains and double-stacked container freight is not considered feasible given the highly urbanised nature of the corridor, capacity constraints and conflicts with the passenger network and inadequate clearance for double-stacked container trains from existing electrification infrastructure and the numerous existing bridge crossings.

Upgrade of the alignment from Gowrie to Grandchester has been subject to previous study by Queensland Rail and Queensland Transport in 2003. The study produced a preferred alignment for the corridor which removed the significant existing constraints on vertical and horizontal geometry through curve easing and the use of substantial lengths of tunnel at both the Toowoomba and Little Liverpool Ranges (see Figure 7).

The proposed alignment of the SFRC would tie in with the eastern extent of the proposed Gowrie to Grandchester alignment, completing the linkage between a future Inland Rail route to Toowoomba and the existing SGR. Future consideration would need to be given to required upgrades of the SGR between Bromelton and Acacia Ridge to allow for possible double-stacking (clearance) and the increase in anticipated freight volume (duplication/passing loops).

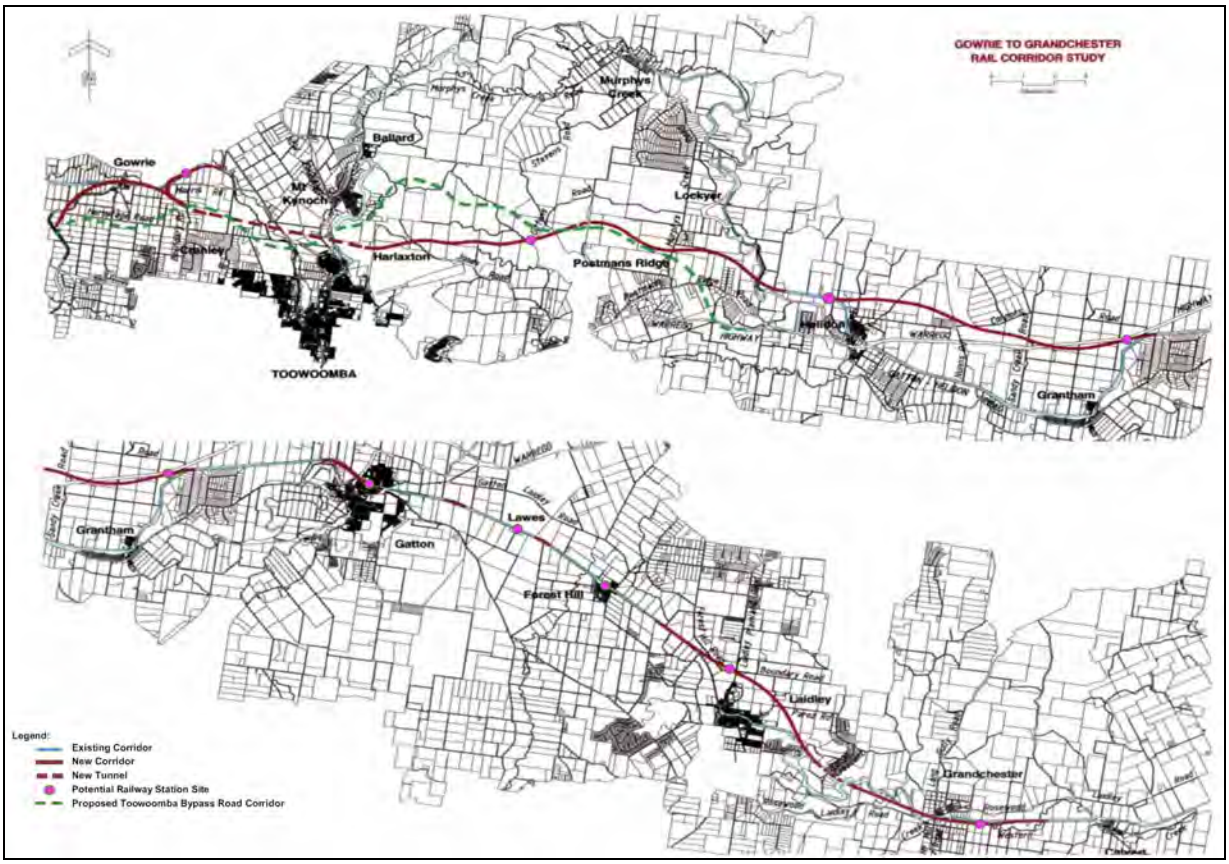


Figure 7 **Proposed alignment from Gowrie to Grandchester Study (QR, QT, 2003)**

4.1.3 Intermodal freight terminals

TMR completed Stage 2 of the SEQ Intermodal Freight Terminal Study in 2008. The study examined and evaluated the need and preferred locations for additional intermodal land transport (road-rail) freight terminals within south-east Queensland over the next 20 years.

Key findings of the Study were as follows:

- inbound movements (including freight in transit through SEQ) will increase from 29Mt to 73Mt, whilst outbound movements will increase from 26Mt to 46Mt by 2026. This imbalance has the potential to change the cost structure of transport and influence the future location of industrial development and freight corridors required to service demand
- this imbalance is expected to result in changing cost structures for road and rail, and will see rail capture a larger share of interstate freight traffic by 2026. By 2026 rail's percentage of the total freight task is expected to be Brisbane to Melbourne (50 - 65%), Brisbane to Sydney (20 - 30%) and North Queensland (40 – 50%)
- projected interstate freight movements passing through intermodal terminals are expected to increase to between 1.02 million and 1.38 million Twenty Foot Equivalent Containers (TEUs) per annum in 2026
- the Acacia Ridge terminal has the potential for expansion, however existing road and rail constraints will limit capacity to 0.5 million TEUs per annum
- as a result of increasing import / export trade, the capacity of the Brisbane Multimodal Terminal (BMT) at Port of Brisbane to handle domestic intermodal traffic is expected to reduce to between 0.06 million and 0.18 million TEUs per annum by 2026
- a new IFT is expected to be needed between 2010 and 2020

In light of these findings the study made the following recommendations regarding the short, medium and long term solutions for providing additional IFT capacity in the region:

- **Short term solutions (current to 2010)**

  An improvement in the operations and efficiency of the Acacia Ridge terminal and BMT will serve likely needs and provide adequate capacity to meet the increasing intermodal demands including Australia Trade Coast development.

- **Medium term solutions (2010-2020)**

  An additional site will be required to cater for approximately 650,000 TEU movements per annum, as a maximum. The most suitable existing site without substantial investment in additional infrastructure is Bromelton (assuming adequate non-transport infrastructure can be provided).

- **Long term solutions (beyond 2020)**

  Options include the development of a site at Greenbank (dependent on the long term strategy for the Greenbank Army Reserve) and the development of a site at Ebenezer (dependent on industry relocation and take-up of proposed industrial land to be developed south-west of Ipswich as well as a dual gauge rail line to the site either from the existing Interstate Line or the proposed Inland Rail Line when it occurs).

As a key connection between a future Inland Melbourne-Brisbane Railway and the SGR, the SFRC will play a potentially significant role in the determination of the preferred medium and long-term solutions for IFT capacity in the region. In particular, a terminal option at Ebenezer would be highly contingent upon the Inland Rail and SFRC proceeding. Likewise, the relative attraction of a Bromelton terminal option would increase if the Inland Rail and SFRC were to proceed.

Passive allowance has been made in the alignment design for the SFRC (by way of vertical and horizontal gradients), for a future IFT west of the Cunningham Highway, and south of the Ipswich Motorsport Precinct at Ebenezer. The proposed junction of the SFRC with the SGR is located immediately to the north of the suggested IFT location (south of Undullah Road) in the proposed Bromelton State Development Area (SDA) Draft Development Scheme.

Further detailed consideration of terminal layout and design at these two locations is beyond the scope of the current study and will be subject to further consideration in the future should either site be required. Further consideration of land use and planning issues at Ebenezer and Bromelton is provided in Technical Paper 5 – Land Use and Planning (Volume 2).

4.2 Preliminary alignment development process

As discussed in Section 4.1.1, the C3 alignment from the *Southern Infrastructure Corridor Study* (2005) was used as a starting point for the SFRC Study (see Figure 8).

Figure 8 **C3 Alignment from SIC Study (2005)**

4.2.1 Initial alignment review

The initial task undertaken for the study was a broad review of the C3 alignment aimed at determining its appropriateness for further investigation and the need for any modifications. It should be noted that the 2005 study was undertaken using relatively coarse topographic data and as such there was an inherent need to refine the alignments considered at that time. Key issues investigated included:

- the western connection point, including issues associated with connection to the Ebenezer loop
- opportunities to provide rail access to future industrial land at Ebenezer (South of Paynes Road)
- future IFT locations at Purga/Ebenezer
- potential elimination of the proposed tunnel in the Washpool area through the adoption of a southern alignment variation

These issues were investigated and then reported back to the PSC for discussion and resolution.

Preliminary alignment options north-west of Peak Crossing

In relation to the western connection, a range of issues were identified with the concept of connection to the Ebenezer loop, including:

- proximity to existing and committed large lot residential development north of Coopers Rd, Willowbank
- potential ground stability issues associated with backfilled open cut coal mining operations to the west of the Cunningham Highway and south of Coopers Road
- flood risk (alignment is not designed to 1 in 100 year recurrence level)
- conflict with the existing electrified passenger network at Rosewood, both in terms of operation and vertical clearance for double-stacked freight under electrification infrastructure
- increased noise impacts for residences adjacent to the existing rail corridor at Rosewood

In light of the above issues, consideration was given to alternative alignments, principally connecting to the existing Western Railway west of Rosewood before passing through Ebenezer to the south of Paynes Road and Willowbank Raceway (see Figure 9). The options consisted of a number of sub-routes but can be broadly grouped as northern options, retaining a possible IFT footprint at Purga (shown in yellow, green and orange) and a southern option which involved an alternative IFT location at Ebenezer (shown in blue).

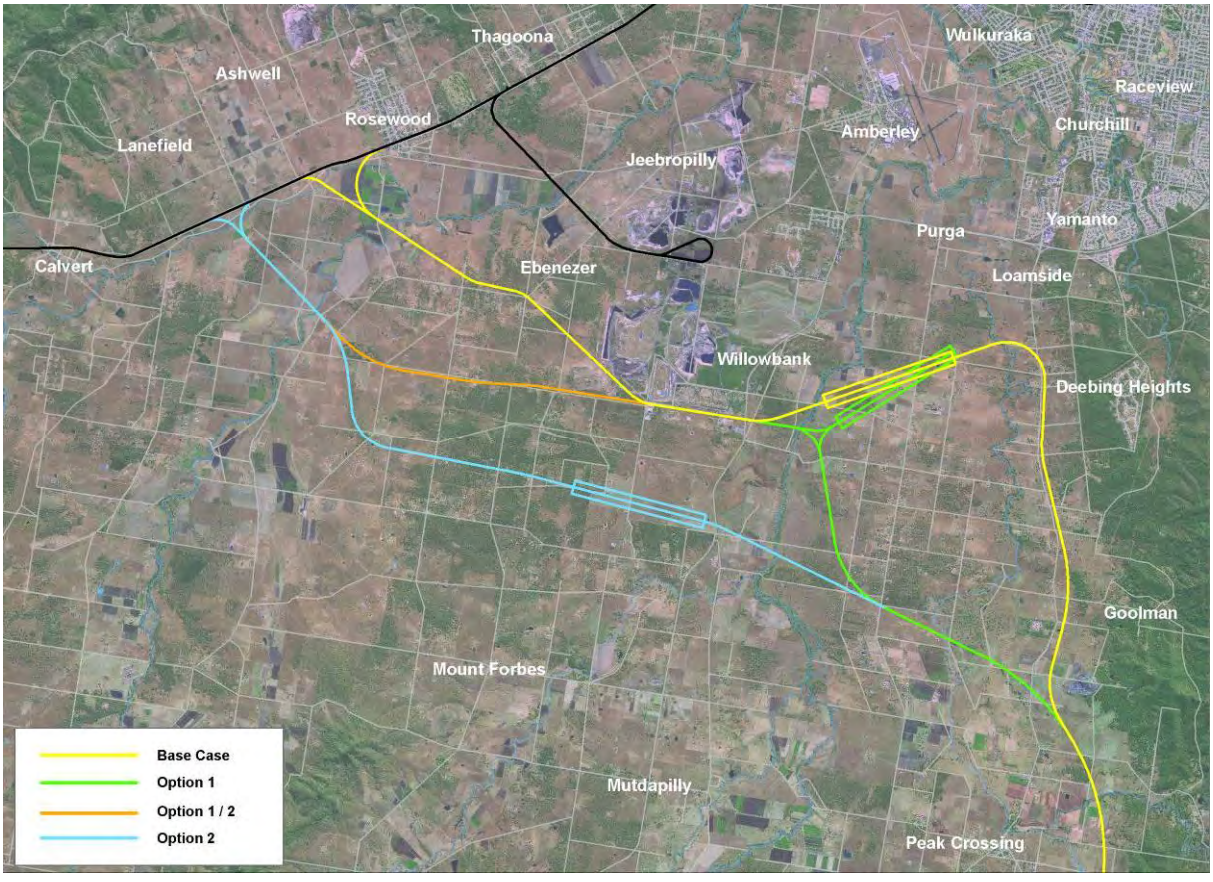


Figure 9 **Preliminary Alternative Western Connection Options**

In analysis of these options, the study team and PSC made the following findings:

- regardless of previous investigations into the suitability of Purga as an IFT site there was no significant reason why a facility could not instead be located at Ebenezer
- the provision of rail access to future industrial land, including a possible IFT south of Paynes Road at Ebenezer would act as a significant catalyst for development of that area, particularly in relation to rail-dependent uses such as freight forwarding and logistics
- the southern (blue) alignment option provided for a significantly more direct and therefore shorter alignment (95% of base option length) thus providing whole of life cost benefits from an operational perspective and direct impact on a lesser number of properties
- partially due to its shorter length, the southern (blue) alignment option required significantly less earthworks (83% of base option) thus providing benefits in terms of constructability and total capital expenditure
- the southern (blue) alignment impacted more significantly on areas of potential environmental significance however these issues were unlikely to be insurmountable

Given these findings the southern (blue) alignment was selected as the preferred alignment for further investigation.

Preliminary alignment options at Washpool

The other significant alignment variation considered at this preliminary stage was located south of Washpool Road at Washpool (see Figure 10). The options in this locality consisted of a base case option (shown in yellow) and a southern deviation (shown in orange) which was developed with the specific aim of removing the need for a tunnel.

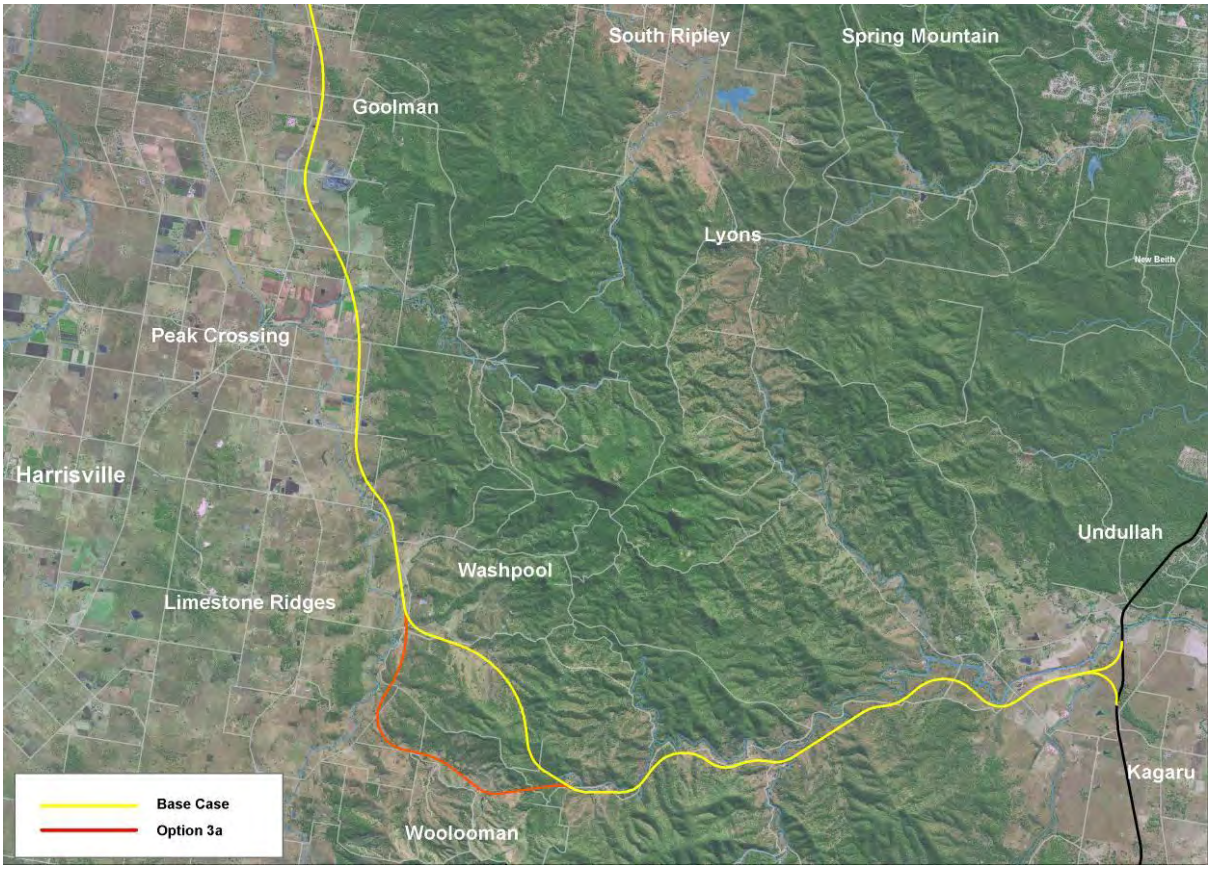


Figure 10 Preliminary Alignment Options at Washpool

In consideration of these options the study team and PSC made the following findings:

- the southern deviation would likely shorten the length of tunnel required but would not eliminate the need for a tunnel altogether
- the southern deviation would add approximately 1.73km (3%) in length to the overall route
- the southern deviation would require greater earthworks volumes - 108% of base option

In consideration of these issues, the study team determined that a significant percentage of cost associated with construction of a rail tunnel is associated with the setup and commissioning of the necessary plant (i.e. tunnel construction cost is not directly proportional to tunnel length). Therefore, given that the southern deviation would not remove the need for a tunnel, further investigations were not warranted given its overall longer length and greater earthwork volumes.

Outcome

The outcome of the initial alignment review was the adoption of a relatively coarse preliminary alignment, based on the preferred route sub-options, which would inform the geographic scope of the investigations to follow (see Figure 11).

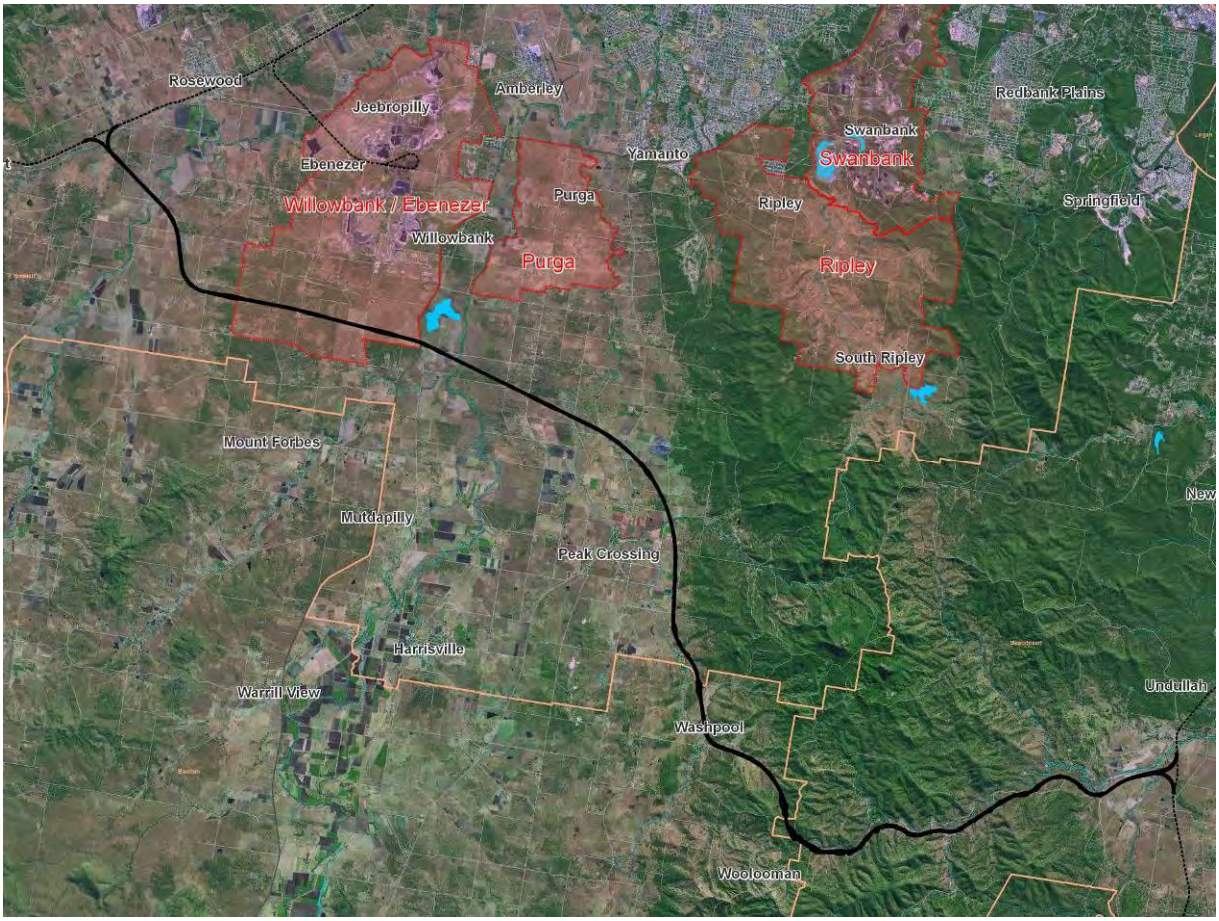


Figure 11 Preliminary Alignment used for Determination of Study Area (former local government areas shown)

4.2.2 Study area determination

Using the preliminary alignment as a centreline, a 2km-wide corridor of interest was adopted (based on a 1km wide buffer either side of the preliminary alignment – see Figure 12).

Alignment engineering was placed on hold at this stage to allow for a thorough assessment of the corridor of interest and surrounding area to be completed. To this extent, an investigation of valuable features, key constraints and sensitive receptors throughout the study area was undertaken.

The assessment consisted of a combination of desktop assessment complemented by a thorough program of field studies in relation to particular issues. Community engagement activities played an important role in the assessment process, with local landowners and members of the public providing detailed information regarding certain values and features that might otherwise not be available.

The scope for the investigations was dictated by the assessment checklist set out under the CID guidelines (Appendix A). The outcomes of each investigation are reported in Sections 7.0 onwards of this Volume 1 revised assessment report, with the full Technical Papers included in Volume 2.

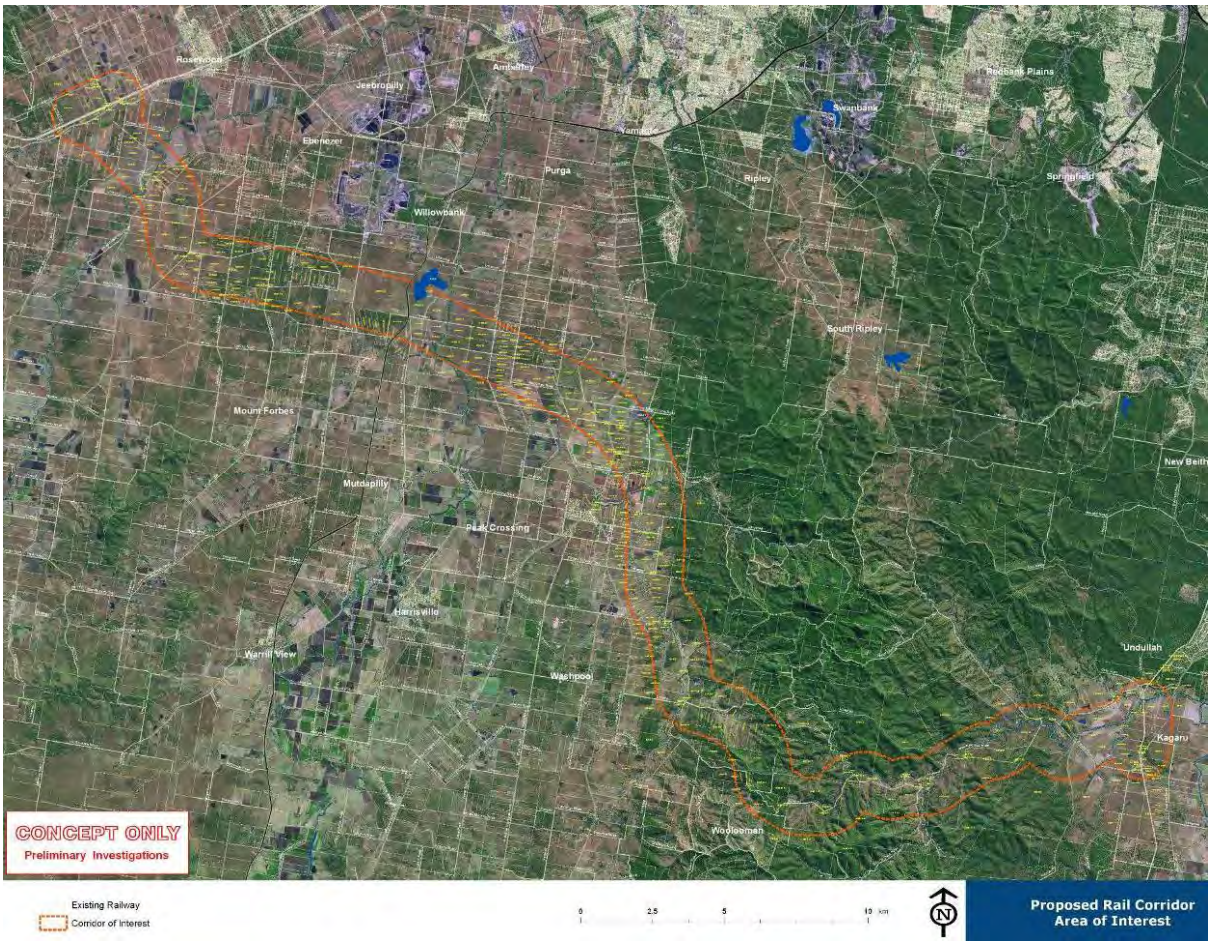


Figure 12 Adopted 2km-Wide corridor of interest

4.3 Alignment development

The findings of the investigations led to the study team developing a thorough understanding of the constraints within the study area that would ultimately influence the alignment development process.

To this extent, the alignment design team and impact assessment teams worked closely to ensure that proper account was taken of the relevant social, environmental and economic issues throughout the corridor during the design process. These factors were given suitable consideration within the constraints posed by the desired and minimum engineering standards outlined further in Section 4.4.

A full and detailed description of the preferred alignment developed as an outcome of this process, including description of the key environmental, social and economic values taken into account at specific localities is provided in Section 4.5.

4.3.1 Draft Assessment Report – October 2008

In October 2008, the SFRC draft assessment report was released for public consultation, and included information about a preferred rail alignment (and preliminary earthworks plan) within the corridor of interest (see Figure 13).

The public submission period for the draft assessment report was extended from 20 days to 50 days at the request of a number of stakeholders. The feedback provided by stakeholders was informative, and all questions and concerns about the SFRC raised in the submissions have been taken into consideration by the study team. Responses to these questions and concerns are included in the submissions report (Appendix D).

4.3.2 DERM Koala Habitat Mapping Project

The Department of Environment and Resource Management (DERM), formerly the Environmental Protection Agency, finalised the South East Queensland Koala Habitat Assessment and Mapping Project in 2009. The project focused on local governments within the SEQ region where the threats to koalas from urban expansion are the greatest (i.e. the high-growth local government areas). One such high growth area is Ipswich City. The project utilised information on koalas which was provided by local wildlife and conservation groups, as well as other members of the public.

Consultation between the SFRC study team and DERM led to the understanding that an area of vegetation in Ebenezer has been identified as an important koala habitat as part of the investigations for the Koala Habitat Assessment and Mapping Project. This area of vegetation was traversed by the original SFRC preferred alignment (as proposed for consultation in the Draft Assessment Report, 2008). Feedback during the consultation period for the draft assessment report highlighted the presence of koalas throughout the study area, and particularly in this area of vegetation in Ebenezer.

4.3.3 Ebenezer realignment

Since the release of the draft assessment report in October 2008, new information from the public (including the high value placed on the koala habitat in Ebenezer) and from the Department of Environment and Resource Management (DERM) (including the importance of the Ebenezer area in the South East Queensland Koala Habitat Assessment and Mapping Project) prompted the SFRC study team to investigate alternative alignments for the SFRC in this area. The alignment has been revised to largely avoid core koala habitat (mapped as high value bushland by DERM), and is now positioned up to 2km north of its previous location through Ebenezer, to the south of Paynes Road (see Appendix B – CID Plans). The original corridor of interest, previous alignment, revised alignment and revised study area can be seen graphically in Figure 13.

A number of constraints were identified as being critical considerations in the determination of the revised alignment in the Ebenezer area. Whilst the overall goal was minimising potential impacts on koala habitat, a number of other factors influenced the location of the realigned SFRC in this area. These factors included a rural living area along Mount Forbes Road, the residential area of Willowbank, previously disturbed and unstable land associated with Ebenezer and Jeebropilly Coal Mines, the existing Powerlink 330kV transmission lines, a future Powerlink substation site, the Ipswich Motorsport Precinct, the Ebenezer future industrial area, the Cunningham Highway, stands of *Melaleuca irbyana*, an ephemeral wetland to the east of the Cunningham Highway, and requirements for a future Intermodal Freight Terminal (IFT).

It should be noted that revising the alignment in this area to minimise flora and fauna impacts necessarily means that outcomes related to the revised SFRC alignment for some other environmental elements are likely to be less desirable than was the case with the previous alignment. Specifically, this is manifest in a more varied topography and closer proximity to existing rural-residential development. In this sense, the alignment selection process can be considered a value judgement concerning the relative importance of the various environmental elements, and an assessment of the likely degree of any increased impacts for individual environmental elements (and whether these can be mitigated).

For the purposes of this report, the "Ebenezer area" of the SFRC alignment refers to the general position of the SFRC alignment from its crossing of Rosewood Aratula Road, Ebenezer (in the west), to its crossing of Middle Road, Purga (in the east).

The study team anticipates that interested parties will seek clarification about the "value" placed on the koala habitat in the Ebenezer area in relation to that of other areas of koala habitat throughout the study area and along the SFRC alignment. Of particular interest is likely to be why the alignment has been revised through the Ebenezer area, whilst the other sections of the alignment have remained the same. As demonstrated in Table 5, a feasible alternative existed for the location of the alignment in the Ebenezer area, however there were no feasible alternatives for the location of the alignment in the Peak Crossing and Woolooman areas. Therefore, the decision was made to revise the alignment in the Ebenezer area, and to maintain the original alignment in the Peak Crossing and Woolooman areas.

This was determined through consideration of a combination of expected residual impacts upon koala populations (including habitat and landscape ecological processes) after the application of mitigation measures to reduce impacts, and the presence of viable alternative locations for the SFRC alignment. Table 5 outlines three (3) definitive koala habitat locations traversed by the original SFRC alignment, and for each location describes the mitigation measures, likely residual impacts, and any alternative locations for the alignment.

The conservation of koalas has received much attention throughout SEQ and Australia, largely due to the charismatic nature of the species and its ability to attract public support. In this sense, the koala is a "flagship species". However, it is acknowledged that koalas are but one species requiring conservation effort. A benefit of seeking conservation outcomes for a species such as the koala is that by doing so, a number of other species will be indirectly benefited by the same conservation efforts. In this sense, the koala is an "umbrella species", as its habitat requirements are also assumed to incorporate the needs of other species. One factor contributing to the umbrella species status of koalas is its requirement for large tracts of land due to its relatively large home range. It is logical to assume that species which share the habitat of the koala, and are vulnerable to threats such as urbanisation and loss/fragmentation of habitat, will benefit through the preservation of core koala habitat.

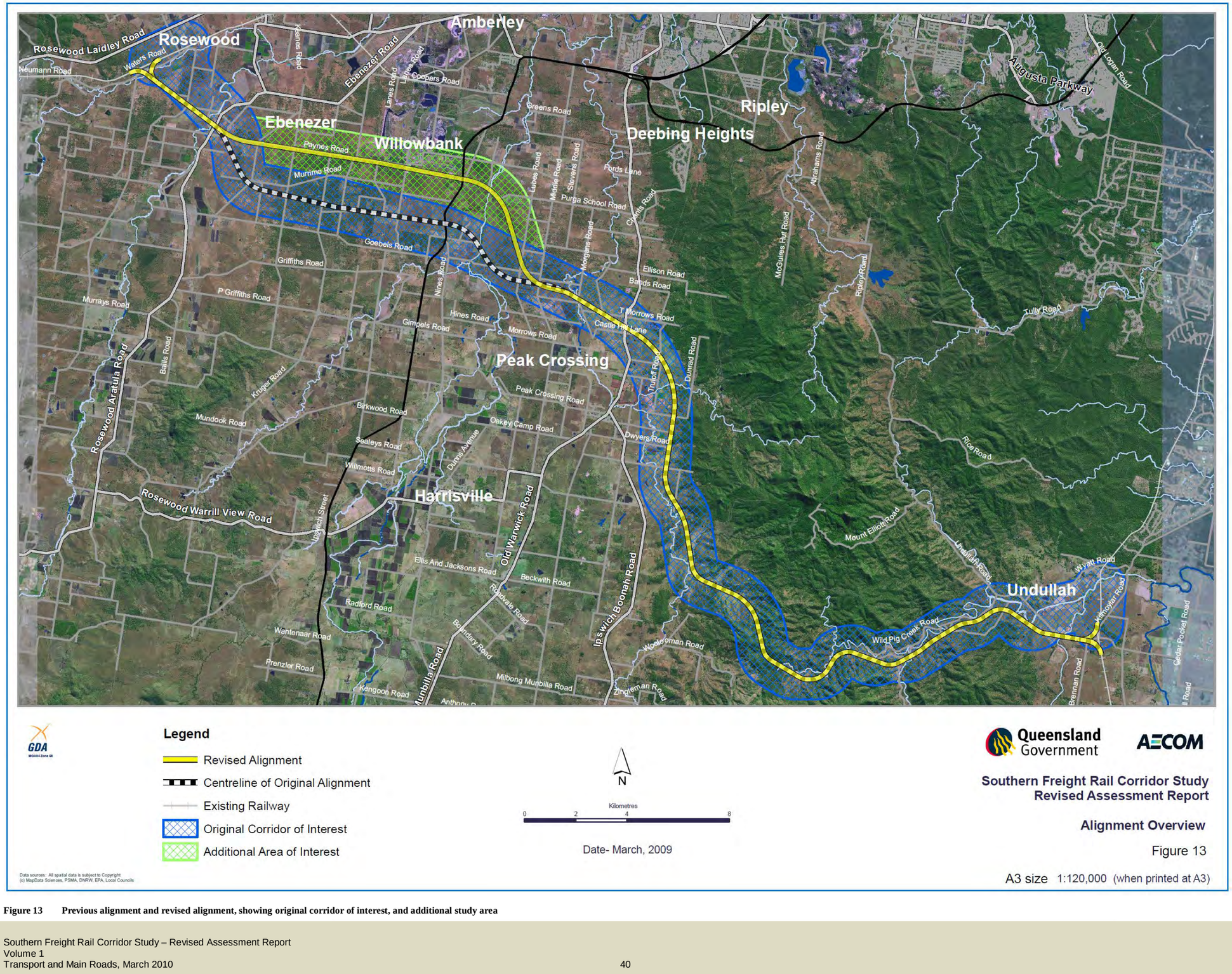


Figure 13 Previous alignment and revised alignment, showing original corridor of interest, and additional study area

Table 5 Assessment of the original SFRC alignment within three areas of koala habitat

Location of Original Alignment	Mitigation Measures	Likely Residual Impact	Alternative Locations for Alignment	Outcome
Ebenezer Area	Fauna-sensitive design considerations to allow for the movement of koalas from one side of the SFRC to the other (appropriate fencing, corridors under and/or over the railway line to facilitate koala movement).	Moderate Impact, as the area of koala habitat in Ebenezer will be bisected by the SFRC, and is likely to create edge effects on both residual habitat areas north and south of the alignment, decreasing the overall viability of the area as koala habitat over time.	A feasible alternative exists north of the original alignment, south of the Ipswich Motorsport Precinct. This alternative can align with Paynes Road and would avoid passing through the middle of a core area of koala habitat. Coupled with the design mitigation measures, this alternative would maximise the future viability of the Ebenezer area as koala habitat.	Proceed with a revised alignment between Rosewood Aratula Road, Ebenezer and Middle Road, Purga.
Peak Crossing (KCA)	Fauna-sensitive design considerations to allow for the movement of koalas from one side of the SFRC to the other (appropriate fencing, corridors under and/or over the railway line to facilitate koala movement).	Minimal Impact (if any), as design will allow for the movement of koalas through this area, on both sides of the SFRC. There is minimal vegetation in this area at present (it is an area for koala movement, rather than core habitat).	No feasible alternatives exist, as the alignment is located at the western foothills of the Mount Flinders range, and shifting the alignment further west would create undesirable impacts upon the township of Peak Crossing.	Maintain the original alignment.
Woolooman (Essential Habitat)	Fauna-sensitive design considerations to allow for the movement of koalas from one side of the SFRC to the other (appropriate fencing, corridors under and/or over the railway line to facilitate koala movement). Tunnels in two areas will increase the movement opportunities for koalas in this location.	Minimal/Moderate Impact, as design will allow for the movement of koalas through this area, on both sides of the SFRC. Some habitat will be removed.	No feasible alternatives exist, as the alignment is located within the only viable valley through which to pass the Flinders/Goolman range. Areas further north traverse the area set aside for present and future urban growth (i.e. Ripley Valley).	Maintain the original alignment.

4.4 Alignment engineering

The design criteria to be adopted for the alignment are dictated by the future freight traffic likely to use the facility. Accordingly for the purposes of determining the appropriate alignment design standards the following assumptions were made:

- the SFRC will form part of the proposed Melbourne-Brisbane Inland Railway
- the SFRC will be a dual gauge facility (narrow and standard gauges) and the existing SGR between Bromelton and Acacia Ridge will be upgraded to dual gauge at some future point
- as passenger operations on the existing electrified urban network increase, the opportunity for narrow gauge freight from south-western Queensland to use existing routes will decrease and the SFRC will increasingly become the primary route to Acacia Ridge and the Port of Brisbane
- ongoing growth in coal exports from the Port of Brisbane to an upper limit of 12 to 15 million tonnes per year will lead to the SFRC being an increasingly attractive option for narrow gauge coal freight

As such, it is anticipated that the SFRC will support the following services:

- standard gauge intermodal freight traffic (potentially double-stacked – see Figure 14), travelling from Melbourne and potentially Perth and Adelaide via the proposed Inland Railway to Acacia Ridge, the BMT and possible future terminals at Ebenezer and/or Bromelton
- standard gauge freight traffic from Sydney to a possible future terminal at Ebenezer

The SFRC may also become an alternative route for the following services:

- general purpose narrow gauge freight from south-western Queensland to Brisbane
- narrow gauge bulk grain, containerised cotton and agricultural products from south-western Queensland to the Port of Brisbane
- narrow gauge bulk petroleum products from Brisbane to the south-west
- narrow gauge coal freight from western Queensland and Rosewood/Jeebropilly to the Port of Brisbane

Figure 14 Double-stacked Container Trains in North America

4.4.1 Design standards

The infrastructure criteria developed to enable the design of a suitable alignment includes:

- operational requirements, including speeds, train mass and axle loads, train dimensions (including double-stacking) and track spacing
- geometric alignment, including curve radii and gradients
- track components, including railway formation, rail, sleepers, ballast, track installation, turnouts, and fencing
- passing sidings and crossing loops
- other infrastructure requirements, including underbridges and overbridges, grade separations, level crossings and tunnels

Summary of adopted design criteria

Whilst QR may not be the "rail owner" or "rail manager" in the event that the SFRC is constructed, for the purposes of this study, QR design and construction standards have been adopted where appropriate.

The determining design criteria adopted for the Study are based on the current Code of Practice for the Defined Interstate Rail Network as adopted for the North-South Rail Corridor Study (2005). Key design criteria are listed in Table 6 and Table 7.

Table 6 Adopted design criteria

Criteria	Adopted Standard
Desirable *maximum* speed	115 km/h
Maximum axle load	30 tonnes
Minimum vertical clearance above top of rail	7.4 metres
Horizontal geometry radius for 115km/h	1,200 metres
Maximum desirable compensated gradient	1%
Maximum allowable compensated gradient	1.50%
Passing loops/train length	Up to 2km
Rail specification	60 kg/m
Sleepers	Concrete
Ballast	300mm below sleeper

Table 7 Maximum train speeds and corresponding minimum curve radii

Maximum Train Speed (km/h)	Minimum Radius (m)
80	540
100	840
115	1,200

4.4.2 Railway Formation

It is intended that the SFRC would initially be constructed as a single track railway with suitably located passing loops. For planning purposes this study has adopted a dual track earthworks formation for the entire length of the alignment. This will ensure that the corridor is suitable for future upgrading to two tracks and also provides flexibility when locating passing loops, when operating as a single track. The location of any passing loops would be determined during detailed design phase when there exists greater certainty regarding train consistency, length and frequency.

The standard corridor cross section adopted for the study, including service roads, is shown in Plans SK038A & SK039A in Appendix B. It should be noted that the actual final corridor width may vary following detailed design, as may the location of realigned local roads, fencing and acoustic treatments, stock crossings and drainage infrastructure. For the purposes of the current study a conservatively wide corridor has been adopted to ensure that the corridor adopted for CID retains a degree of flexibility for incorporation of design changes during detailed design (the earthworks footprint may increase or decrease in some areas).

Significant embankments and cuttings will be required along the length of the alignment. Further refinement of these works will be required once detailed geotechnical investigations of the alignment are completed during the detailed design phase. For the purposes of the study a nominal slope of 1V:2H has been adopted for all embankments and cuttings with stepping included at every 7.5m for large slopes. Where the geotechnical characteristics of the underlying material permits, steeper slopes may be achievable, thus reducing the overall width of the alignment footprint.

The alignment development process has targeted a nominal balance of earthworks across sections of the alignment in order to minimise any excess/shortage of material. In locations where this has been difficult to achieve, precedence has been given to maintaining safe geometric design standards.

4.4.3 Other considerations

Flooding and drainage

The major water courses within the study area including the Bremer River, Western, Warrill, Purga, Woolaman and Wild Pig Creeks and Teviot Brook will require bridging. At these crossings the bridge levels have been set to allow a flood with a corresponding probability of 1 in 100 years to pass under the soffit of the structure. These streams typically have relatively wide flood plains and will in some instances require the structures to span significantly beyond the top of bank. Where possible, effort has been made to reduce the length of bridges required through the selection of crossing points in locations where the floodplain is relatively narrow.

The rail corridor will also intercept a number of ephemeral creeks and drainage lines which generally flow into one of the higher order streams mentioned above. A preliminary assessment of the types of drainage structures required for the project to provide 1 in 100 year flood immunity to the top of rail formation has been completed as part of the preliminary design phase. Different sizes and numbers of culverts will be used to accommodate the smaller drainage lines along the alignment.

As the project is still within the planning phase, detailed information is not available on stormwater drainage systems for construction and operation phases. Provisions are provided in the EMP (see Section 19.0) to address stormwater and sediment and erosion control and these are to be incorporated in the detailed design phase for the project.

Bridges

All bridges are to be designed in accordance with the Australian Bridge Design Code and QR Standards. At major creek and river crossings allowance should be incorporated for stock and vehicles to pass beneath the bridge in order to maintain access to fragmented portions of properties.

Tunnels

Due to severe terrain, two sections of tunnel (lengths of 1050m and 200m) have been incorporated into the alignment in the Washpool/Woolooman area. Design of these features will require considerable refinement in response to detailed geotechnical investigations during later design phases.

Although it is unlikely that smoke control would be required in the tunnels under normal conditions, the preliminary design of the alignment within the tunnels has allowed for smoke control measures to be designed at later stages.

Level crossings

The preferred alignment interfaces with existing roads throughout the study area. A basic planning criterion adopted for the SFRC is that level crossings (road/rail) are to be avoided where possible. Accordingly, grade separation of all major road crossings has been assumed for planning purposes. In some instances where a road serves a limited number of properties it may be more suitable to provide a realignment of an existing local road or a new road to enable access via an alternative route.

At this stage, no investigation of these interfaces has been undertaken, as it is likely that the roles and relative importance of these roads will change between now and the detailed design phase of the project. Indeed, future structure plans for areas such as Purga and Ebenezer are likely to include a reappraisal of the form and function of some of these local roads. As such, more detailed analysis of the interfaces between the preferred alignment and local roads will be undertaken during the detailed design phase, when more informed solutions are likely to be identified.

At this time, options for maintaining local access are included in the description of the preferred alignment. Accordingly, the alignment has been designed to ensure that no level crossings are required for access from private property to public roads. In some instances this necessitates the realignment of existing roads or construction of new roads. Points where the alignment is in cutting or on embankment have been used as opportunities for over/underpasses as appropriate (see Table 9).

Where an individual property is fragmented or isolated by the alignment, an at-grade, single user occupational crossing has been assumed. These would be designed in accordance with QR standards.

Services

A preliminary inventory and assessment of services impacts has been undertaken as part of the alignment design process. Where possible, conflicts with major infrastructure such as the Moonie Oil pipeline, major water mains and Powerlink high voltage powerlines has been avoided through adjustment of the alignment. Where not possible, the conflict has been identified and suitable treatment proposed.

The Santos Moonie-Brisbane Oil Pipeline travels in a north-easterly direction, through the Lanefield area. The pipeline transports oil 330km from the Moonie Oilfield to the Lytton Storage Facility, located at the mouth of the Brisbane River. The preferred alignment of the SFRC traverses this pipeline south of Western Creek, and includes a cutting in this area sufficiently deep that it would directly interface with the pipeline. The detailed design phase of this project will require an appraisal of this interface.

The pipeline is not currently in use having been shut down in 2008 after a number of incidents including a major leakage in the southern Brisbane suburb of Algester. With the possibility that the role or status of the Santos pipeline may change between now and the detailed design phase, a judgement about the pipeline's interface with the preferred alignment has not been made at this time. Solutions may involve the diversion or reconstruction of the pipeline in this area, however these solutions will be more adequately informed based on consultation with the pipeline operators during development of detailed design.

Powerlink 330/275kV transmission lines travel in a general east/west direction through Ebenezer, Willowbank and Purga. The SFRC alignment is located to the north of these powerlines through Ebenezer, before traversing the powerlines east of the Cunningham Highway in two locations – approximately at the crossing of Warril Creek[2], and approximately at the crossing of Middle Road. The locations where the SFRC alignment and these powerlines interface will be subject to more rigorous investigation during the detailed design stage. It is anticipated that adequate clearance levels can be achieved in both locations.

Further to the transmission lines, Powerlink owns property in the Ebenezer area that is set aside for the future development of a regionally significant substation. The study team has worked closely with Powerlink representatives to identify a revised alignment that is agreeable to both parties in this area. The revised alignment (and potential future intermodal freight terminal) traverses the northernmost portion of this Powerlink land. Ongoing consultation between TMR and Powerlink will continue to ensure that this results in an agreeable solution for both parties.

4.4.4 Operational considerations

Speed

The North-South Rail Corridor Study (2005) recognised that to improve transit times, reliability and availability on the Melbourne-Brisbane Corridor it is necessary to provide a network capable of higher travel speeds. The report went on to suggest that to be competitive with road services in these markets, it is expected that the

[2] The powerlines in this location are characterised by a lower voltage, and controlled by ENERGEX.

maximum speed for freight trains will need to be up to 115 km/h. Such a maximum speed will enable options to be developed that achieve average speeds of about 80 km/h.

Whilst not achievable across the entire length of the SFRC due to topographic constraints, particularly in the Washpool area, 115km/h remains a suitable maximum speed for the SFRC. It should be noted that considerably slower speed limits will be required for turnouts onto the SGR and existing Western Railway and also in the vicinity of any future IFT at Ebenezer and/or Bromelton.

Train length

The North-South Rail Corridor Study adopted a maximum train length of 1,800m based on the current maximum train length on the ARTC interstate network. The maximum future train length on the SGR is unlikely to exceed 1,500m due to cost factors and the difficulty of working long trains through the congested network north of Sydney.

Whilst this may suggest that an adopted maximum train length of 1,800m would also be suitable for the SFRC it can be envisaged that longer trains, perhaps as long as 2,400m could be possible on the inland route between Melbourne and Brisbane. The key constraint to this being achieved would appear to be the terminal and marshalling facilities at each terminus (1500m at Acacia Ridge, Brisbane and 900/1800m at Dyson/Tottenham, Melbourne).

Should new terminals be developed in Melbourne and Brisbane/SEQ capable of handling trains up to 2,400m it would be conceivable that this train length could be required on the SFRC. For the purposes of design criteria a train length of up to 2000m has been adopted.

Corridor capacity

Preliminary corridor operations modelling suggests that a single track alignment with passing loops would be capable of supporting in excess of 30 trains per day before double-tracking would be required.

Assuming that the key determinant of train volumes on the alignment at the time of opening would be the capacity of existing and proposed terminals at Acacia Ridge, Bromelton and Ebenezer it is not expected that any more than 10 trains per day (5 in each direction) would use the SFRC in the short to medium term, depending on when the line is actually commissioned.

This number would increase towards the capacity of the corridor over time as demand increases on the Melbourne - Brisbane corridor and other freight currently transported to Acacia Ridge and the Port of Brisbane on the narrow gauge network is switched to the SFRC.

Passing loops

Initially, up to four passing loops may be required for initial rail operations before eventual double- tracking is pursued. Passing loops are expected at each end of the SFRC and in two intermediate locations at approximately 15-20km spacing. The final position of proposed tunnels and terminals would influence the location of proposed passing loops. Suitable allowance has been made for passing loops within the proposed corridor width shown on the CID plans in Appendix B.

4.5 Detailed alignment description

Based on the design criteria outlined above and the investigations of the relevant environmental, social and economic factors reported in Sections 7.0 to 18.0 of this report and the Technical Papers in Volume 2, a preferred alignment for the SFRC was developed. Detailed CID Plans are provided in Appendix B (CID Plan Sheets 001C-033C). The drawings include long sections which illustrate the position of the railway relative to natural ground level as well as annotations of key features such as bridges, road realignments and creek crossings.

The alignment design has been progressed to a level suitable to enable an appropriate level of confidence in the defined rail corridor boundaries. For this to be achieved a preliminary earthworks footprint for the alignment was developed along with details of necessary structures for grade separation of roads and river/creek crossings. This preliminary earthworks footprint is considered to be acceptable for this stage of the project. Future investigations relating to geotechnical and drainage aspects of the preferred alignment (during the detailed design phase) will inform the final alignment design, which is likely to be slightly different from the preliminary alignment design in some areas (i.e. the footprint may narrow or widen in some areas, depending upon geotechnical and hydraulic characteristics). This degree of change is not likely to be significant, and is not expected to alter the boundaries of the CID area.

It should be noted that the design illustrated on the Plans in Appendix B consist of two (2) key components:

- the proposed alignment footprint including the rail formation and earthworks
- the proposed railway corridor (CID area) which varies in width and includes allowance for drainage infrastructure, service roads, passing loops, acoustic treatments and landscaping. Detailed design and location of these features within the rail corridor has not been undertaken as part of the current study, and will be considered at the detailed design stage

The rail corridor as described above represents the area proposed for CID. Land acquired for the SFRC in the future may extend beyond the defined rail corridor, dependent on the circumstances of individual properties including the relative location of residences, property management arrangements and property fragmentation.

It is important to note that at this early stage only preliminary consideration has been given to the access and stock movement requirements of individual properties. Because the SFRC is not expected to be constructed for a considerable time, it is appropriate for solutions to these issues to be developed through consultation with individual landowners during the detailed design phase. During this process the following principles should be adopted:

- access to be maintained to all properties
- where practical, access to be grade separated. Where not achievable, suitable at-grade occupational crossing to be used
- stock crossings to be provided for all grazing properties to ensure connectivity between fragmented properties, particularly between grazing areas and water sources
- stock crossings preferably to be via an underpass of suitable width to allow unimpeded movement of stock
- consideration to be given to length of underpass and functionality

Table 8 provides a detailed description of the proposed alignment (working west to east) including the key considerations of environmental, social and economic factors that were incorporated into its design. Chainages are provided for key locations, representing distance (in metres from the western end of the alignment). The most notable changes between the alignment described here and that contained in the draft assessment report (October 2008) is the portion of the alignment within the Mount Forbes, Ebenezer and Willowbank areas. CID Plan sheets (Appendix B) corresponding to each section of the alignment are also identified.

Table 8 Detailed alignment description

Table 8 - Detailed Description of Alignment Features	
Lanefield *Western Railway - Bremer River, Ch -269 to Ch 3560, CID Plan Sheets 001B-003C and 032C*	
The alignment joins the Western Railway via turnouts to the south-west and north-east, immediately north of the intersection of Kuss Road and Waters Road. The indicated tie-in location was chosen due to favourable alignment geometry both in terms of the existing and proposed lines. Both turnouts pass over Waters Road and Western Creek before joining approximately 350m south-east of Western Creek. The alignment crosses the Santos Moonie Oil Pipeline (Ch 1275) and passes through an 11m deep cutting before crossing Hayes Road (Ch 1700). Realignment of Hayes Road will be required to provide suitable access to properties on the southern side of the alignment. The alignment then passes over Coveney Road and proceeds on 6-8m of embankment. The alignment continues on a flat grade, bridging the Bremer River at Ch 3560.	
	
Figure 15 Junction with existing Western Railway (Ch -260)	**Figure 16 Coveney Road Crossing - Rail over Road (Ch 2410)**
Mount Forbes *Bremer River - Mount Forbes Road, Ch 3560 - 7050, CID Plan Sheets 003C-005C*	
The alignment remains elevated and passes over Rosewood-Aratula Road (Ch 3800). The alignment then turns east rising steadily and running parallel with an unconstructed section of Paynes Road up to Mount Forbes Road. The majority of the alignment through this section runs through open country, however, near Ch 4800, the alignment has a minor impact on a patch of endangered vegetation on Lot 261/CH3159. The alignment crosses under Mount Forbes Road (Ch 7050) whilst in cutting. A road overpass approximately 40m long will be required over this cutting.	
	
Figure 17 Crossing of Rosewood-Aratula Road looking west towards the Bremer River (Ch 3800)	**Figure 18 Photo taken in the vicinity of proposed crossing of Mt Forbes Road (Ch 7050)**

Ebenezer

Mount Forbes Road - Cunningham Highway, Ch 7050 - 13750, CID Plan Sheets 005C-008C

The alignment then continues east through a 15m deep cutting and on a 1% downgrade, running parallel to and just to the south of Paynes Road through some vegetated areas. The vegetated areas in this region (particularly to the south) have been identified as significant koala habitat. By co-locating the rail alignment with Paynes Road through this area, potential impacts on koala habitat have been minimised. Core areas of high value bushland habitat, identified in the South East Queensland Koala Habitat Assessment and Mapping Project (DERM, 2009), have been largely avoided by this alignment. This allows the potential establishment in the future of a larger core area of koala habitat in Ebenezer, composed of (presently) high value bushland and medium-value rehabilitation areas (DERM, 2009). It is believed that the location of the revised alignment in this area (with adequate provision for north/south movement) will have a reduced impact on koala populations when compared with the previous alignment through this area.

Due to the rail alignment running adjacent to Paynes Road, the properties which currently front the southern side of Paynes Road (Ch 7100 – Ch 10350) will need to have their access arrangements adjusted such that they properties can be accessed from Murrimo Road to the south. Murrimo Road will be extended eastwards from its current end point at Brass Road through a new intersection with M. Hines Road to the northern boundary of Gum Tips Nature Refuge. M. Hines Road will no longer join Paynes Road - a cul-de-sac will be constructed on M. Hines Road immediately south of the rail corridor (Ch 9420).

At the boundary of the proposed Powerlink substation property (Ch 10450), the rail alignment grade flattens out and turns slightly south. This geometry has minimised the effect on the proposed Powerlink substation whilst still allowing for expansion of the Ipswich Motorsport Precinct parking areas and a future intermodal terminal if required (Ch 10700 – Ch 13700).

Immediately to the south of the Ipswich Motorsport Precinct, the alignment passes through a significant cutting over 1km long and up to 22m deep (Ch 12250 to Ch 13800). This is a result of the need for a flat grade through a possible future intermodal terminal in this location. While it may be possible to adjust the grades to reduce this cutting, this would preclude any future terminal development. Major changes to the existing surface profile are likely to occur in this area as a result of planned industrial development.

Figure 19 Photo taken looking east along Paynes Road (Ch8450)

Figure 20 Photo taken from Paynes Road looking south down M. Hines Road (Ch9420)

Mutdapilly/Purga

Cunningham Highway - Middle Road, Ch 13750 - 19150, CID Plan Sheets 008C-011C

The alignment passes under the current Cunningham Highway location in a cutting approximately 6m deep (Ch 13750). To provide adequate clearances over the rail at this point, the highway only needs to be raised by approximately 2m. However to comply with current road design vertical grading standards, approximately 1km of the highway will need to be reconstructed. Importantly, upgrade of this section of the highway is likely to occur prior to the construction of the SFRC, providing an opportunity to incorporate suitable design solutions for the grade separation.

East of the Cunningham Highway the alignment continues on a very flat grade, quickly changing from cutting to fill embankment then curving to the south through mostly open country around the northern side of a large wetland area before crossing Warrill Creek (Ch 14925). The embankment across the Warril Creek floodplain

is approximately 10m high and a 350m-long bridge will be required across Warrill Creek to allow suitable conveyance of floodwaters. Adjacent to Warrill Creek, the alignment passes under the Powerlink high voltage electricity line (Ch 15050). The rail alignment grade may need to be adjusted during detailed design in order to achieve the necessary clearance requirements.

Continuing south on the same flat grade, the alignment passes through scattered vegetation before turning east under the high voltage power line and crossing Middle Road (Ch 19175) approximately 200m south of the Purga Nature Reserve. Approximately 700m of Middle Road will be regraded and raised to pass over the top of the rail alignment – service roads will also need to be constructed to provide access to properties and the Purga Nature Reserve.

Figure 21 Proposed crossing of Cunningham highway looking west towards possible IFT site (Ch 13750)

Figure 22 Photo taken in the vicinity of proposed crossing of Middle Road - Road over Rail (Ch 19165)

Purga

Middle Road - Ipswich-Boonah Road, Ch 19150 - 23000, CID Plan Sheets 011C-014C

After crossing Middle Road the alignment continues in cutting before diverging south-east from the transmission line and rising to cross Purga Creek. Purga Creek has a very wide floodplain in this location and does not have a defined channel. Two separate bridge structures have been incorporated into the design to allow for suitable passage of overland flow associated with Purga Creek (Ch 20700 - 20900 and Ch 21200 - 21400). The alignment then passes to the south of T. Morrows Road before crossing under Ipswich-Boonah Road which will need to be elevated by approximately 9m.

The alignment in this area has been located in order to maintain maximum possible separation from the Santrev poultry farms in order to mitigate the possible effects of vibration on the operation of the facility. A minimum 600m separation distance has been achieved.

Figure 23 Proposed crossing of Middle Road looking east towards Mt Flinders (Ch 19165)

Figure 24 Proposed crossing of Ipswich-Boonah Road (Ch 22980) - Santrev Poultry Farms visible in background

Peak Crossing
Ipswich-Boonah Road - Sandy Creek, Ch 23000 - 26000, CID Plan Sheets 014C-015C

After crossing Ipswich-Boonah Road the alignment enters a large cutting (maximum depth approximately 13m) and commences a gradual turn to the south. The alignment crosses Castle Hill Lane at chainage 23580 requiring the closure of that road and the removal of a number of houses and outbuildings.

The alignment then proceeds to the south-west of the Purga Quarry before crossing Truloff Road (Ch 24830) and Mount Flinders Road (Ch 25155). Truloff Road will be closed and realigned on the eastern side of the alignment. The alignment will be elevated at the Mount Flinders Road crossing by approximately 6m thus allowing the road to pass under the rail formation before continuing on embankment and bridging Sandy Creek (Ch 25975).

In this area the alignment has been positioned in the north-east of the study area in order to maximise separation from sensitive land uses including Peak Crossing State School and the residential areas of Peak Crossing itself. It is noted that Ivory's Rock Conference Centre (located to the north-east of the alignment) is also a sensitive land use. The separation achieved between sensitive land uses on both sides of the alignment is considered adequate to avoid significant impacts upon these areas through loss of amenity.

Figure 25 Proposed crossing of Mt Flinders Road - looking east (Ch 25155)

Figure 26 Proposed crossing of Mt Flinders Road - looking west (Ch 25155)

Peak Crossing
Sandy Creek - Washpool Road, Ch 26000 - 31250, CID Plan Sheets 015C-018C

Heading south from Sandy Creek the alignment has been located east in order to minimise impacts on areas of active cultivation including areas of good quality agricultural land. Moving the alignment any further east than what has been achieved becomes problematic due to the severity of the terrain.

From chainage 27200 onwards the alignment has been co-located with existing road reserve in order to minimise the fragmentation of property. The alignment passes through a large cutting (maximum depth 17.5m) before running parallel to Dwyers Road.

A realignment of Dwyers Road and the provision of a new overpass will be required to ensure the maintenance of suitable property access. The earthworks footprint will also impact on a number of outbuildings and water storages. Consultation should be undertaken with individual land owners in this area to develop the most appropriate design solution to ensure that impacts on property management are minimised. This may include the construction of new farm buildings and or water storages in alternative locations.

The alignment then crosses Dwyers Road (Ch 29150) which turns to the east, before heading towards Washpool. There is limited flexibility from an alignment perspective in this area due to the constraints of the Purga Creek floodplain to the west and steep terrain to the east.

A new underpass for a realignment of Washpool Road on the eastern side of the alignment is proposed at chainage 31250.

Figure 27 Proposed crossing of Dwyers Road (Ch 29150)

Figure 28 Facing north towards proposed crossing of Unnamed Road off Washpool Road. Purga Quarry in background.

Washpool

Washpool Road - Western End of First Tunnel, Ch 31250 - 37100, CID Plan Sheets 018C-022C

Washpool Road will need to be reconstructed on the eastern side of the alignment from chainage 31250 - 32300. The alignment then runs between Purga Creek and the existing path of Washpool Road, climbing steadily before turning east and crossing Washpool Road (Ch 33600). Washpool Road will again need to be reconstructed on the north-eastern side of the alignment from 33500 - 34900 with a new underpass being provided at chainage 33720.

The alignment then leaves Washpool Road, turns to the south and climbs towards the proposed range crossing. At the approach to the first tunnel a significant cutting will be required to a maximum depth of approximately 26m.

Figure 29 Proposed crossing of Washpool Road - (Ch 34700)

Figure 30 Looking south from Washpool Road towards the western tunnel portal.

Woolooman/Undullah

Western End of First Tunnel - Wild Pig Creek, Ch 37100 - 44900, CID Plan Sheets 022C-026C

The first tunnel is nominally 1,050m in length (Ch 37100-38150) and has been shown as twin 8m bored shafts. Land above the tunnel would not likely be required for acquisition although an easement would be needed. The provision of a tunnel in this location will maintain vegetation corridor connectivity and promote fauna movement.

The alignment then leaves the first tunnel and enters a deep cutting (max depth 25m) before crossing Dugandan Creek for the first time and then entering a second shorter tunnel at chainage 39950.

This second tunnel is 200m long and was required as a result of the alignment being moved south to avoid a large waterhole on Dugandan creek (Figure 31) that was considered to be of cultural heritage, ecological and scenic amenity value.

The alignment continues east, descending steadily, before crossing a major ridgeline at chainage 40450. The

alignment then proceeds to descend on embankment up to 20m in height, crossing Dugandan Creek a further two times before joining Wild Pig Creek Road near the junction of Dugandan and Woolaman Creeks. Wild Pig Creek Road is generally not constructed within the indicated road reserve in this area. Although the alignment stays primarily on the southern side of Wild Pig Creek Road some new section of road will be required to maintain connectivity (Ch 42050-42500 and Ch 42900-43250).

The alignment then passes over Wild Pig Creek Road at chainage 44200 before proceeding through an existing residence which will need to be removed and crossing Wild Pig Creek at chainage 44890.

Figure 31 Significant waterhole on Dugandan Creek to the north of the alignment.

Figure 32 Proposed crossing point on Wild Pig Creek Road - road under rail (Ch 44200)

Undullah

Wild Pig Creek - Undullah Road, Ch 44900 - 51200, CID Plan Sheets 026C-030C

After crossing Wild Pig Creek, the alignment continues through short sections of cutting before again crossing Wild Pig Creek Road at chainage 47330. A realignment of the road will be required to ensure a suitable alignment for an overpass.

The terrain through this area undulates considerably, giving rise to a considerable number of shifts from cutting to embankment. A further crossing of the Wild Pig Creek Road is then required at chainage 48880. The alignment proceeds to the east through further short sections of cutting and embankment on the southern side of Woolaman Creek before crossing over Undullah Road near Teviot Brook (Ch 51200).

Figure 33 Proposed crossing point on Wild Pig Creek Road - road over rail (Ch 47330)

Figure 34 Proposed crossing point on Wild Pig Creek Road - road under rail (Ch 48880)

Kagaru

Undullah Road - Interstate Railway (SGR), Ch 51200 - 53200, CID Plan Sheets 030C-031C and 033C

A slight realignment of Undullah Road has been shown at the proposed crossing point in order to maintain suitable sight lines. This is particularly important in this area given the number of heavy vehicles that use the road.

The alignment then crosses Teviot Brook (Ch 51420) before rejoining Undullah Road. The alignment runs parallel to the road before splitting into its northern and southern tie-ins.

The northern tie-in passes through an existing residence before joining the interstate SGR at chainage 53200. The southern tie-in passes back under Undullah road before joining the interstate SGR. A slight regrade of Undullah Road will be required to maintain clearance and sight lines.

Figure 35 Proposed crossing point on Undullah Road (Ch 51200)

Figure 36 Proposed northern tie in with interstate SGR (Ch 53200)

4.5.1 Proposed road crossings and major drainage structures

Table 9 provides a summary of the proposed road crossings, new access roads and road realignments along the corridor. Table 10 provides a summary of the proposed major drainage structures along the alignment.

It is important to note that these tables do not include detail of required occupational crossings and/or minor drainage structures as for the major road crossings and drainage structures. The location and design of these will be finalised during detailed design and in response to consultation with individual land owners where appropriate.

Table 9 Summary of road crossings

Summary of Road Crossings				
Note that occupational crossings are not included in this schedule				
Chainage	Road name	Road type	Road under/over	Description
230	Waters Road	Unsealed road	Under	Lower road to provide 4.5m clearance under structure (drain to Western Creek) - Alternate routes via Calvert and Lanefield for high vehicles
1700	Hayes Road	Property access	New access	Construct new road (850m) from Coveney Road underpass
2410	Coveney Road	Property access	Under	Construct underpass with minimum 4.5m clearance
3800	Rosewood - Aratula Road	Sealed Main road (100km/h)	Under	Construct 3 span rail bridge over
7050	Mount Forbes Road	Sealed Main road (100km/h)	Over	Construct road bridge across 8m deep cutting
9425	M Hines Road	Property access	New access	Construct Murrimo Road to intersect with M Hines Road and “Gum tips” nature reserve (approximately 2000m)
13750	Cunningham Highway	Sealed Highway (100km/h)	Over	Raise highway approx 2m and construct bridge over rail
19170	Middle Road	Sealed Main road (100km/h)	Over	Raise road approx 6m and construct bridge over rail
22980	Ipswich - Boonah Road	Sealed Main road (100km/h)	Over	Raise road approx 9m and construct bridge over rail
23580	Castle Hill Lane	Property access	nil	Construct cul-de-sac
24830	Truloff Road	Property access	New access	Construct new road from Mt Flinders Road underpass (approximately 500m)
25155	Mount Flinders Road	Sealed road (100km/h)	Under	Lower road 2m and construct single span rail bridge over
28270	Dwyers Road	Property access	Over	Construct road bridge across cutting - construct new road 175m from Dwyers Road

Summary of Road Crossings				
Note that occupational crossings are not included in this schedule				
Chainage	Road name	Road type	Road under/over	Description
29150	Dwyers Road	Property access	nil	Reconstruct Dwyers Road from Ch 28270 to Ch 29260 on east side of railway (large dam to be relocated)
30720	Un-named Road off Washpool Road	Property access	nil	Construct property access track from Ch 30250 to Ch 30750
31260	Washpool Road	Sealed road	Under	Construct skewed underpass through 9.5m high fill embankment at Ch 31260. Reconstruct Washpool Road on Eastern side of rail from Ch 31300 to Ch 32300 - cutting through saddle 31750 – 3200
33720	Washpool Road	Unsealed road	Under	Construct Underpass through 7m high fill embankment providing link to Purga Creek road. Reconstruct Washpool Road on Eastern/Northern side of Rail Ch 33500 to Ch 34900
42050-42500	Un-named Road	Property access	nil	Reconstruct property access track on Northern side of railway (450m)
42900-43250	Un-named Road	Property access	nil	Reconstruct property access track on Northern side of railway (350m)
44200	Wild Pig Creek Road	Unsealed road	Under	Construct underpass through 8m high fill embankment. Realign 150m of road to improve crossing geometry.
47330	Wild Pig Creek Road	Unsealed road	Over	Construct road bridge across 8.5m deep cutting. Realign 500m of road to improve crossing geometry.
48880	Wild Pig Creek Road	Unsealed road	Under	Construct underpass through 12m high fill embankment

Table 10 Summary of Major Drainage Structures

Summary of Major Drainage Structures			
Note that regular drainage structures (culverts etc) are not included in this schedule			
Watercourse	Chainage	Approximate	Description
Western Creek	80 - 580	500m	Structure to span a farm dam, Waters Road and Western Creek
Western Creek	300 - 800 (Rosewood tie-in)	500m	Structure to span Waters Road and Western Creek
Bremer River	3560	42m	3 span skewed structure
Warrill Creek	14750 - 15100	350m	Structure to span Warrill Creek floodplain
Purga Creek	20700 - 20900	200m	Purga creek
Purga Creek	21200 - 21400	200m	Purga creek floodplain
Sandy Creek	25975	56m	4 span structure
Dugandan Creek	40750	14m	Single span structure
Dugandan Creek	40900	14m	Single span structure
Wild Pig Creek	44890	14m	Single span structure
Teviot Brook	51420	42m	3 span skewed structure

4.5.2 Number of properties subject to land requirements for the project

Properties subject to land requirements for the project are those that are traversed by the area subject to the CID, while adjoining parcels are those which are directly abutting (or directly across the road from) this area. These two definitions are important for the CID process, as it is a requirement that all traversed and adjoining properties are identified, and their landowners consulted appropriately during the process.

Table 11 shows the numbers of both categories of properties.

Table 11 Properties subject to land requirements and adjoining properties

	Number of Properties
Properties subject to land requirements for the project	123
Adjoining properties	208

4.6 Project justification and need

This section of the revised assessment report provides details that justify the need for the project in the context of the impacts discussed elsewhere in the revised assessment report. This discussion is complemented by the findings of the preliminary Cost Benefit Analysis undertaken in Section 18.0 of this report, and Technical Paper 12 – Economic Analysis (Volume 2).

It should be noted that the purpose of the current study is to identify an alignment for protection for future use and therefore does not include a business case assessment for the project. A business case will be undertaken in accordance with Queensland Government Treasury requirements to identify funding arrangements, at a future time closer to project delivery.

4.6.1 Need for the project

The SEQRP and SEQIPP both outline that freight volumes across Queensland are expected to double by 2020 as a consequence of sustained economic growth and population growth. The SEQ Intermodal Freight Terminal Study (QT, 2008, see Section 4.1.3) more specifically states with regards to South East Queensland that by 2026:

- inbound freight movements (including freight in transit though SEQ) will increase from 29Mt to 73Mt, whilst outbound movements will increase from 26Mt to 46Mt by 2026. This imbalance has the potential to change the cost structure of transport and influence the future location of industrial development and freight corridors required to service demand
- this imbalance is expected to result in changing cost structures for road and rail and will see rail capture a larger share of interstate freight traffic by 2026. By 2026 rail's percentage of the total freight task is expected to be Brisbane to Melbourne (50 - 65%), Brisbane to Sydney (20 - 30%) and North Queensland (40 – 50%)

If rail is to capture this potential increase in freight task share over the next two decades there is a need for significant investment in infrastructure to ensure that existing and likely capacity constraints are removed.

In particular, achieving a 50-65% share of the Brisbane-Melbourne freight task would be largely contingent on the completion of the Inland Railway as discussed above (Section 4.1.2). Importantly, without construction of the SFRC, any future Inland Railway would not be able to access the existing urban network due to capacity constraints on the existing network, the urbanised nature of the existing corridors and conflicts between double-stacked containers and existing electrification infrastructure and bridge overpasses. The SFRC provides a crucial link between a future Inland Railway and the existing standard gauge network thus allowing access to existing terminals at Acacia Ridge and the Port of Brisbane.

The SFRC also has an important role to play in the development of additional Intermodal Freight Terminal capacity in SEQ. In particular, as a key connection between a future Inland Railway and the standard gauge rail, construction of the SFRC will play a potentially significant role in the determination of the preferred medium and long term solutions for IFT capacity in the region. Specifically, a terminal option at Ebenezer would be highly contingent upon the Inland Rail and SFRC proceeding. Likewise, the relative attraction of a Bromelton terminal option would increase if the Inland Rail and SFRC were to proceed.

4.6.2 Alternatives to the project

In considering the justification for proceeding with the project it is important to give consideration to available alternatives, including a ‘do-nothing’ case.

Do-nothing case

The ‘do-nothing’ case for this assessment (i.e. not proceeding with the SFRC) would have a number of possible implications.

Options for the proposed Inland Railway would likely terminate at Charlton, west of Toowoomba and rely on road freight for transport to Brisbane.

Under this scenario the Inland Railway would not have connectivity to existing terminals at Acacia Ridge and the Port of Brisbane, except via the existing narrow gauge network. Ernst & Young gave consideration to this scenario in the North-South Rail Corridor Study (2006) and as discussed in Section 4.1.2, found that:

“tonnages on the route would be somewhat lower with one of the route variants: namely, constructing an inland route from Melbourne to a point near Toowoomba and transferring the freight to trucks for the remainder of the journey to Brisbane. It is unlikely that building and operating a terminal close to Toowoomba and completing journeys through to Brisbane by truck would meet the expectations and requirements of customers.”

Accordingly, it is considered that the do-nothing case for the SFRC would reduce the effectiveness and efficiency of a future Inland Railway. Without connectivity to the Inland Railway there would also be limited justification for a future Intermodal Freight Terminal at Ebenezer.

Upgrade of western line

An alternative option to the SFRC is for the existing Western Line to be upgraded to allow for standard gauge, double-stacked trains between Rosewood, Corinda, Yeerongpilly and Acacia Ridge. This upgrade would consist of the construction of a new standard gauge line adjacent to the existing corridor for its entire length. Upgrade of existing lines to dual gauge is not considered feasible due to height conflicts between double-stacked containers and existing electrification infrastructure and capacity constraints associated with existing passenger operations and narrow gauge freight movements.

Constructing a new standard gauge line adjacent to the existing corridor would be extremely difficult to achieve. The corridor in question is highly urbanised with development built immediately adjacent to the corridor in many instances. Areas of particular conflict would include the Ipswich CBD, Darra-Corinda (currently being upgraded to four passenger tracks) and Tennyson.

The property acquisition implications alone are considered a fatal flaw to this alternative. There are physical horizontal clearance issues associated with platforms and a dual gauge track, axle load limitations of the existing bridge structures, and clearance issues with existing substantial overhead structures including the Ipswich City Square development and numerous road and pedestrian overpasses. Other issues that would be significantly difficult to overcome would include the upgrade of a large number of level crossings, bridges and junctions along the alignment.

Alternative northern options

During public consultation for the current study a number of community members suggested that further consideration should be given to alternative northern options based largely on variations of the alignments previously considered in the 2005 Southern Infrastructure Corridor Study (2005) (see Section 4.1.1). In particular, it was suggested that consideration should be given to a hybrid option consisting of a combination of alignment options N1 and C1 via a new link following low lying land through the Ripley Valley (see Figure 4).

The Ripley Valley was identified prior to the 2005 study as future location for significant residential development over the next 20 years as a key component of the SEQRP's western corridor growth strategy. In the intervening time the Ipswich City Council has adopted the Ripley Valley Structure Plan which sets out a strategy for the development of the Ripley Valley as a home for as many as 120,000 people (see Figure 37).

Any proposed freight rail alignment through the Ripley Valley would have a significant impact on the development proposed for the area. Any such proposal therefore represents a significant conflict with the objectives of the SEQRP and local planning instruments.

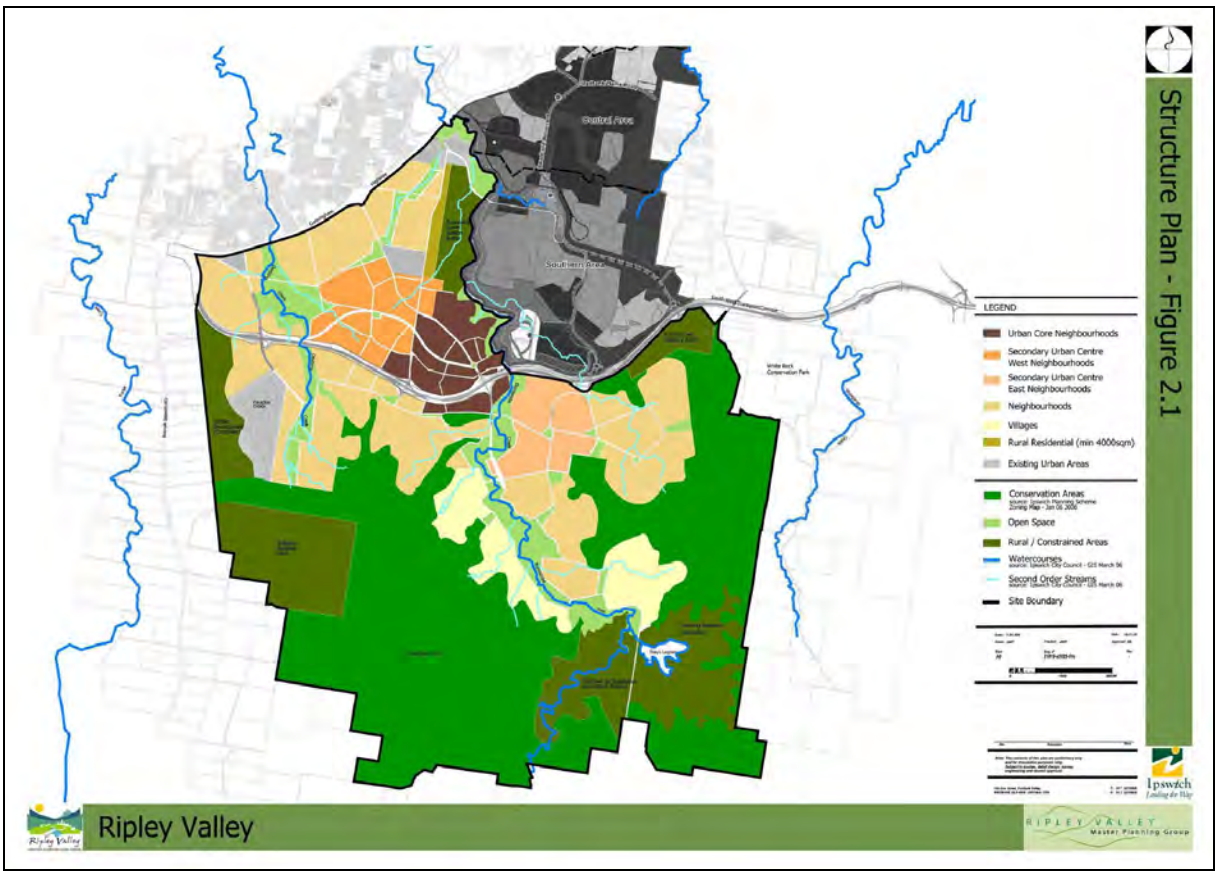


Figure 37 Ripley Valley Structure Plan

It was also suggested by members of the community that an alignment through this area would provide an opportunity to have a freight terminal located directly adjacent to a significant future consumer area rather than at Ebenezer.

Evidence suggests that locating a freight terminal amongst residential development that form part of the ultimate user group of the freight does not bring benefit to either consumer or freight transporters. It is considered that a freight terminal in the Ripley Valley would be significantly constrained from an operations perspective due to its impact on surrounding urban areas, as has been a long term issue for the operators of the Acacia Ridge terminal. Furthermore, Ebenezer is suitably located from a transport infrastructure perspective to be able to service surrounding areas such as Ripley Valley as well as other major markets throughout South East Queensland. The proximity of Ebenezer to the Cunningham Highway is also ideal for freight transport efficiencies. It should be noted however, that the siting and development of any freight terminal along the SFRC is beyond the scope of this study and that this study provides only a passive provision for such a terminal.

4.6.3 Alternatives to the project received during submission period

During the submission period for the draft assessment report, the study team received a number of other suggestions for the location of the SFRC alignment. These are outlined in Section 2.3.27 of the submissions report (Appendix D). Responses to these suggestions are also provided in the submissions report.

Chapter 5
Community engagement

5.0 Community engagement

5.1 Overview

This section outlines the community engagement program used for the Southern Freight Rail Corridor Study, from study commencement through to revised assessment report preparation.

The community engagement process facilitated project awareness, provided information to stakeholders and the community, and helped to create understanding about the ongoing status and progress of the study. The process established and encouraged a two-way flow of information between stakeholders and Government, which will continue into the community infrastructure designation (CID) phase of the study and beyond.

Community consultation played a vital role during the alignment identification process, helping to generate a thorough awareness of stakeholder perceptions about the potential impact of the rail line. This included broad level community perspectives as well as the more localised perspective of potentially affected property owners.

As well as building an understanding for how this project will deliver benefits to the community, region and state, the community engagement process aimed to provide timely and accurate information and ensure information was widely accessible. A range of engagement opportunities were provided for stakeholders and the community, these are outlined in detail in the sections below.

The community engagement program was delivered in accordance with a TMR approved Communication and Consultation Plan. All communication materials followed TMR's approvals processes for the dissemination of information.

There are three distinct phases for the community engagement program:

Phase 1 Southern Freight Rail Corridor Study announced / initial consultation

(1 October 2007 – 5 October 2008)

Phase 2 Submission period for draft assessment report

(6 October 2008 – 25 October 2009)

Phase 3 Revised alignment announced

(26 October 2009 – release of revised assessment report)

The fourth phase is marked by the release of this revised assessment report.

5.2 Initial community engagement process (phase 1)

A corridor of interest was identified as the investigation area for the initial phase of the study. On 1 October 2007, the then Minister for Transport, Trade, Employment and Industrial Relations, the Honourable John Mickel, announced the study, commencing the community engagement process (see Media release 1: Planning begins for rail freight growth, Appendix C).

5.2.1 Stakeholder groups

Audiences targeted during this phase of the study included:

- elected representatives
- landowners within the corridor of interest
- key secondary stakeholders (including government and community associations etc)
- impacted communities along the corridor
- the general community

5.2.2 Elected representatives

In September 2007 all state, federal and local elected representatives from the study corridor were invited to a briefing about the study, prior to the wider distribution of information to the community. In total, nine (9) representatives were briefed, including two new representatives following the November 2007 federal elections. Throughout the study elected representatives were provided with copies of correspondence sent to their constituents and were kept up to date with the study's progress. Copies of all communication materials distributed to the community were also delivered to elected representatives.

5.2.3 Potentially affected property owners

Property owners within the corridor of interest were identified and contacted via letter in October 2007. The letter introduced the study, explained its purpose and invited property owners to contact the study team to arrange an individual briefing. This initial letter was sent to 284 property owners.

TMR sent another letter to 266* property owners in November 2007 encouraging individuals to arrange a briefing with the study team if they had not already done so. (*Consolidation of the database resulted in fewer letters this time.) See correspondence to property owners, Appendix C.

Members of the study team conducted individual briefing sessions for property owners within the corridor of interest. The purpose of the briefings (held primarily at Peak Crossing Hall), was to:

- provide an overview and context for the study
- inform property owners of the potential impact of the corridor on property
- surface property owners' opinions and issues about the impact of the corridor on their properties
- assist the study team to understand the benefits, impacts and challenges of the proposed corridor

A total of 130 property owners requested briefings during this phase of the study, representing almost half of the potentially affected landowners within the corridor of interest.

5.2.4 Government stakeholders

An Agency Reference Group was established at the beginning of the study to create key links with government agencies and local government. The purpose of the Agency Reference Group was to ensure the easy flow of information between representatives of each of the parent organisations represented on the group.

Agencies represented on the group included:

- Department of Environment and Resource Management
- Ipswich City Council
- Scenic Rim Regional Council (formerly Boonah and Beaudesert Shires)
- Queensland Rail
- TMR
- Department of Infrastructure and Planning
- Office of Urban Management
- Department of Primary Industries and Fisheries
- Department of Mines and Energy
- Department of Environment and Resource Management, Koala Conservation Unit
- Queensland Police Service Ipswich District
- Powerlink

5.2.5 Community groups

In November 2007 the study team was advised that a newly formed community group called Fair Go had been established in response to the study. Residents, mainly centred around the community of Peak Crossing, formed the group to address local concerns about the proposed freight rail line.

Fair Go members established regular contact with the study team, via email and telephone, asking questions and providing feedback about the group's concerns. The study team met with members of Fair Go on several occasions.

The study team also met with representatives of local conservation organisations (including koala protection groups) and worked closely with Native Title Claimants the Jagera Daran.

5.3 Community consultation activities

5.3.1 Summary of activities

Since initiating community engagement activities, there have been more than 1350 community interactions with the study team, via the 1800 number, community information day attendance, comment forms, emails and meetings/briefings.

5.3.2 Briefings

Face-to-face briefings were conducted with elected representatives, government stakeholders, service providers, potentially affected property owners and community organisations. Each briefing addressed the following key points:

- study background and context
- outline and scope of the study
- consultation activities
- study timelines
- potential impact on identified property/ies
- general information about the resumption process
- next steps in the study process
- study team contact information

Discussions during briefing sessions were documented and copies of study newsletters, comment forms, contact cards and reference maps were provided to attendees. A total of 139 briefings were conducted during Phase 1 of the study.

5.3.3 Newsletter and study update

In October 2007, a newsletter was produced to inform the broader community about the study. Australia Post distributed the newsletter to more than 16,000 households, businesses and post office boxes in and around the corridor of interest. The newsletter included a tear-off comment form for feedback on the study. The study team received 125 completed comment forms.

In February 2008, a Study Update was delivered by Australia Post to 19,600 households, businesses and post office boxes in the study area. The purpose of the Study Update was to inform the community about the unexpected delay to field investigations (due to the outbreak of Equine Influenza), provide an update on community engagement activities, and outline revised timelines for the study (see Newsletter 1 and Study Update, Appendix C). The distribution targeted the localities identified in Table 12.

Table 12 Localities selected for distribution of SFRC newsletter and study update

Postcode	Locality
4285	Beaudesert
4310	Boonah
4305	Yamanto
4305	Limestone Ridge
4306	Peak Crossing
4306	Amberley
4306	Purga
4306	Willowbank
4306	Deebing Heights
4280	Jimboomba
4340	Ebenezer
4340	Rosewood

5.3.4 Advertisements

Newspaper advertisements were placed in a number of newspapers to raise awareness of the study, drive attendance at community information days and encourage feedback. Advertisements appeared in the newspapers listed in Table 13.

Table 13 Newspapers used for advertisements for the SFRC Study

Newspaper	Placement	Insertion Date/s
Brisbane Courier Mail	Early General News	7 November 2007
Beaudesert Times	Early General News	7, 14, 21 November 2007
Moreton Border News	Early General News	9, 16, 23 November 2007
The Fassifern Guardian	Early General News	7, 14 November 2007
Ipswich Queensland Times	Early General News	7, 10, 14, 21, 28 November 2007

5.3.5 Community information days

The study team received valuable feedback at four (4) community information days held at Rosewood, Peak Crossing, Boonah and Beaudesert. The Peak Crossing information day received the highest number of attendees, and there were a total of 205 attendees across the four events.

Table 14 Community information days, venue locations and attendance numbers

Date	Venue	Time	Attendance
Saturday 10 November 2007	Peak Crossing Hall Corner Fassifern Street and Hall Street, **Peak Crossing**	10.00am – 4.00pm	106
Saturday 17 November 2007	Boonah District Cultural Centre 3 High Street, **Boonah**	10.00am – 4.00pm	49
Saturday 24 November 2007	The Centre 82 Brisbane Street, **Beaudesert**	10.00am – 4.00pm	40
Thursday 29 November 2007	CWA Hall John Street, **Rosewood**	4.00pm – 8.00pm	10
		Total Attendance	**205**

5.3.6 Dedicated email and 1800 phone line

A dedicated phone line and email address were created to provide stakeholders and the community with a link to the study team. A total of 50 emails were sent to the study email SFRCStudy@maunsell.com and the hotline (1800 116 215) received 354 calls. Stakeholders and community members were encouraged to use the hotline to ask questions and seek clarification about the study. The free call number was included on all printed communications material and placed on TMR's website.

Caller requests included:

- enquiries about study timeframes
- requests for information about resumption process
- concerns regarding property value
- related project information
- requests for communications material
- clarification about corridor of interest boundaries
- clarification about stakeholder briefings and property access for field investigations
- enquiries relating to consultation activities
- callers providing local information such as historic flood levels and horse flu outbreak

5.3.7 Website

TMR created a dedicated page on its website www.tmr.qld.gov.au to provide stakeholders and the community with an up-to-date source of information about the study.

The web page included information on:

- study area (including detailed maps)
- study timeline
- current status of the study
- study investigations
- copies of communication materials
- frequently asked questions
- downloadable comment form
- contact information

5.3.8 Focus groups

Focus groups were used as a way of scoping the views of the broader community, providing a balance to the perspectives of potentially affected landowners. An independent market research company from Brisbane conducted three (3) separate focus groups in March 2008. Focus group participants were randomly recruited from localities near to (but not within) the corridor of interest in order to provide an indication of broader community views. Transcripts from each session formed the basis of a report which captured the issues raised.

Discussions were based around the following themes:

1) project awareness
2) positive and negative impacts of the study
3) infrastructure planning for future growth

Issues highlighted during discussions included:

- the perception that a freight rail line would reduce the number of trucks on the road and would provide employment opportunities
- the government is planning now for the future
- the impact of the corridor was reduced due to it being a low population area
- perceived negative impacts on lifestyle and rural amenity
- government is playing 'catch up' on infrastructure projects
- the need to protect and retain flora and fauna habitats
- government would need to address and minimise noise and pollution impacts
- road and property access would need to be managed
- government needs to plan for future growth and projects like this are a necessary part of that planning
- the timetable for the corridor should be brought forward so the rail line is built sooner rather than later
- the need to see the "bigger picture" for overall South East Queensland planning
- newspapers and direct mail are the best way to inform people about the study

The overriding theme across all three groups was that planning for the proposed rail corridor and other similar infrastructure was a necessary part of preparing for future population growth in South East Queensland. Participants also provided insights into perceptions of government infrastructure planning, how information could be communicated and what improvements could be made to the communication process.

5.3.9 Summary of key issues raised in phase 1

A database was used to capture, record, analyse and report detailed accounts of community and stakeholder interactions and feedback. Issues were captured during community engagement activities including briefings, telephone conversations, comment forms, and discussions at community information days. Following is a description of the most common issues raised by interested parties.

Noise

Issues associated with potential rail noise were commonly raised during consultation. Many landowners perceived that the impact of a rail line would be negative and significant in the rural landscape of the area and indicated that the 'peace and quiet' was an important lifestyle consideration. Residents living near the existing rail line in Rosewood indicated a certain level of acceptance in relation to existing train noise levels. The RAAF Base Amberley, the Boral Quarry, and the Willowbank Raceway were highlighted as existing significant noise sources for residents in these areas. Many felt this existing noise would be compounded by the addition of a new freight rail line.

Property

Property value was a significant issue raised by landowners. A key concern was the perceived negative impact the study had made on the market value of property within, or adjacent to, the corridor of interest. In some instances landowners indicated that the study affected future plans to sell property and many said they felt their 'hands were tied' due to the uncertainty of the actual alignment location. Some property owners indicated that renovations and property development plans had been put on hold as a result of the study.

Resumption process

The resumption process was a key issue raised during consultation. Issues relating to property resumption included:

- whether or not property would be resumed
- whether whole or part properties would be resumed
- timescales for the resumption process

Environment

Concern for the environment was an important issue and a range of animal sightings were mentioned by residents during consultation. In particular, the potential impact on koala habitat was highlighted as a key concern. The importance of existing vegetation, such as the *Eucalyptus globulus* (Blue gum) and *Melaleuca irbyana* (Swamp tea-tree), was also highlighted. Some property owners expressed frustration about existing restrictions on clearing or developing land due to this vegetation. Issues raised by landowners in relation to the environment included:

- concern about potential pollution/contamination of air and water supplies (residents use tank water and existing natural water ways)
- impact on flora and fauna species
- land being used for carbon trading
- spread of weeds
- protected vegetation
- frustration over existing regulations that restrict residents from clearing land
- wildlife crossings
- land covenants

Flooding

A number of stakeholder comments related to the issue of flooding. The 1974 flood was mentioned during consultation as significant and flood levels from this event are used as a local benchmark. In some instances, landowners provided photographs showing the impact of these floods on their properties. Some residents raised issues around the impact on water flows.

Access

Access to property, roads and existing water sources was an issue raised by stakeholders. This was of particular importance for farmers who move stock throughout properties. The impact of the rail line on local roads was queried, along with road crossings and how they would be managed.

Visual and scenic amenity

The potential impact of the rail line on visual and scenic amenity was an issue raised during consultation. It was a widely held view that the potential rail line would have some negative impact on the local landscape. Opinions varied as to the extent of this impact and the levels of concern relating to it.

Social and cultural impacts

Strong family connections to land exist throughout the corridor of interest. Some families have resided in the area for 100 years or more, with many historic homes located on properties and family connections reflected in local road names. A strong sense of community was reflected during consultation, particularly in the Peak Crossing and Wild Pig Creek Road areas. Indigenous heritage issues also featured in discussions with property owners. In some instances Bora Bora rings on properties were identified through consultation as well as other aboriginal sites.

Uncertainty

One of the main issues raised by stakeholders, especially during the early stages of consultation, was the strong need for further clarification regarding the corridor of interest and the location of preferred alignment.

Whilst an indicative freight infrastructure corridor was identified in the South East Queensland Regional Plan and Program 2007-2026, the Ministerial announcement was not generally anticipated in the community. During consultation it was reflected that the announcement had been a surprise and shock for many property owners. A high volume of telephone and email enquiries about the study were received in the weeks directly following the Ministerial announcement.

Without the certainty of 'a line on a map' property owners expressed frustration and displayed anxiety during consultation. Issues were raised about the identification of the study corridor, the selection process, and whether there were any other options being considered. In some instances property owners said they felt compelled to put future development plans on hold until further clarity was available. The extension of the study timeframe due to the outbreak of Equine Influenza added to levels of frustration in the community. (Field work scheduled to commence in October 2007 was delayed until clearance was provided by the Queensland Department of Primary Industries in February 2008.)

Preferred alignment identification

Information obtained during community consultation was carefully reported, assessed and considered as part of the process used to identify the preferred rail alignment. As a result of community consultation the following actions were taken:

- aligning with existing property boundaries, roads and easements where possible
- limiting fragmentation of property wherever possible
- avoidance of good quality agricultural land wherever possible
- maximising separation from sensitive land uses including Peak Crossing State School/township
- avoidance of a significant waterhole on Dugandan Creek

5.4 Submission period for draft assessment report (phase 2)

5.4.1 Overview

The draft assessment report was released on 6 October 2008 for public comment, and as per step 2 of the CID guidelines, submissions were invited from relevant and interested parties. TMR issued a media release (see Media release 2, Appendix C) which outlined that the preferred alignment would be considered for community infrastructure designation under the *Integrated Planning Act 1997*.

A submission period of four (4) working weeks was provided from 6 October – 31 October 2008 (a period of three working weeks is required under CID guidelines). However, following feedback from stakeholders TMR extended this to a period of ten (10) weeks. The revised closing date of 12 December 2008 was publicised on TMR's website, in local newspapers, at community information days and via a letter to stakeholders.

The release of the preferred rail alignment in the draft assessment report provided increased clarity for stakeholders with the initial corridor of interest refined down to a corridor approximately 100m wide.

Seventy-eight (78) unique submissions were received from stakeholders, including government agencies, property owners and developers, business owners and community groups. For a detailed analysis of the submissions received, and resulting changes, please refer to the submissions report (Appendix D).

5.4.2 The draft assessment report

The purpose of the draft assessment report was to present the findings of the SFRC studies as a basis for public engagement. It included:

- proposed community infrastructure and the site within its context
- potential environmental impacts and ways of managing those impacts
- matters likely to be of concern to other parties
- state assessment requirements and applicable Commonwealth legislation

The report was produced on CD and a copy sent to property owners identified as either 'land required' or 'adjoining'. CDs were provided on request and were also available at community information days and briefings. Printed copies of the report were delivered to elected representatives, council planning officers, the community group Fair Go, and were also available for public viewing at the following four (4) locations:

- Councillor David Pahlke's Office – Shops 5 and 6 Rosewood Plaza, John Street, Rosewood
- Ipswich Library – 40 South Street, Ipswich
- Boonah Library – High Street, Boonah
- Scenic Rim Council Office – 82 Brisbane Street, Beaudesert

5.4.3 Elected representatives

In early October 2008, elected representatives were advised of the release of the draft assessment report and provided with a printed copy, along with copies of the newsletter and factsheets. Elected representatives were invited for a briefing to update them about the Study, provide clarity, and provide the chance to raise any relevant issues or concerns with the study team. Representatives from Ipswich City Council and Scenic Rim Regional Council were briefed by the study team.

5.4.4 Property owners

Under the CID process property owners affected by the alignment were identified as either:

- Land required - the alignment/CID footprint traversed property (82* property owners); or
- Adjoining - land not required, but neighbouring a property that is (157* property owners).

*Some property owners may fall into both categories.

In early October 2008, letters were sent to inform property owners within the original corridor of interest about the preferred alignment, the release of the draft assessment report and the public submission period. Letters included a map (showing property in relation to the preferred alignment), and a CD copy of the report was sent to 'land required' and 'adjoining' property owners.

Land required property owners were invited to meet with the study team and a TMR property officer to discuss the project and its potential impact. Fifty (50) individual briefings were conducted and were held primarily at Peak Crossing Hall. Every effort was made to ensure property owners were aware of the status of their property in relation to the study.

5.4.5 Newsletter

A newsletter was produced to provide an update on the project (see Newsletter 2, Appendix C) and was delivered to 19,600 homes and businesses in the week commencing 6 October 2008. The newsletter was available on TMR's website and was distributed at community information days and briefings. The newsletter included:

- the location of preferred alignment (map) and how it was identified
- an explanation of the CID process
- an invitation for stakeholders to comment on the report
- details on how to make a submission
- details about an upcoming community information day
- where to view copies of the report
- details about community consultation
- next steps
- contact details for the study team

5.4.6 Fact sheets

Three (3) fact sheets were produced in a question and answer format to provide further information about the study (see Fact sheets 1-3, Appendix C). Each factsheet had a particular focus:

- **Fact sheet 1 – Why is this study happening?** Presented the context and overview for the study, explaining why it was needed and who was involved. It also explained the CID process and the draft assessment report and included contact details for the study team.
- **Fact sheet 2 – What did the study consider?** Outlined how the preferred alignment had been identified, how local road access would be maintained and discussed key issues such as noise, nature conservation and property impacts. It also included contact details for the study team.
- **Fact sheet 3 – How do I make a submission?** Outlined how to make a submission and where to view printed copies of the report. It also outlined the community engagement process and the issues this had identified. Contact details for the study team were included.

Fact sheets were made available on TMR's website, at community information days and briefings.

5.4.7 Community information days

Three (3) community information days were held during the submission period, to provide the public with an opportunity to meet with the study team and discuss the project (see Table 15). Details of the Peak Crossing event were included in a newsletter (distributed to 19,600 homes and businesses) and in letters to stakeholders. All three events were advertised in local newspapers (see Advertisement, Appendix C). The events at Rosewood and Beaudesert were organised by the study team following feedback from stakeholders. The original event scheduled for Rosewood was postponed on the advice of the local Councillor due to serious flooding in the area at the time. Both printed and CD copies of the report were available at the events along with maps, newsletters, fact sheets and contact cards. Comment forms were also provided, and if contact details were included in responses they were accepted as submissions (two comment form submissions were received this way).

Attendance numbers were highest at the Peak Crossing community information day, however it is likely that this was augmented by a protest organised to coincide with the event. The majority of attendees at the Peak Crossing event were 'land required' or 'adjoining' property owners. Comments, concerns and feedback at the Peak Crossing event mainly related to:

- location of the preferred alignment
- road and property access
- resumption and hardship process
- nature conservation, especially potential impact on koalas
- noise and vibration
- advice on how to prepare a submission
- the uncertainty of the project and associated timescales
- property impacts
- loss in property value and superannuation investments

Table 15 Community information days during submission period

Community Information Days			
Date	**Venue**	**Time**	**Attendance**
Saturday 18 October 2008	**Peak Crossing** Peak Crossing Hall Corner Fassifern Street and Hall Street	10.00am – 4.00pm	125
Wednesday 12 November 2008	**Beaudesert** The Centre 82 Brisbane Street	4.00pm-6.00pm	10
Wednesday 3 December 2008	**Rosewood** CWA Hall John Street	4.00pm-6.00pm	5
			TOTAL 140

5.4.8 Key issues raised in phase 2

The range of issues highlighted during the submission period echoed those reflected during earlier consultation, and outlined earlier in this chapter. In addition the following issues were also noted or emphasised during phase 2.

The draft assessment report

Following the release of the draft assessment report initial feedback showed that stakeholders felt the submission period was not long enough (the level of detail included in the report was substantial, resulting in a much larger document being produced than would ordinarily be required under CID). In response, TMR extended the submission period from four to ten weeks. Volume 1 of the report was uploaded to TMR's website. Due to file size, Volume 2 was not uploaded and stakeholders were requested to contact the study team to obtain a CD copy of the report. A small number of stakeholders said they did not have a computer to view the report on CD and were directed to one of the four viewing sites listed in Section 5.4.2. The extension of the submission period was positively reflected in stakeholder feedback and many stakeholders expressed appreciation at the phone calls they received from the study team.

Water access

The importance of water access was emphasised during this phase of consultation. Many stakeholders highlighted the importance of water access to the operation of properties, including dams, bores, irrigation systems, creeks and underground springs. Many stakeholders expressed concern that the proposed rail alignment could impact water systems. The recent drought has likely played a part in the high level of importance placed on access to water.

Koala conservation

During the submission period, koala conservation became a more prominent issue. A community protest was held at Peak Crossing on 18 October 2008 to vocalise concern about the potential impact of the project on the local koala population. The Koala, Threatened Species and Habitat Working Group was established as a way of ensuring that key stakeholder and interagency links were created and to ensure the issue was able to be discussed and considered in an effective manner. Group members included representatives from local koala conservation groups, the Fair Go Committee, local councils, TMR and DERM. Meetings were held in December 2008 and January 2009. At the second meeting DERM representatives advised of the South East Queensland Koala Habitat Assessment and Mapping Project. The group acknowledged that the findings of this mapping project could be important in relation to the study, and TMR committed to working with DERM to ensure the best possible solutions were identified.

5.5 Revised alignment (phase 3)

5.5.1 Decision to re-examine a section of the alignment

During consultation the community expressed concern for koalas and koala habitat in the study area, particularly in an area of vegetation in the Ebenezer area. This area of vegetation was also identified as important koala habitat (high value bushland, and medium value suitable for rehabilitation) in the South East Queensland Koala Habitat Assessment and Mapping Project (DERM 2009). This information prompted the study team to investigate alternative alignments for the SFRC in this area. While the majority of the original alignment is constrained by engineering and terrain factors, there were feasible alternative options for the alignment in the Ebenezer area.

After careful consideration a 12km section of the alignment was relocated to minimise impact on this important koala habitat, and was repositioned up to 2km north of its previous location through Ebenezer, to the south of Paynes Road (see Appendix B – CID Plans). Further details regarding the changes to the alignment are provided in Section 4.3.

5.5.2 Revised alignment announced

The revised alignment was announced on 26 November 2009 by the Minister for Transport, Rachel Nolan (see Media release 3, Appendix C).

On 27 November 2009 letters were sent to the following groups of property owners:

- new land requirement
- land no longer required
- land no longer adjoining
- existing property owners on the alignment

Where possible letters to newly affected property owners were hand delivered, and all remaining letters were sent by express post. Letters included maps of the revised alignment, previous project newsletters and a CD copy of the draft assessment report. Newly affected property owners were encouraged to attend a personal briefing with the study team. Face-to-face and telephone briefings were requested by twelve newly affected property owners.

The TMR website was updated and new maps of the revised alignment were made available to download. Elected representatives were notified by email on 27 November 2009 and Ipswich City Council and Scenic Rim Regional Council were also briefed by the study team on 3 December, 2009.

On 7 December 2009, letters were sent to property owners with land adjoining the new section of the alignment.

5.5.3 Assessment of the Fair Go alternative alignment

On 22 December 2009, the Fair Go Committee presented the Minister for Transport with a suggested alternative alignment for the SFRC study. Although the suggested alternative had been previously ruled out, the Minister committed to undertaking an assessment of this alignment to be certain the final alignment would provide the best possible connection between the existing western and interstate railway lines.

AECOM was commissioned by TMR to provide a technical pre-feasibility assessment of the Fair Go Committee's proposed alignment and a comparative assessment with the SFRC alignment. The purpose of this was to determine if the alternative alignment provided significant advantages over the SFRC alignment to the extent that it warranted further investigation.

The assessment found that for all five characteristics assessed (operational, economic, environmental, land use and social), the alternative alignment (as proposed by the Fair Go Committee) did not offer advantage over the SFRC alignment. Assessments on construction costs (over $160 million extra), impacts on the Ripley Valley Future Urban Area, impacts upon Commonwealth land, impacts upon protected koala habitat, and impacts to the Flinders-Goolman Conservation Estate, showed the alternative alignment posed disadvantages when compared with the SFRC alignment. It was therefore recommended to the Minister for Transport that the SFRC alignment, as announced on 26 November 2009 (and as contained within this report) be pursued as the final alignment.

5.5.4 Next steps

The release of this report marks the beginning of step 4 of the CID process and the second and final round of formal consultation. Following this public submission period the final report will be forwarded to the Minister for Transport for consideration under the SP Act, section 207. The SP Act, section 208 outlines notification requirements if the Minister decides to designate the corridor. Notice must also be given if a decision is made not to proceed with designation.

5.5.5 Conclusion

Information received during consultation and via submissions has been carefully considered by the study team and has assisted the team in gaining a better understanding of local issues. The relocation of a section of the alignment demonstrates the government's commitment to achieving the best possible outcome for the project, the environment and the community.

It is acknowledged that the community is looking for certainty regarding the designation of the final alignment. Stakeholders and the broader community will continue to be informed of the process and will be notified once a decision has been made by the Minister for Transport.

Chapter 6

Potential environmental impacts and mitigation measures

6.0 Potential environmental impacts and mitigation measures

The following chapters (7-18) are summaries of the individual Technical Papers contained within Volume 2 of the revised assessment report. These summaries are concise descriptions of twelve (12) separate environmental elements which were investigated as part of this study.

The general format consists of:

- Introduction and approach
- Description of environmental values
- Potential impacts and mitigation measures
- Conclusion
- Maps

For the technical studies of physical environmental elements, the description of environmental values is based on the study area. The environmental values identified for each of these environmental elements within the study area were then used to inform the selection of the preferred alignment within the study area. Each potential impact and mitigation measures section for the technical studies of physical environmental elements is based on the revised alignment. The potential impacts and mitigation measures are built upon in Chapter 20 where an Environmental Management Plan (EMP) outlines objectives relating to prevention, contingency measures and monitoring for the detailed design, construction and operations phase for each environmental element investigated in this report.

For clarification or further detail of the environmental studies represented in the following chapters, the relevant Technical Paper will contain more information. The Technical Papers can be found in their entirety in Volume 2 of this revised assessment report.

As identified in Section 1.1.2, given the long-term planning nature of this study, it is likely that further environmental investigations will be required for most environmental elements prior to the future stages of the SFRC (i.e. detailed design, construction and operation). These investigations will complement and inform the detailed design phase of the project. Such an approach will guarantee that appropriate and current information on the environmental values of the study area is obtained at a time closer to the construction of the railway line, and that any changes to land use patterns and environmental elements between now and construction are included in the environmental assessment process.

The following list outlines the environmental element discussed in each of the chapters and the corresponding Technical Paper contained within Volume 2 of the revised assessment report:

- Chapter 7 Topography, Geology, Soils and Groundwater (Refer Volume 2, Technical Paper 1)
- Chapter 8 Nature Conservation (Refer Volume 2, Technical Paper 2)
- Chapter 9 Surface Water (Refer Volume 2, Technical Paper 3)
- Chapter 10 Hydraulic Study (Refer Volume 2, Technical Paper 4)
- Chapter 11 Land Use and Planning (Refer Volume 2, Technical Paper 5)
- Chapter 12 Air Quality, Climate and Climatic Trends (Refer Volume 2, Technical Paper 6)
- Chapter 13 Visual Impact Assessment (Refer Volume 2, Technical Paper 7)
- Chapter 14 Noise and Vibration (Refer Volume 2, Technical Paper 8)
- Chapter 15 Aboriginal Cultural Heritage (Refer Volume 2, Technical Paper 9)
- Chapter 16 European Cultural Heritage (Refer Volume 2, Technical Paper 10)
- Chapter 17 Social Impact Assessment (Refer Volume 2, Technical Paper 11)
- Chapter 18 Economic Analysis (Refer Volume 2, Technical Paper 12)

Chapter 7

Topography, geology, soils and groundwater

7.0 Topography, geology, soils and groundwater

7.1 Introduction and approach

A detailed assessment of the existing topographic, geological, soil and groundwater values of the study area and the project's potential impacts on these values is provided in Technical Paper 1 in Volume 2 of the revised assessment report. A summary of the major findings of Technical Paper 1 is provided below.

7.1.1 Topography, geology, soils and contaminated land

The impact assessment review for topography, geology, soils and contaminated land has been undertaken as a desktop study of available information. The assessment aims to identify existing environmental conditions, potential impacts from the construction and operation of a railway along the preferred alignment and to provide suitable mitigation measures. The methodology included:

- review of published geological maps and memoirs, to establish the geological setting of the project
- detailed aerial photograph interpretation (API), and study of the digital terrain model to establish the extent and nature of the geomorphological regimes for the study corridor, as well as to identify potential pre-existing contaminating activities
- review and collation of relevant geotechnical data from previous studies of the area
- review of current land uses within the proposed rail corridor for potential contaminating activities
- search of registered service station location databases
- review of the Department of Defence (Defence) Unexploded Ordnance (UXO) mapping
- review of the Department of Environment and Resource Management (DERM) Area Management Advice (AMA)
- review of the DERM Environmental Management Register (EMR) and Contaminated Land Register (CLR)
- creation of detailed engineering-geological maps of the study corridor

Applicable Standards included:

- AS1726-1993: Geotechnical Site Investigations
- AS1289.0-2000: Method of testing soils for engineering purposes
- Draft Guidelines for the Assessment & Management of Contaminated Land in Queensland May 1998
- AS 1170.4-1993: Minimum design loads on structures (known as the SAA Loading Code) - Earthquake loads
- AS 1170.4-2007: Structural design actions - Earthquake actions in Australia
- Queensland Acid Sulfate Soil Technical Manual, Soil Management Guidelines
- Environmental Protection Act 1994 (Part 8 – Contaminated Land)
- Industry Standard – Contaminated Construction Sites (2005). EPA Victoria
- Standards Australia (2004) Australian Standard. The Storage and Handling of Flammable and Combustible Liquids. AS 1940 – 2004
- Standards Australia (1994) Australian Standard. The Storage and Handling of Corrosive Substances. AS 3780 – 1994

7.1.2 Groundwater

The impact assessment review for groundwater has been undertaken as a desktop study of available information. The assessment aims to identify existing environmental conditions, potential impacts from the construction and operation of a railway along the preferred alignment and to provide suitable mitigation measures.

Information required for the assessment of groundwater hydrology within the study area was acquired from DERM and included:

- groundwater vulnerability data
- existing borehole locations and associated historical groundwater data
- stratigraphy and aquifer details
- local geological and topographical mapping
- acid sulfate soils (ASS) data

Assessment of this information has revealed a current lack of groundwater data representative of the area extending eastwards from Warrill Creek to the end of the study area. As such, there is a need for further groundwater investigation within the study area prior to the commencement of construction. Consequently, discussion of the existing groundwater environment, potential impacts and mitigation measures herein is based solely on currently available information.

7.2 Description of environmental values

7.2.1 Topography

The topography of the major landscape features of the study area reflects the underlying geology. This consists of a central anticline; the South Moreton anticline, in which the Triassic-Jurassic Bundamba and Marburg Group sandstones are exposed. The South Moreton anticline is flanked by complementary synclines containing the Jurassic Walloon Coal Measures and Tertiary sedimentary and igneous rocks. The rocks of the anticline form rugged hills, while the flanking synclines give rise to gently undulating lowlands (see Map 1.1, Figure 38).

Figure 38 View east from the lowlands near Purga to the mountain range, including Flinders Peak and Ivory's Rock.

7.2.2 Geology

The study area is a typical sub-coastal area of southern Queensland. The landscape of the corridor can be divided into three main areas; the Beaudesert Basin to the east, the central ranges and the western lowlands (see Map 1.2). The topography of these major landscape features are a reflection of the underlying geology, which consists of a central anticline, forming rugged sandstone hills, while the flanking synclines containing coal, sedimentary and igneous rocks, give rise to gently undulating lowlands. Soil distribution and physical properties indicate that parent material strongly influences soil development in the area.

7.2.3 Soils

Soil mapping indicates that parent material strongly influences soil development in the area (Map 1.3). Podzolics and solodics are confined to areas of coarse-grained quartzose sediments, acid igneous rocks and areas of sandy alluvium. Prairie soils, black earths, and grey clays have developed on the finer-grained sediments, the more basic igneous rocks, and the main development of valley alluvium. Lithosols are dependent on topography and are found only on the steepest slopes; however parent material differences are evident in the texture of the soil. Along the western boundary of the Logan valley deep quartz-rich sands occur where the stream gradients have suddenly decreased, depositing thick layers of coarse sediments. Such soils are too immature to reflect soil-forming processes. Section 9.2.3 identifies that preliminary field observations highlighted evidence of erosion on some riparian banks throughout the study area, primarily due to stock movement and access.

7.2.4 Contaminated land

Of the 514 identified lots searched on the EMR/CLR database, twenty-four (24) were recorded on the EMR, while none were listed on the CLR (see Map 1.5). Of these 24 lots listed on the EMR, 15 were listed for

operating a livestock dip or spray race facility, while other notifiable activities included hazardous contaminants (five lots), fertiliser manufacture (two lots), petroleum product or oil storage (one lot), and Area Management Advice for UXO (one lot).

A review of Defence UXO mapping shows that a 1km buffer area either side of the revised alignment incorporates seventy-one (71) Lots on which Defence have identified the UXO potential as 'Slight' (see Map 1.4). Defence recommends that all land usage and development within these areas may continue without any further UXO investigation or remediation.

In addition, sixty-nine (69) Lots within the study area are currently subject to Area Management Advice (AMA) under the Sustainable Planning Act 2009 (SP Act)3.

7.2.5 Groundwater

The main groundwater resource within the study area is within alluvial deposits associated with the waterways network. This has been mapped as moderate-moderate to high vulnerability by DERM. Based on limited historical water quality data, the general quality of this groundwater is poor, with levels of Cl, Zn and/or Mg exceeding groundwater quality criteria levels for drinking in all registered monitoring wells. Information from landowners in the study area indicates that there is a strong reliance on groundwater in the study area, and that the quality of this groundwater is often of a standard much higher than that which is indicated by the monitoring wells of registered bores. Consequently, any potential impacts on groundwater quality and groundwater bores are highly significant to these landowners.

Densely vegetated areas consume shallow groundwater resources. Such areas are situated throughout the study area and may become stressed should further degradation to groundwater quality occur.

7.3 Potential impacts and mitigation measures

7.3.1 Topography, geology and soils

Potential risks to geology and soils that should be considered and mitigated through the detailed design phase include:

1) **Water courses:** The preferred alignment passes over several water courses exposing the project to fluvial processes including erosion and deposition. Design standards will need to address the potential impact of stream scour and fill on bridge piers, abutments and embankments at larger water courses in the western lowlands and at the eastern connection. Smaller streams are likely to carry very little sediment load, but could carry large cobbles and boulders during flood events. The impact of these boulders on bridge infrastructure will need to be considered.
2) **Earthquake:** The earthquake hazard within the study area is relatively low, however the detailed design should consider earthquake action in the structural design as per Australian Standards.
3) **Erosion:** Loamy soils developed on alluvial plains and terraces will be more prone to erosion. The design will need to incorporate stable embankments/cuts with associated catch drains to minimise longer term erosion.
4) **Mass wasting/instability:** A complete geological profile of the slope (with geological/geotechnical investigations as required), along with a slope stability report, will need to be conducted prior to the commencement of earthworks. Aerial Photography Interpretation (API) has identified several areas with potential instability issues, particularly through the very steep hill slopes through the central range areas. The exposure of steep rock surfaces will increase the chance of landslides, slump features and mass wasting. Detailed design should mitigate the potential for mass wasting, incorporating rock bolting, retaining walls, and stable cuts with associated catch drains and easements where applicable.
5) **Exposure of acid producing material:** The potential to expose material containing pyrite within the sedimentary and igneous rocks should be identified by geological/geotechnical site investigation, and appropriate management designed (e.g. neutralisation).

[3] Lots subject to AMA do not necessarily correlate with Lots classified by Defence as having slight UXO potential. Further, these lots are not necessarily identified on the EMR.

Potential geological/soil risks that should be considered and mitigated through the construction phase and Construction Environmental Management Plan (CEMP) include:

1) **Blasting:** The mapped dolerite intrusive body near Peak Crossing will require blasting to cut during construction. Other small isolated outcrops of volcanic and igneous rocks may also be identified during field geological surveys.
2) **Soil stabilisation:** Compressive/swelling clays in alluvial soils associated with water courses may require stabilisation (e.g. preloading).
3) **Erosion:** Critical areas for protection include highly-erodible soils, steep slopes, haul roads, and bare areas. Shallow soils dominated by lithosols throughout, and flanking the central range area are most at risk of erosion. Mitigation includes standard erosion control measures detailed in the Environmental Management Plan (Section 19.3), and Technical Paper 1 (Volume 2).
4) **Mass wasting/instability:** Construction of stable batter slopes will depend on geological and geotechnical investigations during the detailed design phase. Mitigation measures will depend on slope angle and stability, depth and angle of cut, and geological profile.

7.3.2 Contaminated land

Potential contaminated land risks that should be considered and mitigated through the detailed design phase include:

1) **Unknown contamination status:** None of the twenty-four (24) Lots listed on the EMR within the study area are subject to a Site Management Plan. Whilst basic information is known about the type of contamination on sites listed on the EMR, the exact extent of any site contamination remains unknown. Further investigation is required to establish this. If any contamination is detected, suitable management/remediation plans as per the 1998 Guidelines should be produced.
2) **Unlisted potentially contaminated sites:** Two sites of interest not listed on the EMR have been identified from aerial photography, and an additional site was identified by a stakeholder. A site inspection is required to determine if further site investigation is necessary along the preferred alignment.

Potential contaminated land risks that should be considered and mitigated through the construction phase include:

1) **Unexpected disturbance of potentially contaminated soils:** If suspected contaminated soils are encountered during construction, or if EMR listed land is to be disturbed through construction plan variance, further contaminated land investigation should be conducted prior to the commencement of work. Contamination can be identified on a visual and/or olfactory basis.
2) **UXO:** Seventy-one (71) Lots have been identified as having slight UXO potential according to Defence mapping. If any UXO are encountered emergency authorities (Police) and the Department of Defence should be informed and the UXO removed by specialist personnel.
3) **Avoid causing land contamination:** Standard construction measures for machinery, hazardous materials, spillages and fill are detailed in Section 19.3, and Technical Paper 1 (Volume 2). Operation of the railway may also contaminate land (e.g. spills, herbicides, general waste and debris). Mitigation of these will mainly be an expansion of approaches used during construction.

7.3.3 Groundwater

The water supply requirements for the SFRC are not known at this stage. However, detailed design should investigate the potential for groundwater in the study area to be used as a possible source of water during construction activities. Potential groundwater risks that should be considered and mitigated during the detailed design phase include:

1) **Unknown human and environmental receptors:** Further assessment will be needed in areas identified as moderate to high vulnerability to determine potential receptors, including:

- Conducting a census for unregistered groundwater wells located within an approximate 250m radius of the preferred alignment
- Identifying any nearby ecological environments that would be severely impacted by temporary drawdown from potential dewatering sites or potential surface chemical spills that may contaminate groundwater

Potential groundwater risks that should be considered and mitigated through out the construction and operation phase include:

1) **Avoid causing groundwater contamination:** Standard construction measures for minimising land contamination will also protect groundwater. Mitigation measures proposed for surface waters will also protect groundwater.

7.4 Conclusion

7.4.1 Topography, geology and soils

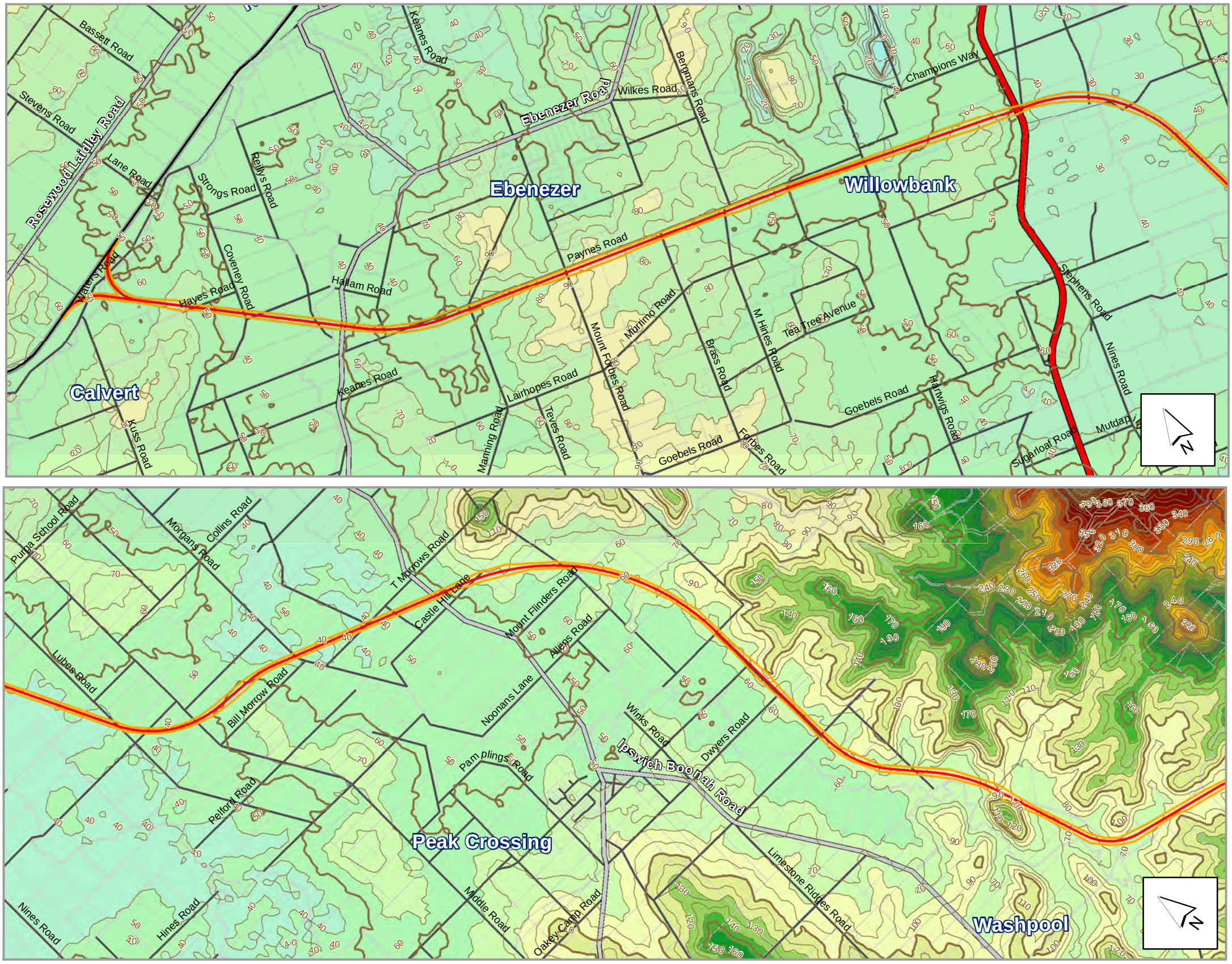
Following the implementation of recommended mitigation measures, it is anticipated that the risk of topographical, geological and/or soil-based potential impacts occurring will be managed within acceptable (at least to statutory) standards.

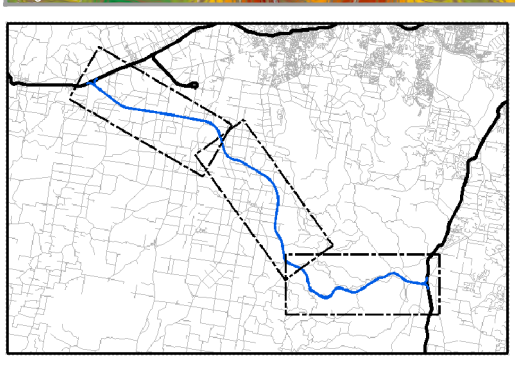
7.4.2 Groundwater

Given the implementation of adequate management strategies, minimal long term impacts on local groundwater quality and quantity can be expected. This is largely due to the nature of the proposed works despite the vulnerability rating assigned to alluvial deposits within the flood plains of local waterways.

JOB: Southern Freight Rail Corridor Study

Date - March 2010





Legend

- Existing Rail
- Revised Rail Alignment
- Preliminary CID Boundary

10m Contours

- Intermediate
- Index

GDA
MGA94 Zone 56

Queensland Government

Southern Freight Rail Corridor Study
Revised Assessment Report

Topography

Kilometres
0 1 2 4

1:60,000 (when printed at A3)

A3 size

Map 1.1

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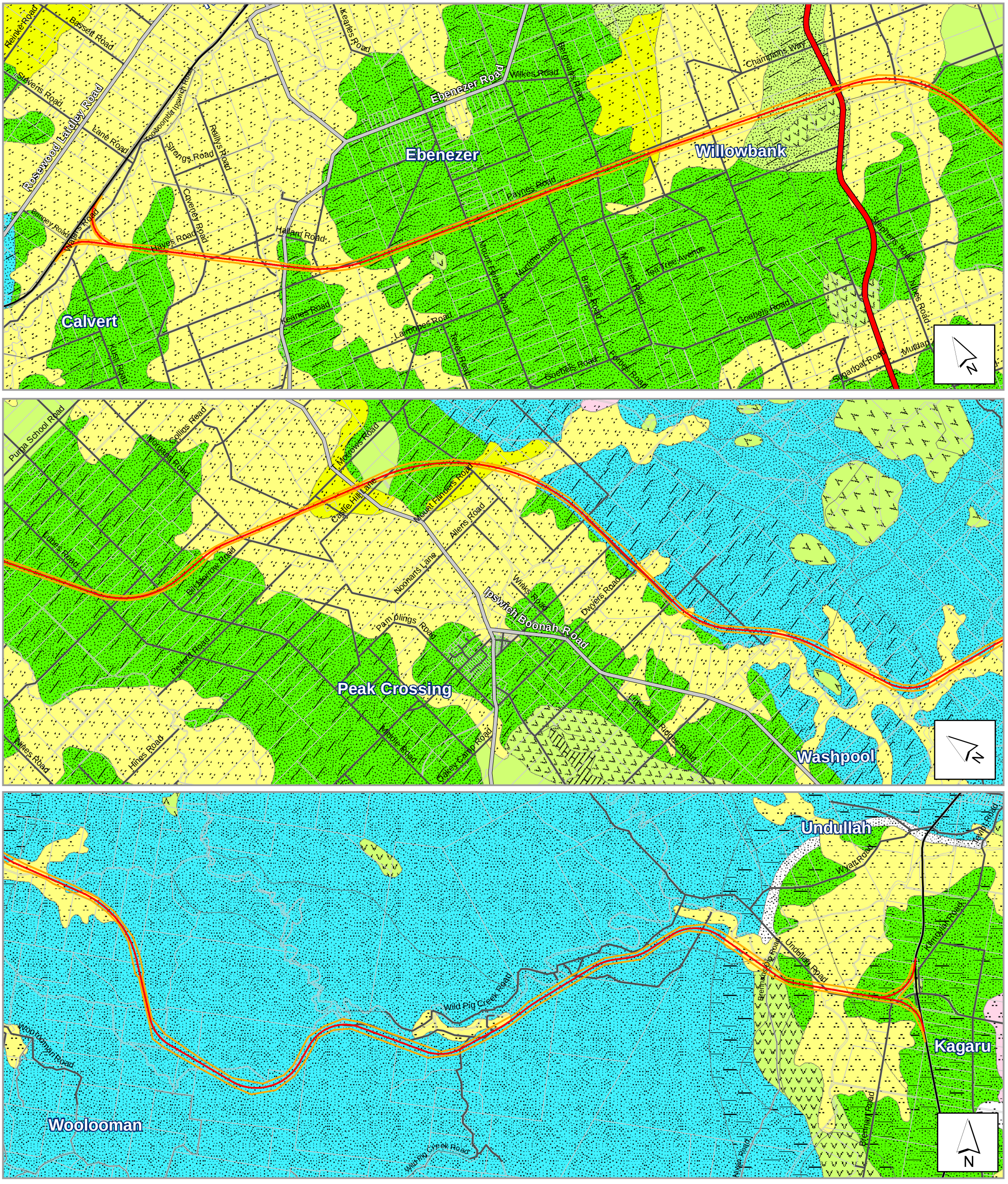
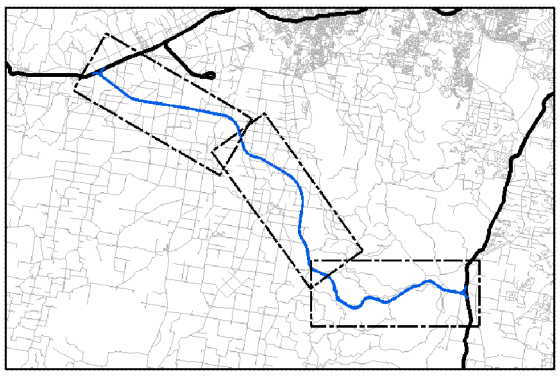
Date - March 2010





Legend

- Existing Rail
- Revised Rail Alignment
- Preliminary CID Boundary

Age

- HOLOCENE
- QUATERNARY
- TERTIARY
- TERTIARY - QUATERNARY
- MIDDLE JURASSIC
- EARLY JURASSIC

Lithology

- ALLUVIUM
- ARENITE-MUDROCK
- BASALT

GDA
MGA94 Zone 56

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Southern Freight Rail Corridor Study
Revised Assessment Report

Geology

Kilometres
0 1 2 4

1:60,000 (when printed at A3)

A3 size

Map 1.2

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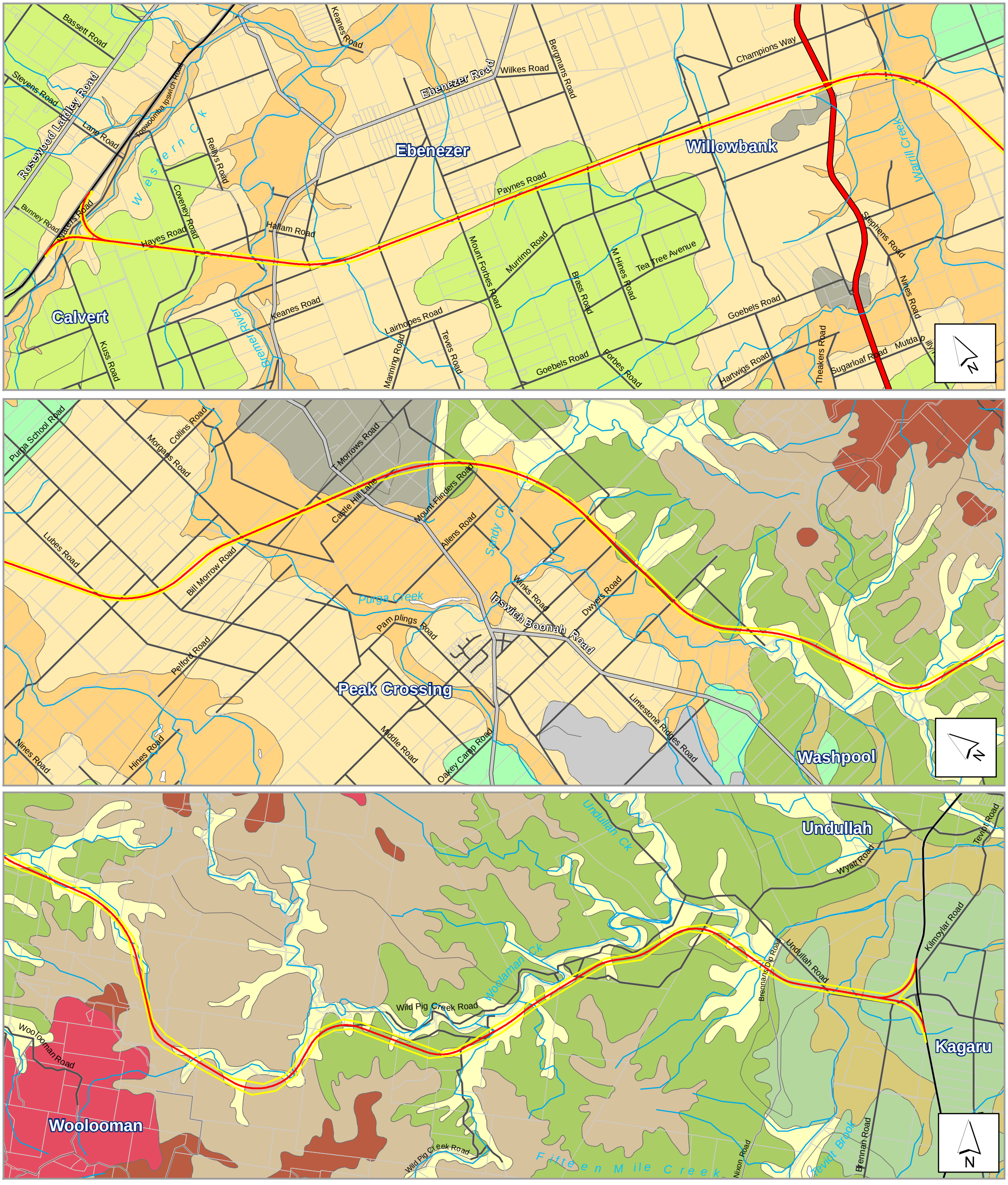
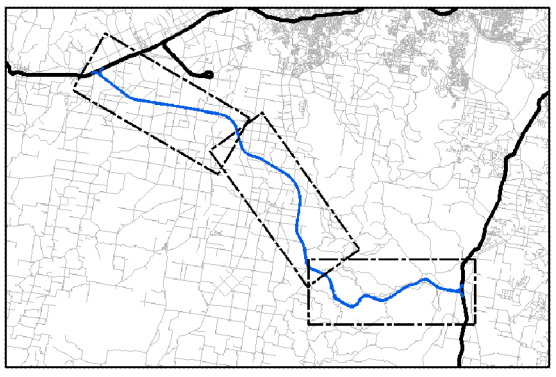
Date - March 2010





Data sources: All spatial data is subject to Copyright
(c) MapData Sciences, PSMA, DNRW, EPA, Local Councils

GDA
MGA94 Zone 56

Legend

- Revised Rail Alignment
- Existing Rail
- Preliminary CID Boundary

Soils

- Prairie soils, black earths and weissenbodens
- Grey clays and prairie soils
- Strongly texture-contrasted Purga soil
- Solodics and prairie soils
- Soloths and prairie soils
- Rendzinas and prairie soils
- Soloth, solodic and prairie soils
- Solodized solonetz, solodics and lithosols
- Red and yellow podzolics, lithosols and red earths
- Lithosols, prairie soils, black earths and solodics
- Lithosols and solodics
- Red and yellow podzolics, lithosols and solodics
- Soloths, solodics and lithosols
- Alluvial, minimal prairie and solodic soils
- Alluvial and prairie soils, black earths, wiessenbodens, grey clays and soloths
- Prairie soils, soloths, acid grey clays, red and yellow podzolics and lithosols
- Prairie soils, solodics and soloths
- Soloths, red and yellow podzolics and humus podzols

Queensland Government

Southern Freight Rail Corridor Study
Revised Assessment Report

Soils

Kilometres
0 1 2 4

1:60,000 (when printed at A3)

A3 size

Map 1.3

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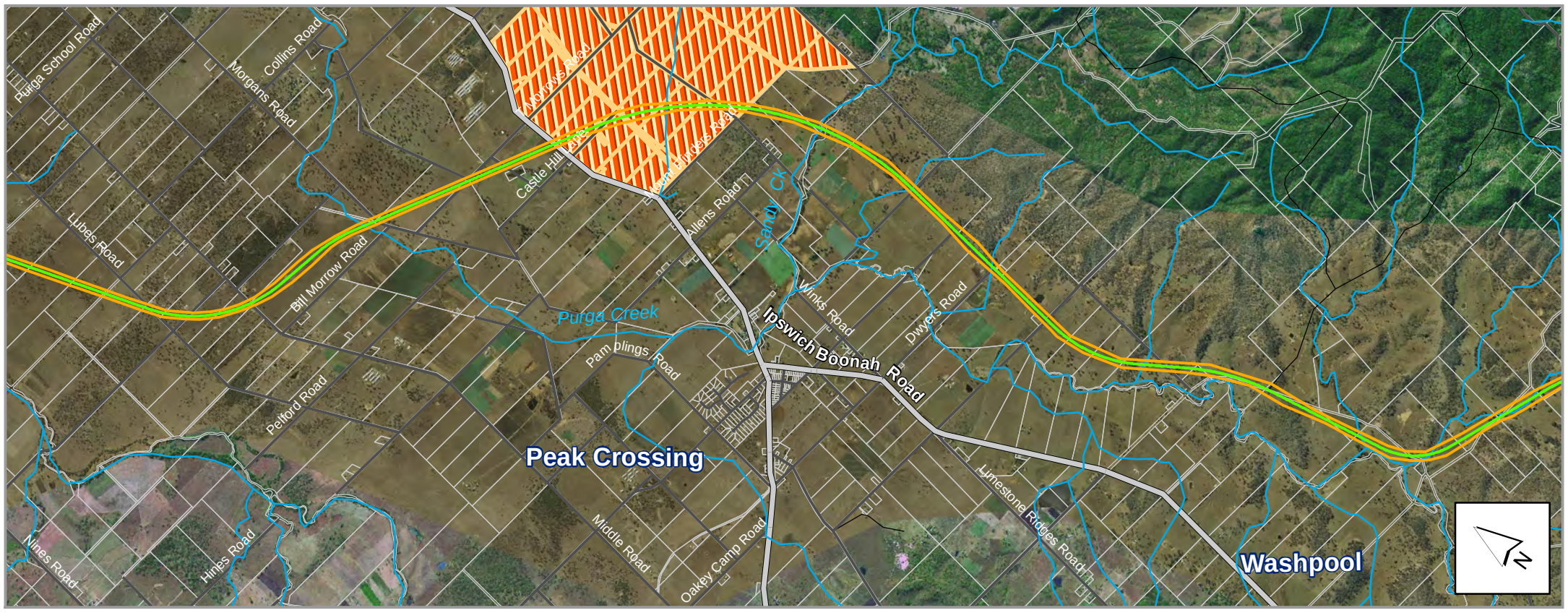
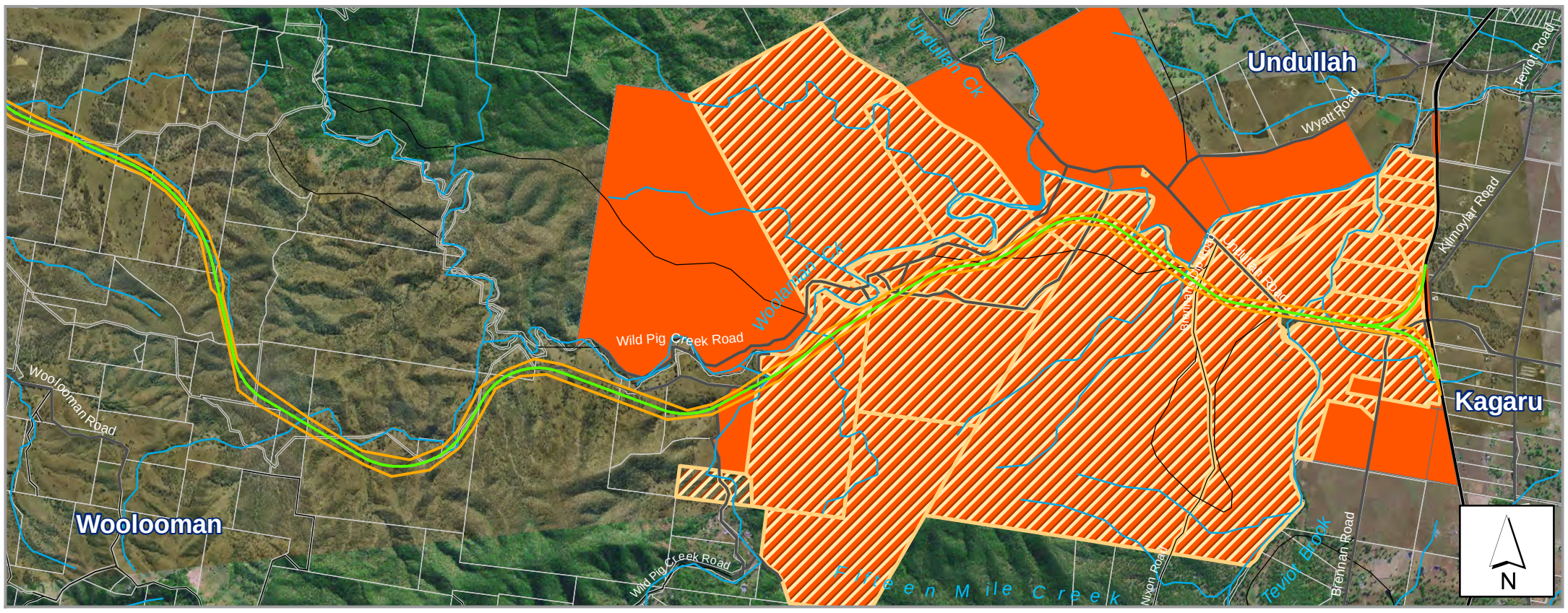
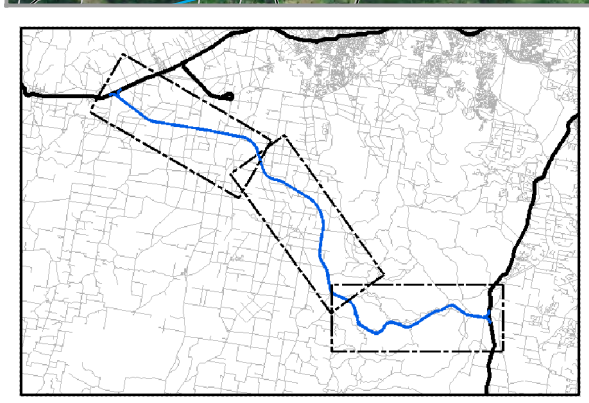
Date - March 2010







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GDA
MGA94 Zone 56

Legend

- Revised Rail Alignment
- Preliminary CID Boundary
- Existing Rail
- Parcels subject to AMA
- Parcels with UXO Potential

Queensland Government

Southern Freight Rail Corridor Study
Revised Assessment Report

Unexploded Ordnance Potential

Kilometres
0 1 2 4

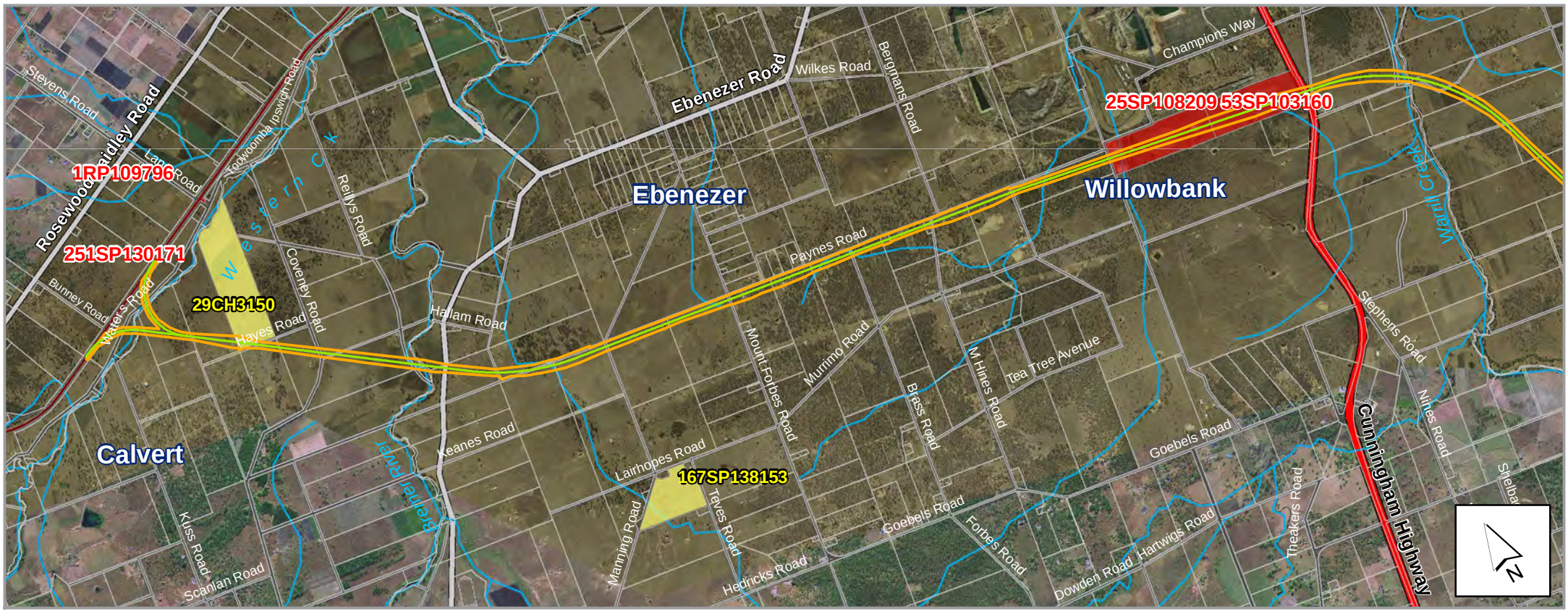
1:60,000 (when printed at A3)

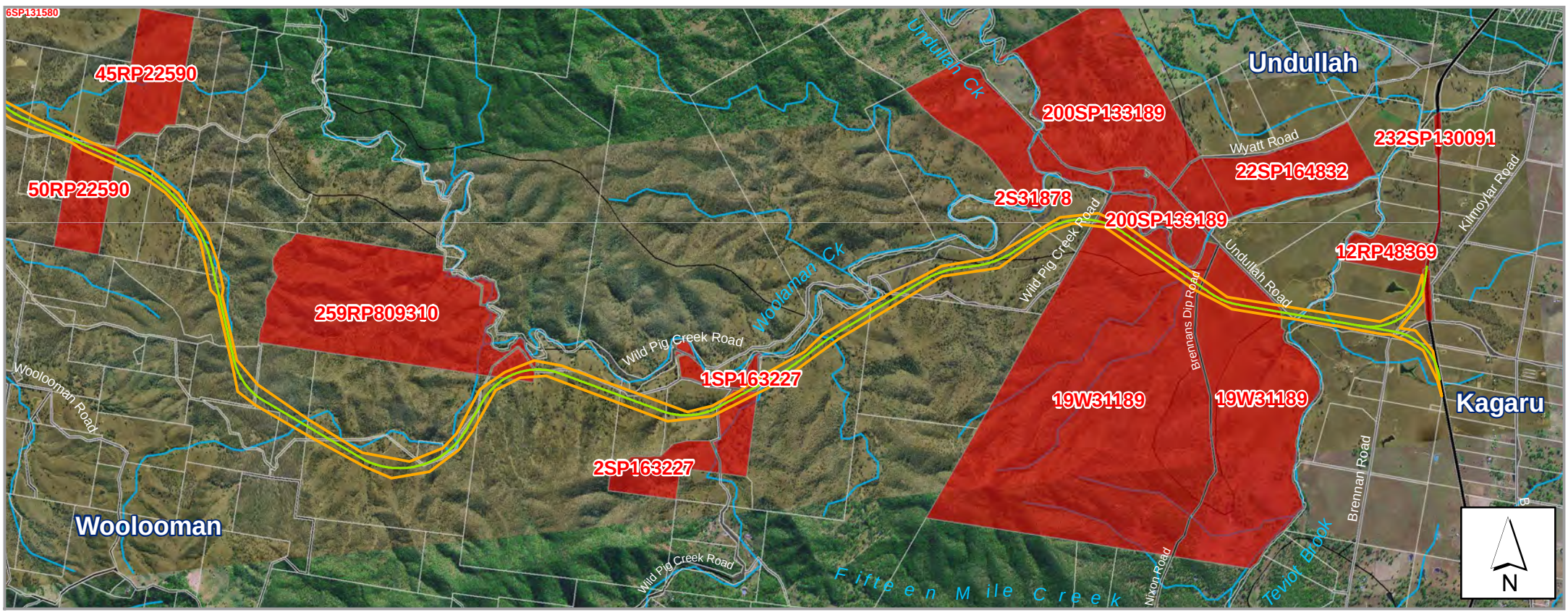
A3 size

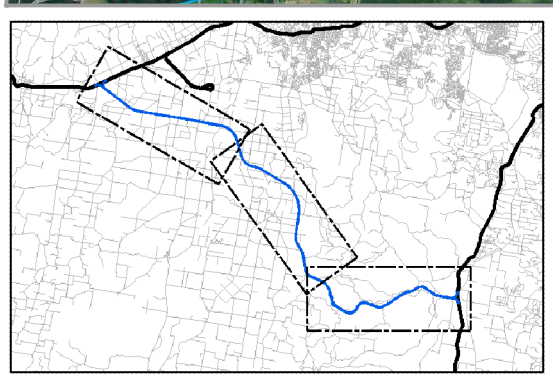
Map 1.4

JOB: Southern Freight Rail Corridor Study

Date - March 2010







Legend

- Existing Rail
- Revised Rail Alignment
- Preliminary CID Boundary
- EMR Listed Lots
- Not on EMR, Site Visit Recommended

GDA
MGA94 Zone 56

Queensland Government

Southern Freight Rail Corridor Study
Revised Assessment Report

Contaminated Land

Kilometres
0 1 2 4

1:60,000 (when printed at A3)

A3 size

Map 1.5

Chapter 8
Nature conservation

8.0 Nature conservation

8.1 Introduction and approach

A nature conservation assessment was conducted to determine the ecological and conservation values (terrestrial and aquatic) that exist within the study area. The revised alignment was then assessed against these values to identify the potential impacts of the project. A discussion is provided on appropriate management decisions and actions that are required in order to protect these natural values. The nature conservation assessment is provided as Technical Paper 2 – Nature Conservation in Volume 2 of the revised assessment report, and a summary of the findings presented here.

The purpose of the original assessment conducted between March and April 2008 was to identify what ecological values exist within the original corridor of interest and how these values may be affected by the rail alignment, and to suggest appropriate measures to minimise the impact of the proposal on these values. As a result of additional information provided during and subsequent to the submission period for the draft assessment report, the proposed SFRC alignment was moved north of its original position in the Ebenezer area (see Section 4.3). The purpose of the subsequent habitat assessment was to provide a general analysis of the revised alignment in relation to the original, and to comment on mitigating strategies to further lessen the impact on the natural environment. In addition, a general investigation of movement opportunities for native fauna in a north/south direction was undertaken.

8.2 Description of environmental values

8.2.1 Flora

Most vegetation within the study area from Rosewood to Washpool has been subject to some degree of disturbance from cattle grazing and clearing for rural-residential development. Remnant vegetation is primarily comprised of Eucalyptus crebra woodlands (Of Concern RE 12.9-10.7) with Eucalyptus tereticornis woodlands to open forest situated along the alluvial plains associated with the Bremer River and Purga, Warrill and Ebenezer Creeks (Endangered RE 12.3.3).

Stands of Melaleuca irbyana occur within the study area from the Western Railway Line near Rosewood east as far as the Ipswich-Boonah Road and are found within the Eucalyptus tereticornis woodlands and open forests along the flood plains (Endangered RE 12.3.3c) and in low open forest on sedimentary rocks (Endangered RE 12.9-10.11) (see Map 2.3). Communities of Melaleauca irbyana are listed as Endangered in State and Commonwealth legislation.

From Washpool to Kagaru, the SFRC crosses the Mount Flinders Range where large tracts of vegetation have remained relatively undisturbed. Remnant vegetation is predominantly Corymbia citriodora and Eucalyptus crebra woodland (Not of Concern RE 12.0-10.2) with Lophosetemon confertus woodland (RE 12.9-10.17a). While it will be necessary to validate the importance of the areas as a wildlife corridor closer to the detailed design phase, from the information sourced during the desktop study, field investigation and consultation, there is a high potential for important wildlife corridors to be present in this area.

A full list of threatened flora species within 10km of the study area is presented in Appendix D of Technical Paper 2 (Volume 2).

8.2.2 Fauna

The majority of the species recorded during survey are considered to be common species and are listed under the Nature Conservation (Wildlife) Regulation 2006 as Least Concern. The species encountered, including amphibians, reptiles, birds, arboreal and terrestrial mammals are generally representative of the fauna assemblage observed to inhabit or visit the local area. A full list of fauna species with historical recordings in the study area can be found in Appendix F of Technical Paper 2 (Volume 2).

Four (4) threatened fauna species were encountered during the surveys and a further six (6) species are considered highly likely to occur within the study area based on previous recorded observations and known habitat preferences (see Table 16).

Table 16 Threatened fauna species observed or highly likely to occur within the study area

Species	Common Name	Conservation Status*		Comment
		Cwth	QLD	
Calyptorhynchus lathami	glossy black cockatoo	-	V	Preferred habitat available and local sightings (Birds Australia)
Ephippiorhynchus asiaticus	black-necked stork	-	R	Preferred habitat available in the wetlands and artificial dams across the study area and multiple local sightings.
Litoria brevipalmata	green-thighed frog	-	R	Observed. Potential habitat available in wetter areas of Mount Flinders Range.
Lophoictinia isura	square-tailed kite	-	R	Potential habitat available in woodlands, timbered watercourses, hills and gorges. Several local sightings.
Melithreptus gularis	black-chinned honeyeater	-	R	Preferred habitat available in dry eucalypt woodland containing ironbark and box species.
Ninox strenua	powerful owl	-	V	Detected through call-playback at Site 4.
Petrogale penicillata	brush-tailed rock wallaby	V	V	Observed opportunistically on Mount Flinders, within the study area.
Phascolarctos cinereus	koala (south-east Queensland bioregion)	-	V	Observed at Site 1 – anecdotally known to occur throughout the study area from community consultation feedback. Also indentified at vegetation site 8 and scratchings were observed along Paynes Road in September 2009.
Pteropus poliocephalus	grey-headed flying fox	V	-	Availability of foraging resource and roosting sites with eucalypt woodlands, riparian vegetation and melaleuca.
Rostratula benghalensis	painted snipe	V	V	Shallow inland wetlands available and several local sightings.

*QLD- Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992*. The codes are Presumed Extinct (PE), Endangered (E), Vulnerable (V), Rare (R), Common (C) or Not Protected ( ).

Cwth- Indicates the Australian conservation status of each taxon under the *Environment Protection and Biodiversity Conservation Act 1999*. The values of EPBC are Conservation Dependent (CD), Critically Endangered (CE), Endangered (E), Extinct (EX), Extinct in the Wild (XW), Vulnerable (V).

A number of Class 2 and Class 3 declared pests; both flora and fauna, (under the *Land Protection (Pest and Stock Route Management) Act 2002*) are known to occur within the study area.

The study area is wholly located within a red imported fire ant restricted area (DPIF, 2008). The fire ant can be spread by transport of high risk materials such as soil, green waste/mulches and equipment used to excavate or more soil associated materials from infested sites. As part of the DPIF fire ant eradication program, regulations apply to the movement of high risk materials within and out of the fire ant restricted zones.

8.2.3 Aquatic ecology

Historical data have few records for aquatic animals or plants in the study area (DERM, 2009; DEWHA, 2007). Bony fish records are limited to single incident sightings of *Ambassis agassizii* (Agassiz's glassfish), *Anguilla reinhardtii* (longfin eel), *Mogurnda adspersa* (southern purple-spotted gudgeon), *tandanus tandanus* (freshwater catfish) and *Leiopotherapon unicolour* (spangled perch). More frequent sightings have been made of *Hypseleotris galii* (firetail gudgeon) (4 records) and the introduced species *Gambusia holbrooki* (mosquitofish) (8 records) (DERM, 2009).

8.2.4 Conservation values

Essential Habitat

The remnant vegetation within the study area provides important habitat to a range of plants and wildlife, including a number of threatened species afforded protection under State and Commonwealth legislation. A significant amount of vegetation within the study area is designated essential habitat to *Melaleuca irbyana* (swamp tea-tree), *Petrogale penicillata* (brush-tailed rock wallaby) and *Phascolarctos cinereus* (koala) and falls within the management protection of the *Environment Protection and Biodiversity Conservation Act 1999* and/or *Vegetation Management Act 1999* (see Map 2.4). The importance of the area to koalas is also recognised under the *Nature Conservation Act 1992* and *Nature Conservation (koala) Conservation Plan 2006* as an area where koala population densities are highest and under the greatest threat from habitat destruction and human impact (see Map 2.5). The SEQ Koala Habitat Assessment and Mapping Project (DERM 2009) also highlights the importance of the study area to koala populations, with many areas of bushland habitat (including high value bushland) and areas suitable for rehabilitation (including extensive areas of medium value) (see Map 2.9).

Section 8.3.1 identifies the maximum area of essential habitat that would be required to be removed for the construction and operation of the SFRC. Section 8.4.2 discusses implications (including potential offsets) for this vegetation removal.

Wildlife corridors

Connectivity in the north-south direction within and beyond the study area is provided predominantly by seven (7) corridors:

1) Ebenezer to Mount Walker *Eucalyptus crebra* (ironbark woodland) and *Melaleuca irbyana* (swamp tea-tree open forest)
2) Mount Flinders Range from Yamanto to Woolooman classed as a 'regional linkage' under the ICC *Nature Conservation Strategy 2000*
3) Western Creek (riparian)
4) Bremer River (riparian)
5) Warrill Creek (riparian)
6) A north/south state significance terrestrial corridor
7) Teviot Brook (riparian)

The SFRC alignment will cross these wildlife corridors, potentially affecting the movement of wildlife at these locations.

8.2.5 Community values

From a community perspective, it is clear that the local area holds an intrinsic value to the community for its natural landscape and the nature within it (see Technical Paper 11 – Social Impact Assessment (Volume 2) and the Submissions Report – Appendix D). Community feedback highlighted the concern about impacts of the SFRC on native fauna in the area.

Frequent reference was made by landholders to koala sightings and their known presence in the study area. The study team met with representatives of the local Moggill Koala Hospital on 6 November 2007, during which the Moggill Koala Hospital representatives highlighted a strategic intent to establish a wildlife corridor extending

from the Ipswich Koala Protection Society Clinic to the Moggill Koala Hospital. Also of concern to the Moggill Koala Hospital representatives was the potential impacts on the nature refuge at property 177CH3162 on Tea Tree Avenue.

Landowners also raised the issue of important vegetation in the area, such as *Eucalyptus tereticornis* (Queensland blue gum) and the protected *Melaleuca irbyana* (swamp tea tree). Some landowners expressed frustration relating to existing restrictions on clearing or developing land because of this vegetation. In particular, some landowners are concerned that the government is able to impose these restrictions, yet also clear this land for their own purposes.

The release of the SFRC Draft Assessment Report (2008) provided landowners and stakeholders with the opportunity to formally document their concerns relating to the project. This process highlighted the value of habitat within the study area for koala populations. In particular, the area at Ebenezer, through which the previous alignment passed, was purported to be habitat for the healthiest koala population in the Ipswich region. The SFRC study team held discussions with DERM, the Ipswich Koala Protection Society, the Moggill Koala Hospital Association and other stakeholders (as part of the Koala, Threatened Species and Habitat Working Group) about the significance of this habitat and the implications of the SEQ Koala Habitat Assessment and Mapping Project (DERM 2009) for the SFRC Study.

Since the release of the draft assessment report, the new information (including the high value placed on the koala habitat in Ebenezer, and its importance reflected in the SEQ Koala Habitat Assessment and Mapping Project) prompted the SFRC study team to investigate alternative alignments for the SFRC in this area. The alignment was revised to avoid core areas of high value bushland habitat (DERM 2009), and is now positioned north of its previous location through Ebenezer, south of Paynes Road (see Map 2.9).

8.3 Potential impacts and mitigation measures

8.3.1 Potential impacts

Construction and operation of a railway along the revised alignment has the potential to affect the nature conservation values of the area. The potential impacts will include those within Table 17 and Table 18. These tables summarise the amount of vegetation within the CID area of the revised alignment, and compare these figures with those of the previous alignment. The CID area has been used for these calculations, as it represents the land likely to be acquired, and also potentially cleared for the SFRC. These figures are highly conservative, and actual clearing required for the SFRC is likely to be considerably less in most instances.

Table 17 Vegetation clearance potentially required for the revised alignment, compared with that for the original alignment

Conservation Status	Area within revised alignment CID area (Ha)	Area within original alignment CID area (Ha)
Endangered RE	0.9	1.06
Of Concern RE	23.63	31.26
Not of Concern RE	4.59	4.59
Regional Ecosystems (total)	29.12	36.91
Regrowth	16.11	16.09
Non-remnant[4]	548.88	519.77
High Value Regrowth	105.43	91.59

Table 18 Conservation values potentially affected by vegetation clearing for the revised alignment, compared with that for the original alignment

Conservation Values (Essential Habitat, Koala Plan, DERM 2009)	Area within revised alignment CID area (Ha)	Area within original alignment CID area (Ha)
Essential Habitat[5]	19.41	25.39
Koala Conservation Area[6]	41.52	41.45

[4] This area also includes urban and cropping land (not necessarily vegetated)
[5] This figure does not include Essential Habitat directly associated with the proposed 1,050m tunnel at Woolooman, as this is not likely to be affected by the SFRC.

Conservation Values (Essential Habitat, Koala Plan, DERM 2009)	Area within revised alignment CID area (Ha)	Area within original alignment CID area (Ha)
High Value Bushland	6.05	9.05
Total Bushland[7]	32.41	34.83
Medium Value Rehabilitation	163.97	158.80
Total Rehabilitation[8]	548.03	526.77

In addition, there are likely to be other impacts associated with the vegetation removal outlined above. This includes:

- degradation of the above vegetation communities and habitat values through indirect impacts including fragmentation, edge effects, the spread of weeds, modified surface water drainage patterns, light and noise intrusion
- disruption to the actual and potential effectiveness of wildlife corridors
- mortality of native fauna from construction activities and/or rail strike during operation

The potential impacts on the movement of wildlife across the landscape should also be considered.

8.3.2 Mitigation measures

Project-specific objectives for construction and operation of a railway within the corridor of interest include:

- compliance with the *Environment Protection and Biodiversity Act 1999*, *Vegetation Management Act 1999*, *Nature Conservation Act 1992*, *Environmental Protection Act 1994* and South East Queensland Regional Plan 2009-2031
- maintain the current extent of Endangered and Of Concern Regional Ecosystem vegetation
- maintain the current extent of Essential Habitat
- inclusion of fauna-sensitive design for the railway line, structures and supporting infrastructure
- no new infestations of weeds or pests attributable to the project

Proposed management strategies during construction include:

- minimisation of construction activities within remnant vegetation and rehabilitation to existing condition or better
- construction sites, such as site office, soil stockpiles, machinery/equipment storage are to be located within existing cleared areas or disturbed areas
- retention of koala feed trees within koala conservation areas
- relocation of native wildlife by a registered wildlife spotter/catcher
- development and implementation of a Construction Weed Management Plan in accordance with requirements outlined in the EMP and standard QR procedures
- development and implementation of an Approved Risk Management Plan or Fire Ant Declaration for the movement and disposal of high risk materials within and out of the fire ant restricted area
- investigation of the use of fauna-friendly culverts in important wildlife corridors
- investigation of the use of koala exclusion fencing to minimise koala accessing the railway track

[6] This area, located north-east of Peak Crossing, is predominantly cleared and is likely to facilitate the north/south movement of koalas through the landscape rather than provide in-situ habitat.
[7] This figure includes mapping within Scenic Rim Regional Council
[8] This figure includes mapping within Scenic Rim Regional Council

Proposed management strategies during operation include:

- development and implementation of Maintenance Weed Management Plan in accordance with requirements outlined in the EMP and standard QR procedures
- restriction of maintenance contractors to the designated maintenance tracks and no disturbance to surrounding vegetation
- stock and koala-exclusion fencing, where appropriate
- artificial light and noise intrusion management measures

8.4 Legislative requirements and constraints

8.4.1 Environment Protection and Biodiversity Act 1999 (Cth)

Under the *Environment Protection and Conservation Act 1999*, an action will require approval from the Minister if the action has, will have, or is likely to have, a significant impact on a MNES. Things that are MNES are listed in Part 3 of the Act and include threatened communities and species, and migratory species as examples. Should a project be considered likely to have a significant impact, a referral should be prepared and submitted to the Minister of the Commonwealth Department of Environment, Water, Heritage and the Arts (DEWHA).

Discussions have been held with DEWHA regarding the potential for the SFRC to be classed as a "controlled action" under the EPBC Act due to its potential to affect *M. irbyana* communities and *P. penicillata* populations. The study team has been advised that DEWHA does not require a referral for the project under the EPBC Act until such time as the detailed design of the project has been undertaken, and the construction of the SFRC is imminent. However, reflecting DEWHA's interests through ensuring minimal impacts upon *M. irbyana* and *P. penicillata* remains a primary concern for the study team. This has underpinned the planning and design stages of the SFRC study.

8.4.2 *Vegetation Management Act 1999* (Qld)

The objective of the *Vegetation Management Act 1999* (VM Act) is to regulate clearing of native vegetation in order to conserve remnant endangered, of concern and not of concern Regional Ecosystems, in areas of high nature conservation value and areas vulnerable to degradation.

The SFRC requires the clearing of native vegetation. REs in the study area, and more specifically in the CID Area, include Endangered, Of Concern and Not of Concern. Clearing of Endangered and Of Concern REs requires an 'approval for clearing for ongoing purposes' from DERM. This application must be prepared in accordance with the Regional Vegetation Management Code for Ongoing Clearing Purposes: South East Queensland (the Code) and incorporate a legally binding offset strategy. The Code sets out mandatory requirements plus requirements for management activities under different parts of the Code. The part of the Code relevant to the SFRC is Part P – *Requirements for clearing for public safety and infrastructure* and will be used by DERM to assess the SFRC application for approval of vegetation clearing.

At the time of writing, the preferred alignment for the SFRC project conflicts with the mandatory Performance Requirement (PR P.1: Limits to clearing for public safety and infrastructure) of the Code. Based on the preferred alignment and the current status of the remnant vegetation under the VM Act, the SFRC would not meet the necessary requirements for approval for clearing of native vegetation.

Should it be proved to the Chief Executive of DERM that the clearing is essential *for establishing a necessary fence, firebreak, road or other built infrastructure and no suitable alternative site exists for that fence, firebreak, road or other built infrastructure*, clearing is subject to the limitations of additional Performance Requirements (PR P.2 to PR P.10) which the SFRC project would be required to meet.

Based on estimates for total area of vegetation within the revised alignment CID Area (as previously described in Section 8.3), the SFRC would not meet the Performance Requirements or Acceptable Solutions for the following:

- PR P.7: Conserving remnant *Endangered* Regional Ecosystems and *Of Concern* Regional Ecosystems
- PR P.8: Essential Habitat

Under the current legislation, these Performance Requirements have the potential to be a constraint to the SFRC. An offset may be proposed as a solution to meet a Performance Requirement where the Performance Requirement requires that a development "maintain the current extent" of certain vegetation or habitat. This would apply to PR P.7 and PR P.8 as defined above.

Specifically with regard to PR P.8, the preposition of offsets is only an Acceptable Solution if it can be proved that:

- less than three of the essential habitat factors, including any mandatory factor(s) apply to the application area; and
- The species at any stage of its/their life cycle does/do not occur within the application area (DNRW, 2008).

This level of investigation was not conducted as part of this assessment. It will be necessary during the next phase of investigation to determine whether these restrictions apply. Further, during the preparation of detailed design, a proper estimate can be provided of the total likely offset that would be necessary if this was applicable as an acceptable solution.

8.4.3 *Nature Conservation Act 1992* (Qld)

Clearing of protected plants in the wild for the purpose of the SFRC, namely *Marsdenia coronata, Melaleuca irbyana* and/or *Plectranthus habrophyllus* will trigger the *Nature Conservation Act 1992* and the permitting requirements of the *Nature Conservation (Protected Plants) Conservation Plan 2000.* The relocation of native animal species prior to construction also requires a permit under this Act.

It should be noted that under the *Nature Conservation Act 1992* (NC Act):

- a permit may be required, even for clearing on freehold land
- a full botanical survey of the land to be cleared will be undertaken before applying for a clearing permit, given that a permit is based on the classification of the plants to be cleared, and the extent of clearing required
- an offsetting process may be required to achieve a 'net conservation gain' associated with endangered and vulnerable protected plants, and to achieve 'no net conservation loss' associated with rare and least concern plants
- in relation to tampering with an animal breeding place, section 332 of the NC Act (Wildlife Management Regulation) 2006 identifies a specific offence for tampering with an animal breeding place. While spotter/catchers are endorsed to manage animal breeding places in imminent danger of habitat destruction, if a spotter/catcher will not be present prior to and during clearing to identify animal breeding places, TMR will need to develop a Species Management Program with the DERM Wildlife Branch outlining the approach that will be taken to risk manage animal breeding place issues associated with the clearing that will be undertaken

8.4.4 Nature Conservation (Koala) Conservation Plan 2006

The focus of the *Nature Conservation (Koala) Conservation Plan 2006* (the Koala Plan) is to protect koalas by protecting koala habitat. The SFRC is located within District A where the clearing of koala habitat trees must comply with the sequential clearing conditions

The SFRC also passes through an area currently identified as a Koala Conservation Area. Within District A, more stringent obligations apply in relation to development in Koala Conservation Areas which are set out as koala conservation criteria.

In order for the SFRC to comply with the koala conservation criteria (Criteria 1 – Table 10 of the Koala Plan), the SFRC must demonstrate an overriding need in the public interest to justify its location in the Koala Conservation Area and that there is no suitable alternative outside Koala Conservation Area.

It should be noted that the Koala Plan is presently an interim koala conservation instrument. It is expected that the draft South East Queensland Koala Conservation State Planning Regulatory Provisions and State Planning Policy will be finalised in 2010, at which time the Koala Plan will be superseded. Given the long-term nature of

the SFRC Study, the project must accord with the statutory instruments relating to koala conservation at the time of detailed design and construction.

8.5 Conclusion

Overall, the construction of the SFRC along the revised alignment will potentially have a significant impact on the nature conservation values of the area (potentially including Matters of National Environmental Significance, e.g. potential disturbance of *Melaleuca irbyana* and *Petrogate penicillata*) and as such, a referral to the Minister for DEWHA is likely to be required during detailed design.

Approval is also required from the State Government for the clearing of remnant vegetation and essential habitat. Strict obligations apply under the *Vegetation Management Act 1999* that can be addressed through the provision of offsets. However, meeting the mandatory offset requirements is likely to pose a challenge to the SFRC and will require liaison with the appropriate authorities to achieve and acceptable outcome for the Project, the environment and the community. This would be a matter that would need assessment during the detailed design phase of the project.

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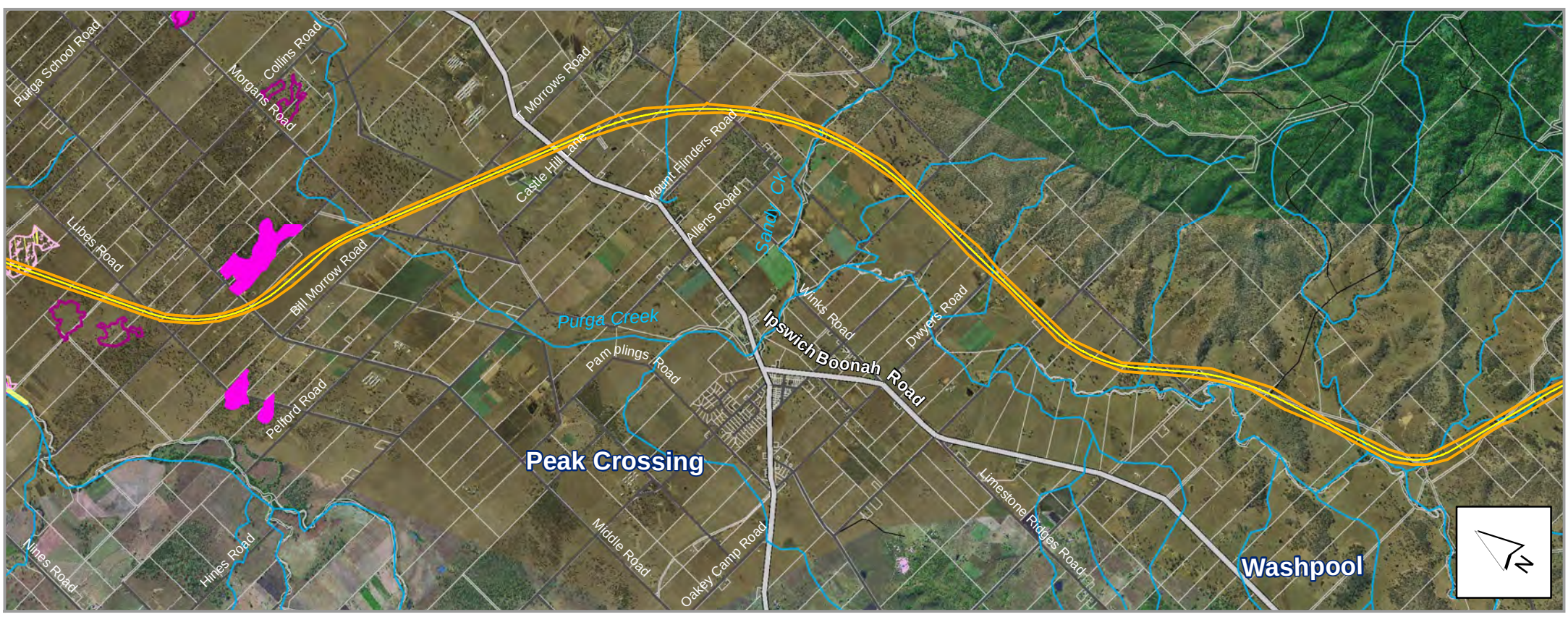

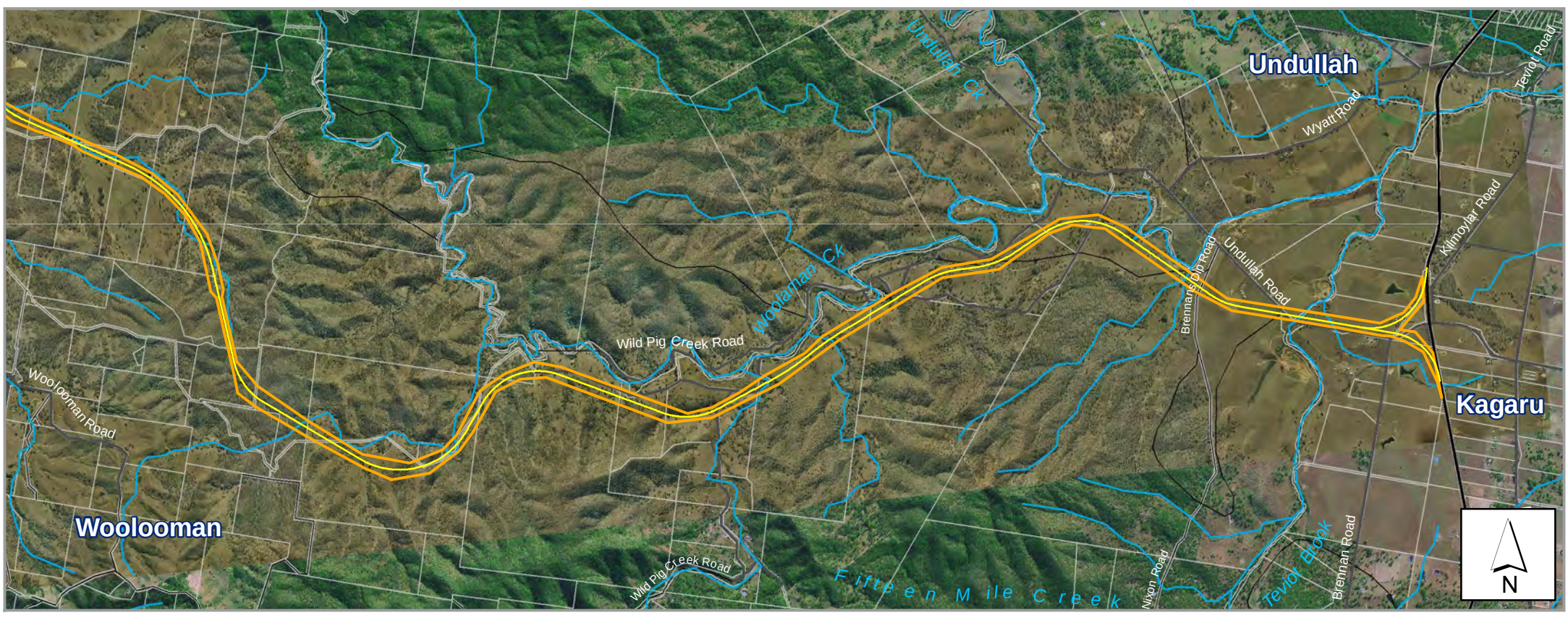

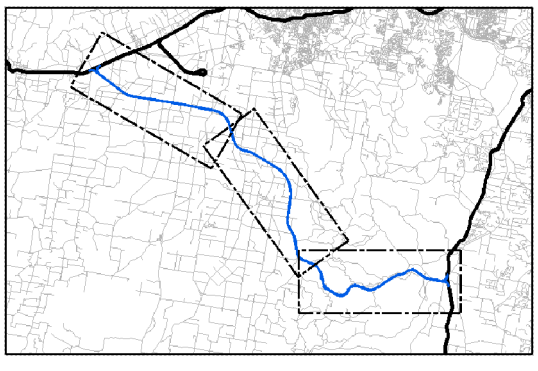

Legend

- Revised Rail Alignment
- Existing Rail
- Preliminary CID Boundary
- Regional Ecosystem containing M. irbyana
- ICC NCS-mapped M.irbyana
- AECOM Observed M.irbyana
- AECOM Observed Scattered Individual M.irbyana
- AECOM Desktop Distribution Assessment of M. irbyana

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Revised Assessment Report

Melaleuca irbyana Distribution

Kilometres
0 1 2 4

1:60,000 (when printed at A3)

A3 size

Map 2.3

JOB: Southern Freight Rail Corridor Study

Date - March 2010

Rosewood

Perfins Road

Reinke Road

Bassett Road

Keanes Road

Ebenezer Road

Bergmans Road

Wilkes Road

Champions Way

Clarrie Halls Road

Bauers Road

Stevens Road

Rosewood Laidley Road

Toowoomba Ipswich Road

Lane Road

Western Ck

Reillys Road

Ebenezer

Willowbank

Paynes Road

Marlin Creek

Bunney Road

Waters Road

Coveney Road

Haves Road

Hallam Road

Mount Forbes Road

Murrimo Road

Tea Tree Avenue

W Hines Road

Brass Road

Stephens Road

Nines Road

Goebels Road

Calvert

Keanes Road

Lairhopes Road

Purga School Road

Collins Road

Morgans Road

Morrows Road

Castle Hill Lane

Mount Flinders Road

Allens Road

Sandy Ck

Lubes Road

Bill Morrow Road

Purga Creek

Winks Road

Dwyers Road

Ipswich Boonah Road

Pam plings Road

Pelford Road

Peak Crossing

Limestone Ridges Road

Middle Road

Oakey Camp Road

Washpool

Undullah

Undullah Ck

Wyatt Road

Travel Road

Kilmoyler Road

Undullah Road

Brennan Loop Road

Wild Pig Creek Road

Kagaru

Wooloo man Road

Wooloo man

Nukdi Road

Brennan Road

Logan Ck

Logan River

Data sources: All spatial data is subject to Copyright
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Legend

- Revised Rail Alignment
- Existing Rail
- Preliminary CID Boundary
- Essential Habitat

Regional Ecosystems v5

- Endangered - Sub-dominant
- Endangered - Dominant
- Of Concern - Sub-dominant
- Of Concern - Dominant
- Not Of Concern

High Value Regrowth

- Endangered - Dominant
- Endangered - Sub-dominant
- Of Concern - Dominant
- Of Concern - Sub-dominant
- Of Least Concern

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Regional Ecosystems, Essential Habitat

Kilometres
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A3 size

Map 2.4

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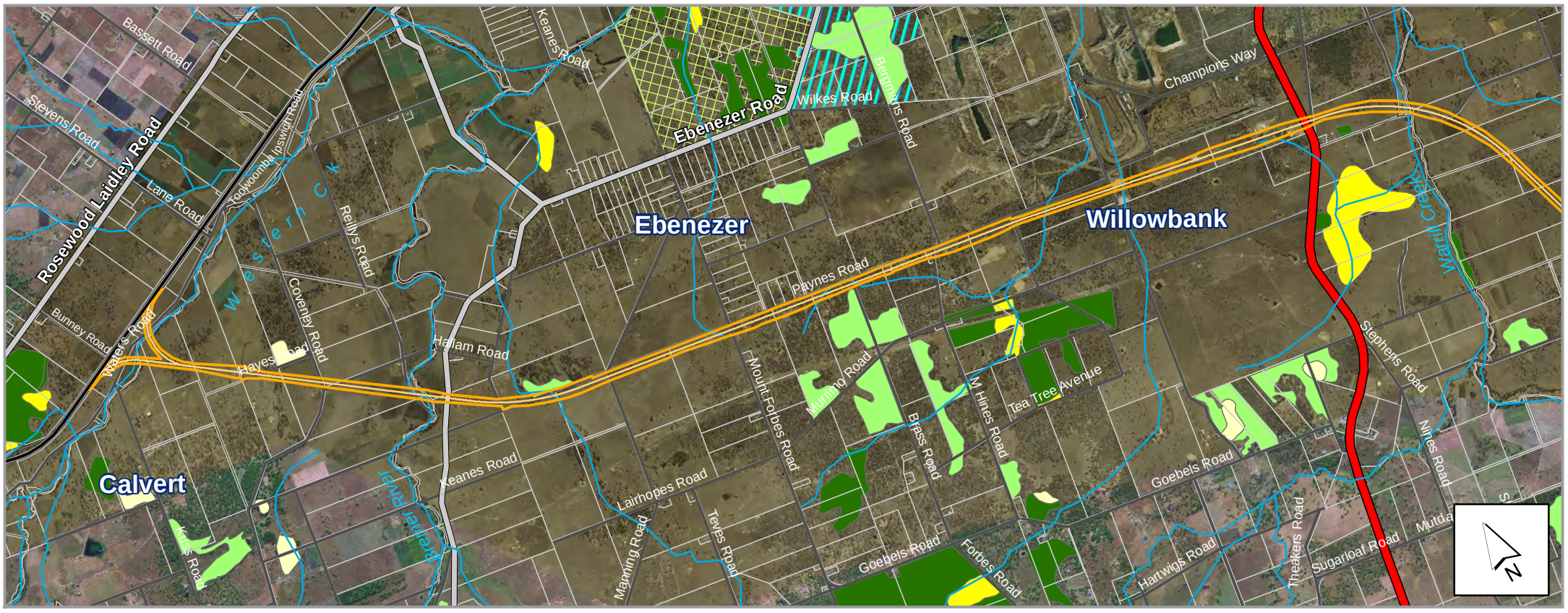

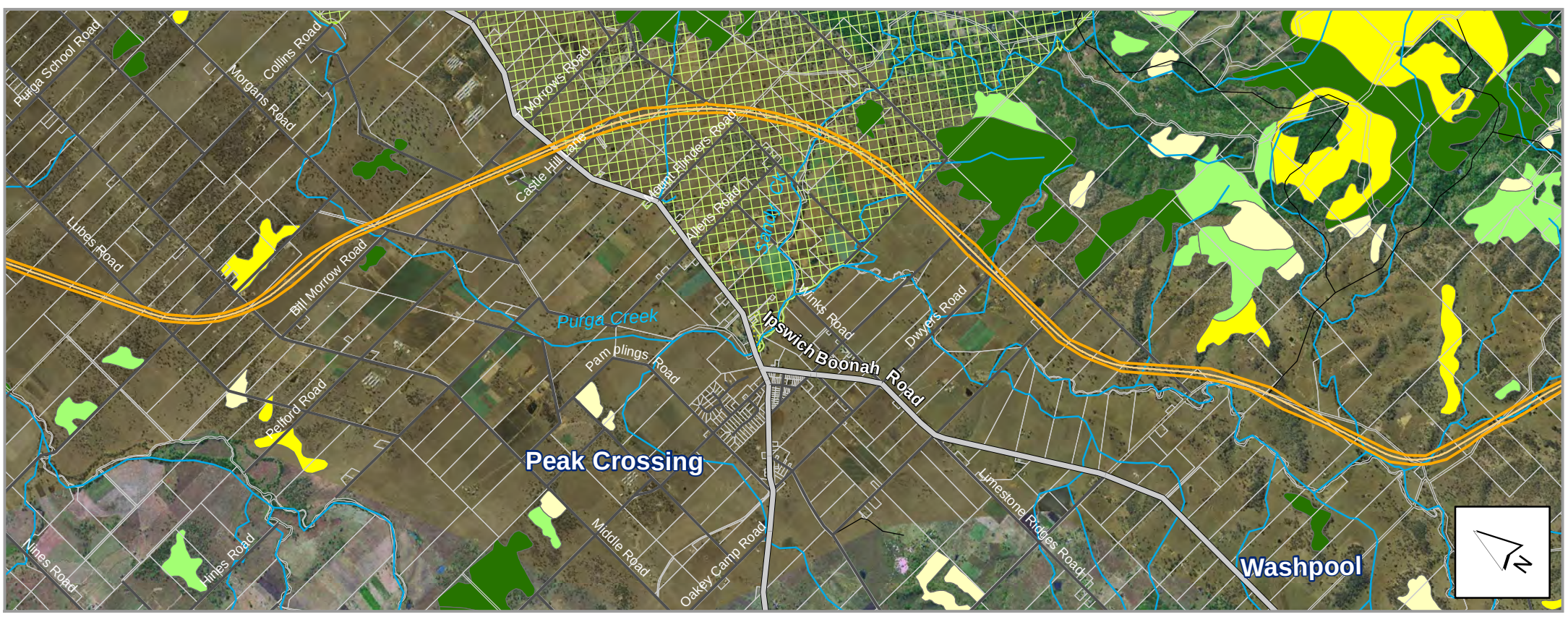

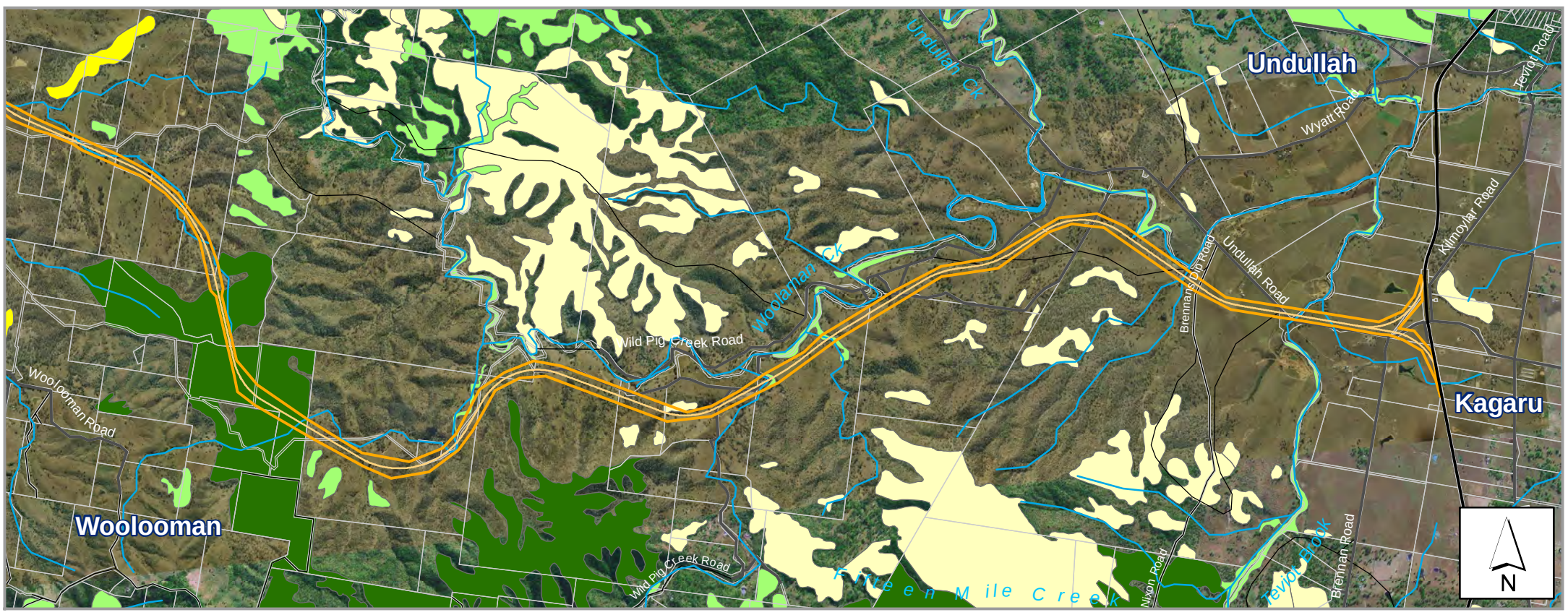

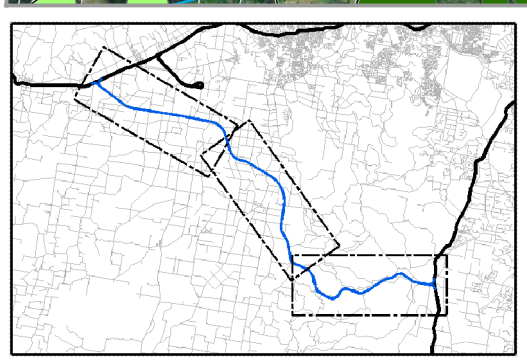

Legend

- Existing Rail
- Revised Rail Alignment
- Preliminary CID Boundary

Koala Suitability Model

- Essential Habitat Known
- Essential Habitat Possible
- General Habitat Known
- General Habitat Possible

Koala Plan 2006

- Koala Conservation Area
- Koala Living Area
- Koala Sustainability Area
- Urban Koala Area

Queensland Government

Southern Freight Rail Corridor Study
Revised Assessment Report

Koala Habitat (Koala Plan and Koala Suitability Model)

Kilometres

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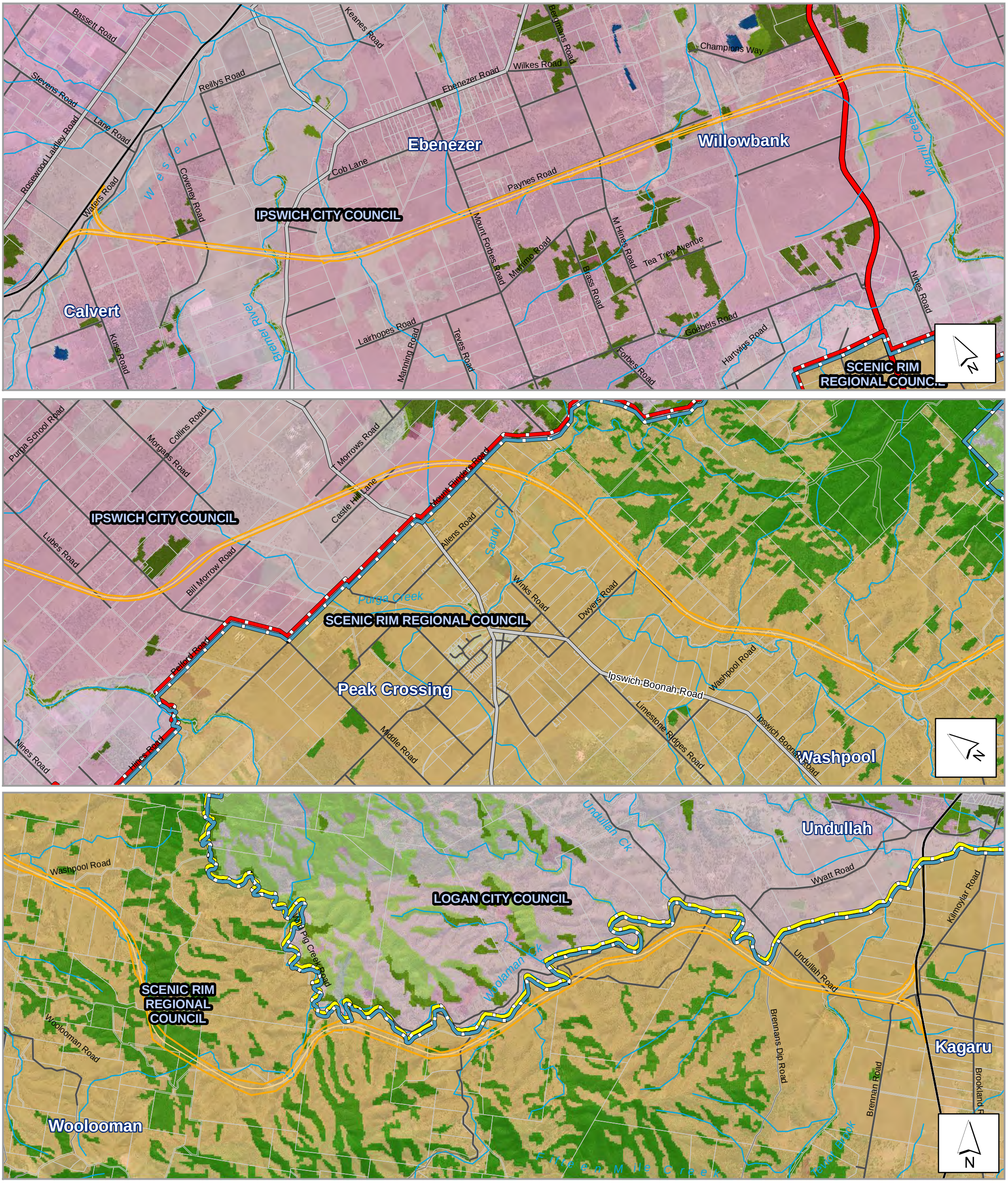
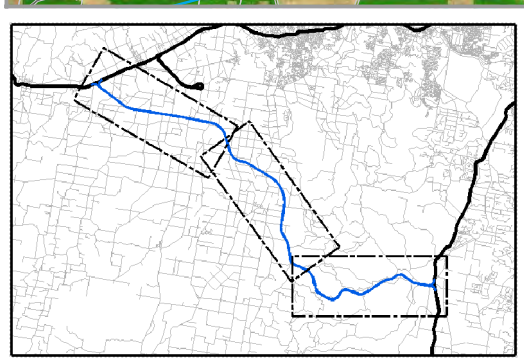
Map 2.5

GDA MGA94 Zone 56

JOB: Southern Freight Rail Corridor Study

Date - March 2010





Legend

- Existing Rail
- Revised Rail Alignment
- Preliminary CID Boundary

LGA Boundary

- Ipswich City
- Logan City
- Scenic Rim Regional

Scenic Rim Regional Council Koala Habitat

- Bushland habitat
- Other areas of value
- Suitable for rehabilitation
- Generally not suitable
- Water

Logan and Ipswich City Council's Koala Habitat

- High Value Bushland
- Medium Value Bushland
- Low Value Bushland
- High Value Rehabilitation
- Medium Value Rehabilitation
- Low Value Rehabilitation
- High Value Other
- Medium Value Other
- Low Value Other
- Generally not suitable
- Water

GDA
MGA94 Zone 56

Queensland Government

Southern Freight Rail Corridor Study
Revised Assessment Report

DERM Koala Habitat Mapping 2009

Kilometres
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Map 2.9

Chapter 9
Surface water

9.0 Surface water

9.1 Introduction

As part of investigations into the existing environment of the study area, a desktop study and supporting field sampling and inspections were undertaken to describe the existing water quality and physical condition of waterways potentially affected by the construction and operation of a railway within the study area. Based on the description of the existing environment and anticipated activities during construction and operation, potential impacts were identified. Preventative and contingency measures were developed to reduce the identified risks.

The SFRC is wholly within the Bremer and Logan River Catchments (see Map 3.1). Catchment descriptions of were based on desktop information, including Healthy Waterways Ecosystem Health Monitoring Program (EHMP) and Wyaralong Dam Environmental Impact Statement (PB and MWH, 2008). The physical condition and environmental values of creeks that cross the original corridor of interest were described during field inspections.

Water quality was determined from regular sampling undertaken by the former Department of Natural Resources and Water (NRW), now Department of Environment and Resource Management (DERM). Supplementary water quality information was obtained from a single stream sampling event after rainfall in February 2008.

9.2 Description of environmental values

9.2.1 Catchments

Bremer Catchment

The Bremer River Catchment covers an area of 2,032 km² and extends from the junction of the Bremer River with the Brisbane River south-west to the Great Dividing Range (SEQ Healthy Waterways Partnership, 2007). It includes freshwaters in the upper catchment area (the focus of this study) and estuarine waters approximately 19 km from the Brisbane/Bremer junction. The catchment contains the major watercourses of the Bremer River, Bundamba Creek, Purga Creek, Reynolds Creek, Warrill Creek, and Western Creek. Land use in the study area is dominated by rural activities such as grazing and cropping. Other land uses include the Jeebropilly and Ebenezer coal mines, Willowbank Raceway, several poultry farms, a quarry, sand mines and numerous irrigators.

Water quality within the Upper Bremer River Catchment has been historically poor. It is characterised by high sediment loads and highly variable flows. Although some improvements in water quality have been achieved in recent years with wastewater treatment plant upgrades, water-recycling schemes, and riparian vegetation works in the upper catchment. Clearing activities and agricultural activities in the upper catchment have lead to the catchment's high sediment loads (SEQ Healthy Waterways Partnership, 2007).

Logan Catchment

The Logan River Catchment covers an area of 2,986 km^2 and extends from its headwaters within Mt Barney National Park to Moreton Bay at Lagoon Island (SEQ Healthy Waterways Partnership, 2002). Teviot Brook is a major tributary to the Logan River accounting for almost a quarter of the Logan Catchment area (PB and MWH, 2007). Land use within the Teviot Brook Catchment mainly consists of reserves (National Parks) and agriculture. The proposed Wyaralong Dam is located on Teviot Brook approximately 10km upstream of the study area.

Water quality within the freshwater section of the Logan River has been historically poor, similar to that of the Bremer River Catchment. Water quality within the catchment is closely dependent on land use. Generally, sites with poor water quality are close to urban development with minimal riparian vegetation (EHMP, 2007).

9.2.2 Water quality

Historical sampling results from DERM and a supplementary sampling round in 2008 was used to determine existing water quality within the Bremer River, Warrill Creek, Purga Creek, and Teviot Brook.

Overall, the waterways within the study area have variable flow rates, which are strongly dependent on rainfall. Generally, the water quality in the study area is not representative of a pristine environment, as the catchments

have been affected by upstream catchment activities. Many of the streams have high sediment and nutrient loads, typical of a catchment affected by agricultural activities and wastewater treatment plant discharges. Many of the watercourses have relatively high levels of copper, with concentrations exceeding the ANZECC Guidelines (2000) the aquatic ecosystem protection values. Copper is commonly found in soils derived from igneous parent material, which is found in the waterway catchments. Consequently, it is likely that the presence of copper and zinc in the waterways is related to surface erosion of soils within the catchment.

9.2.3 Riparian zone condition

A number of waterways cross or flow throughout the study area, including (from west to east) Western Creek, the Bremer River, Warrill Creek, Purga Creek, Sandy Creek, Dugandan Creek, Wild Pig Creek, and Teviot Brook (see Map 3.3). Of these, Purga Creek and Wild Pig Creek follow the SFRC for some distance.

The physical and ecological condition of the Bremer River, Warrill Creek, Purga Creek, and Teviot Brook was assessed during site inspections at representative sites along the waterways. The assessment was conducted to determine the existing condition of the waterways. This was undertaken to identify riparian areas that the preferred alignment should avoid and riparian conditions that should be maintained, reinstated, or improved during construction and operation of the SFRC.

Generally, the assessment indicated that the waterways are typical of inland tributaries in a rural area. Although all sites showed a certain degree of ecological value owing to riparian vegetation, they also displayed some degradation such as erosion or weed infestation. The waterways normally had stable banks with 80–90% riparian vegetation cover for three to five metres either side of the waterway. Areas either side of the waterways were generally cleared for cattle grazing. Some signs of bank erosion were observed (see Figure 39), which was likely to be caused by stock access. Few weed species were noted, with the exception of broad-leaf pepper trees (*Schinus terebinthifolius*) along the banks of Purga Creek at Peak Crossing, and balloon vines (*Cardiospermum grandiflorum*). The vegetated banks of the waterways act as important corridors for fauna movement in a landscape largely cleared for agriculture.

One site, a waterhole/gorge on Dugandan Creek, was determined to have high ecological value (see

Figure 40). It is a permanent waterhole with steep rock banks and relatively intact native vegetation. Because of the importance of this site, the preferred alignment design avoided the waterhole to reduce potential impacts.

Figure 39 **Purga Creek, near the original corridor of interest. Note the extent of riparian vegetation and erosion on bank slopes devoid of vegetation.**

Figure 40 **Waterhole on Dugandan Creek. Note steep rocky face and dense vegetation.**

9.3 Potential impacts and mitigation measures

Construction and operation of the SFRC has the potential to affect the water quality and physical integrity of waterways that are crossed by the preferred alignment. It is likely that these effects can be prevented, or mitigated where some impact is unavoidable.

The construction and operation of the SFRC is likely to affect only a small fraction of the waterways it crosses. Although it is inevitable that some changes would occur to the watercourses because of construction and operation of the SFRC, it is unlikely that this would cause an identifiable negative impact on each waterway as a whole.

9.3.1 Water quality

Potential impacts on water quality during construction of the SFRC include:

- increased sediment in runoff from construction sites. Sources of sediment include areas of disturbed topsoil, earthworks, and stockpiles
- contamination of receiving waters from the accidental release of fuels, oils or other chemicals

It is unlikely that the operation of the SFRC would have identifiable impacts on the health of the receiving watercourses. However, there is a small potential for sediment and chemicals to enter nearby watercourses. Potential impacts on water quality during operation include:

- increased sediment in runoff from the edges of the railway line if the surrounding soils are exposed. However, as it is likely that there will be vegetation along the verges, the likelihood of this occurring is low
- contamination of receiving water from the accidental release of liquid substances or bulk solids if there were to be a derailment of a freight train. The possible consequence of this occurring would range from negligible to severe, dependent on the type of substance and volume released. However, this is an unlikely event, and is mitigated by considerate detailed design of the SFRC and the adoption of appropriate design standards
- maintenance of rail through the application of herbicides

9.3.2 Riparian zone

Potential impacts on riparian zones during construction of the SFRC include:

- introduction or spread of weed or pests carried to the area on construction vehicles
- disturbance of the streambed and bank in areas where the SFRC crosses a watercourse. It is important to consider that many of these watercourses show some level of degradation, and there may be opportunities to improve the physical environment of these areas during rehabilitation after construction

As discussed above, a waterhole/gorge within the study area was determined to have high environmental values. The preferred alignment is approximately 200m south of the waterhole, and crosses Dugandan Creek downstream of the waterhole. Because of the location of the preferred alignment in relation to the waterhole, it is unlikely that construction activities would affect the water quality or physical environment of this important area.

The current design of the SFRC where it crosses the Bremer River, Warrill Creek, Purga Creek, and Teviot Brook generally does not include structures within the riparian zones of those waterways. This maintains the integrity of the riparian zone and fauna corridors along the waterways.

9.3.3 Mitigation measures

Project-specific objectives for construction and operation of the SFRC within the study area include:

- compliance with EPP (Water) and *Water Act 2000*
- compliance with the SEQ Healthy Waterways Strategy 2007–2012 (or current strategy) and WQO defined under the EPP (Water) for the catchment
- net improvement to riparian areas as a result of rehabilitation and restoration after construction of the railway
- no visible evidence of sediment leaving construction sites
- no visible increase in turbidity attributable to construction or operation of the railway
- no spills or leaks enter watercourses
- no new infestations of weeds or pests attributable to the project

Proposed management strategies during construction include:

- development and implementation of a Sediment and Erosion Control Plan in accordance with the *Soil Erosion and Sediment Guidelines for Queensland Construction Sites* (or better)
- minimisation of construction activities within riparian zones, and rehabilitation to existing conditions or better
- construction should not use water taken from local waterways. Recycled water should be obtained where practicable
- development and implementation of a Dangerous Goods and Chemical Control Plan, detailing storage and handling of fuels, oils and other substances
- development and implementation of a Weed and Pest Control Plan, which includes procedures for cleaning and checking vehicles entering construction sites

Proposed management strategies during operation include:

- treating railway verge with coarse gravel and vegetation to reduce sediment in stormwater runoff
- compliance with relevant Australian Standards and implementation of emergency procedures to reduce the potential likelihood and consequence of freight derailment or spills

9.4 Conclusion

Overall, the construction of the SFRC along the alignment would have a short-term impact on riparian zones where the preferred alignment crosses waterways. The operation of the SFRC is not expected to affect water quality or riparian areas.

JOB: Southern Freight Rail Corridor Study

Date - March 2010

North Pine River Catchment
Strathpine
South Pine River Catchment
Brisbane River Catchment
Indooroopilly
Lockyer River Catchment
Ipswich
Beenleigh
Bremer River Catchment
Nerang
Albert River Catchment
Coomera River Catchment
Logan River Catchment
Condamine River Catchment
Brisbane Valley Highway
Gympie Road
Gateway Motorway
Warrego Highway
Ipswich Motorway
South East Freeway
Logan Motorway
Pacific Motorway
Western Ck
Bremer River
Woolaman Ck
Purga Ck
Warrill Ck
Teviot Brook
Beaudesert Boonah Road
Beaudesert Nerang Road
Cunningham Highway
Mount Lindesay Highway
NEW SOUTH WALES
N

Legend

- Revised Rail Alignment
- Preliminary CID Boundary
- River Catchments

Queensland Government

Southern Freight Rail Corridor Study
Revised Assessment Report

Main River Catchments - Bremer & Logan Rivers

Kilometres
0 5 10 20

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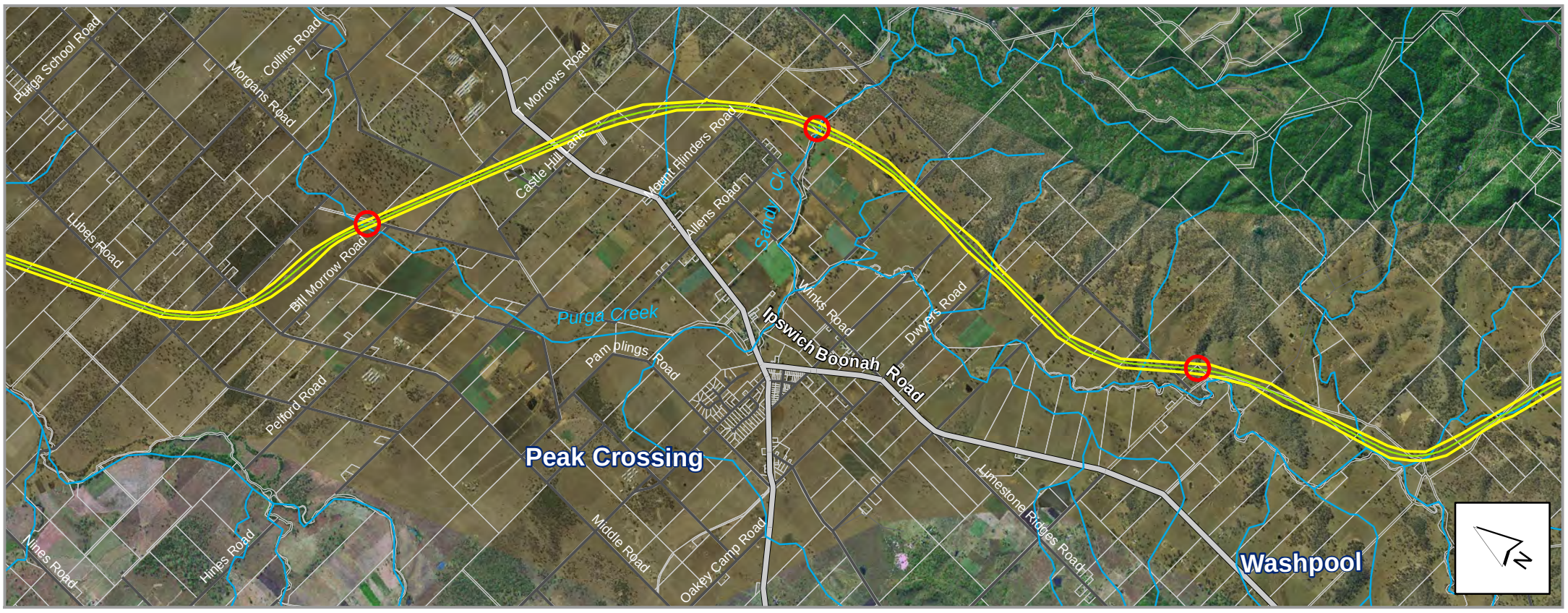
A3 size

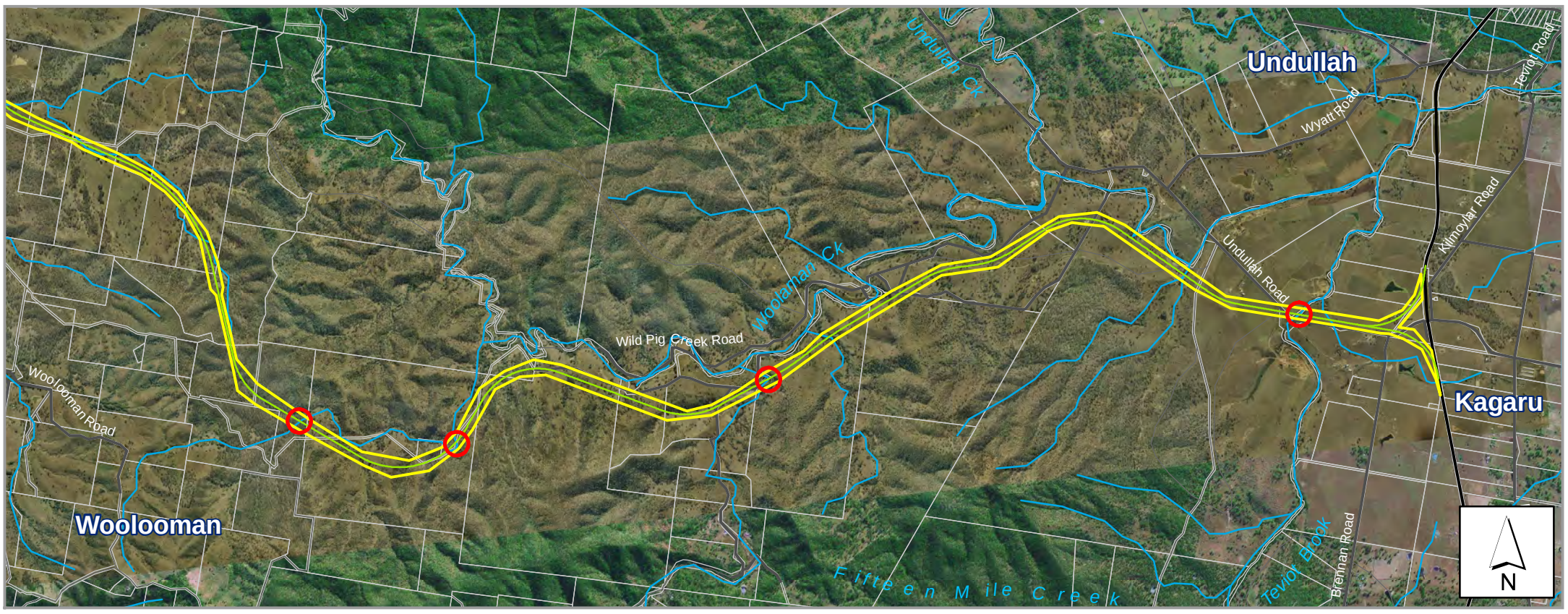
Map 3.1

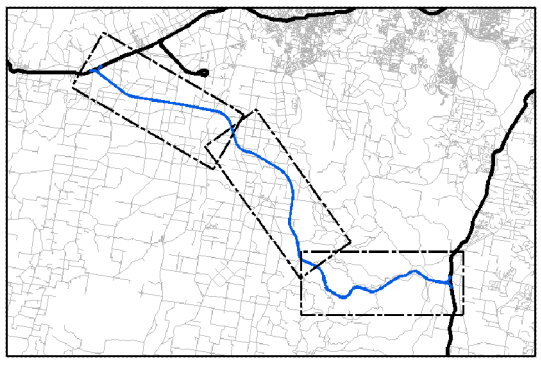
GDA
MGA94 Zone 56

JOB: Southern Freight Rail Corridor Study

Date - March 2010







Legend

- Existing Rail
- Revised Rail Alignment
- Preliminary CID Boundary
- Creek Crossing

GDA
MGA94 Zone 56

Queensland Government

Southern Freight Rail Corridor Study
Revised Assessment Report

Creek Crossings

Kilometres
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A3 size

Map 3.3

Chapter 10
Hydraulic study

10.0 Hydraulic study

10.1 Introduction

Preliminary hydraulic investigations were undertaken as part of the SFRC study to inform engineering design of the alignment and to assess potential flood impacts from development of the preferred alignment. The results of these investigations are reported in detail in Technical Paper 4 – Hydraulic Study, in Volume 2 of the revised assessment report. The hydraulic investigations were undertaken using hydrologic and hydraulic modelling.

The preferred alignment crosses a number of major waterways between Rosewood and Kagaru, including Bremer River, Warrill Creek, Western Creek, Purga Creek, Sandy Creek, Woolaman Creek, Wild Pig Creek and Teviot Brook. Existing hydrologic and hydraulic models prepared as part of the Ipswich Rivers Flood Studies – Phase 3, commissioned by Ipswich City Council, were used for assessment of flooding in Bremer River, Warrill Creek and Western Creek. The assessment for Purga Creek, Sandy Creek, Woolaman Creek, Wild Pig Creek and Teviot Brook was based on new hydrologic and hydraulic models prepared as part of the study.

Hydrologic and hydraulic models prepared as part of the Ipswich Rivers Flood Studies – Phase 3 were calibrated as part of that study. Formal calibration of the new models prepared during the SFRC study was undertaken and was based on the rainfall and stream gauging data supplied by the Commonwealth Bureau of Meteorology (BoM).

Assessment of existing flooding behaviour along the preferred alignment and potential impact following development within the corridor was based on a design storm with a 100 year average recurrence interval (ARI).

10.2 Description of existing environment

10.2.1 Bremer River

Bremer River catchment has total area of 2,032km^2 and includes a number of significant tributaries. The catchment begins in the Liverpool Ranges, south-west of Ipswich. The upper catchment is characterised by steep topographic relief and supports mostly forested land use. Rural land use is predominant in the central part of the catchment and in the flatter floodplain areas of the lower catchment. Bremer River passes through the developed area of Ipswich City at the lower end of the catchment and joins the Brisbane River approximately 10km north-east of Ipswich.

Flow in Bremer River during a 100 year ARI design event exceeds the capacity of the main channel of the waterway and substantial overbank inundation occurs within the preferred alignment. The peak flood level at the preferred alignment crossing location is estimated to occur during a 12 hour duration storm event, consistent with the findings of the modelling undertaken as part of the Ipswich Rivers Flood Studies.

10.2.2 Warrill Creek

Warrill Creek is a significant waterway within the SFRC study area. The creek system incorporates a main channel and a number of anabranch sections and contributes flow to Bremer River just upstream of Ipswich City. The catchment of Warrill Creek begins in the mountainous area near Cunningham's Gap and joins Bremer River just upstream of the central Ipswich area. Rural land use is predominant in the flatter areas of the central and lower Warrill Creek catchment.

The results of the hydraulic model indicate that the capacity of the main channel of Warrill Creek is exceeded during the 100 year ARI design event. Substantial overbank areas exist along the length of Warrill Creek near the preferred alignment and the model results show that the overbank areas convey a significant proportion of the total flow.

10.2.3 Western Creek

Western Creek lies to the west of the Bremer River and joins the river near Rosewood. The hydraulic model for Western Creek includes provision of flow transfer from Western Creek to Bremer River upstream of the confluence of the two waterways. The results of the model indicate significant transfer of flow from Western

Creek to Bremer River during a 100 year ARI event. The flow transfer enters Bremer River downstream of the preferred alignment.

Under a 100 year ARI design event, flow in Western Creek is likely to exceed the capacity of the main channel, and significant flood storage and flow conveyance is provided by overbank areas of the waterway.

10.2.4 Purga Creek

Purga Creek is a tributary of Warrill Creek. Purga Creek joins Warrill Creek approximately 3km upstream of its confluence with Bremer River. The catchment of Purga Creek begins to the north of Boonah and supports predominantly rural land use. Sandy Creek is the only major tributary of Purga Creek, joining the main channel near Peak Crossing.

Near the preferred alignment, the main channel of Purga Creek is relatively small and is not well defined. A significant component of flow is conveyed in the overbank during a 100 year ARI design event, resulting in inundation of a wide floodplain. The main channel is well defined upstream of the preferred alignment.

10.2.5 Sandy Creek

Sandy Creek joins Purga Creek just upstream (east) of Peak Crossing. The preferred alignment crosses Sandy Creek in an area of relatively steep topography where there are less significant floodplain components within the channel geometry.

During a 100 year ARI design event, it is estimated that flow within Sandy Creek is maintained predominantly within the main channel of the waterway near the preferred alignment.

10.2.6 Teviot Brook

Teviot Brook catchment begins near the National Park area of Wilsons Peak. The main channel of Teviot Brook travels north through Boonah and joins the Logan River at Cedar Pocket. There are a number of minor tributaries to the main channel of Teviot Brook in the steep terrain of the upper catchment (upstream of Boonah). Downstream of Boonah, Teviot Brook catchment has flatter topography and supports predominantly rural land use. The total area of Teviot Brook catchment is approximately 594km2.

The existing Undullah Road crossing of Teviot Brook is located immediately upstream of the preferred alignment. It is estimated that, during a 100 year ARI event, the Undullah Road bridge would be overtopped, although flow would remain confined by local topography at the crossing location.

Downstream of the Undullah Road crossing to the confluence of Woolaman Creek, a low-lying overbank area exists between Teviot Brook and Woolaman Creek. During a 100 year ARI event, it is estimated that this area would be inundated from flow overtopping the left bank of Teviot Brook and due to backwater effects from downstream of the Teviot Brook-Woolaman Creek confluence. It is not anticipated that transfer of flow between Teviot Brook and Woolaman Creek would occur during a 100 year ARI event as a distinct levee exists on the right bank of Woolaman Creek.

10.2.7 Woolaman Creek

Woolaman Creek is a major tributary of Teviot Brook, and joins the main channel a short way upstream of the Logan River confluence. Woolaman Creek has a catchment area of approximately 101km2.

The waterway geometry of the upper reaches of Woolaman Creek, near the preferred alignment, is characterised by large well-defined channels with limited overbank areas. Under a 100 year ARI design event, flooding is maintained predominantly within the banks of the main channel of the waterways.

10.2.8 Wild Pig Creek

Wild Pig Creek is a tributary of Woolaman Creek. Wild Pig Creek joins Woolaman Creek approximately 11.5km upstream of the confluence of Woolaman Creek and Teviot Brook. The catchment of Wild Pig Creek is very steep and flow during a 100 year ARI design event is expected to be maintained within the well-defined main channel of the creek.

10.3 Potential impacts

Table 19 provides a summary of estimated peak flood levels and afflux under Developed Conditions (following development of the SFRC) during a 100 year ARI design event. The section below provides a summary of flooding impact.

Table 19 Estimated Peak Flood Levels and Afflux under Developed Conditions (100 year ARI Design Event)

Waterway	Location	Peak Flood Level (m AHD)	Afflux (m)
Bremer River	Upstream of Proposed SFRC Crossing	44.26	0.22
Warrill Creek		32.89	0.28
Western Creek		52.09	0.22
Purga Creek		39.81	0.37
Sandy Creek		56.67	0.27
Woolaman Creek		91.39	0.78
Teviot Brook		34.02	0.17
Wild Pig Creek		53.02	0.84

Assessment of existing infrastructure (including residential and commercial buildings and facilities) located close to the preferred alignment crossings was undertaken to determine the potential impact of the estimated peak flood level increases. The findings were as follows:

- 100 year ARI flood immunity is maintained for infrastructure that currently achieves 100 year ARI flood immunity
- development of the SFRC is unlikely to result in significant adverse impact to infrastructure that does not currently achieve 100 year ARI flood immunity
- detailed hydraulic assessment is required as part of future stages of the project to assess a range of design storm frequencies (ARIs)
- in Woolaman Creek and Wild Pig Creek, where significant afflux is estimated, the afflux propagates only a very short distance upstream due to the steep gradients of these waterways. The estimated increase in peak flood level would not impact existing infrastructure

10.4 Mitigation

The proposed structure widths at the preferred alignment crossings are based on assessment of flood impact associated with development of crossings. Based on the estimated increase in peak flood level during a 100 year ARI, it is considered that the proposed structures provide sufficient crossing width (and corresponding flow capacity) to minimise significant adverse flooding impact to existing infrastructure during the 100 year ARI design event assessed as part of this study.

There are areas where there is no existing infrastructure but where increases in peak flood level are estimated. While the estimated increase in flood level will produce a corresponding increase in maximum flood extent, the impacts from development of the SFRC will be typically experienced as an increase in flood depth in areas that are currently inundated during the 100 year ARI event.

In consideration of the findings of this hydraulic study, no specific and targeted flood mitigation measures are proposed. More detailed assessment of flood impacts will be required as part of future stages of the SFRC and targeted mitigation measures, if required, should be explored as part of these future investigations.

10.5 Conclusion

Construction of the SFRC will result in increased peak flood levels upstream of proposed waterway crossings due to constriction of the waterway. However, the estimated increases are not expected to result in adverse impact to existing infrastructure. Targeted flood mitigation measures, if required, should be explored as part of future detailed investigations.

Chapter 11
Land use and planning

11.0 Land use and planning

11.1 Introduction and approach

A detailed assessment of the existing land use and planning values within the study area and the project's potential impacts on these values is provided in Technical Paper 5, in Volume 2 of the revised assessment report. A summary of the major findings of Technical Paper 5 is provided below.

The primary objectives of the land use and planning study were to:

- investigate the existing and future land uses in the SFRC study area
- identify and analyse the existing planning provisions with respect to the SFRC and the study area
- define key constraints to inform the location of a preferred alignment within the study area
- identify potential impacts upon land uses caused by the construction and operation of the preferred alignment
- suggest mitigation measures to minimise or negate these impacts

11.1.1 Methodology

The process undertaken to prepare the land use and planning assessment included:

- identification of key stakeholder observations
- description and discussion of land tenure in the study area, including Native Title implications
- description of existing land uses in the study area
- identification of the relevant local government zoning provisions within the study area
- discussion of relevant development constraint overlays sourced from local governments
- discussion of future major land changes expected in the study area
- identification and discussion of relevant State, regional and local planning provisions which apply to the SFRC
- identification of the most important land use and planning constraints within the study area
- description of the potential impacts of the preferred alignment upon land uses, and identification of appropriate mitigation measures to reduce adverse impacts
- based on the above, a conclusion summarising the key findings of the land use and planning investigation

11.2 Description of environmental values

11.2.1 Stakeholder input and observations

Important information has been obtained from briefings with individual landowners throughout the community engagement process to date. A number of observations during this process are of significance to the Land Use and Planning Technical Paper. These include:

- the potential for the SFRC to destroy the peaceful rural amenity enjoyed by the majority of residents in the study area
- the potential for the local agricultural industry (with a high degree of resilience to drought, and therefore of particular importance to the regional economy) to be adversely affected by the SFRC
- the study area is particularly flood-prone
- the low-lying nature of the study area has potential to exacerbate the noise impacts of the SFRC
- the potential for the SFRC to create adverse air quality impacts, including contamination of rainwater
- the view throughout the community that the mechanisms in place under State legislation relating to land resumption and compensation do not fully address the impacts of a project upon all of those within the wider community that are affected by projects such as the SFRC
- various local residents and business owners have expressed concerns regarding the ability to continue operations for various local industries
- many people in the study area have expressed the importance of avoiding fragmentation of Good Quality Agricultural Land (GQAL)
- some stakeholders have expressed concern regarding how the SFRC may affect future residential development on large greenfield sites such as Undullah Station
- there has been concern expressed by the operators and patrons of the Ivory's Rock Conference Centre (IRCC) regarding the potential impacts of the SFRC on the ability to continue conference activities at the site
- stakeholders have highlighted the need for the SFRC to facilitate industrial development at Ebenezer in line with State and Local policy

11.2.2 Tenure

Land tenure throughout the study area is predominantly freehold, with some parcels containing other forms of tenure. In particular, the corridor of interest is composed of mostly freehold properties, with exceptions including oil and electricity easements, State land, leasehold land and reserve land.

The Jagera People have a Native Title claim which is current over the study area, and many other parts of south-east Queensland. Significantly for the SFRC, Native Title may potentially exist over land within the study area which is not freehold, including any rivers and creeks. Native Title may either be extinguished or suppressed prior to construction of the SFRC, dependent upon the process that is chosen to grant the necessary interests in Crown lands required to construct the SFRC. Regardless of the process chosen, compliance with the *Native Title Act 1993* will be required.

11.2.3 Existing land use

The study area is primarily characterised by rural and rural-residential land uses on a variety of allotment sizes. The diversity in rural land use is reflected through the various rural allotment sizes, with rural residences situated on lots between 1ha and 10ha, and agricultural/grazing uses on lots up to 20ha. Land uses particularly important to this study are those deemed to be potentially sensitive to impacts (such as residential dwellings), and those involving substantial capital investment, or those which are particularly important to the community (major land uses).

Major land uses

A number of major land uses exist within the study area (see Map 5.5). These include:

- the Powerlink high voltage transmission line
- the Santos Moonie-Brisbane high pressure oil pipeline
- Rosewood Wastewater Centre
- Jeebropilly and Ebenezer Coal Mines
- Ipswich Motorsport Precinct
- Warrill Park Lawn Cemetery
- Amberley Air Base
- Santrev Poultry (fertilised egg) Farm
- Gibb Brothers farming operations
- Purga Quarry
- Ivory's Rock Conference Centre

11.2.4 Study area – existing land use

For consistency in analysis between technical studies within the draft assessment report, the study area has been divided into three sections. An indication of the land use within each of these sections is provided below.

Lanefield/Ebenezer

Land uses in the Lanefield area are typically of a rural nature, with most properties within the study area consisting of large-lot grazing areas. Ebenezer is characterised by predominantly rural and rural-residential land uses, with a considerable amount of remnant vegetation (including ecologically significant swamp tea-tree forest) within the study area. Table 20 identifies the notable land uses in the Lanefield/Ebenezer area.

Table 20 Notable land uses in the Lanefield/Ebenezer area

Notable land uses:	Location:
Rural grazing properties	Throughout area
Gum Tips Nature Refuge	North of Tea Tree Avenue
Brisbane Skydiving Centre	M.Goebels Rd
Ipswich Motorsport Precinct	Champions Way, north of Paynes Road
Future Cunningham Industry Precinct	West of Cunningham Highway, south of Ipswich Motorsport Precinct
Future Powerlink substation	West of Cunningham Industry Precinct, south of Paynes Rd.
Jeebropilly and Ebenezer Coal Mine	North and west of Ipswich Motorsport Precinct
Rural-residential community	North of Paynes Road, off Mt Forbes Road

Purga/Peak Crossing/Washpool

Purga is characterised by a number of rural-residential land uses. Peak Crossing contains a mixture of land uses, including a number of rural-residential properties and agricultural estates, poultry farms, Purga Quarry, Gibb Brothers farming operations, and the township of Peak Crossing. Washpool is characterised by predominantly vegetated mountainous areas in the east and rural land uses in the west. Table 21 identifies the notable land uses in the Purga/Peak Crossing/Washpool area.

Table 21 Notable land uses in the Purga/Peak Crossing/Washpool area

Notable land uses:	Location:
Rural grazing properties	Throughout study area
Purga Nature Reserve	Middle Road
Gibb Bros farming operations and other agricultural production	Along Ipswich-Boonah Road, Dwyers Road and Mt Flinders Road.
Purga Quarry	T.Morrows Road
Santrev Fertilised Egg (Poultry) Farm	Ipswich-Boonah Road
Poultry Farm	Middle Road
Peak Crossing Township	Ipswich-Boonah Rd, south of Gibb Bros Farm
Ivory's Rock Conference Centre	Mt Flinders Road, Ivory's Rock

Woolooman/Undullah/Kagaru

Throughout the Woolooman area, terrain is of a rugged nature (associated with Mount Welcome), and there is minimal development. Undullah is similarly rugged and mountainous. Kagaru contains more gentle topography, with elevated and vegetated areas in the south-west and north-east, and cleared, rural land in the south-east. Table 22 identifies the notable land uses in the Woolooman/Undullah/Kagaru area.

Table 22 Notable land uses in the Woolooman/Undullah/Kagaru area

Notable land uses:	Location:
Rural grazing properties	North and east parts of the study area
Densely vegetated areas	East, west and south parts of the study area
Sand mines	Along Undullah Road

11.2.5 Study area – zoning

The recent local government reform in Queensland has changed the local administrative boundaries within the SFRC study area. In particular, the former Beaudesert and Boonah Shires have amalgamated to form part of the Scenic Rim Regional Council (SRRC). The SRRC also includes the townships of Harrisville and Peak Crossing (formerly within the boundary of Ipswich City Council). Until such time as new planning schemes are created for the reformed local governments, the planning schemes of the former councils continue to have effect. As such, the planning schemes of the three former local governments will continue to apply to development within the study area until the new planning schemes are created. The zoning plans within the three planning schemes identify future planning intent for individual parcels of land (see Map 5.6).

Zoning plans for the study area generally reflect the current rural use of the land and do not envisage the future intent to construct a freight railway through the area. Accordingly, it can be suggested that the project is relatively inconsistent with the zoning designations throughout the majority of the study area. Inconsistencies with the intent of the rural zoning designations include potential disruption to agricultural practices including impacts on Good Quality Agricultural Land, the loss of property, and the loss of rural amenity.

However, at a more strategic level, it is important to acknowledge that it is far more feasible to consider the location of the SFRC in a rural area than in a densely populated urban area. As such, whilst it is not specifically consistent with the intent of the rural zones, these areas do perhaps represent the most appropriate location for the SFRC. Accordingly, the focus for the SFRC should be on the implementation of suitable strategies aimed at ensuring that the inconsistencies with the rural nature of the study area are mitigated.

The exception to this is at Ebenezer/Willowbank, where the future strategic intent for much of the land in the study area is for regionally significant industrial uses. The SFRC may act as a significant catalyst for development of these areas, particularly in relation to rail dependant industries and support industries associated with transport, freight handling, warehousing and logistics.

As such the SFRC can be considered to be largely consistent and in fact supportive of the intent of the Regional Business and Industry Investigation Zone.

11.2.6 Development constraint overlays

The planning schemes of Ipswich City, Boonah Shire and Beaudesert Shire contain development constraint overlays which are used for assessment of development applications. A number of these are relevant to the SFRC, including Good Quality Agricultural Land (see Map 5.8). Detailed consideration of the influence of the various overlays on the project is provided in the various Technical Papers in Volume 2.

11.2.7 Future land use

One of the major drivers for the SFRC is the development that is predicted to occur in the study area (particularly the western part of the study area) in the coming years. Purga has been identified as a Growth Area (Employment) in the *South East Queensland Regional Plan 2009-2031* (SEQRP), and it is likely that Ebenezer/Willowbank (west of Purga) will be the location of a regionally significant industrial estate in the future.

The Acacia Ridge intermodal freight terminal is expected to reach capacity in the next decade and is constrained to further development. There is a recognised need to pursue the development of another interchange before this occurs. Two locations slated for this are Purga/Ebenezer or Bromelton. The strategic location of the SFRC between the Western Railway line (which will link to the future Melbourne-Brisbane line) and the Interstate Railway line provides an opportunity for the location of a major intermodal freight terminal somewhere in the vicinity of Ebenezer, along the SFRC alignment. With this backdrop, it can be seen that the strategic importance of the SFRC and associated terminal is such that the future feasibility of this infrastructure is not compromised by development which will occur in the area in the near future. As such, this revised assessment report identifies a project corridor which can be acquired and protected from encroachment by other future development.

The future development which will (or is expected to) occur in the vicinity of the SFRC is shown in Map 5.7. This future development includes:

- Willowbank/Ebenezer Regional Development Area
- Ipswich Motorsport Precinct
- intermodal freight terminal
- Purga Identified Growth Area
- Ripley Valley
- Swanbank Enterprise Park
- Amberley Airbase and Aerospace Park
- Powerlink Substation
- Peak Crossing development
- Bromelton State Development Area
- Ivory's Rock Conference Centre
- Boonah-Ipswich Multi-User Recreational Trail
- Undullah/Kagaru

11.2.8 Planning provisions

The community infrastructure designation (CID) process under the *Sustainable Planning Act 2009* (SP Act), effectively means that the SFRC will not require approval under the planning schemes of the three former local governments within the study area. Additionally, the Project will be exempt from assessment against the Regulatory Provisions of the South East Queensland Regional Plan. However, all relevant State legislation listed under the *Sustainable Planning Regulation 2009* will still apply to the project. The *Environmental Protection Act 1994* prescribes a "general environmental duty" for all development. As such, it is important to determine the compatibility of the Project with all relevant planning provisions for the study area, including those at State, regional and local scales.

Assessment of the SFRC against the applicable planning provisions is provided Technical Paper 5 – Land Use and Planning (Volume 2).

11.3 Potential impacts and mitigation measures

11.3.1 Preferred alignment – sensitive and notable land uses

In order to predict the impacts of the SFRC upon the land use of the study area, it is necessary to identify the location of the preferred alignment in relation to the surrounding land uses, particularly sensitive land uses. Sensitive land uses throughout the corridor of interest include residential dwellings, poultry (fertilised egg) farms, and croplands. The noise and vibration component of this draft assessment report models noise impacts for sensitive receivers up to 300m either side of the preferred alignment, and extrapolates this information to apply certain noise criteria to this modelling output. The noise and vibration study also analyses the sensitive land uses within a distance of approximately 2km from the preferred alignment, and suggests a case-by-case appraisal of the likely impact of the SFRC upon these uses, including a discussion of ways in which noise and vibration impacts may be mitigated in these areas.

The following tables provide an analysis of the proximity of notable land uses from the preferred alignment (see Map 5.3).

Lanefield/Ebenezer

Table 23 Notable land uses in proximity to the preferred alignment in Lanefield/Ebenezer

Notable land uses:	Location:
Rural grazing properties	Throughout section
Gum Tips Nature Refuge	800m south
Brisbane Skydiving Centre	2.3km south
Ipswich Motorsport Precinct	250m north

Purga/Peak Crossing/Washpool

Table 24 Notable land uses in proximity to the preferred alignment in Purga/Peak Crossing/Washpool

Notable land uses:	Location:
Rural grazing properties	Throughout section
Santrev Poultry Farm	650m north
Purga Quarry	420m north-east
GQAL including the Gibb Brothers farming operations	Adjacent (residence is 35m west)
Peak Crossing Township	2.3km west
Ivory's Rock Conference Centre	1km east

Woolooman/Undullah/Kagaru

Table 25 Notable land uses in proximity to the preferred alignment in Woolooman/Undullah/Kagaru

Notable land uses:	Location:
Rural grazing properties	Around Undullah and Kagaru
Rugged and mountainous vegetated terrain	Throughout Woollooman
Sand mines	Over 300m north and south

11.3.2 Pre-construction and construction

The pre-construction activities associated with the SFRC are likely to cause a number of negative impacts including relocation of residents, loss of property and disruption to rural activities. These impacts are identified in Table 26, along with the trigger causing the impact and the mitigation measures which should be adopted in order to minimise the impact.

Construction of the SFRC is likely to cause a number of negative impacts, including increased noise and vibration, dust generation, a decrease in the quality of the local airshed, a loss of rural character, disruption to agricultural practices, fragmentation of GQAL and temporary closure of roads. Many of these impacts can be categorised as a reduction in residential and rural amenity. Measures to minimise or mitigate these construction impacts should be adopted (see Tables 26 and 27). These would be outlined in a Construction Environmental Management Plan (CEMP) prior to construction taking place. Specific measures have been suggested in each relevant Technical Paper.

11.3.3 Operation

During operation, the SFRC is likely to cause impacts upon various aspects of land use in the study area. These are identified in Tables 26 and 27, along with the trigger causing the impact, and the mitigation measures which should be adopted in order to minimise the impact.

Table 26 Potential impacts and mitigation measures

Impact	Trigger	Mitigation	Stage
Reduction in residential amenity	Increased noise and vibration	Buffers (natural or constructed) between the SFRC and residences and appropriate acoustic treatments where appropriate. In some areas, noise and vibration impacts may be significant enough to warrant removal of some residential structures. Refer to Technical Paper 8 – Noise and Vibration.	Operation
	Decreased air quality in study area	It is not likely that the SFRC will have a significant impact upon the quality of the local airshed. Refer to Technical Paper 6 – Air Quality, Climate and Climatic Trends	Operation
	Loss of rural character	Reduce visual impact of the corridor through appropriate landscaping of corridor particularly in visually sensitive areas. A Landscape Integration Strategy should be prepared in the detailed design stage, followed by detailed Landscape, Revegetation and Urban Design Guidelines. Refer to Technical Paper 7 – Visual Impact Assessment.	Operation
Forced relocation of residents and/or loss of property	Removal of homes situated on, or in close proximity to, the SFRC	Technical Paper 11 – Social Impact Assessment identifies that a total of 123 properties are subject to land requirements	Pre-construction

Impact	Trigger	Mitigation	Stage
	Acquiring of land for the SFRC preferred alignment subject to the CID	for the project, and a further 208 adjoining. TMR (Property Services division) will compensate affected residents appropriately when acquiring property and residences in accordance with Government policy.	
Disruption to rural activities	Severance of grazing areas	Avoid severing grazing properties wherever possible by placing the SFRC along the boundary of the properties (particularly along Dwyers Road and Undullah Road). Where this is not possible, provide fencing between grazing areas and the SFRC, and provide access for grazing stock over or under the SFRC, particularly to watering locations. Work with individual land owners to develop suitable solutions based on individual farm management practices.	Pre-construction
	Severance of croplands defined as GQAL in SPP192 – Development and the Conservation of Agricultural Land.	Where possible areas of GQAL have been avoided. Severance of croplands has been avoided wherever possible by placing the SFRC along the perimeter of properties. Where this is not feasible, provide access for farm machinery over the SFRC and reinstate any existing irrigation infrastructure. Work with individual land owners to develop suitable solutions based on individual farm management practices. The preferred alignment has been designed to minimise impacts upon GQAL. The alignment has also been located to avoid significant areas of GQAL surrounding the township of Peak Crossing.	Pre-construction
Decreased accessibility to properties	Severance of driveways and local access roads	Provide service roads linking local access roads and individual property driveways. As a last resort provide at-grade occupational crossings for individual properties.	Operation, Construction
	Severance of connector roads of high local and regional significance	Provide grade separation with the SFRC to maintain connectivity of locally and regionally significant roads. As shown in Map 5.11, grade separation will be undertaken at locations where the SFRC alignment crosses important roads including, but not limited to: • Rosewood-Aratula Road • Mount Forbes Road • Cunningham Highway • Middle Road • Ipswich-Boonah Road • Mount Flinders Road • Washpool Road • Wild Pig Creek Road (x3) • Undullah Road (x2) Level crossings will be avoided wherever	Operation, Construction

Impact	Trigger	Mitigation	Stage
		possible, and are to be only used as a last resort. Level crossings may be implemented in areas where lower-order roads are traversed by the SFRC alignment and it is difficult to justify the creation of a grade separated crossing.	
Decreased local biodiversity	Clearing of vegetation throughout the study area	Minimising disturbance to important ecological areas, such as Of Concern and Endangered REs, nature reserves, and other important habitat areas. The preferred alignment is located to minimise ecological impacts. For example, the alignment has been revised in the Ebenezer area to avoid most significant areas of Critically Endangered swamp tea tree forest and a number of areas recognised as high value bushland koala habitat. Where clearing of Endangered and Of Concern REs is required, an application under the Vegetation Management Act 1999 incorporating a legally binding offsets strategy would be required. For further detail see Technical Paper 2 – Section 4.1.2 (Volume 2). Further, areas of potential wildlife corridors over the preferred alignment are located in Ebenezer, and in the Woolooman area, where sections of tunnel provide an opportunity for fauna movement (see Table 5). These corridors will promote the maintaining of ecological integrity at the landscape level, through facilitating the movement of fauna between significant habitat areas north and south of the preferred alignment. Refer to Technical Paper 2 – Nature Conservation (Volume 2).	Operation, Construction
Exacerbated Flooding Impacts	Climate Change and associated higher frequency extreme events	Detailed design of the SFRC will make allowance for the increased potential for flooding events in the study area, particularly at the crossing of the Bremer River and a number of creeks due to climate change.	Operation

Table 27 Operational impacts of the SFRC upon proposed residential and industrial developments, the associated trigger, and identified mitigation measures

Impact	Trigger	Mitigation	Stage
Constraints on future residential development of Undullah Station	Presence of SFRC in area proposed by land owner as future residential.	It is important to note that this potential future residential development is not consistent with Local or State policy and is proposed by the landowner and developers. Future planning of this property should consider the SFRC revised alignment to ensure appropriate location of sensitive residential uses.	Operation
Impacts on industrial	Presence of SFRC in area proposed as future	The design of the SFRC alignment in this location has been situated in order to reduce	Operation

Impact	Trigger	Mitigation	Stage
development in the northern section of Ebenezer Regional Development Area	industry.	property fragmentation. Alignment design is also such that it can support development of an intermodal freight terminal if required and allow for co-located, rail dependant industries.	

In addition to the potential adverse impacts identified above, the SFRC has the potential to create a number of beneficial impacts. Firstly, through catalysing future development in the study area through the attraction of rail-dependent industry in the Ebenezer area, and complementing the development of the Bromelton SDA, the SFRC is likely to facilitate the Western Corridor Growth Strategy, as promoted through the SEQRP. The development of the SFRC is likely to attract rail-dependent industry to the future industrial area of Ebenezer. This may include an intermodal freight terminal, acting as a hub for emerging industry and offering efficient access to rail and road (Cunningham Highway). With the construction of the SFRC, the location will be attractive for any industry seeking rail access to Melbourne, Sydney and the Port of Brisbane.

Secondly, through providing a strategic link between the Inland Railway and the interstate railway and through decreasing the reliance upon heavy vehicle freight, the SFRC has the potential to contribute to an improvement in regional and national freight efficiencies. Through its relationship to regional and national freight efficiency, the SFRC will complement regional and national freight initiatives such as the Inland Rail. This is likely to result in improved efficiencies throughout the region, state and nation. Further, the SFRC will contribute to the national initiative to make rail freight safe and efficient and to be a viable and competitive alternative to road freight transportation. The SFRC is also likely to promote the interests of the SEQIPP, which aims to improve the efficiency of freight transport within the SEQ region.

11.4 Conclusion

The land use and planning study has investigated the existing and future land uses within the SFRC study area, and has assessed the compatibility of the SFRC with the applicable Commonwealth and State legislation, in addition to regional and local government planning instruments. Based on these activities, a list of land use constraints was developed to inform the selection of the preferred alignment within the study area.

11.4.1 Existing land use

Existing land uses throughout the study area are primarily characterised by rural activities on a variety of allotment sizes, and zoning provisions throughout the study area largely reflect the rural nature of the area. Sensitive land uses within the study area include:

- the Gum Tips Nature Refuge and nearby swamp tea tree communities adjacent to Tea Tree Avenue, Ebenezer. The natural ecological value of the Nature Refuge and the surrounding swamp tea tree communities are of high importance at a local, regional, state and national level
- the Purga Nature Reserve. This is another area of swamp tea tree forest (classified as an Endangered Regional Ecosystem, and protected under the EPBC Act)
- the Santrev Poultry Farm – Ipswich-Boonah Road, Purga. This operation currently accounts for a significant proportion of the Queensland fertilised egg production for Bartter Steggles, and thus plays an important role in the poultry industry within the region and the State
- the Purga Quarry. The contribution of this resource to the local and regional economies is significant
- the Gibb Brothers farmlands and packing facility and other smaller farming operations to the north and east of Peak Crossing
- the Peak Crossing township and Peak Crossing State School. Peak Crossing is the nearest township to the SFRC
- the sand mines at the eastern end of the study area. Five sand mining operations are located within the corridor of interest near Kagaru at the eastern end of the study area

- the Ivory's Rock Conference Centre (IRCC), east of Peak Crossing, off Mt Flinders Road. The IRCC is a large outdoor nature-based recreation facility which attracts large numbers of visitors during conferences throughout the year

11.4.2 Potential impacts and mitigation measures

The preferred alignment has been designed to avoid land use impacts as much as possible, minimising impacts upon these sensitive land uses. Through introducing freight rail traffic into the area, and potentially catalysing development of regional industry and an inter-modal freight terminal, the SFRC is likely to transform the quiet rural nature and character of the study area.

With the transformation of character as the overarching impact, a number of other impacts upon the SFRC study area will remain despite attempts to mitigate these. These impacts include the future acquisition of properties along the alignment, disruptions to connections between properties and local roads, changes to the local transportation network, disruptions to rural activities, and decreases in local biodiversity.

Notable residual land use impacts relate to the likely loss of swamp tea tree communities in the Purga and Ebenezer areas, and the likely loss of some GQAL throughout the study area. Direct impacts upon residential dwellings are unavoidable, and the approach was taken to avoid clusters of houses or areas of higher residential density, such as rural-residential areas around Purga and Ebenezer.

11.4.3 Future development

With respect to future development, the SFRC complements the future planning intent within Ebenezer and Purga. The future industrial precincts of Ebenezer and Purga will be located adjacent to the SFRC, with the high possibility of an inter-modal freight terminal along the corridor. This terminal would act as a major catalyst for industry and logistics in the Western Corridor, providing employment opportunities for the future residential population of Ripley Valley. Further, the SFRC would support the development of the Bromelton State Development Area. The SFRC will also be complementary to a number of other initiatives, including the upgrade of the RAAF Amberley Air Base, the proposed Amberley Aerospace Park, and Swanbank Enterprise Park.

The SFRC is a significant project for the Western Corridor of SEQ, the wider SEQ region, Queensland, and Australia. When coupled with the future inland railway, the project makes sense from an economic, freight transportation, social, and land use planning point of view. The SFRC will ensure that heavy rail freight will not congest the Brisbane metropolitan railway network, and will provide logistics operators a more viable alternative than road transport for interstate freight movements.

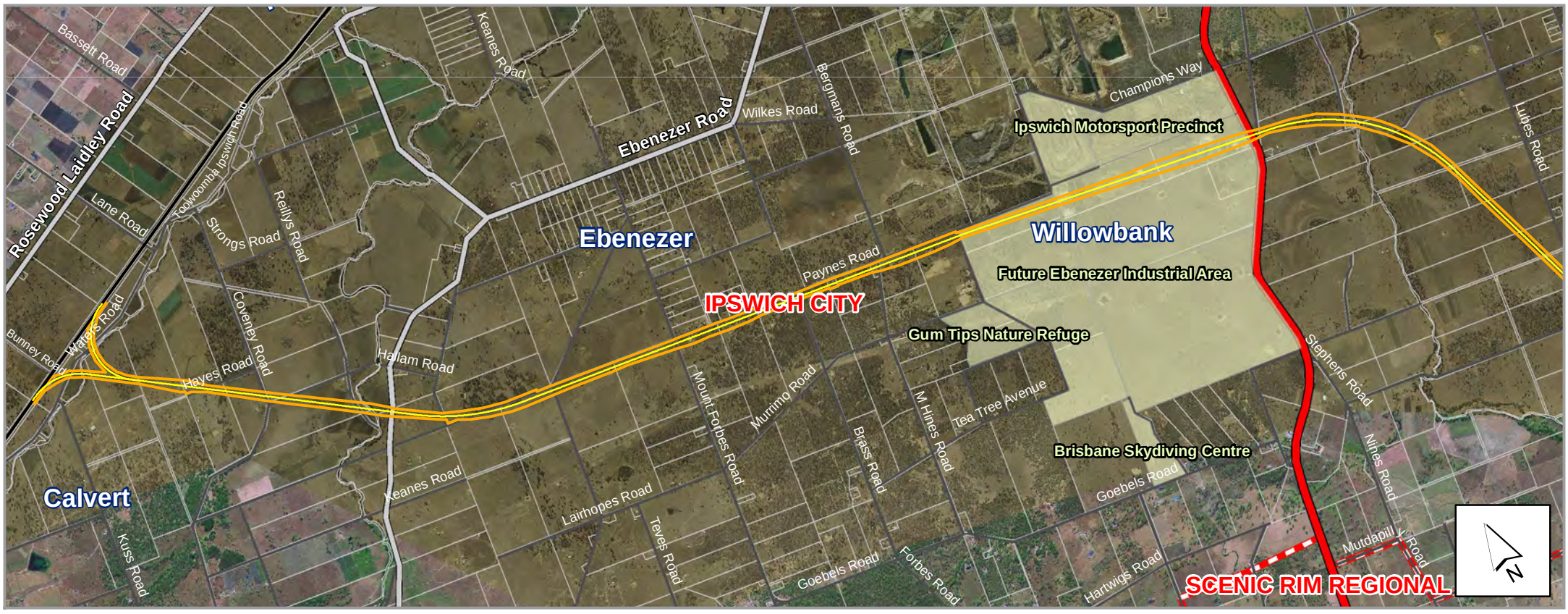
11.4.4 Localised impacts

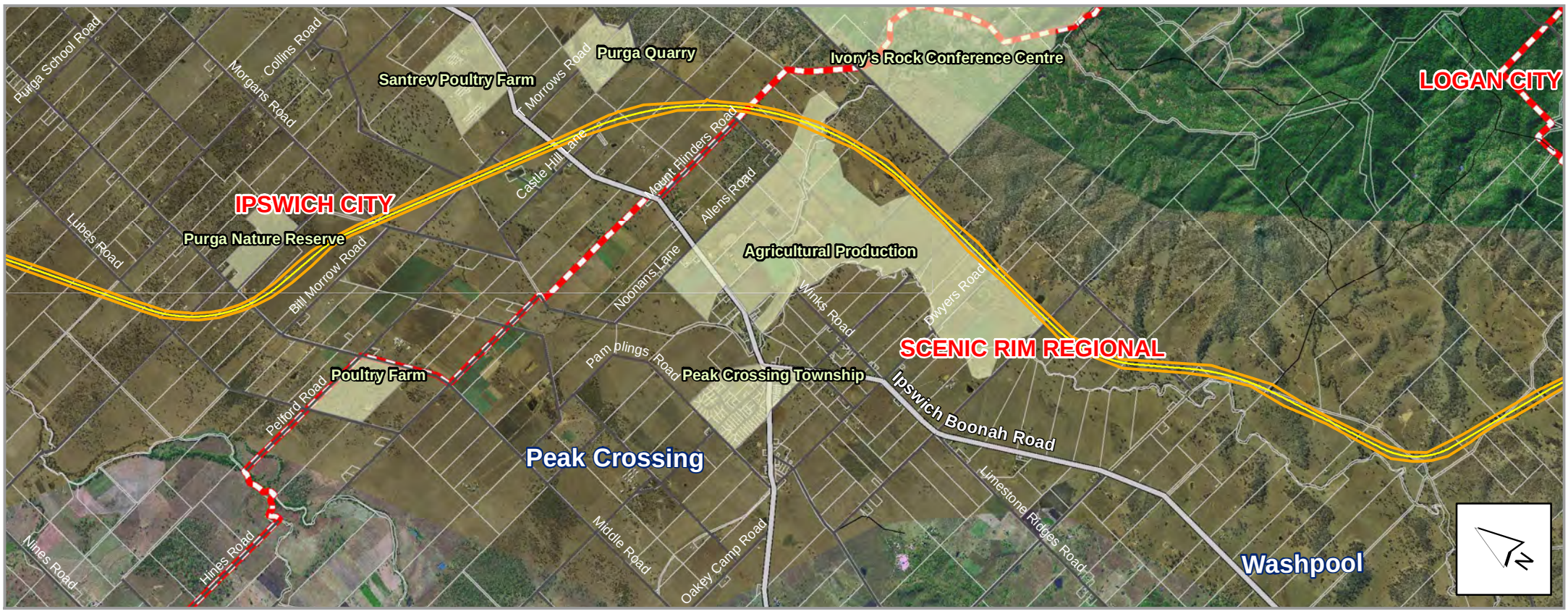
When the impacts of the SFRC upon residents of the study area are viewed in light of these high-level strategic benefits posed by the project, it could be said that the loss of residential amenity and rural character (and other associated impacts) in the study area are unfortunate realities of the SFRC project. From a land use and planning perspective at the national, state, regional, and local government level, the SFRC (when coupled with the proposed inland railway) is an important and practical development initiative of the Department of Transport and Main Roads.

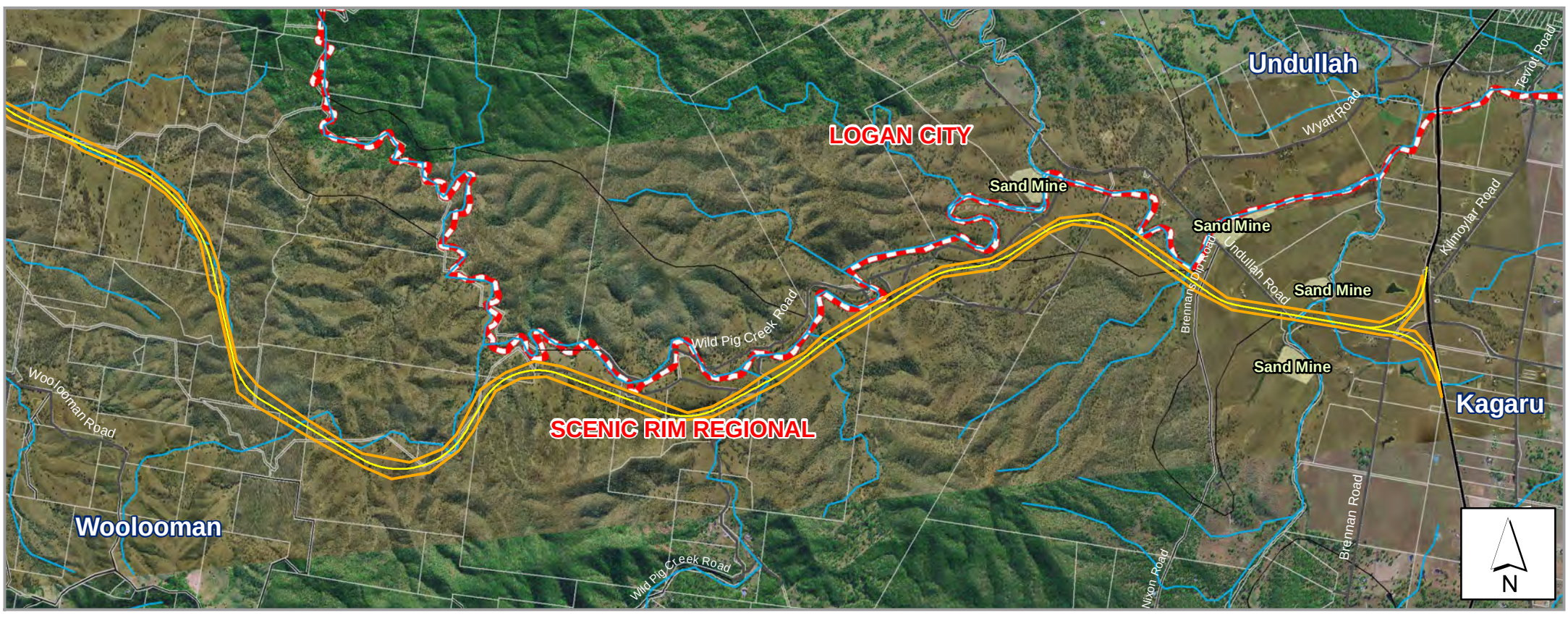
Nevertheless, the impact that the SFRC will have upon the local communities in the study area is significant. In light of the considerable regional benefits of the project it is reasonable to require that considerable effort be put into mitigating localised negative impacts through the implementation of appropriate design responses to particular issues and fair and reasonable compensation for impacted landowners. In general terms, the project should seek to leave a positive legacy for local communities through the provision of the best achievable design outcomes and external community improvement projects considered appropriate at the time of construction.

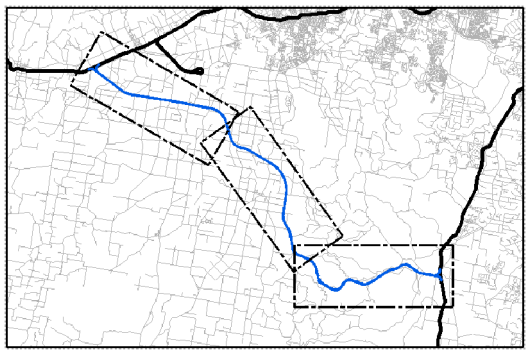
JOB: Southern Freight Rail Corridor Study

Date - March 2010









Legend

- Revised Rail Alignment
- Existing Rail
- Preliminary CID Boundary
- Notable Land Uses
- LGA Boundary

GDA
MGA94 Zone 56

Queensland Government

Southern Freight Rail Corridor Study
Revised Assessment Report

Notable Land Uses

Kilometres
0 1 2 4

1:60,000 (when printed at A3)

A3 size

Map 5.5

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Date - March 2010

Ipswich Zoning - Legend

- Amberley Air Base & Aviation
- Bundamba Racecourse Stables Area
- Business Incubator
- CBD Medical Services
- CBD North Secondary Business
- CBD Primary Commercial
- CBD Primary Retail
- CBD Residential High Density
- CBD Secondary Commercial
- CBD Top of Town
- Character Housing Low Density
- Character Housing Mixed Density
- Character Mixed Use
- Conservation
- Future Urban
- Large Lot Residential
- Limited Development (Constrained)
- Local Business and Industry
- Local Business and Industry Buffer
- Local Business and Industry Investigation
- Local Retail and Commercial
- Major Centres
- Recreation
- Regional Business and Industry - Low Impact
- Regional Business and Industry - Medium Impact
- Regional Business and Industry Buffer
- Regional Business and Industry Investigation
- Residential Low Density
- Residential Medium Density
- Rural A
- Rural B
- Rural C
- Rural D
- Rural E
- Service Trade and Showgrounds
- Special Opportunity
- Special Uses
- Town Centre
- Township Business
- Township Character Housing
- Township Character Mixed Use
- Township Residential
- Urban Investigation

Boonah Zoning - Legend

- Unknown
- Open Space
- Rural
- Rural Buffer
- Rural Residential
- Town
- Village
- Village Ind

Beaudesert - Legend

- IPA Community
- IPA Conservation
- IPA Future Investigation
- IPA Residential
- IPA Rural
- IPA Rural Residential

Legend

- Existing Rail
- Revised Rail Alignment
- Preliminary CID Boundary
- Former LGA Boundaries

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Southern Freight Rail Corridor Study
Revised Assessment Report

Planning Scheme Zoning

Kilometres 0 1 2 4

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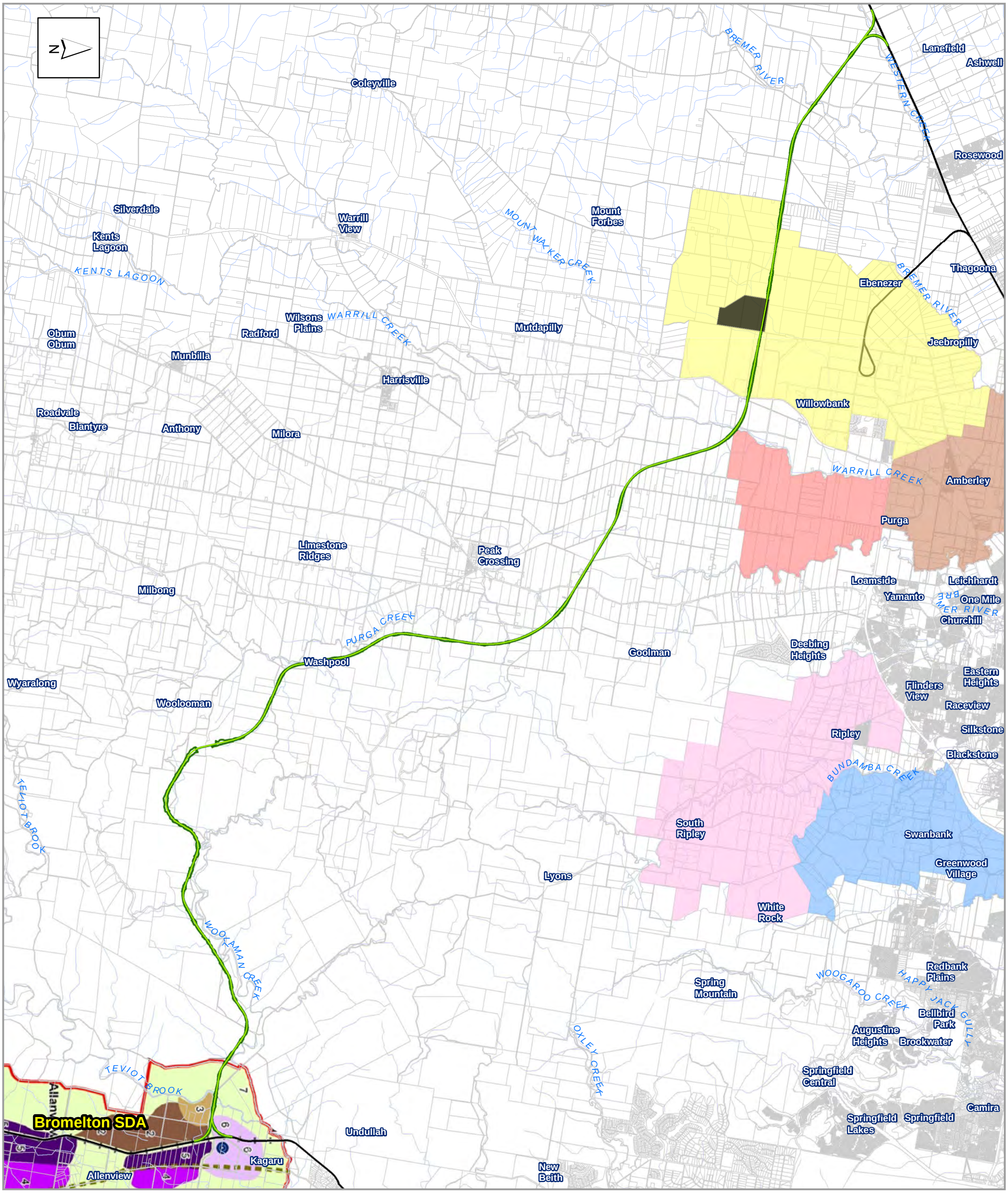
Map 5.6

JOB: Southern Freight Rail Corridor Study

Date - March 2010



Legend

- Revised Rail Alignment
- Existing Rail
- Revised Earthworks Boundary
- Future Powerlink Substation Site
- Ripley Valley
- Amberley Air Base & Aerospace Park
- Purga Identified Growth Area
- Swanbank Enterprise Park
- Ebenezer Regional Development Area

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Southern Freight Rail Corridor Study
Revised Assessment Report

Future Land Uses

Kilometres
0 2 4 8

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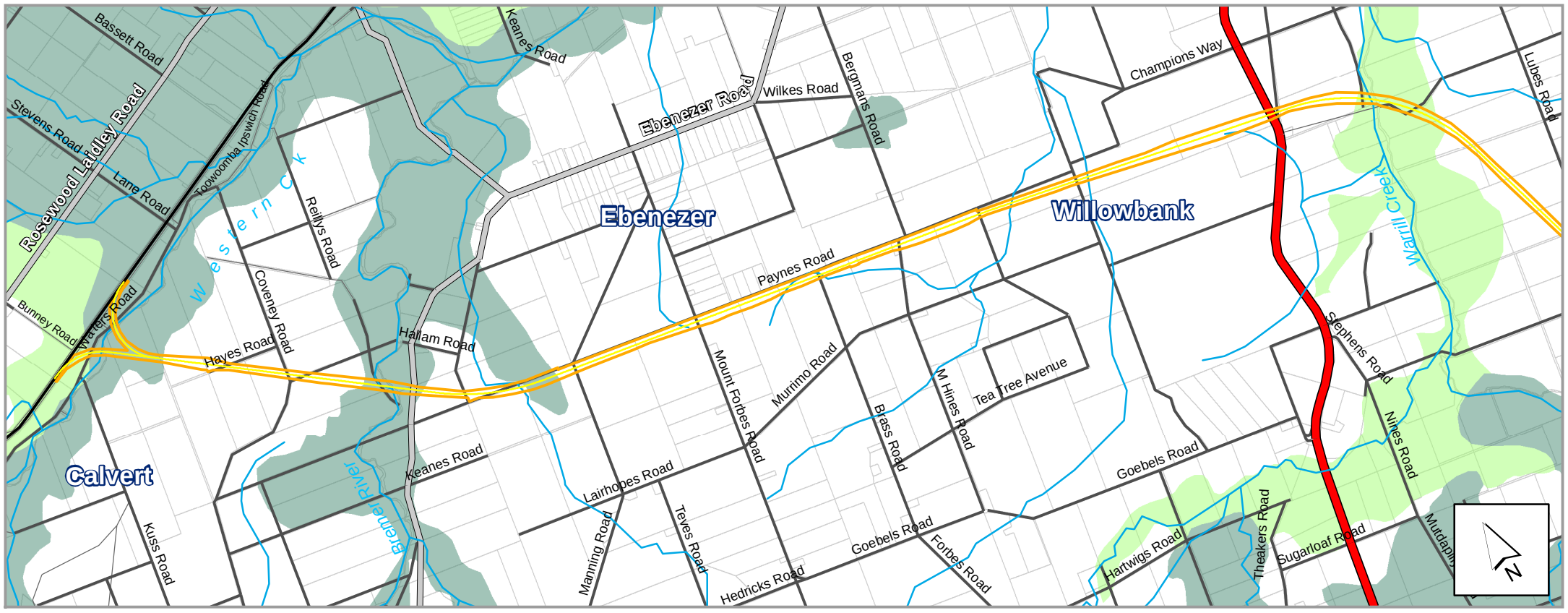
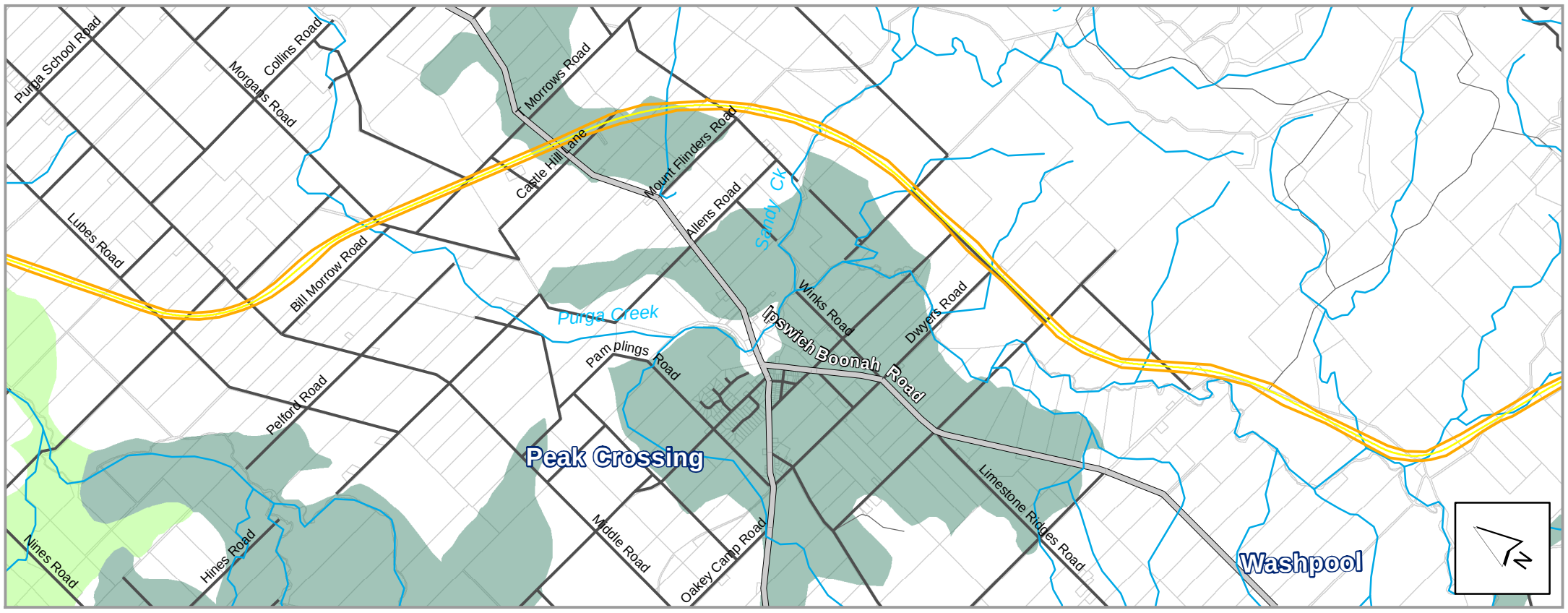
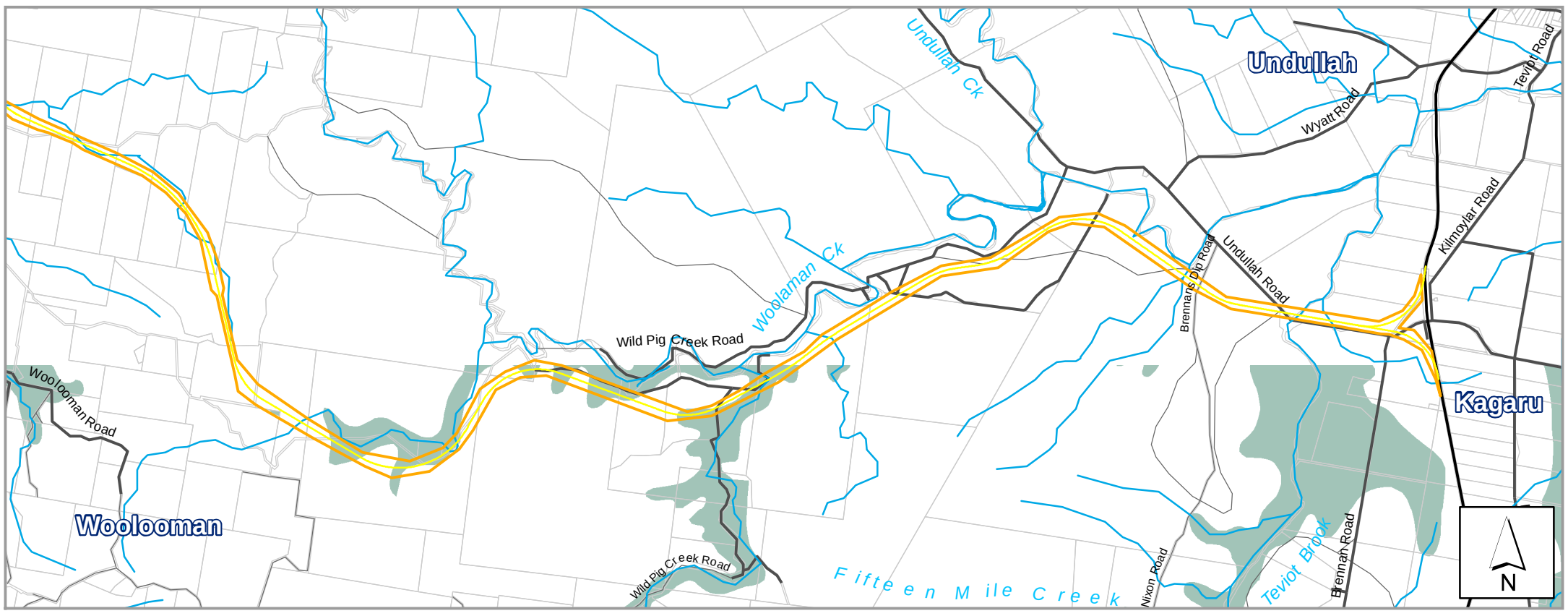
Map 5.7

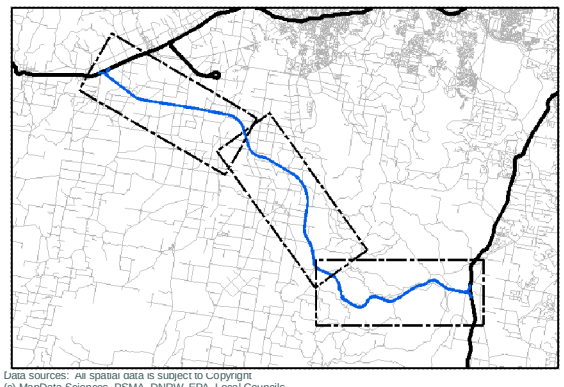
JOB: Southern Freight Rail Corridor Study IAR

Date - March 2010









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GQAL - Based on DNRW data - ALC by P. Kohn, 1995

GDA
MGA94 Zone 56

Legend

- Revised Rail Alignment
- Existing Rail
- Preliminary CID Boundary
- Agricultural Land Classification - A
- Agricultural Land Classification - B

Queensland Government

Southern Freight Rail Corridor Study
Revised Assessment Report

Good Quality Agricultural Land

Kilometres
0 1 2 4

1:60,000 (when printed at A3)

A3 size

Map 5.8

JOB: Southern Freight Rail Corridor Study

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Ebenezer

Willowbank

Calvert

Peak Crossing

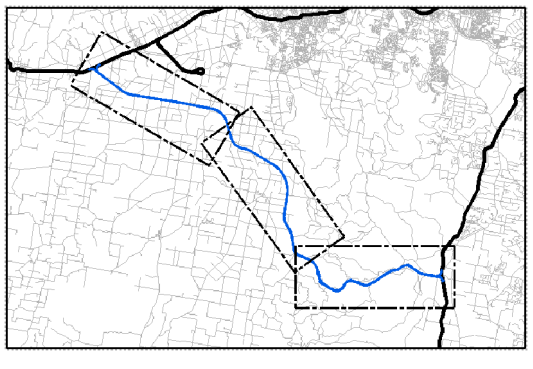
Washpool

Undullah

Kagaru

Wooloolman

Rosewood Laidley Road
Bassett Road
Stevens Road
Lane Road
Toowoomba Ipswich Road
Western Ck
Reillys Road
Coveney Road
Waters Road
Bunney Road
Hayes Road
Hallam Road
Keanes Road
Kuss Road
Spring Hill Creek
Lairhopes Road
Teves Road
Ebenezer Road
Wilkes Road
Bergmans Road
Champions Way
Baueis Road
Paynes Road
Mount Forbes Road
Murrimo Road
Bress Road
M Hines Road
Tea Tree Avenue
Stephens Road
Nines Road
Goebels Road
Sugarloaf Road
Mutdapilly Rd
Warrill Creek
Purga School Road
Morgans Road
Collins Road
Morrows Road
Castle Hill Lane
Mount Flinders Road
Allens Road
Sandy Ck
Lubes Road
Bill Morrow Road
Purga Creek
Pamplings Road
Winks Road
Dwyers Road
Ipswich Boonah Road
Pelford Road
Hines Road
Middle Road
Oakey Camp Road
Limestone Ridges Road
Undullah Ck
Wyatt Road
Trevor Road
Kilmoylar Road
Undullah Road
Brennans Dip Road
Wooloman Ck
Wild Pig Creek Road
Wooloman Road
Fifteen Mile Creek
Nixon Road
Trevor Brook
Brennan Road



Legend

- Existing Rail
- Revised Rail Alignment
- Preliminary CID Boundary
- Major Road Crossings

GDA
MGA94 Zone 56

Queensland Government

Southern Freight Rail Corridor Study
Revised Assessment Report

Major Road Crossings

Kilometres
0 1 2 4

1:60,000 (when printed at A3)

A3 size

Map 5.11

Chapter 12

Air quality, climate and climatic trends

12.0 Air quality, climate and climatic trends

12.1 Introduction and approach

As part of investigations into the environment in and around the study area, a desktop study of air quality, climate, and climate change was undertaken. The results of these investigations are reported in detail in Technical Paper 6, in Volume 2 of the draft assessment report. A summary of the findings of Technical Paper 6 are provided below.

This information and details of the project were used to identify potential impacts of a railway within the study area and develop management strategies to reduce potential risks.

Air quality monitoring undertaken by the Queensland Environmental Protection Agency (EPA) at Flinders View and Mutdapilly were used to characterise existing ambient air quality. Historical observations from the Bureau of Meteorology (BOM) were used to describe average climatic conditions, weather patterns and observed historical changes. A number of reports were also reviewed to identify potential future climate change and risks associated with climate change that may affect railway infrastructure. A regional approach was taken to determine the environmental values of the air shed of the corridor of interest, as it is likely that it is influenced by activities beyond the corridor of interest itself. It should be considered that potential impacts are likely to be within a much smaller area.

12.2 Description of existing environment

12.2.1 Ambient air quality

The EPA monitors ambient air quality at two locations near the corridor of interest: Flinders View and Mutdapilly. Typical exhaust pollutants are monitored at these locations including ozone, oxides of nitrogen (NO_x), sulphur dioxide (SO_x), airborne particles less than 10µm (PM_{10}) and visibility. Volatile Organic Compounds (VOC) are another exhaust pollutant of interest; however, it is not monitored at these locations.

Monitoring undertaken from 1996 to 2005 indicates that air quality in the region complies with the *Environmental Protection (Air) Policy 2008* (EPP (Air)) and the *National Environmental Protection (Ambient Air Quality) Measure* (NEPM (Ambient Air Quality)) (EPA, 2006). Occasionally, concentrations of particulate and visibility reducing matter exceed the guidelines; however, this has been attributed to naturally occurring events such as bushfires and dust storms. The monitoring indicates that for most of the parameters monitored, concentrations have remained stable. However, concentrations of PM_{10} have increased slightly from approximately 20µg/m^3 to approximately 30µg/m^3.

Existing potential sources of air emissions within the air shed include broad-acre agriculture, poultry farms, quarries, Rosewood wastewater treatment plant, highways, Willowbank Raceway, and Ti-Tree Bioreactor Landfill (see Map 6.2). Potential emissions from these sources include dust odour, greenhouse gases and exhaust emissions.

Existing potential receptors within the air shed include 14 townships, four schools, individual residences, and the Ivory's Rock Conference Centre (see Map 6.2). Calvert, Lanefield, Peak Crossing, Washpool, and Kagaru are situated closest to the alignment and therefore have the greatest potential to be affected by construction and operation of a railway within the corridor of interest.

12.2.2 Climate

BOM stations at Amberley AMO and Beaudesert provide an indication of the climate of the corridor of interest. It is a subtropical climate with warm summers (average 20°C to 31°C) and cool winters (average 5°C to 21°C). The average rainfall of the area is less than 1,000mm per year. The wettest months are from December to February, while August is the driest month.

Morning winds are generally from the southeast to northeast, whereas afternoon winds are generally from the west to southwest. Afternoon winds are usually stronger than morning winds.

The study area is within areas of low to medium bushfire hazard, according to mapping undertaken by the Queensland Fire and Rescue Service (QFRS). Areas of medium hazard are vegetated areas south of Ebenezer and at the Flinders Range crossing. The average recurrence interval of significant bushfires is approximately 5 years in South-East Queensland (GA, 2001).Tropical cyclones have not occurred within the corridor of interest; however, tropical storms occur with moderate frequency and can be severe.

12.2.3 Climatic trends

Observations made by BOM from 1950 to 2006 indicate that the climate of South-East Queensland is getting hotter and drier. El Niño (which causes periods of hot dry weather) and La Niña (which causes cooler wetter weather) strongly influence weather in the area.

12.2.4 Future climate change

The climate in South-East Queensland is predicted to become hotter and drier as a result of global climate change. In addition, the frequency and severity of extreme weather events such as floods, droughts, storms, and bushfires is predicted to increase.

12.3 Potential impacts and mitigation measures

12.3.1 Air quality

Potential emissions from construction and operation of the SFRC include dust from earthworks and disturbed soil, and exhaust gases from construction vehicles and locomotives.

Construction vehicles and locomotives are anticipated to be powered by diesel and diesel-electric engines respectively. Emissions from diesel engines include carbon monoxide (CO), NOx, SOx, VOCs and PM10. Operation of locomotives along the SFRC has the potential to increase local air emissions.

12.3.2 Greenhouse gas

QR Network Access commissioned a study by Affleck Consulting Pty Ltd to compare carbon dioxide (CO2) emissions from intermodal rail and road freight in Australia. The study found that rail freight generates 16g of CO2/ Nett Tonne Kilometre (NTK), whereas road freight generates 29g of CO2/NTK. A comparison of rail and road freight from Melbourne to Brisbane indicated that although local emissions of CO2 would increase, the global emissions of CO2 would decrease.

The potential impacts of climate change on the SFRC should be considered. Some potential impacts of climate change on the railway line and supporting infrastructure include track movement, storm damage, material degradation, and increased flooding.

12.3.3 Mitigation

Project-specific objectives for construction and operation of the SFRC include:

- compliance with EPP (Air) and NEPM (Ambient Air Quality) guidelines
- no substantiated complaints concerning dust, air quality or odour
- no fires caused by construction or operation of the SFRC
- reduce greenhouse gas emissions as far as practicable
- ensure the railway and supporting infrastructure can accommodate future climate change as far as practicable

Proposed management strategies during construction include:

- proper servicing and maintenance of construction vehicles to control air emissions
- best practice management of solid and liquid wastes to control potential odour issues
- best practice site management to reduce risk of wild fires

Proposed management strategies during operation include:

- investigation and implementation of ways to reduce the proposed operations' carbon footprint to as low as practicably possible
- design of railway and supporting infrastructure to accommodate future climate change
- design railway to keep gradients to a minimum
- treatment of railway verges using cobbles, coarse gravel or vegetation to control dust and reduce risk of wild fires

12.4 Conclusion

Overall, the construction of the SFRC will potentially have a minor short-term impact on air quality in the local area. Operation of the SFRC will potentially have a minor intermittent impact from exhaust gases and possible odour from passing trains. This is only expected to affect receptors immediately adjacent to the preferred alignment.

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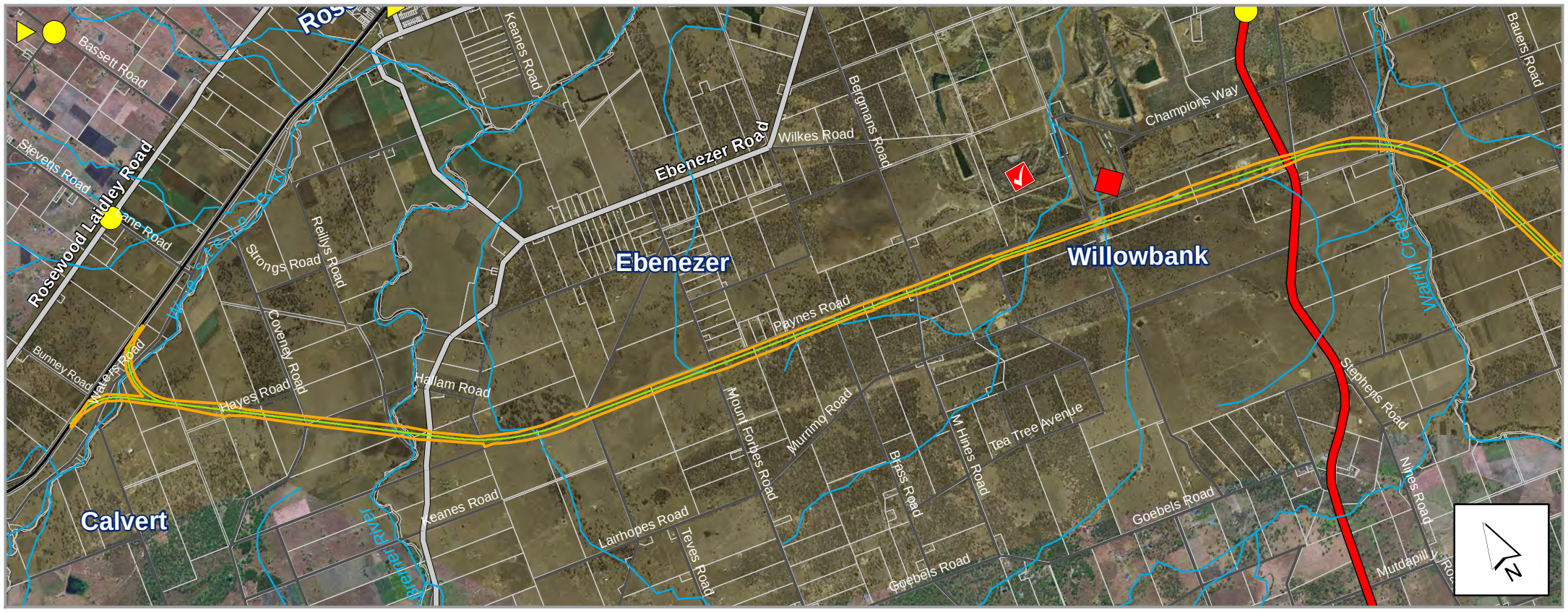
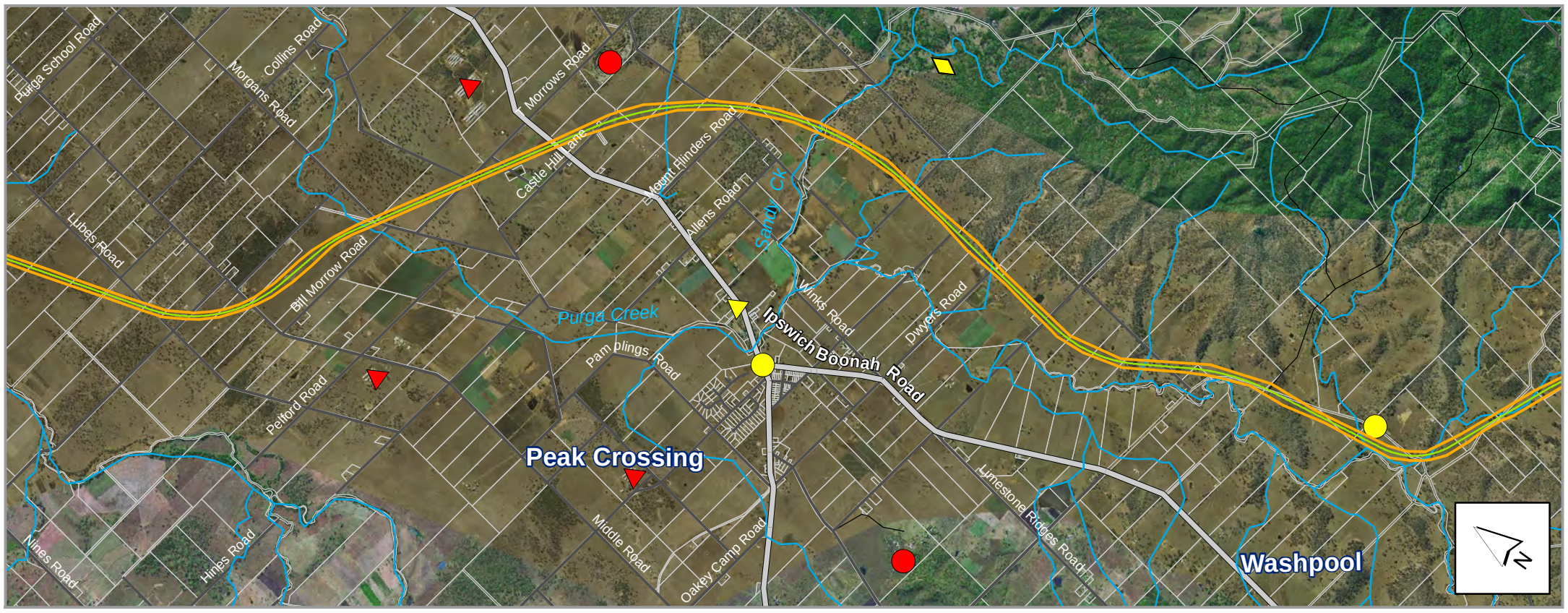
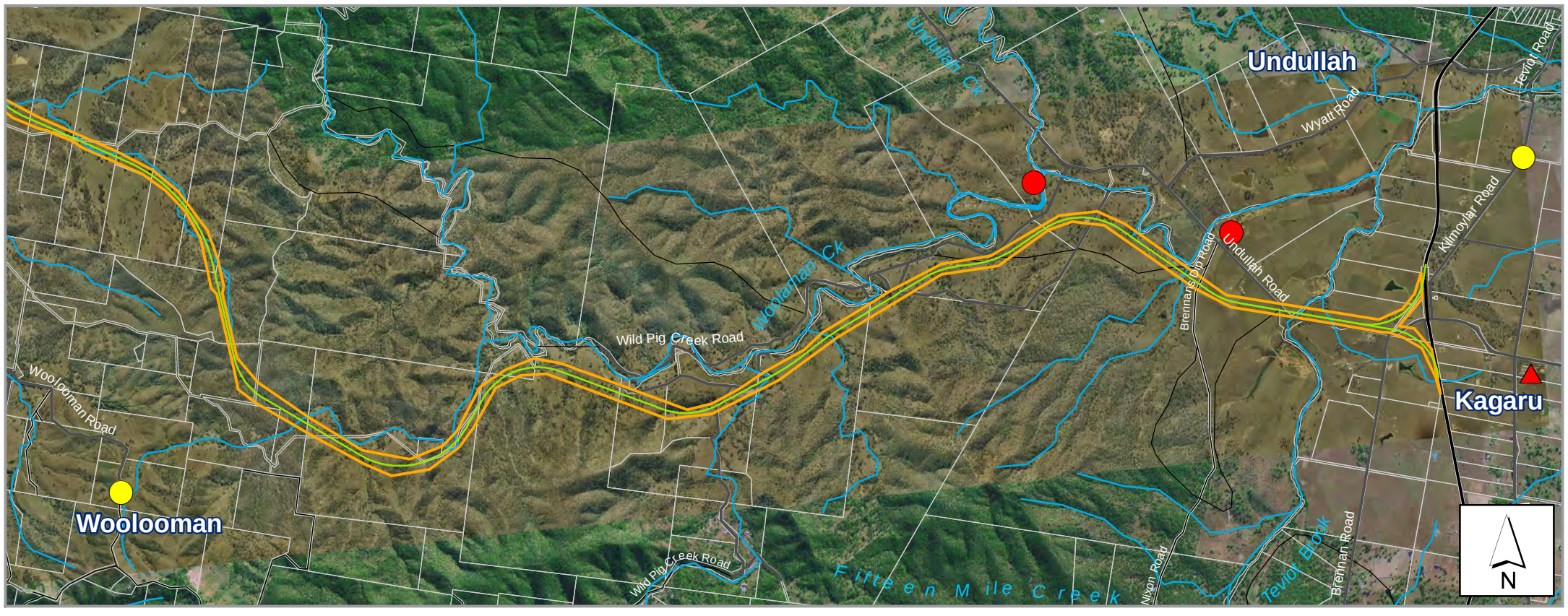
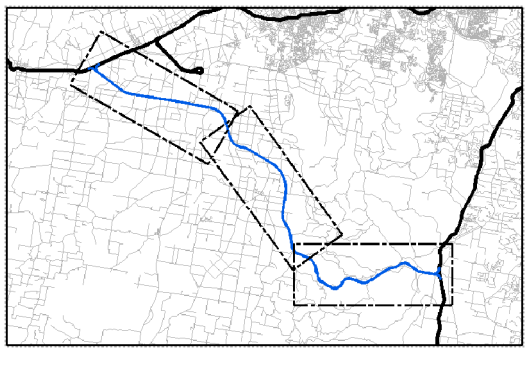
Date - March 2010









Legend

- Revised Rail Alignment
- Existing Rail
- Preliminary CID Boundary

Existing Receptors

- Schools
- Towns / Settlements
- Ivory's Rock Conference Centre

Existing Potential Emission Sources

- Quarry; Dolomite Quarry
- Poultry Farm
- Ti-Tree Landfill / Bioreactor
- Willowbank Raceway

Queensland Government

Southern Freight Rail Corridor Study
Revised Assessment Report

Air Quality - Emitters & Receptors

Kilometres

0 1 2 4

1:60,000 (when printed at A3)

A3 size

Map 6.2

GDA MGA94 Zone 56

Chapter 13
Visual impact assessment

13.0 Visual impact assessment

13.1 Introduction

A detailed Visual Impact Assessment was undertaken as part of the study in order to determine the existing visual and landscape values of the study area as well as the potential for impacts on these values. The results of these investigations are reported in Technical Paper 7, in Volume 2 of the draft assessment report. A summary of the findings of Technical Paper 7 are provided below.

The visual impact assessment has quantitatively and qualitatively assessed the preferred alignment of the proposed Southern Freight Rail Corridor (SFRC), which passes through predominantly rural and natural landscapes, some of which is considered to be of high scenic amenity.

Factors of particular relevance to the potential landscape and visual impact are:

- overhead electrical lines will not be required
- a typical train may contain double-stacked containers. For the purpose of the assessment these will be approximately 6.2 metres high
- standard QR rural fencing is likely to be used to fence public footpaths
- no consideration has been made of visual impact of noise walls in this assessment as Technical Paper 8 – Noise and Vibration concluded that noise walls are generally unsuitable as a mitigation option for this project

The visual impact assessment describes what will be affected (i.e. the level of landscape/visual modification), and makes a judgement regarding the capacity of the landscape to accommodate change by assigning a landscape/visual sensitivity and then assessing the significance of the resulting impact. The landscape and visual assessment is based upon the following:

- desk Study: Contextual assessment of the landscape and proposals based on published material including cadastral and tourist maps, air photographs, planning documents, concept plans for the SFRC as well as a desk-based computer analysis of the viewsheds (Zone of Visual Influence (ZVI) study)
- field Study: Daytime visits to the area to identify representative viewpoints, where potential views to the proposal are obtained, and photographic recording of potential assessment viewpoints

Although there are no recognised standards for determining the significance of visual impact, there is a need to assign significance to this assessment so that there can be a clear and consistent method of evaluating visual impact. The significance criteria set out in Table 28 have been developed to allow for this consistency to be realised.

Table 28 Criteria for Significance of Visual Impact

Visual modification	*Visual Sensitivity*					
		National sensitivity	**State sensitivity**	**Regional sensitivity**	**Local sensitivity**	**Less than local sensitivity**
	Considerable reduction	Major Adverse	Major Adverse	High Adverse	Moderate Adverse	Minor Adverse
	Noticeable reduction	Major Adverse	High Adverse	Moderate Adverse	Minor Adverse	Negligible
	No perceived reduction or improvement	Negligible	Negligible	Negligible	Negligible	Negligible
	Noticeable improvement	Major Beneficial	High Beneficial	Moderate Beneficial	Minor Beneficial	Negligible
	Considerable improvement	Major Beneficial	Major Beneficial	High Beneficial	Moderate Beneficial	Minor Beneficial

13.2 Description of environmental values

13.2.1 Existing landscape character

The study area has a highly variable scenic amenity, ranging from the lowest value of one to the highest value of ten. There is a strong correlation between scenic amenity and the level of development or clearing that has occurred in the area. The areas of lowest scenic amenity value are those related to infrastructure, industry and quarrying activities (e.g. Willowbank industrial area has a rating of one, the powerlines are rated as two and Purga quarry one). The areas of highest scenic amenity are the elevated, forested areas (e.g. Mount Walker and Mount Flinders). The lowland farmland typically ranges between five and seven.

The variation in the character of the landscape through which the SFRC would pass has been determined by a landscape character assessment. This assessment categorised the study area into six landscape types and fifteen landscape character zones (see Figure Two from Technical Paper 7). The landscape types include scenic wooded and undulating "upland ranges" and "bushland ridges", peaceful farmed landscapes of the lowland "settled pastures" and "watercourses with croplands", fringes of "industrial" areas and "settled landscapes".

Ten of the fifteen Character Zones defined are traversed by the corridor of interest used in the baseline assessment and are affected by the preferred alignment. The visual impact assessment predicted areas of the following character zones will be significantly affected by the preferred alignment:

- WC 2: Bremer River Watercourse with Cropland
- WC 3: Warrill Creek Watercourse with Cropland
- WC 4: Purga Creek Watercourse with Cropland
- UR 1: Flinders Perry Upland Ranges
- WC 5: Logan River Watercourse with Cropland

13.2.2 Predicted future changes to the existing landscape

Landscape is not static and it is predicted in SEQ, the fastest growing region in Australia, that changes will occur. The predicted trends for the landscape of the study area are dependent upon the possible future changes to the existing baseline conditions. Overall it is anticipated that the southern part of the study area's landscape framework will undergo significant character changes in accordance with current planning considerations. In the northern portions of the study area, in the vicinity of Ipswich City urban fringe, major changes in landscape character are anticipated, primarily due to the urban development of the Ebenezer industrial area by 2026.

Other changes in the southern, rural landscape may include intensification of agriculture and conversion of pastoral farm land to cropping and equine industries (horse-based rural economies). The urban footprints of small settlements such as Peak Crossing may extend and additional pressure to extend mineral extraction particularly around the existing quarries and coal mines may occur.

In addition, the Boonah to Ipswich multi user recreation trail is proposed as a part of the Active Trails: A Strategy for Regional Trails in South East Queensland (2007) (SEQRTS). The concept proposes a 76 kilometre trail from Boonah to Ipswich which will pass through Flinders – Perry upland area taking in Flinders Peak and crossing the Teviot Brook / Wild Pig Creek.

13.2.3 Stakeholder input and observations

To date, visual and scenic amenity has been listed in the top ten most important stakeholder issues during community engagement. Specifically it could be said that visual and scenic amenity is an important consideration with most residents. The majority of residents have indicated that a rail line would affect negatively on the rural environment. Many noted that the rural lifestyle was a significant factor in their choice of where to live.

Landscape and Visual integration of the SFRC into the rural landscape is therefore key to alleviate community concerns. Ways of integrating the rail corridor so that it does not stick out as an "eyesore" or cause "visual pollution" are considered in the mitigation measures.

13.3 Potential impacts and mitigation measures

The visual impact assessment identified a number of representative viewpoints based on the GIS analysis and field investigation. Most viewpoints are located close to the preferred alignment as the flat nature of much of the landscape and/or presence of vegetation limits the potential for longer-range views, particularly to the west of the study area (see Figure Seven from Technical Paper 7). The detailed assessment reveals that the sensitivity of these viewpoints is usually fairly low (i.e. of local or less than local sensitivity). Only the Flinders Peak viewpoint is considered to be of regional sensitivity, and the future Boonah to Ipswich multi user recreation trail, potentially of state level sensitivity.

The viewpoints were selected to represent the "worst case" where clear views of the preferred alignment could potentially be obtained. As a result half of the viewpoints assessed are likely to experience "considerable" visual changes in the view. This is in part due to the fact that no railway currently exists in these views, but also because the scheme requires extensive and intrusive earthworks in some areas. These earthworks are particularly associated with river or road crossings and to contend with the challenging terrain in the eastern part of the study area. In addition some of these views are of landscapes characterised by an inherently remote, open, flat and / or scenic character. Others contain visual detractors such as overhead power lines and quarries. Overall the assessment identified visual impacts ranging in significance from negligible to moderate adverse. Table 29 summaries the findings of the visual impact assessment.

Table 29 Assessment of Significance of Impact on Viewpoints

Viewpoint	Landscape Character Zone	Sensitivity to Change	Likely Magnitude of Impact (Daytime)	Significance of Impact
1. Lane Road, looking south - west	WC 1	Less than local	Noticeable	Negligible
2. Rosewood-Aratula Road, looking northeast	WC 2	Local	Considerable	Moderate adverse
3. Paynes Road looking east	BR 1	Less than local	Considerable	Minor adverse
4. Cunningham Highway, looking south	WC 3	Local	Considerable	Moderate adverse
5. Middle Road looking north - east	SP 3	Less than local	Considerable	Minor adverse
6. Ipswich-Boonah Road looking south	WC 4	Local	Considerable	Moderate adverse
7. Junction of Mount Flinders Road	WC 4	Regional	Noticeable	Moderate adverse

Viewpoint	Landscape Character Zone	Sensitivity to Change	Likely Magnitude of Impact (Daytime)	Significance of Impact
and Ipswich-Boonah Road, looking east				
8. Junction of Truloff Road and Allens Road, looking east	WC 4	Less than local	Noticeable	Negligible
9. Washpool Road, looking northeast	WC 4	Less than local	Considerable	Minor adverse
10. Flinders Peak looking southwest	UR 1	Regional	Noticeable (Mostly),but some sections no perceived change	Minor-moderate adverse
11. Washpool Road, looking south - east	UR 1	Less than local	Considerable	Minor adverse
12. HERFAM Pty Ltd property, looking south - east	UR 1	Less than local	Noticeable	Negligible
13. Woolooman Road, looking north - east	UR 1	Less than local	No perceived change	Negligible
14. Wild Pig Creek Road, looking north	UR 1	Less than local	Considerable	Minor adverse
15. 967 Undullah Road, looking east	WC 5	Local	Considerable	Moderate adverse
16. Undullah Road Bridge, looking north	WC 5	Local	Considerable	Moderate adverse

Overall the assessment identified a range of visual impact significance from negligible to moderate adverse. The most significant adverse impacts were found at the following viewpoints:

- Rosewood-Aratula Road crossing (viewpoint 2)
- Cunningham Highway crossing (viewpoint 4)
- Ipswich-Boonah Road crossing (viewpoint 6)
- Junction of Mount Flinders Road and Ipswich-Boonah Road (viewpoint 7)
- Flinders Peak (viewpoint 10)
- 967 Undullah Road (viewpoint 15) and Undullah Road Bridge (viewpoint 16)

The assessment shows a correlation between the greatest level of visual and landscape change / modification and the high level of visual impact. Generally the views with the highest impact are in close locations where the greatest visual change is predicted, with the exception of the view from Flinders Peak (viewpoint 10) (see Figure 41). The five close viewpoints of moderate adverse significance are in locations where larger numbers of viewers are anticipated, where extensive earthworks will be required and where road or highway crossings require grade separation.

Figure 41 View south-west from Flinders Peak (Viewpoint 10). Note poultry farm sheds are slightly visible on the right of picture.

Overall it is considered that the landscape and visual impact of the preferred alignment is of minor to moderate adverse significance. Opportunities to address these adverse impacts have been identified and should be integrated into later detailed design work. These mitigation measures include, but are not limited to:

- careful design and grading of railway embankments, cuttings and earthworks
- selective planting of the SFRC and adjoining areas that are compatible with the wider landscape character
- minimisation of associated rail infrastructure and, where this is unavoidable, sensitive design of all infrastructure elements, such as bridges, fences etc.
- measures during construction to minimise the intrusion of structures into the natural and rural landscape of the study area

The future Boonah to Ipswich multi user recreation trail will come in close proximity to the SFRC, crossing and interfacing directly with it. The predicted future viewers are considered to be a sensitive viewer group of regional and potentially state importance given the viewers will be using the trail principally for landscape appreciation. Ultimately future trail crossing points over the preferred alignment need to be provided, however this landscape and visual assessment highlights the requirement for the SFRC to be subtly integrated into the landscape. This can be achieved through engineering, landscape and urban design and screening from the trail where possible, particularly in the Wild Pig Creek locality where public access is not currently achieved.

It is recommended that further collaborative work is required, to ensure the goals and aims of both the SFRC and recreation trail are achieved, between the stakeholders involved with the SFRC and the proposed regional trail, (for example Queensland Transport and the Department of Planning and Infrastructure (QLD), the Scenic Rim Regional Council and the Queensland Outdoor Recreation Federation).

13.4 Conclusion

Some landscape and visual impacts have been partially mitigated in the current engineering proposal of the preferred alignment. For example, the incorporation of two tunnels through an area of high scenic visual

amenity in the eastern part of the corridor has assisted in minimising the visual (and intrinsically linked landscape) impact of the SFRC.

Additional opportunities to address adverse impacts of the preferred alignment have been identified in this assessment and should be integrated into the engineering design concept, a further Landscape Integration Strategy and at the detailed design into Landscape, Revegetation and Urban Design Guidelines. These mitigation measures aim to maximise visual quality through the establishment of aesthetically pleasing form and alignment, as well as the integration of the SFRC into the landscape. They include, but are not limited to:

- careful design and grading of railway embankments and earthworks particularly in the flat landscapes. Where possible the earthworks should reflect the natural landform (for example, where the landscape is characterised by steeper, more pronounced undulating landforms, use steeper, varied profiles, whilst in flat landscapes create more irregular and gentler profiles, augmented with vegetation to break up the visual mass) of the introduced earthworks
- selective planting of the SFRC and adjoining areas where possible that is compatible with wider landscape character (for example, use of linear plantings along waterways and property boundaries and field boundaries)
- minimisation of associated rail infrastructure and construction works area to the greatest extent possible. Where vegetation has to be removed compensatory planting measures should be provided
- sensitive design of all infrastructure elements such as bridges, fences and noise walls and measures during construction and eventual operation to minimise the intrusion of these structures into the natural and rural landscape of the study area. For example, development of a design suite that can be applied to the entire corridor and adopts the rural character already found in the local area

Implementation of these measures would ensure that the SFRC is integrated into the landscapes of Ipswich City and Scenic Rim Regional Councils with minimal landscape and visual impact.

Watercourse with Cropland

WC1. Western Creek

WC2. Bremer River

WC3. Warrill Creek

WC4. Purga Creek

WC5. Logan River

WC6. Bundamba Creek

Settled Residential

SR1. Rosewood - Walloon

SR2. Ipswich

SR3.

Industrial

I1. Amberley - Ebenezer

Bushland Ridges

BR1. Walker Forbes

Settled Pastures

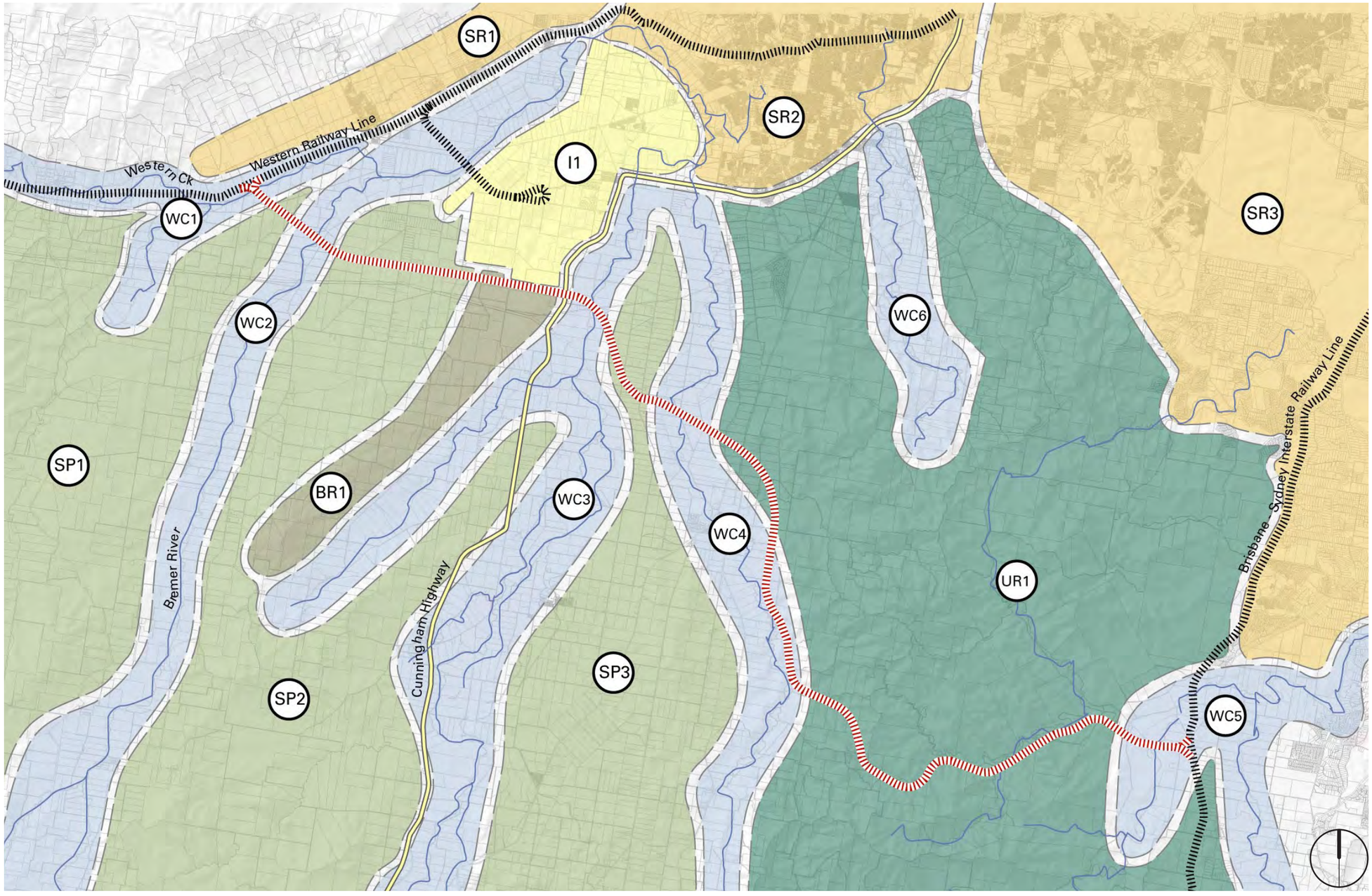
SP1. Cottonvale

SP2. Rosevale

SP3. Peak Crossing

Upland Ranges

UR1. Flinders - Perry



Legend

Cunningham Highway

SFRC Preferred Alignmnet

Existing Railway Line

Creekline / Watercourse

Landscape Types

Watercourse with Cropland

Settled Residential

Upland Ranges

Industrial

Bushland Ridges

Settled Pastures

Figure Two Southern Freight Rail Corridor Study **Character Zones**

AECOM

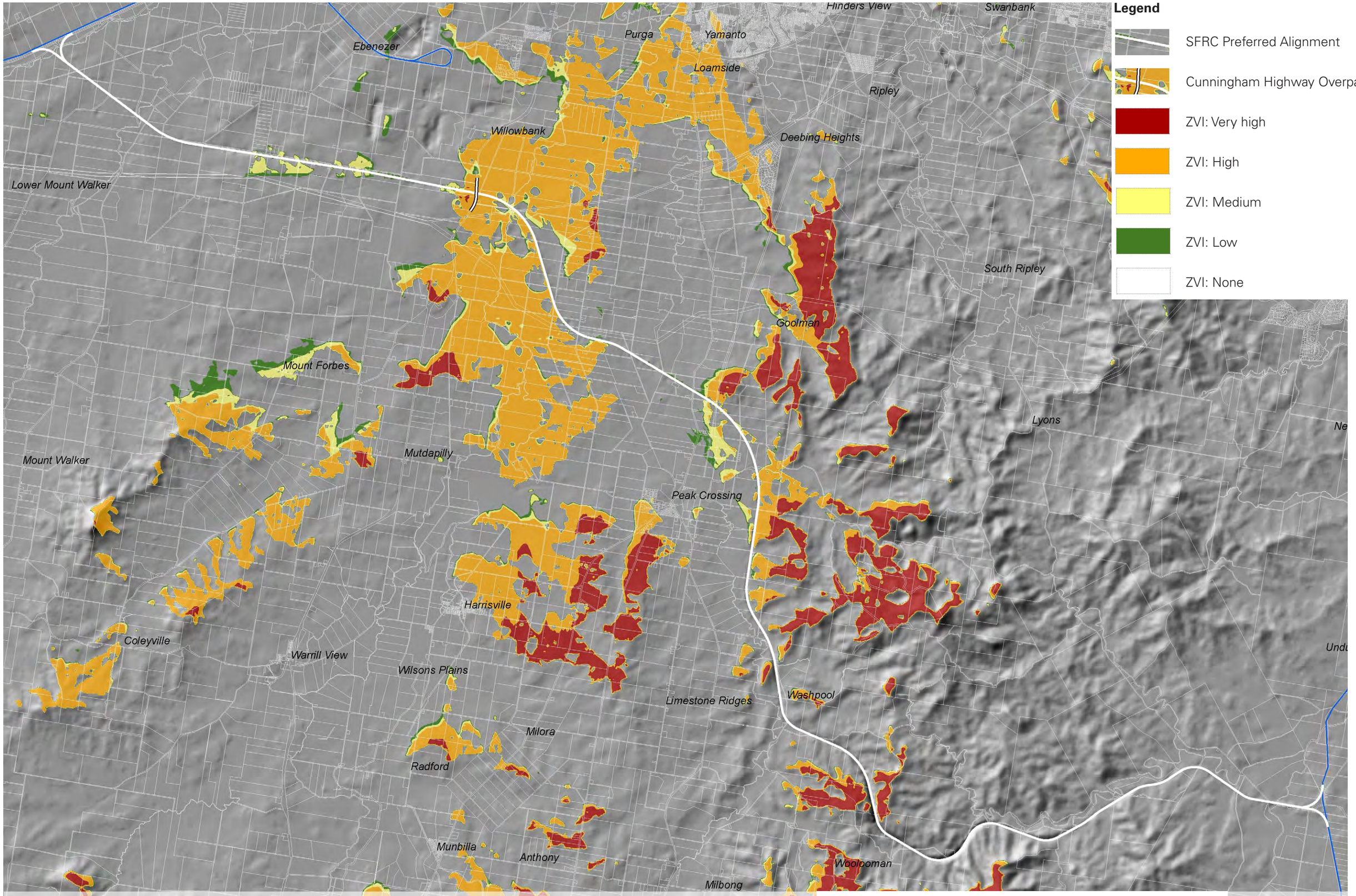


Figure Six Southern Freight Rail Corridor Study **Zone of Visual Influence for Cunningham Highway overpass**

Chapter 14
Noise and vibration

14.0 Noise and vibration

14.1 Introduction and approach

A detailed noise and vibration assessment was undertaken as part of the study in order to determine the existing acoustic values of the study area as well as the potential for impacts on these values. The results of these investigations are reported in Technical Paper 8, in Volume 2 of the revised assessment report.

This section provides a summary of the noise and vibration issues related to the construction and operation of the SFRC. A description of the existing acoustic environment is provided, based on background monitoring undertaken as part of the SFRC study. Noise and vibration models were used to predict the impact of the SFRC upon the local environment, and the most appropriate operational noise criteria were applied to the project. Based on the above, the potential impacts of the SFRC with respect to noise and vibration were described, and mitigation measures to address these likely impacts were identified.

14.2 Existing acoustic environment

The existing acoustic environment in the study area was quantified by undertaking a background noise monitoring program at various locations within the study area. The locations selected for monitoring were scattered along the full length of the SFRC study area recognising the different acoustic environments along the proposed corridor. Monitoring locations were chosen in locations away from known noise sources in an attempt to gain a true snapshot of the existing acoustic environment.

Existing background noise levels within the corridor of interest are generally low with few existing major noise emitters within the corridor of interest or nearby. The average daytime background noise level (LA90) ranged between 30 dB(A) and 39 dB(A). These noise levels are generally described as "low" and are typical of rural sites without surrounding industry or transportation. A site with a night-time background level of 30 dB(A) is described as "Areas with negligible transportation" by AS1055.2 – 1997 "Acoustics – Description and measurement of environmental noise – Application to specific situations". Night-time Rated Background Levels fell below 26 dB(A) at all but two of the noise monitoring sites.

14.3 Operational noise criteria

The operational noise criteria for this project are based on rail planning levels outlined under Queensland Rail's *Code of Practice - Railway Noise Management, December 2007, "the Code"*. The Environmental Protection (Noise) Policy 2008 as in force on 1 January 2009 excludes noise from the ordinary use of rail transport infrastructure from environmental nuisance. Accordingly the Code's planning levels are considered to be the only current applicable requirements for noise from railway operations in Queensland.

The Code sets noise criteria in terms of a 24-hour average equivalent continuous A-weighted sound pressure level ($L_{Aeq\ (24\ hour)}$) and a single event maximum sound pressure level.

The Code planning levels are as follows:

- 65 dB(A) $L_{Aeq\ (24\ hour)}$
- 87 dB(A) single event maximum level[9]

The noise level is to be assessed one metre in front of the most exposed façade of an affected noise sensitive place. Other relevant criteria were investigated, most notably TMR's *Queensland Transports' Interest in Planning Schemes* (QTIPS) as this criterion gives guidance for planning future development adjacent to the preferred alignment.

[9] In accordance with Section 12 of the Code, single event maximum level is defined as 'the arithmetic average of maximum levels from the highest 15 single events over a given 24 hour period.'

The construction of the preferred alignment is not proposed for at least 10 and 15 years and as such determining the appropriate criteria is not possible at this time as criteria may continue to evolve over this time. In determining impacts and potential mitigation measures, both the QR criteria and the TMR criteria have been assessed. By providing assessment to both criteria future planning (based on the QTIPS criterion) can also be considered at the appropriate time.

14.4 Potential impacts and mitigation – operational noise

A computer noise model was developed using various acoustic prediction methods to enable the comparison of forecast noise levels against relevant criteria. The model has been validated at locations in Queensland where rolling-stock operates at similar speeds and track conditions to that proposed for the preferred alignment.

Table 30 and Table 31 outline the number of dwellings forecast to experience noise levels in excess of relevant criteria. This is graphically represented in Map 8.2 and Map 8.3.

Table 30 Forecast number of dwellings to experience noise levels in excess of QR external criteria

Contour Zone	Estimated Number of Dwellings Exceeding Criteria
QR External Criteria	15

Table 31 Forecast number of dwellings exceeding TMR internal criterion

Contour Zone L_{Amax}	Estimated Number of Dwellings* Exceeding this Level of Criterion
55 - 59 dB(A)	160
60 - 69 dB(A)	215
70 - 84 dB(A)	80
85 dB(A) +	15

Where residences are found to be located within the QR external criteria limit line, noise mitigation measures will be investigated. It is recommended that residences within this line be assessed on a case-by-case basis. Various methods of building construction techniques and building orientation can be considered in ensuring the dwellings falling within the nominated contour zone would meet the TMR internal criterion. These are identified in Technical Paper 8 (Volume 2).

14.5 Potential impacts and mitigation – operational vibration

Forecast operational ground vibration levels were assessed against current Australian 'best practice' criteria. These criteria are the accepted vibration criteria for many governing bodies within Australia. The vibration forecasts were based on vibration levels measured for a number of train pass-bys at a location on the existing Brisbane network. These measurements were taken in order to establish the Vibration Dose Value versus distance relationship for typical rail freight movements.

The measured vibration levels for the diesel locomotive hauled trains were adjusted to account for proposed operational conditions to enable vibration impacts to be forecast for the SFRC. It was found that operational vibration impacts are forecast to be significantly lower than operational noise impacts. The forecast buffer distance within which exceedances of vibration criteria are forecast is 20 metres from the preferred rail alignment which is significantly less than the buffer distance required to ameliorate noise impacts.

14.6 Potential impacts and mitigation – construction noise and vibration

The general noise and vibration impacts from the construction of the SFRC were also investigated. The details of the construction methodology for the SFRC are yet to be fully developed. Accordingly a more detailed construction noise and vibration assessment may be required when construction methods are finalised.

It is recommended that construction plant be selected on the basis of low noise emission. Noise emissions from construction plant can be reduced by fitting exhaust mufflers, using reversing alarms that emit a broadband noise rather than a beep, maintaining plant in good working order and following best practice construction methodologies. The Construction Environment Management Plan (CEMP) will be developed to manage possible noise and vibration impacts from construction, including implementing plant selection based on acoustic issues.

There is likely to be a requirement for blasting at various points along the corridor where cuttings are required through hard rock. It is not possible to identify these locations specifically at this stage of the project and as such further detailed assessment of the acoustic impacts of blasting will need to be undertaken prior to construction occurring. A specific management plan should be developed for all proposed blasting in order to ensure that any impacts are mitigated where possible.

The construction of the proposed tunnels in the Washpool/Woolooman area will potentially generate a range of acoustic and vibration impacts. The extent of these impacts will vary depending on the construction methodology adopted. However, the remote nature of the area is such that significant impacts are not anticipated.

Construction noise and vibration guidelines were recommended based on best-practice values and the results of the background noise monitoring program. It was found that there exists the potential for impacts to surrounding residences, especially those closest to the preferred rail alignment. However, these impacts are short-term and can be minimised by implementing best-practice construction techniques. Various key points are recommended to be incorporated into the Construction Environment Management Plan for the SFRC.

14.7 Conclusion

Potential acoustic impacts from the Southern Freight Rail Corridor were investigated. The existing acoustic environmental values were quantified by a background noise monitoring program. It was found that the existing acoustic environment in the area is low.

A detailed review of operational noise criteria was undertaken. This review was undertaken due to the uniqueness of the project site and the need to assess the acoustic amenity impacts for existing residential dwellings, including sleep disturbance effects. The operational noise criteria considered to be most appropriate for this study are those within the Noise EPP, the QR Code of Practice – Railway Noise Management, and the TMR Interest in Planning Schemes Night-time Internal Noise Criterion. These are listed below in Table 32.

Table 32 Summary of relevant noise criteria

Description	Descriptor	Criterion
QR - External Noise Level at facade	$L_{Aeq\ (24\ hour)}$ L_{Amax}	65dB(A) 87 dB(A)
TMR- Night-time Noise intrusion level within Bedrooms	L_{Amax}	50 dB(A)
TMR - Equivalent external noise criterion outside bedroom windows	L_{Amax}	55 dB(A)

The application of these operational noise criteria is believed to adequately address the issue of changes to acoustic amenity for a greenfield site in an area as quiet as that surrounding the proposed alignment. It is recommended that for the purposes of this planning study, the criteria listed in Table 32 are applied. However, a reappraisal of these criteria should be undertaken during detailed design, base on:

- any changes to existing criteria
- any new criteria
- any changes to the acoustic environment of the study area (particularly as a result of intensified development in key areas of the SEQRP western corridor strategy (such as Ebenezer, Purga, Swanbank, Ripley and Bromelton))

Operational noise impacts have been assessed for the SFRC. Noise contours were produced based on QR external noise criteria and TMR internal noise criteria. Recommended mitigation measures for sensitive receivers falling within the QR External Criteria buffer were detailed. It was identified that approximately 15 residential dwellings are forecast to exceed QR external criteria. A further estimated 455 residential dwellings are forecast to exceed TMR internal noise criteria, which range up to approximately 2.5 kilometres from the revised alignment. The TMR internal criteria buffer was also presented to enable the planning of future developments in the vicinity of the SFRC. Various stages of mitigation measures have been recommended based on the level of forecast exceedances. These mitigation measures include:

- Stage 1 – mechanical ventilation
- Stage 2 – air conditioning and window seals
- Stage 3 – facade/glazing upgrade and air-conditioning
- Stage 4 – high performance acoustic materials, special construction techniques and specialist advice

Operational vibration was assessed based on measurements of existing diesel locomotive hauled rail movements. It was found that a buffer distance of 20 metres from a preferred alignment is required to achieve forecast compliance with operational vibration criteria.

Construction noise and vibration goals were recommended for the construction phase of the SFRC project. Construction noise and vibration guidelines were then recommended for the SFRC. Buffer distances were predicted for various noisy plant and construction noise and vibration management procedures were recommended. These are to be outlined in the CEMP.

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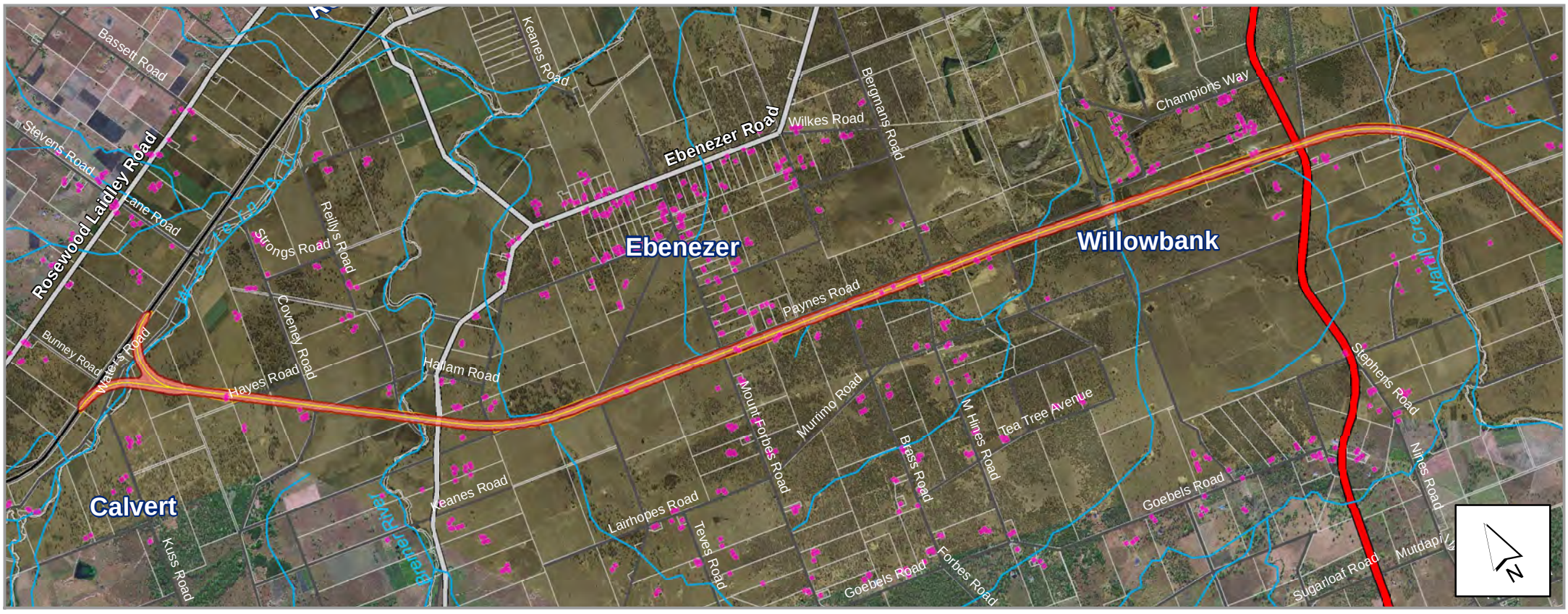

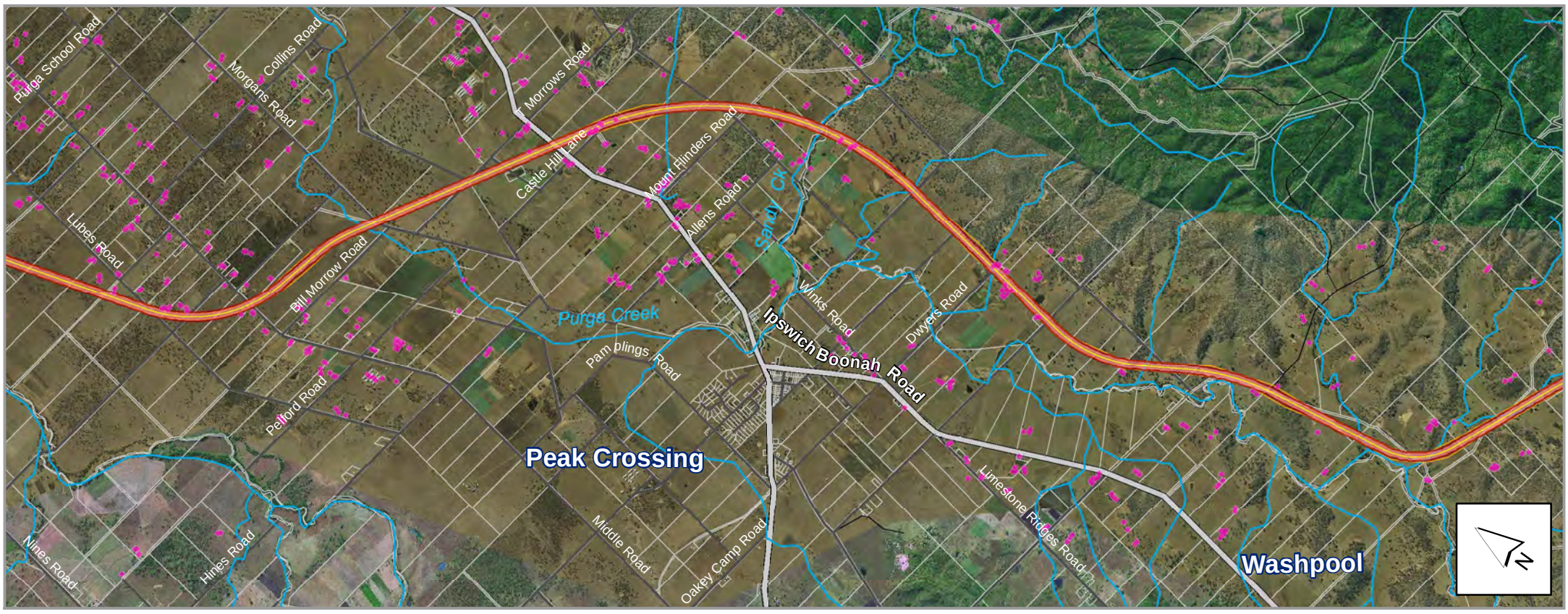

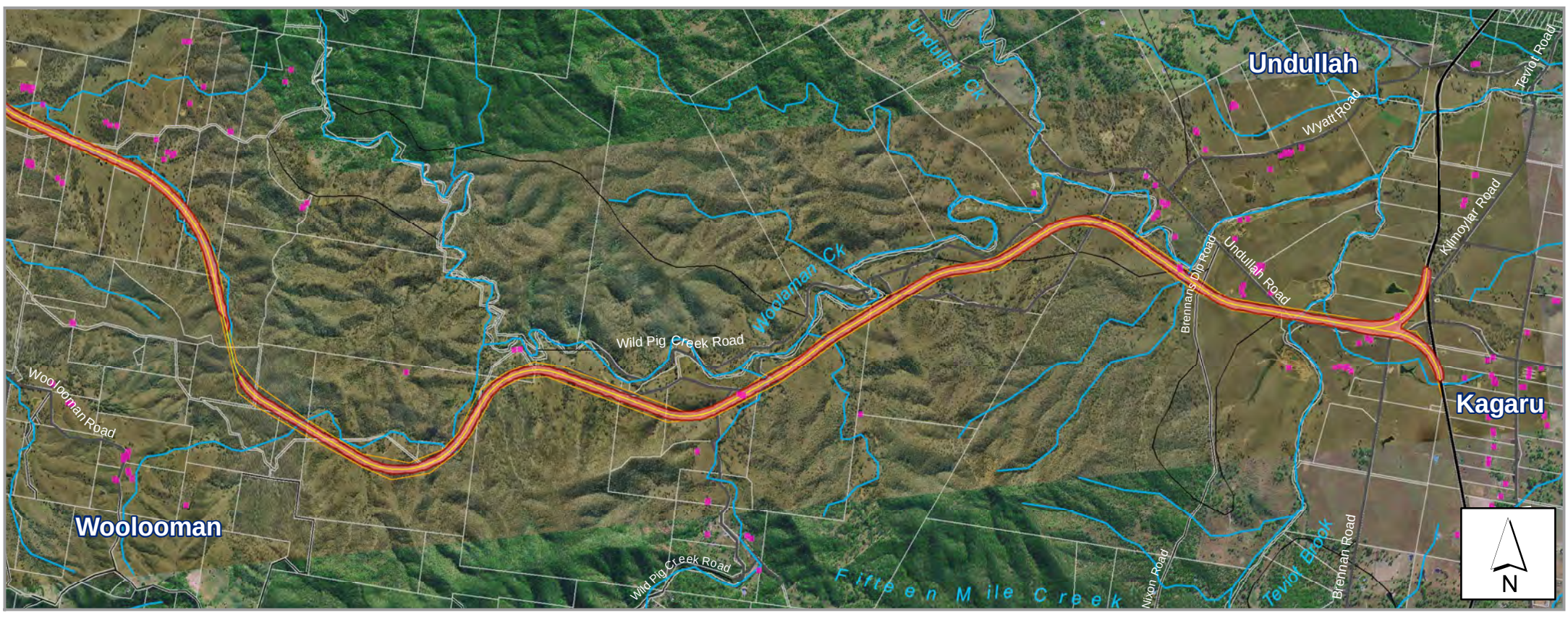

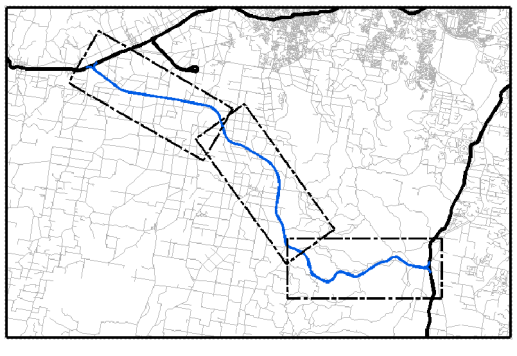

Legend

- Buildings
- Revised Rail Alignment
- QR External Criteria
- Preliminary CID Boundary
- Existing Rail

GDA
MGA94 Zone 56

Queensland Government

Southern Freight Rail Corridor Study
Revised Assessment Report

QR External Criteria

Kilometres
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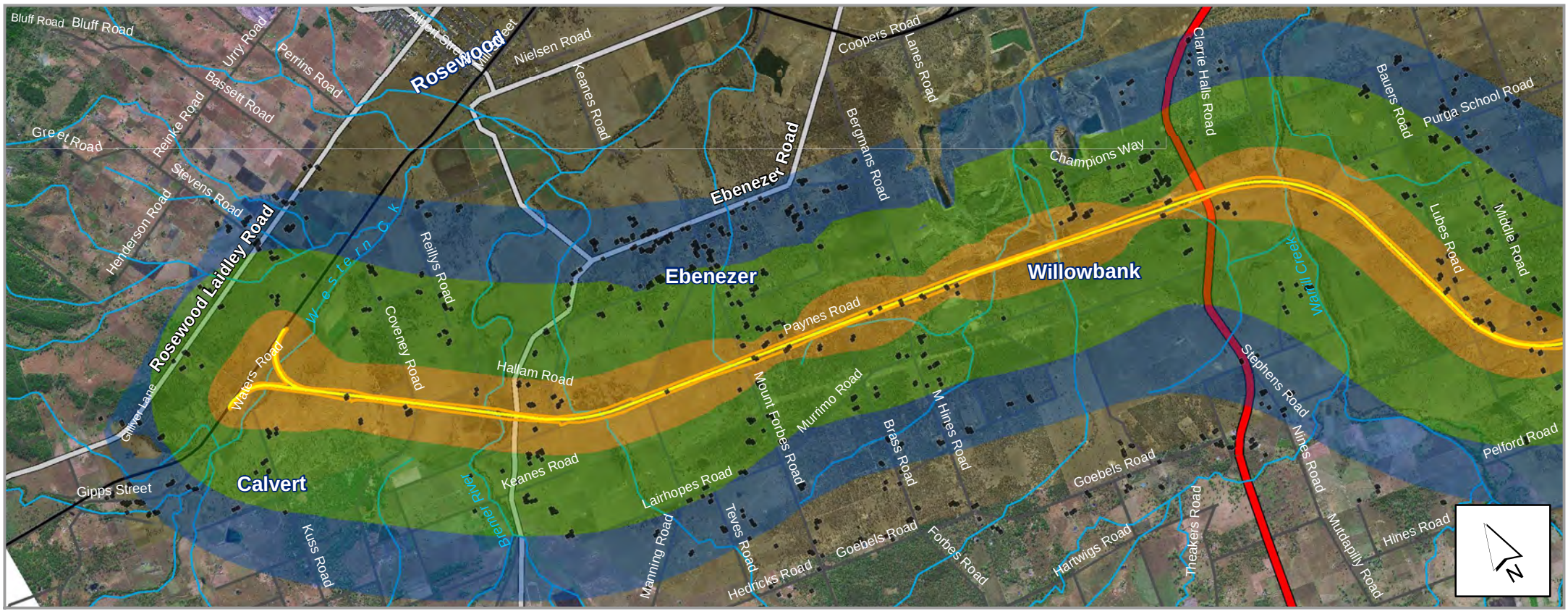
1:60,000 (when printed at A3)

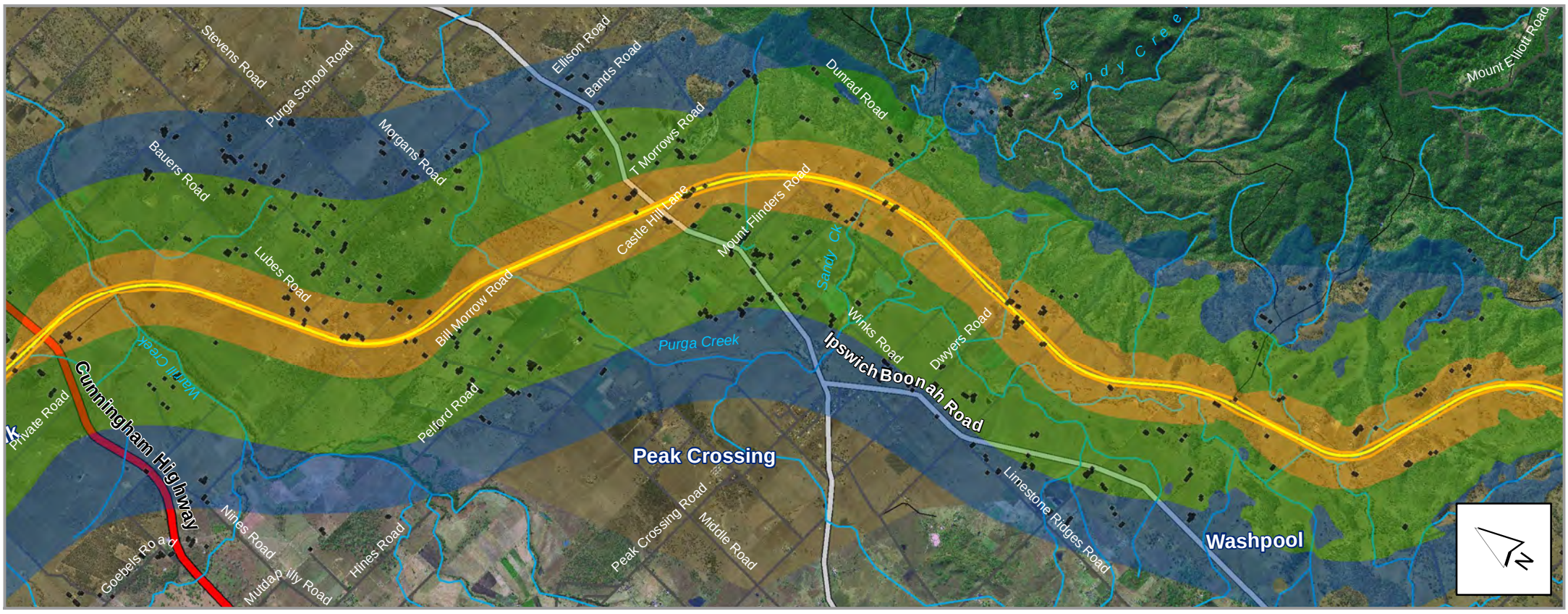
A3 size

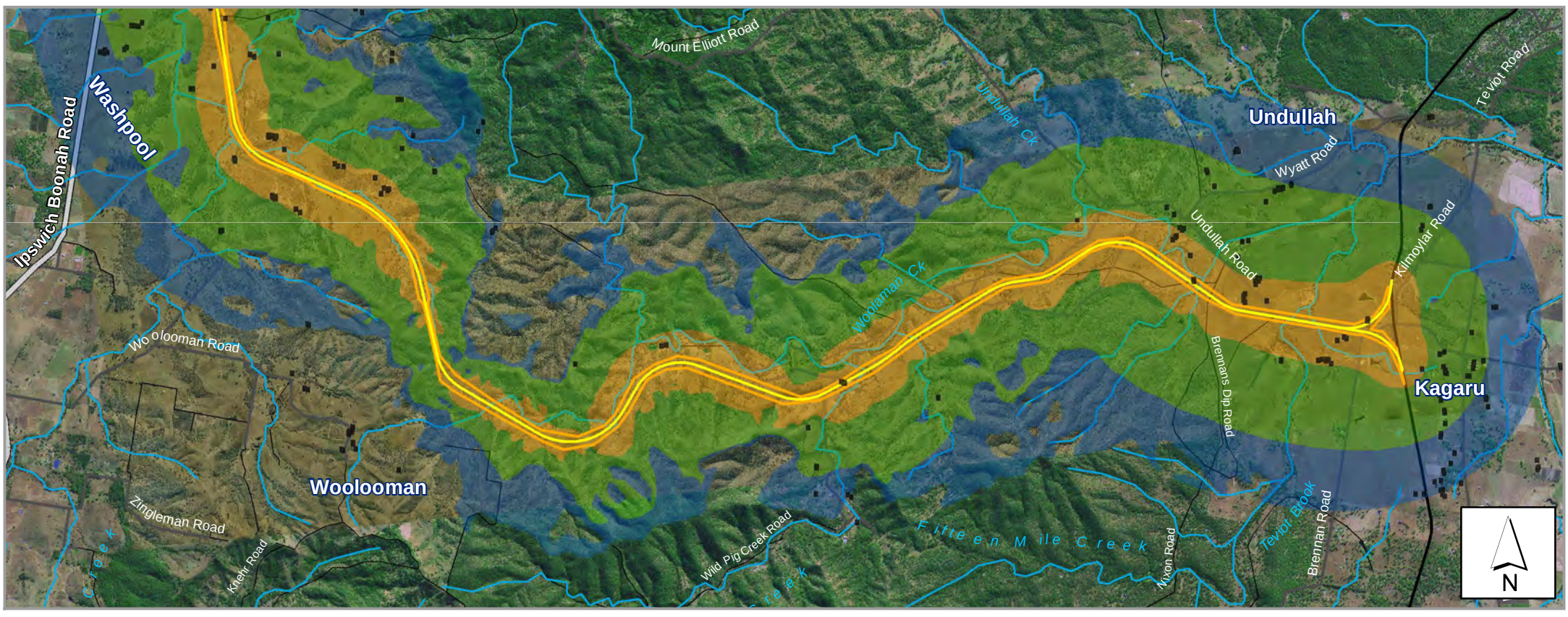
Map 8.2

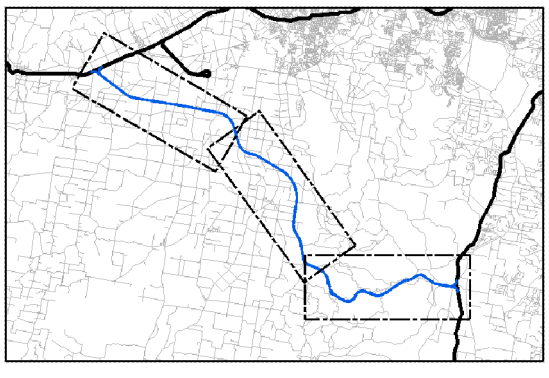
JOB: Southern Freight Rail Corridor Study

Date - March 2010









Legend

- Buildings
- Existing Rail
- Preliminary CID Boundary
- Revised Rail Alignment

Noise Contours

- Stage 1 Treatment
- Stage 2 Treatment
- Stage 3 Treatment

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Queensland Government

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QT Internal Criterion

Kilometres
0 1.25 2.5 5

1:75,000 (when printed at A3)

A3 size

Map 8.3

Chapter 16
European cultural heritage

16.0 European cultural heritage

16.1 Introduction and approach

The study area includes part of the Ipswich City and Scenic Rim Regional Councils (formerly including Boonah and Beaudesert Shires) and stretches from the towns of Rosewood and Lanefield in the north-west to the town of Woodhill in the south-east. Since European settlement the study area has been primarily used for agricultural purposes with sporadic, small urban settlements that have historically provided community services, supply points, and access to transport links for the surrounding rural hinterland.

As part of investigation into the European cultural heritage values throughout the study area, this report investigated any impacts that may arise as either a direct or indirect result of the construction of the SFRC. The assessment analyses the existing environment within the study area and then considers the potential impacts of the preferred alignment. The methodology for all of these reports consisted of archival, library, and field research accompanied by a consideration of the environmental setting and heritage character of the study area.

Searches were conducted of Federal and State Heritage Registers and the relevant planning schemes. Twenty-eight places of heritage significance were identified.

Technical Paper 10 – European Cultural Heritage and its accompanying appendices provides a contextual history, documentation of the heritage places, an assessment of the potential impact of the SFRC on these places and the surrounding environment, and advice on mitigation measures and protocols.

16.1.1 Applicable legislation

To comply with the ToR for this project reference was made to the *Environment Protection and Biodiversity Conservation Act 1999* (Cth), the *Heritage Act 1992* (Qld), the *2006 Consolidated Ipswich Planning Scheme*, the *Planning Scheme for Beaudesert Shire*, and the *Boonah Shire Planning Scheme*.

16.2 Description of environmental values

16.2.1 Summary of contextual history

To provide a context for the European Historical Heritage places located in the study area the *European Contextual History* report was completed as part of the investigative technique.

The majority of the study area falls within the bounds of the current Ipswich City Council and the rest of the alignment traverses the Scenic Rim Regional Council (formerly including parts of the Boonah and Beaudesert Shires). The first Europeans to enter this area were explorers Patrick Logan and Alan Cunningham during the 1820s and although the area promised rich agricultural returns, initial settlement was retarded by its geographic isolation and restrictions on free settlement.

After the separation of the colony of Queensland from New South Wales in 1859, steps were taken to encourage closer settlement and population growth and portions of the large pastoral runs in the study area were resumed and leased as smaller properties.

In the early years of the twentieth century coal mining developed into an important industry in and around Rosewood and helped boost the town's urbanisation and growth while the town of Woodhill surpassed Veresdale to become the largest and most important town in the northern Beaudesert Region.

During the second half of the twentieth century the locales and communities in the study area faced a number of challenges. Coal mining in the area reduced significantly as demand fell and reserves in other parts of the state were more effectively utilised while small scale dairy farming's economic viability affected settlement patterns. Today much of the region remains epitomised by rural settlement patterns with a number of small towns continuing to act as centres of business and community activity for the surrounding hinterland.

16.2.2 European cultural heritage

The evidence gathered for the *European Cultural History* report showed the resulting cultural landscape owes much to the historical experiences of the area as a whole and to the specific histories of the localities and regions within the study area. Subtle differences in the history of the various places in the study area see the identification of following five discernible districts (see Map 10.2):

- the Rosewood district
- Ebenezer, Mount Forbes, and Mutdapilly
- the former Deebing Creek and Purga Aboriginal Mission
- the Peak Crossing district
- the Woodhill district

16.2.3 Register searches

A search of Federal, State, and Local Heritage registers was completed to identify places of Historic Heritage in the study area. A total of twenty-eight places were identified (see Map 10.2). It is important to note that the former Boonah Shire council did not list Historical Heritage places under its local plan relying instead on the State Register.

Following this register search five places were identified to be within the study area (see Map 10.4):

- 326 Mount Forbes Road, Ebenezer
- Lot 1 Middle Road, Purga
- 1137 Ipswich-Boonah Road, Peak Crossing
- 'Rockton', 1166 Ipswich-Boonah Road, Peak Crossing
- Undullah Station Homestead, Undullah Road, Undullah (see Figure 42)
- Lot 38, Paynes Road, Ebenezer

Figure 42 Undullah Station Homestead

16.3 Potential impacts and mitigation measures

This section identifies the potential adverse impacts of the preferred alignment, both directly and indirectly, on heritage items located with the study area.

16.3.1 Heritage places directly impacted upon by the corridor

No places listed as culturally significant on the Federal or Queensland registers will be directly impacted by the construction of the SFRC due to their relative remoteness from the preferred alignment.

Of the six identified places of heritage significance within the study area, only one will be adversely impacted by the preferred alignment. Undullah Station Homestead, Undullah Road, Undullah is located 80 metres from the preferred alignment and specialist studies into potential noise impacts (see Technical Paper 8 – Noise and Vibration) indicate the operation of the SFRC will result in unacceptable noise levels.

The recommended mitigation measures for this place are:

- consultation with Scenic Rim Regional Council
- consultation with owners
- re-location of the house

During the submissions period attention was drawn to an historic timber hut on Lot 1 SP163227 which would be directly impacted by the preferred alignment. Importantly, this feature is not listed on any local, state or federal heritage register. Further investigation regarding the heritage values of the site should be undertaken prior to detailed design. If removal of the hut is necessary opportunities should be investigated to either record and document the values of the site and/or relocate the hut outside of the affected area.

16.3.2 Heritage places of possible indirect impact by the corridor

While there are a number of other Historical Heritage places in proximity to the SFRC, none of these will require relocation or significant alterations as a result of the construction of the SFRC.

16.3.3 Potential impacts on identified districts

The SFRC has the potential to impact on the character and significance of the distinct districts identified as a part of this. Each of these districts has acquired a unique cultural significance as a result of its unique historical development. It is recommended that records of all heritage places be made, the area's history be recorded and where possible be made publically available.

16.3.4 Recommendations

A detailed Conservation Management Plan (CMP) for the proposed construction phase of the project should be developed. The CMP will aim to provide instructions to contractors and proponents of the project on obligations and duty of care in relation to protecting matters of European Cultural Heritage along the SFRC. Additionally it should include a place specific CMP for Undullah Homestead, Undullah as it will be directly impacted by the preferred alignment.

16.4 Conclusion

This assessment identified a number of potential impacts on cultural heritage caused by the construction and operation of the SFRC. Of these, Undullah Homestead will be directly impacted by noise and vibration caused by the construction of the SFRC making it uninhabitable and necessitating its relocation. It is recommended a CMP be devised for this place that will limit the diminution of its cultural significance.

Although no other places of cultural heritage will be directly impacted there are a number of potential indirect impacts on heritage places, character precincts, and the environmental setting. These potential impacts include the introduction of new environmental elements such as noise, altered visual aspects, changes in air quality, and alterations to land use patterns in the area as a result of the SFRC.

After the implementation of these mitigation measures there remain potential impacts on the cultural significance of the heritage places and precincts in the study area. The impact of these changes is manageable.

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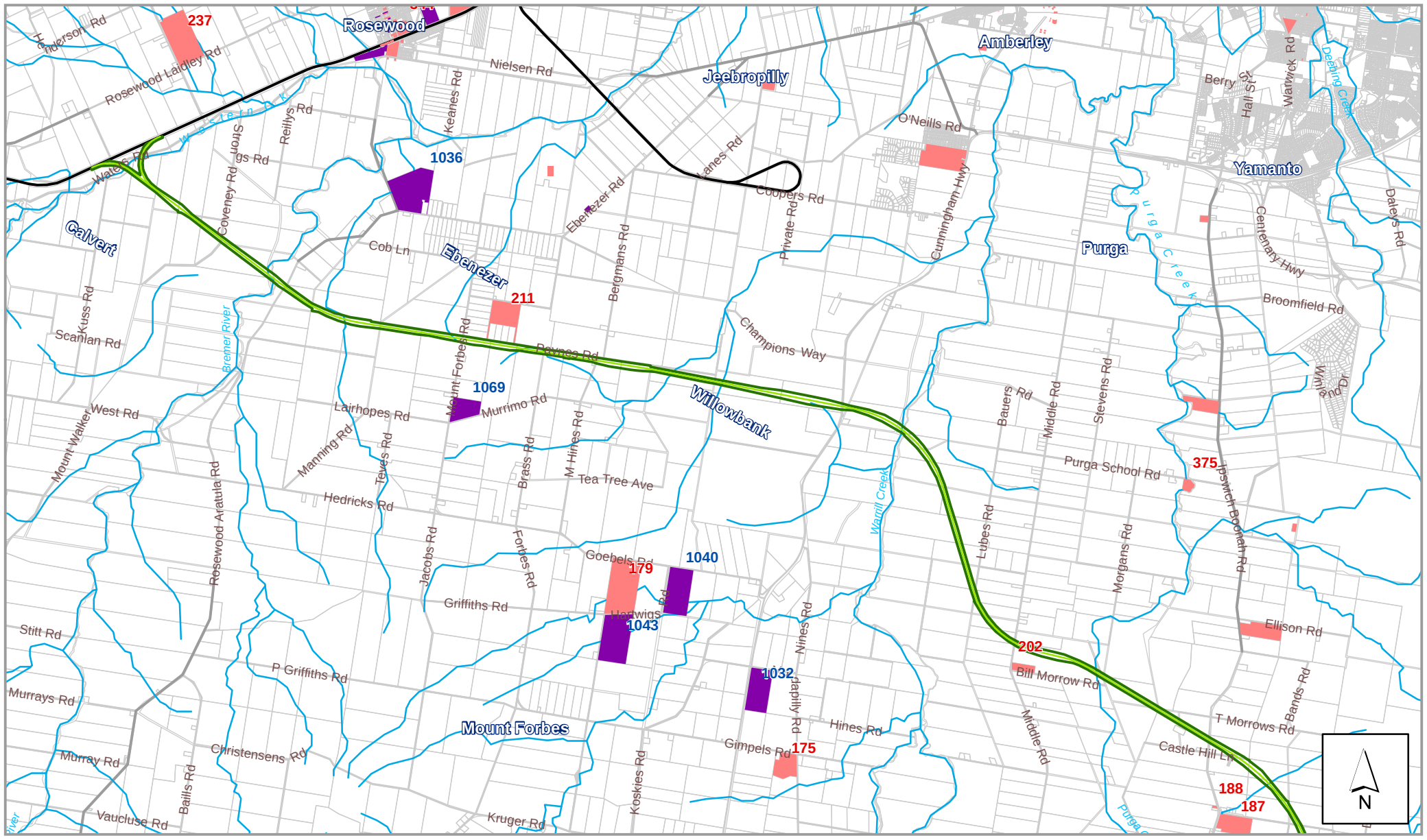

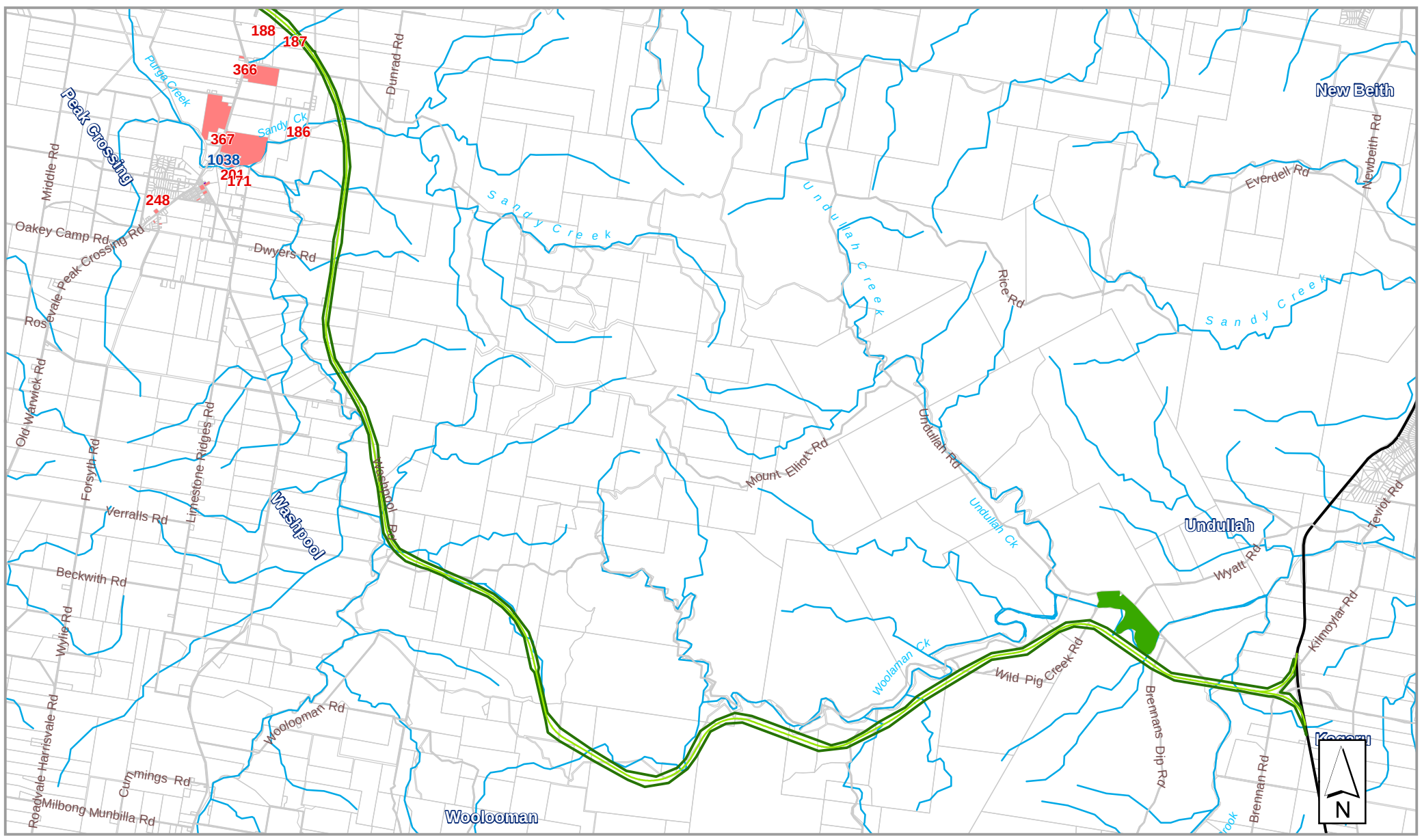

Legend

- Existing Rail
- Revised Rail Alignment
- Preliminary CID Boundary
- ICC Identified Heritage Places
- Undullah Station Homestead
- ICC Misc Historic Heritage

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European Cultural Heritage

Kilometres
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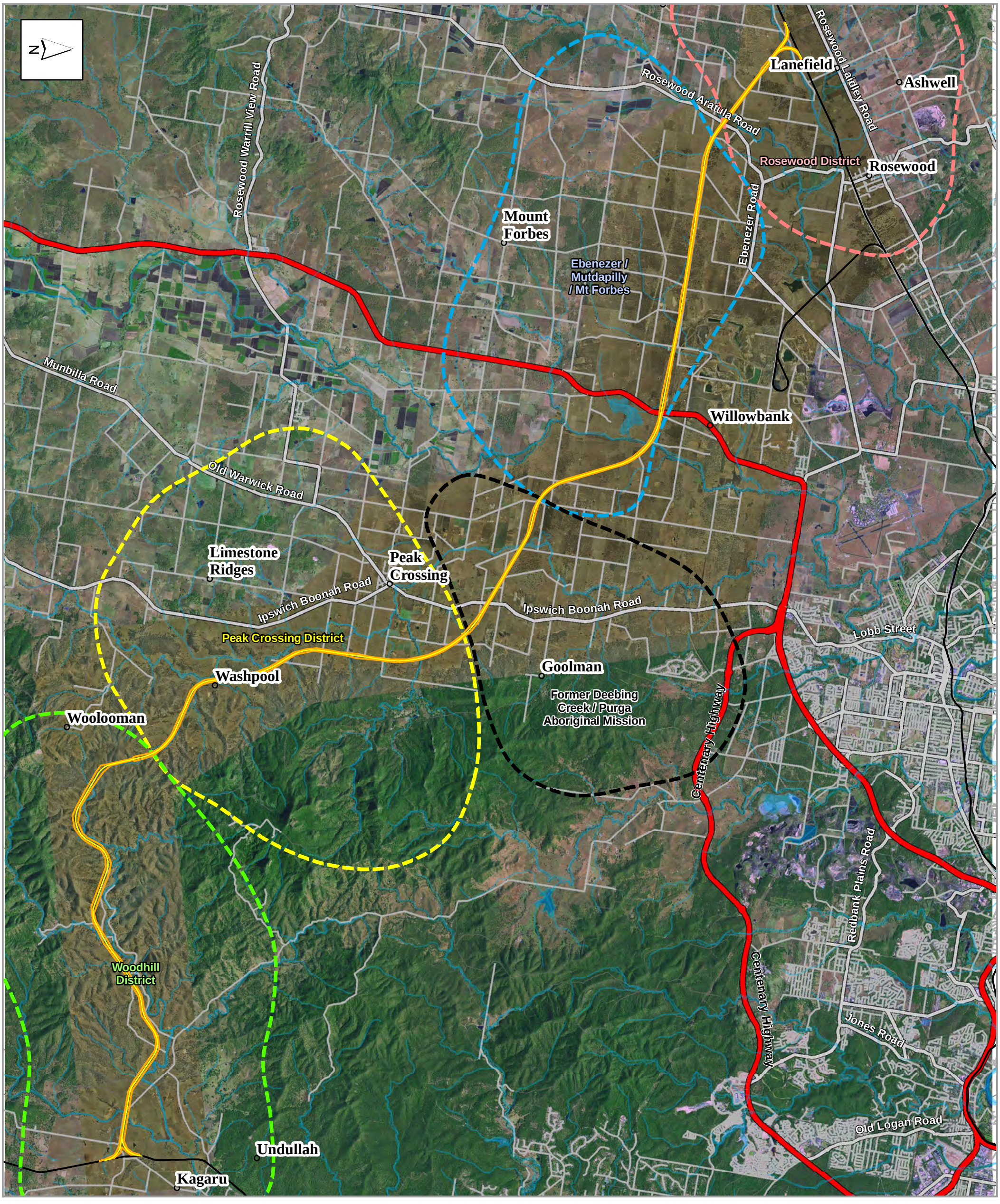
A3 size

Map 10.1

JOB: Southern Freight Rail Corridor Study

Date - March 2010



Legend

- Existing Rail
- Revised Rail Alignment
- Preliminary CID Boundary

Historical Regions

- Rosewood District
- Ebenezer / Mutdapilly / Mt Forbes
- Former Deebing Creek / Purga Aboriginal Mission
- Peak Crossing District
- Woodhill District

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Southern Freight Rail Corridor Study
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European Cultural Heritage - Historical Regions

Kilometres
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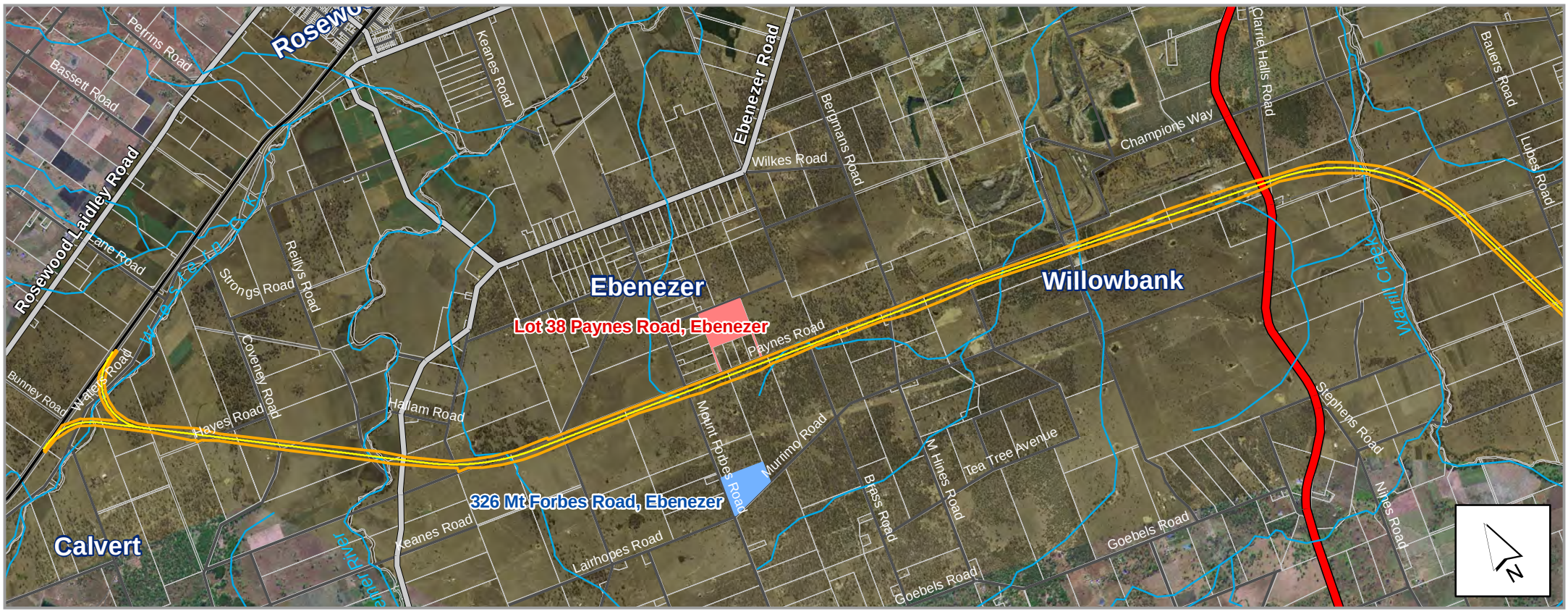
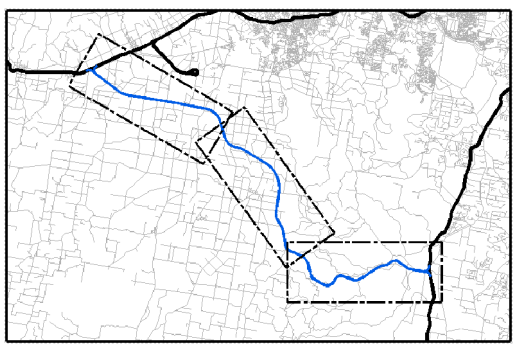
Map 10.2

JOB: Southern Freight Rail Corridor Study

Date - March 2010





Legend

- Existing Rail
- Revised Rail Alignment
- Preliminary CID Boundary
- ICC Misc Historic Heritage Places
- ICC Identified Heritage Places
- Undullah Station Homestead

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Southern Freight Rail Corridor Study
Revised Assessment Report

European Cultural Heritage Places in Proximity to the Revised Alignment

Kilometres
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A3 size

Map 10.4

Chapter 17
Social impact assessment

17.0 Social impact assessment

17.1 Introduction and approach

A detailed Social Impact Assessment was undertaken as part of the study in order to determine the existing social and community values of the study area as well as the potential for impacts on these values. The results of these investigations are reported in Technical Paper 11, in Volume 2 of the draft assessment report. A summary of the findings of Technical Paper 11 are provided below.

17.1.1 Methodology

The social impact assessment (SIA) is intended to follow industry-accepted procedures to describe the existing social environment in areas surrounding the study area, to identify the potential impacts of the preferred alignment upon the existing social environment, and to explore mitigation measures to reduce these impacts. The following steps were undertaken to achieve this:

- description of applicable Commonwealth, State, Regional and Local Government legislation and policies as they pertain to the social environment
- description of social environmental values, as they relate to the corridor of interest, including:
  - a demographic profile of the study area
  - a summary of population projections for the applicable former local government areas
  - a description of key settlements throughout the study area and wider region
  - a summary of the community engagement process, and major findings from interactions with the community relating to their perspectives on the SFRC
  - development of an assessment framework, based on the policy review, key social impact assessment variables initially developed by the International Association of Impact Assessment, and a literature review of transport infrastructure projects
- identification of potential social impacts likely to be caused by the preferred alignment upon the social environment described in the description of environmental values, and the identification of mitigation measures to reduce these impacts
- a conclusion summarising the most significant findings of the SIA

17.2 Description of environmental values

The demographic characteristics of the study area (see Map 11.1) suggest that it contains an ageing population (though younger than Brisbane and Queensland generally) with lower average household incomes than more urbanised areas. Further, the average household size is larger than more urbanised areas and the average cost of housing is lower. Generally, a larger proportion of the workforce of the study area is composed of blue-collar workers, compared with higher proportions of white-collar workers in more urbanised areas.

All three applicable former local government areas covering the study area are expected to be characterised by an ageing population between 2006 and 2026 (most pronounced within the former Boonah Shire). All former local government areas are expected to experience a growth in population, with the former Ipswich City Council experiencing the greatest annual change (4.1%). The key locations for residential growth in the three former local government areas are likely to be located outside the study area. The SFRC is likely to facilitate employment growth for local communities, through acting as a catalyst and support for other development planned throughout the study area.

Key settlements within the study area and wider region (see Map 11.2) include:

- the primary service centre of Ipswich City
- the secondary service centres of Yamanto, Jimboomba and Beaudesert
- the rural townships of Rosewood, Peak Crossing and Harrisville
- the emerging residential areas of Deebing Heights and Flagstone
- the small communities of Amberley and Willowbank, surrounded by regional industry and other major land uses

Community engagement has reflected a deep concern in the study area about the potential impacts of the SFRC upon a number of valued features, including the noise environment, property values and resumption processes, ecological processes, flooding, visual and scenic amenity and other social and cultural elements.

It is important to recognise that the broader community recognised the overarching need for the SFRC, and were more readily able to visualise the benefits expected to accrue from the SFRC. However potential owners of property subject to land requirements for the project were concerned about the extent of impacts they would experience.

17.3 Potential impacts and mitigation measures

A total of 123 properties are subject to land requirements for the project. A further 208 properties are immediately adjacent to these properties (see Map 11.3).

A number of potential social impacts associated with the preferred alignment have been identified. These include:

- decreased accessibility to community services, facilities and key destinations in the study area through changes to access road arrangements. Mitigation measures include a commitment to providing alternative access where important roads are traversed by the preferred alignment. This is particularly important in the eastern end of the study area, where access to remote parts of the community is already problematic
- risk associated with the transportation of hazardous goods along the SFRC. Mitigation measures include commitment to ensure detailed design is according to current (or future) QR standards that promote safe, reliable train travel
- safety risks at level crossings. Mitigation measures include ensuring that level crossings are included in the engineering design of the preferred alignment
- safety risks in relation to pedestrian access. Mitigation measures include fencing the preferred alignment with suitable fencing in densely populated locations
- safety risks with the potential for stock to wander on to the railway line. Mitigation measures include suitable fencing and appropriate stock management
- creation of a physical barrier leading to severance impacts on the local communities which currently experience strong social linkages. Mitigation measures include ensuring that the engineering design contains high quality vehicle and pedestrian crossings in key locations
- possible dislocation impacts resulting from residents leaving due to property acquisition and to avoid amenity impacts. Mitigation measures include implementing community events designed at building social capital
- decreased localised amenity through the introduction of noise and visual intrusion into the rural landscape. Mitigation measures for each environmental element are contained within the relevant Technical Papers of this revised assessment report
- decreased ecological values throughout the study area. Mitigation measures for the impacts to flora and fauna are contained within Technical Paper 2 – Nature Conservation
- increasing property values throughout south-east Queensland prohibiting affected landowners re-entering the local housing market and replacing former properties with that of a similar standard. Mitigation measures include the investigation of community events designed at building social capital and the payment of appropriate compensation for acquired land

Potential social benefits identified with the project include:

- possible reductions in truck volumes on major and local roads, leading to a safer road network
- facilitation of regional development objectives, including the western corridor strategy contained within the *South East Queensland Regional Plan 2009 – 2031*, including significant future industrial land use in Ebenezer, and subsequent job creation

17.4 Conclusion

The SFRC is likely to create a number of national, state-wide, and regional positive impacts, whilst also creating a number of localised negative impacts. The most significant social impacts identified in the SIA are:

- **Accessibility throughout the region**: There is a high level of concern related to changes in access as a result of the SFRC construction including, road closures, route realignments and crossing constructions. Disadvantage is likely to result for residents of many properties, who will experience longer travel times accessing important destinations such as family and friends, community services, facilities and shopping centres. The full extent of disadvantage cannot be assessed until the preferred alignment is discussed with individual landowners.
- **Amenity impacts**: Significant concerns were expressed regarding the potential amenity impacts resulting from the SFRC construction and operation with perhaps visual intrusion and noise of greatest concern. Details of amenity impacts and mitigation measures are provided in the relevant Technical Papers of this revised assessment report.
- **Change in character of the area**: There are many residents who where attracted to the study area, for its lifestyle and amenity values. The SFRC is perceived to have high amenity impacts and significantly change the valued rural character of this location.
- **Property acquisition and replacement**: There is a high level of concern and uncertainty regarding the acquisition of property and impact on property values in the vicinity of the preferred alignment. Whilst much of the concern is centred around property devaluation, there is evidence of escalating property values in the Ebenezer and Purga areas. Some landowners who have their property acquired may experience difficulties in re-entering the property market in a similar location, if property values have continued to increase throughout south-east Queensland.
- **Safety**: Concern has been expressed in relation to safety risks associated with the operation of the SFRC, specifically for people crossing the rail line in vehicles or by foot and livestock wandering onto the rail line.
- **Employment opportunities**: The SFRC will facilitate industrial development in the region. The related economic and employment growth will have positive flow-on effects throughout the community.
- **Uncertainty**: Uncertainty around the potential impacts of all aspects of the project (i.e. construction timeframe, and the complementary rail projects such as the inland rail) are causing levels of stress and unease with certain members of the community. Clear and transparent communication associated with the project will be vital in minimising speculation and misinformation.

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Date - March 2010

Ebenezer

Willowbank

Calvert

Peak Crossing

Washpool

Undullah

Kagaru

Wooloomin

Ebenezer Road

Ipswich Boonah Road

Wilkes Road

Champions Way

Bergmans Road

Bauers Road

Lubbs Road

Stevens Road

Lane Road

Bassett Road

Toowoomba Ipswich Road

Reillys Road

Strongs Road

Covenly Road

Waters Road

Bunney Road

Hallam Road

Paynes Road

Mount Forbes Road

Murrimo Road

Tea Tree Avenue

M Hines Road

Birss Road

Goebels Road

Stephens Road

Nines Road

Mutdapilly Road

Keanes Road

Lairhopes Road

Teves Road

Warrill Creek

Bremer River

Purga School Road

Collins Road

Morgans Road

Morrows Road

Castle Hill Lane

Mount Flinders Road

Allens Road

Sandy Ck

Winks Road

Dwyers Road

Purga Creek

Pamplings Road

Pelford Road

Hines Road

Middle Road

Oakey Camp Road

Limestone Ridges Road

Undullah Ck

Wyatt Road

Kilmoylar Road

Brennans Dip Road

Undullah Road

Mopiaman Ck

Wild Pig Creek Road

Woolooman Road

Brennan Road

Fifteen Mile Creek

Revol Ck

3130307 3130313 3130310 3130309 3130308 3130408 3130410 3130411 3130407 3130409 3151312 3130406 3130412 3130404 3151315 3151308 3151327 3151313 3151202 3130413

Legend

- Revised Rail Alignment
- Existing Rail
- Preliminary CID Boundary

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Southern Freight Rail Corridor Study
Revised Assessment Report

ABS Census Collection Districts (CCDs)

Kilometres
0 1 2 4

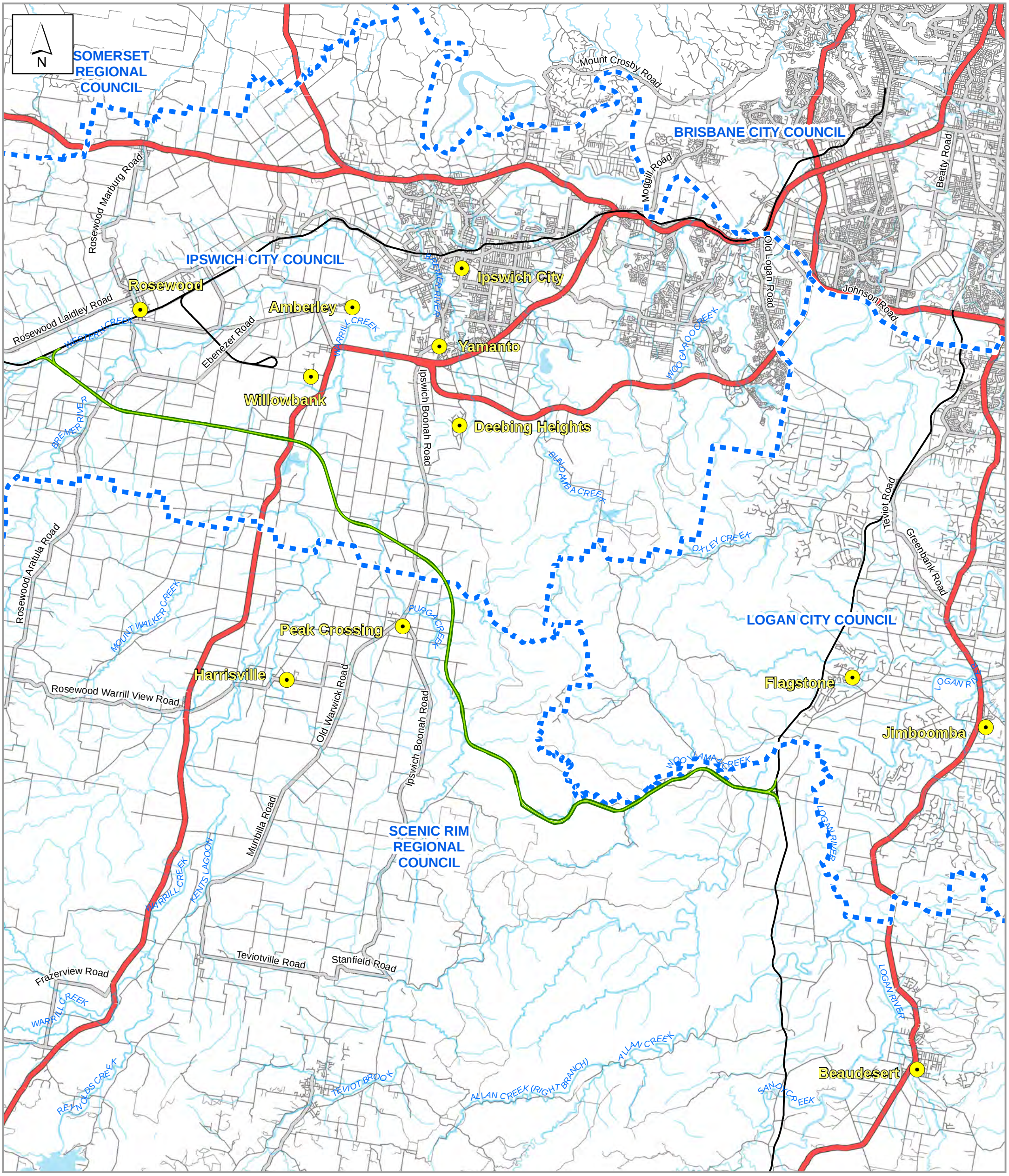
1:60,000 (when printed at A3)

A3 size

Map 11.1

JOB: Southern Freight Rail Corridor Study

Date - March 2010



Legend

- Key Settlements
- Revised Rail Alignment
- Preliminary CID Boundary
- New LGA Boundaries - April 2008

Queensland Government

Southern Freight Rail Corridor Study
Revised Assessment Report

Key Settlements and LGA Boundaries

Kilometres

0 3 6 12

1:180,000 (when printed at A3)

A3 size

Map 11.2

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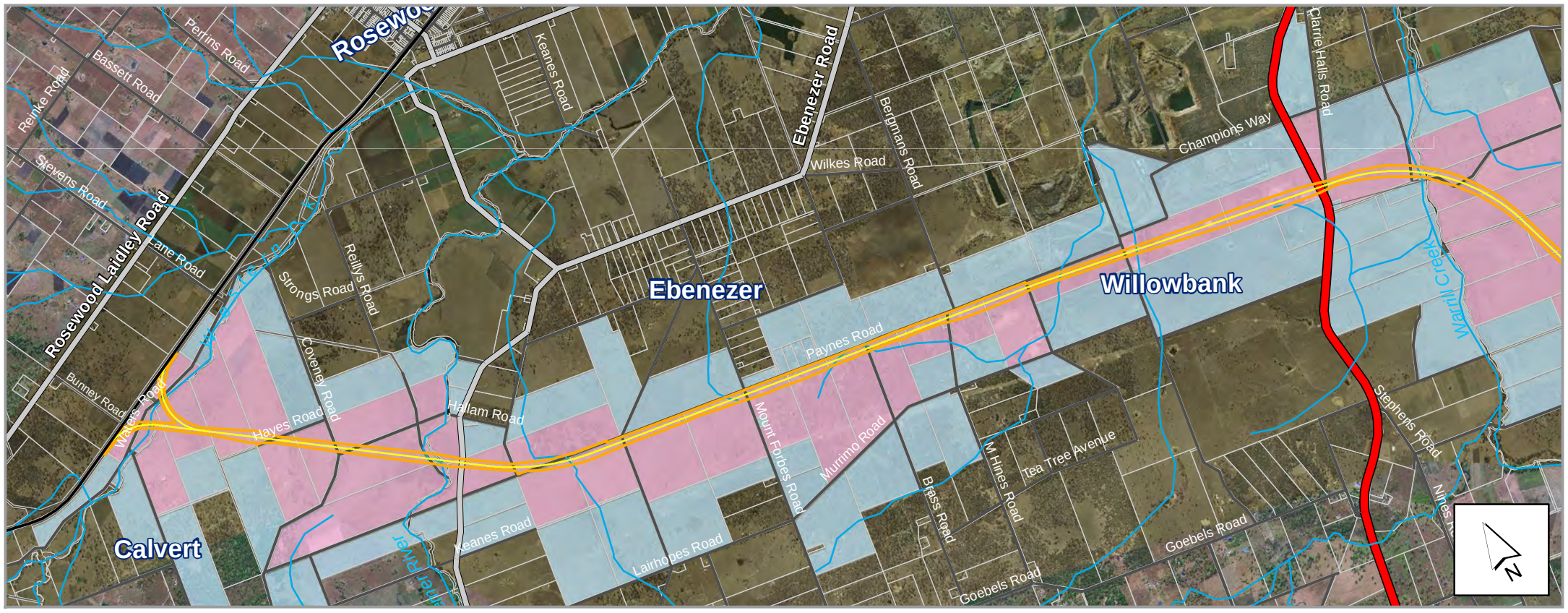
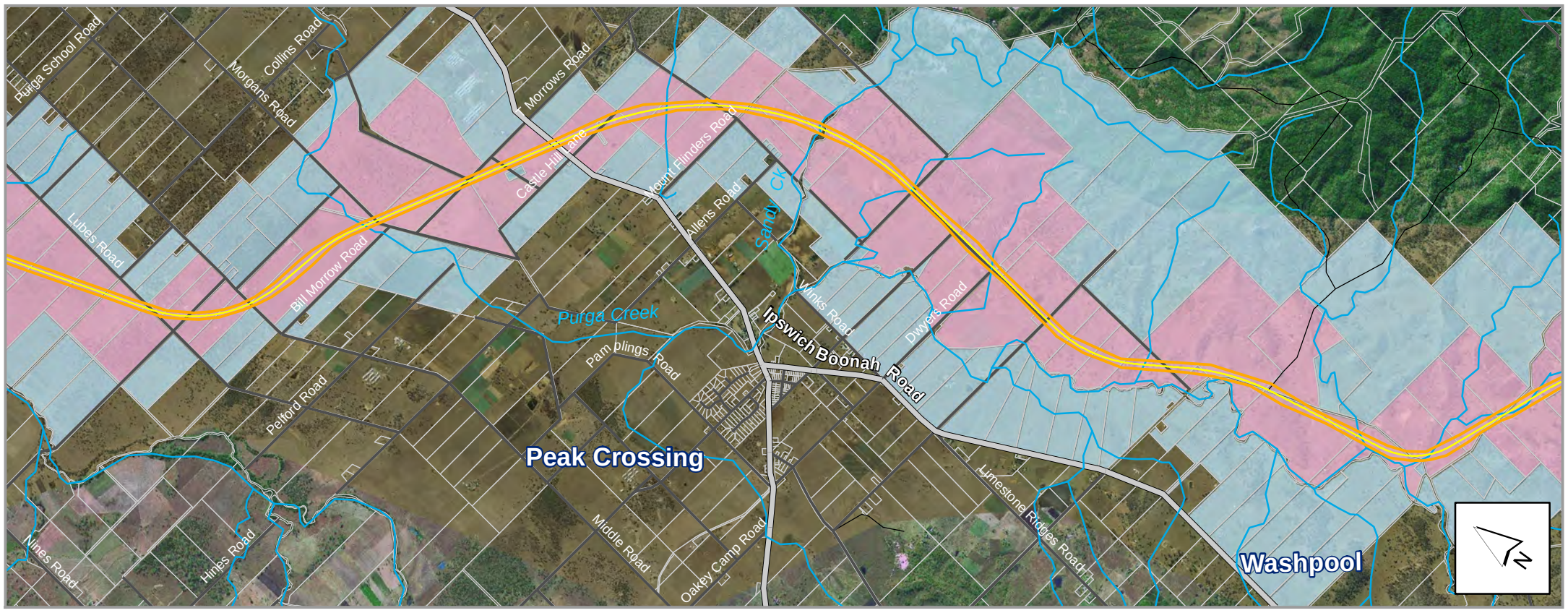
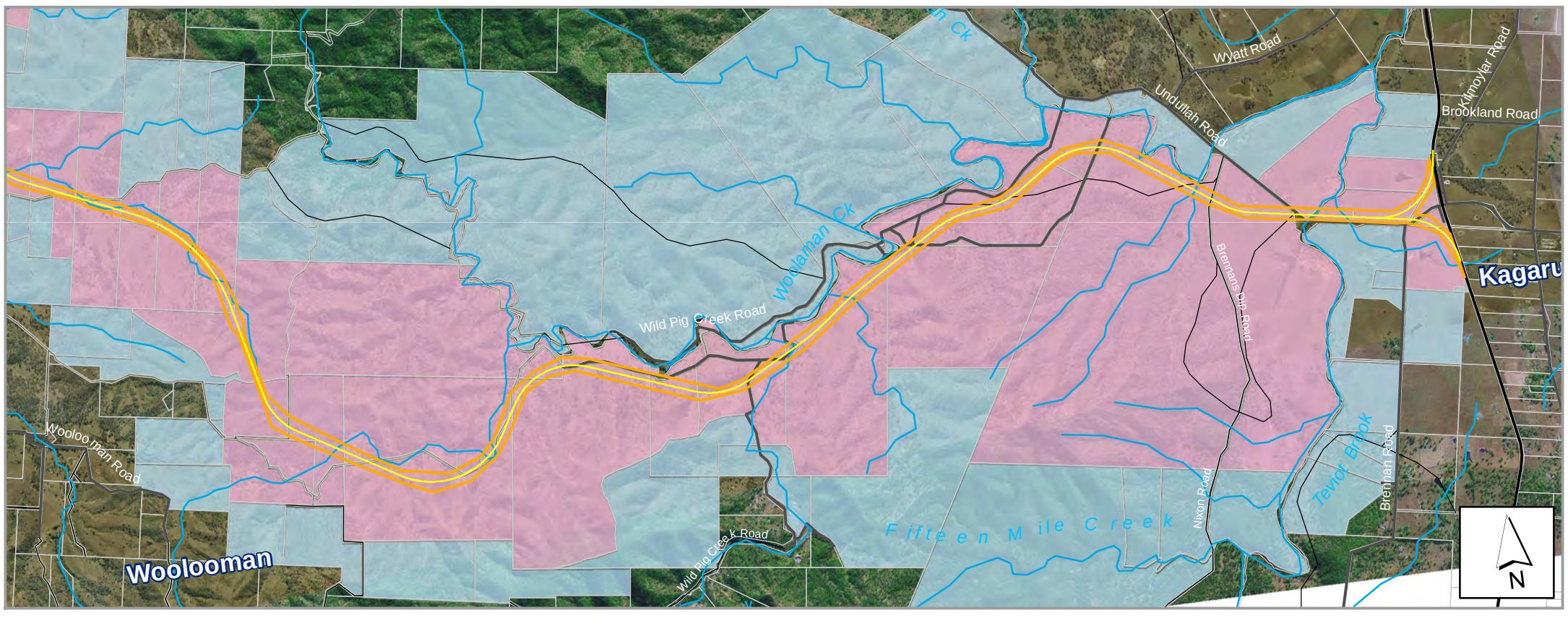
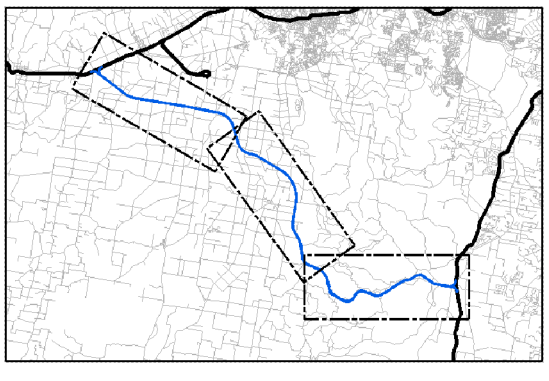
JOB: Southern Freight Rail Corridor Study

Date - March 2010









Legend

- Existing Rail
- Revised Rail Alignment
- Preliminary CID Boundary
- Properties subject to land requirements for the project
- Adjacent Properties

GDA
MGA94 Zone 56

Queensland Government

Southern Freight Rail Corridor Study
Revised Assessment Report

Affected and Adjacent Parcels

Kilometres
0 1 2 4

1:60,000 (when printed at A3)

A3 size

Map 11.3

Chapter 18
Economic analysis

18.0 Economic analysis

18.1 Introduction

A detailed Economic Analysis was undertaken as part of the study in order to determine the existing economic values of the study area as well as the potential for impacts on these values. The results of these investigations are reported in Technical Paper 12, in Volume 2 of the draft assessment report. A summary of the findings of Technical Paper 12 are provided below.

18.1.1 Approach and methodology

The economic analysis of the SFRC sought to present a qualitative analysis of the national, state, regional and local economic impacts of the project and quantitative Cost Benefit Analysis (CBA). This required careful analysis because the project being assessed involves the reservation of a corridor, rather than the actual construction of a rail line through a corridor. At this time, TMR is not planning to commence construction of the project but is planning for the long-term location of a corridor.

Assessing the impact of the SFRC requires consideration of two options: Option 0, in which the railway line is never built and Option 1, in which the railway line is built at some time in the future. To simplify the study, it is assumed that the railway line is built between 2018 and 2022 (2020 for the purposes of this assessment). This date is consistent with proposals for the Melbourne-Brisbane Inland Rail Line. In any event, subsequent analysis shows that the findings are not very sensitive to this date.

As with any economic assessment, two cases were considered — the 'base case' in which the corridor is not reserved, and the 'project case' in which the corridor is reserved for the future construction of a freight railway line. These two cases each have two options, according to when / if the railway line is built. Therefore four scenarios must be considered, as shown in Table 34.

Table 34 Project scenarios

Case when corridor reserved	Option when rail line built	
	2020	Deferred
Now (project case)	A1. Cost now, benefit later	A0 Cost now, no benefit
When needed (base case)	B1. Cost later, benefit later	B0. No cost, no benefit

The overall benefit of reserving the corridor now will depend on the relative likelihoods of the four scenarios as well as their respective impacts. Our approach has been designed to assess both impacts and likelihoods, using the following four steps:

- estimate the costs of two options for timing of reservation of the corridor, namely now or in 2020
- estimate the benefit of having the corridor in 2020
- estimate the probability that the corridor will be needed
- assess the net benefits as the probability weighted sum of net benefits of scenarios A1 and A0, less the probability weighted sum of net benefits of scenarios B1 and B0, appropriately discounted

These steps are undertaken through the following activities:

- use of local and regional economic indicators to present information about the existing economic environment
- description of the existing and planned transport infrastructure in the area
- assessment of Government plans and their relationship to the SFRC to identify the potential net benefit of having the SFRC reserved, assuming the rail line is built in 2020. No allowance was made for benefits if the rail line is not built, as advice suggests that the corridor will not be used for any infrastructure other than a rail line
- assessment of the potential cost impacts of reserving the corridor now (project case) and in 2020 (base case), where costs are derived from the disruption to land use now and in 2020

18.2 Description of economic values

The workers of the local region receive, on average, less income than others in SEQ or Queensland. This is probably the result of a relatively high concentration of manufacturing industry in the workforce of the local region, which anecdotally pays less than other industries.

Manufacturing and transport services is a more significant contributor to the local region economy than in SEQ or Queensland, and it is likely that these two sectors would benefit most from the improved trade links facilitated by the SFRC.

The three largest employers in the area are all based in Ipswich and account for the majority of the income and trade generation within the region. They are Amberley Airbase (3,500 employees), AMH Meatworks, Dinmore (2,700 employees), and Queensland Rail Ipswich Workshops, Redbank and Ipswich (1,300 employees). Additionally, there are a number of smaller manufacturing and transportation companies, most of which employ less than 100 people. Within the corridor of interest, there are several poultry farms, a fresh vegetable produce operation (which employs a significant number of people) and a number of cattle and horse stud properties.

18.3 Existing and planned transport infrastructure

The SFRC links with existing and planned transport infrastructure, as described in Volume 1, Chapter 4 of this draft assessment report.

18.4 Potential impacts

Potential economic impacts of the SFRC were investigated, relating to costs, quantifiable benefits and non-quantifiable impacts.

18.4.1 Costs

A capital cost estimate for construction including land acquisition, design, project management, and contingency of the SFRC is approximately $750 million. The major recurrent costs relate to track and signal maintenance, where a cost of $50,000 per track kilometre has been assumed. No cost has been assumed for train control.

18.4.2 Quantifiable benefits

In accordance with Queensland Treasury Project Evaluation Guidelines, the following benefits have been calculated:

- track access revenue (capturing productivity improvement) - This economic benefit is based on the expected productivity improvement from freight being transported along the preferred alignment. The introduction of train services would enable diversion of freight trains away from the highly congested Brisbane – Ipswich main line. We have assumed that the value of this diversion would be captured fully through appropriate track access charges (assumed to be $7 per net-tonne-km)
- travel time savings - The western corridor has been identified as a major growth node for the future. Increasing population will add to pressures on the existing passenger network to the point where the corridor may have freight curfews during peak passenger times similar to the current situation in Sydney. Space in the existing corridor is very limited and for much of its length the railway abuts the Ipswich Motorway. The main way to expand capacity on the line would appear to be through increasing train frequency, which in turn limits the scope of freight operations. We have estimated the benefits of reduced travel time for passenger train users on the Ipswich line, after the construction of the SFRC, and when the rail line is operational. Due to the high-level nature of this CBA:
  - travel time savings are assumed to be ten minutes per trip in 2015, increasing by 0.25 minutes per year thereafter
  - patronage is assumed to be 30,000 trips per day, and six full service days per week = 312 days per year as the annualising factor
- road user cost reductions - Capacity for freight which may not be possible in the future on the Ipswich line and would divert to road for Ipswich – Brisbane leg causing increased road congestion, road damage and therefore increasing road maintenance. It is assumed that from 2020, this extra freight will use the SFRC and therefore there will be an associated saving in road maintenance costs
- environmental benefits - A benefit accruing for the same reasons as road user cost reductions, the NSW Roads and Traffic Authority has advised the cost of environmental benefits that accrue as a result of removing vehicles from the road

The present values of costs and benefits are shown in Table 35, discounted back to the start of the year of construction, although expressed in 2007 dollar terms.

Table 35 Costs and Benefits of Rail Line

	Present values ($m in 2007 terms)
	Values at start of year construction
Costs	
PV Capital Costs	$660
PV Retained Capital Costs	-$93
PV Recurring Costs	$28
PV Total Costs	$595
Benefits	
PV Track Access Revenue	$89
PV Travel Time Savings	$430
PV Road Maintenance Reduction	$3
PV Environmental Benefits	$78
PV Total Benefits	$600
PV Benefits – Costs	$5

18.4.3 Non-quantifiable benefits

Local

General economic impacts within the project corridor will be small from the rail line alone. If the SFRC merely connects two existing rail lines, then the SFRC will be a corridor in the true sense of the word and will have no economic interaction with its surrounding area. Once constructed, there may be some immediate impacts on agriculture (both livestock and cultivation) within the immediate vicinity of the preferred alignment.

Regional

The SFRC could ease congestion by enabling transport infrastructure to be located close to industrial zones and facilities such as those proposed at Ebenezer and Bromelton. In conjunction with Inland Rail, it would additionally remove a large volume of freight from the roads and onto rail, which is much more efficient than road at moving goods over large distances.

State and national

It is at the state and national level where the real benefits of the combination of SFRC and Inland Rail are seen. At a national level, the SFRC will be of most significance as a part of Inland Rail. As part of this, the link will have a significant effect on national freight and trade flows between Queensland and other states, particularly Victoria, South Australia and Western Australia. Inland Rail is predicted to increase rail's modal share of freight from around 30% to over 70%. This would have a significant effect on maintaining (but not increasing) usage of the Newell and New England Highways. Improving the modal share of rail is a target for both State and Federal Governments and this will decrease congestion on these nationally important routes.

There will also be additional effects of reductions in the rate of increase in greenhouse gas emissions and in the rate of demand for fuel due to increasing truck use. As a mover of freight over longer distances, rail is much more efficient than road. These reductions have been included in the quantitative assessment of benefits.

18.5 Cost of reserving corridor

The revised assessment report has been prepared with a view to having the SFRC designated for future rail development. As construction may be some time in the future, QT does not intend to immediately resume land on the preferred alignment. Through the community infrastructure designation (CID) process under the *Sustainable Planning Act 2009* (SP Act), TMR proposes to identify the SFRC on local government planning schemes and the SEQ Regional Plan. This will have the effect of preventing any incompatible development within the SFRC earmarked for future freight rail. Therefore the direct cost of reserving the SFRC now is very low.

It will be necessary to purchase land or easements at some time in the future. The inclusion of future cost is a reasonable proxy for the (unrealised) possible economic cost suffered by landholders whose properties are traversed by the SFRC. We have not been advised what allowance has been made for future purchase of land or easements. However, an allowance of $44 million (in 2007 dollars) should suffice, based on an area 55km long by 0.2km wide, at an average price of $40,000 per ha for rural residential land.

If the SFRC is not reserved now, then it is likely that there will be developments in the area within the next ten years, in view of the rate at which land west of Ipswich is being developed. Reserving the SFRC later would therefore require purchasing land that had already been developed and serviced. For the purpose of estimating the cost of purchasing developed land, it would be most conservative to assume that any development was for industrial or commercial purposes, although this is likely to happen on only 5 km of the corridor. Clearly land that was developed for residential purposes would be much more expensive to purchase. The price for serviced industrial land is approximately $300,000 per ha in late 2007. The cost of having to purchase already developed land 5km long by 0.2km wide would be $300 million (in 2007 dollars) without any price escalation, and over $600 million by 2020 if escalated at 6 per cent real. The cost of purchasing the SFRC later (if needed) is likely to be seven times the cost of reserving now (whether needed or not).

18.6 Conclusion

Table 36 shows the project scenarios, with dollar values included.

Table 36 Project scenarios with dollar values

When corridor needed: When corridor reserved	2020	Deferred
Now (project case)	A1. Cost: $44m, Benefit*: $47m	A0 Cost $44m, Benefit: $0m
When needed (base case)	B1. Cost $300m, Benefit*: $47m	B0. Cost $0, Benefit: $0

It can be concluded that there are net benefits of reserving the SFRC now provided that there is a better than 1-in-7 prospect of needing a dual gauge rail link between the Ipswich to Toowoomba line (west of Rosewood) and the Brisbane-Sydney standard gauge Interstate rail line / Acacia Ridge inter-modal terminal. If the prospect of needing the line is less than 1-in-7, then the cost of reserving the SFRC now may be greater than expected benefits.

Impacts on local landholders are likely to be small from reserving the SFRC, but will in any event be compensated at a future time when land is purchased for the corridor. Local economic impacts from building the rail line are likely to be small unless a freight terminal is also developed, however it is noted that a terminal is outside the scope of this project. There will be significant regional benefits from the rail line and state and national benefits if the rail line is integrated with the Melbourne-Brisbane Inland Rail.

Chapter 19

Environmental management plan

19.0 Environmental Management Plan

19.1 Introduction and approach

This Environmental Management Plan (EMP) was developed to provide advice on the environmental management measures to be considered and included during the design, construction, and operation of the Southern Freight Rail Corridor. The EMP uses information about the existing environment, potential impacts, and proposed mitigation measures from each of the Technical Reports for:

- topography, geology, soils and groundwater
- nature conservation
- surface water
- flooding
- land use and planning
- air quality, climate and climatic trends
- visual impact
- noise and vibration
- Aboriginal cultural heritage
- European cultural heritage
- social impacts

The EMP has been structured to highlight management approaches to prevent, mitigate, and monitor potential impacts during the design, construction, and operational phases. This information can then be reviewed and adopted at each phase of the development of a railway along the preferred alignment.

19.2 Construction Environmental Management Plan

The EMP regularly identifies the need for a Construction Environmental Management Plan (CEMP) to adequately deal with the potential environmental impacts of the construction phase of the project. As a minimum, any CEMP developed for the SFRC in the future must address the following issues:

- noise
- vibration
- dust and other air emissions
- groundwater
- stormwater
- surface water
- erosion and sediment control
- waste
- contaminated land
- complaints
- emergencies and incidents

19.3 Section 1: Topography, geology, soils and groundwater

Environmental Factor	Potential Impact	Target	Management Objective			
				Design	Construction	Operation
Topography, Geology & Soils	Erosion	• Effective erosion and sediment control measures implemented and maintained	**Prevention**	• Incorporation of stable embankments and cuts, with catch drains to minimise longer term erosion	• Prepare and maintain a project-specific Erosion and Sediment Control Plan • Keep land clearance to a minimum • Avoid wherever possible clearing areas of highly erodible soils and steep slopes which are prone to water and wind erosion • Revegetate and mulch progressively as each section of works is completed. The interval between clearing and revegetation should be kept to an absolute minimum • Coordinate work schedules, if more than one contractor is working on a site, so that there are no delays in construction activities resulting in disturbed land remaining destabilised • Program construction activities so that the area of exposed soil is minimised during times of the year when the potential for erosion is high, for example during Summer when intense rainstorms are common • Stabilise the site and install and maintain erosion controls in accordance with the project-specific Erosion and Sediment Control Plan • Keep vehicles to well-defined haul roads, and keep haul roads off sloping terrain wherever practical • Design the slope of a cut to minimise the angle of incline • Cultivate the cut surface to increase infiltration of rainfall and decrease the velocity of water across the slope during rain and therefore reduce erosion	• No specific mitigation measures are considered necessary due to low potential risk
			Contingency Measures	• N/A	• Identify and investigate the site of erosion and address in accordance with the project-specific Erosion and Sediment Control Plan	• Identify and investigate the site of erosion and provide suitable erosion controls, in accordance with the Erosion and Sediment Control Plan
			Monitoring	• No background sampling required	• Erosion and sediment control measures documented • Daily visual inspection and check sheets maintained • In-situ turbidity (NTU) monitoring of local receiving surface waters, in accordance with the requirements of the project-specific Erosion and Sediment Control Plan	• N/A

Environmental Factor	Potential Impact	Target	Management Objective			
				Design	Construction	Operation
Topography, Geology & Soils	Mass Wasting	• No mass wasting/landslip events.	**Prevention**	• Geological and geotechnical investigations in areas requiring cuts • Geological profile of slopes, with slope stability reports issued prior to undertaking earthworks • Incorporate rock bolting, retaining walls and stable cuts with associated catch drains as required to maintain slope stability	• Construction activities undertaken in accordance with relevant work method statements	• Visual inspection of susceptible areas following heavy rainfall/landslip inducing event
			Contingency Measures	• N/A	• Identify and investigate the site of mass wasting and provide suitable remediation	• Identify and investigate the site of mass wasting and provide suitable remediation
			Monitoring	• No background sampling required	• Mass wasting and landslip control measures documented • Daily visual inspection and check sheets maintained	• No background sampling required
Topography, Geology & Soils	Generation of Acidic Material	• No generation of acidic waste water • No generation of acidic material	**Prevention**	• Inspection of intrusive igneous rock bodies for disseminated sulphides should be conducted as part of the geotechnical investigation	• Any exposed acid producing material will need to be neutralized and contained according to the *Queensland Acid Sulfate Soil Technical Manual, Soil Management Guidelines* • Development to be completed in accordance with State Planning Policy 2/02	• No specific mitigation measures are considered necessary due to low potential risk
			Contingency Measures	• N/A	• Divert potentially acidic surface run-off away from local waterways, into established sedimentation basins • Neutralise the contained surface run-off by chemical/biological means, in accordance with the *Queensland Acid Sulfate Soil Technical Manual, Soil Management Guidelines* • Development to be completed in accordance with State Planning Policy 2/0	• N/A
			Monitoring	• No background sampling required	• Submission of samples of suspected acidic material to a NATA accredited laboratory for characterisation • pH monitoring of surface run-off generated from operational construction sites, at times and in locations where generation of acidic runoff is likely • pH monitoring of local surface waters receiving surface run-off from construction sites, at times and in locations where generation of acidic runoff is likely	• No background sampling required

Environmental Factor	Potential Impact	Target	Management Objective			
				Design	Construction	Operation
Contaminated Land	Land contamination by on-site construction activities or by export of contaminated material from site or importation of contaminated material	• No contamination of land	**Prevention**	• Identification of EMR/CLR listed Lots to be traversed by the preferred alignment • Investigate the potential for lot configuration, where isolated pockets of contamination on a property can be excised from the balance land • Obtain, where applicable, SMPs for EMR/CLR listed sites • Conduct preliminary site investigations of EMR/CLR listed sites to be disturbed during construction • Develop SMP/RAP prior to construction commencing on EMR/CLR listed site • An Emergency Spill Containment Plan to be produced	• Nature, quantity and location of all hazardous materials on-site should be recorded in a manifest • Storage areas to consist of a compacted base, bunding to contain spillages and roofing to prevent contamination and infiltration of stormwater (as per AS1940 and AS3780) • Residual hazardous materials will be removed from the construction site and returned to an appropriate storage area or a suitable waste facility • Spillages of all dangerous goods and contaminated materials will be rendered harmless through investigation, collection and disposal at a suitable disposal facility • Fill material imported from off-site to be procured from a licensed quarrying facility and accompanied by relevant documentation to verify it is contaminant/ASS free • Contaminated fill material exported from site will be disposed at a facility licensed for disposal of such material	• Contaminating events during operation will be accidental and unscheduled. As such, no preventative measures can be adopted
			Contingency Measures		• If potentially contaminated soils are encountered, a preliminary site investigation should be undertaken • Visual and olfactory observation of all in-situ material excavated during construction	• Preliminary site investigation of land exposed to leaked or spilled potentially hazardous substances/material
			Monitoring	• No background sampling required	• Submission of samples of suspected contaminated material to a NATA accredited laboratory for characterization	• Submission of samples of suspected contaminated material, generated from operational activities, to a NATA accredited laboratory for characterization
Groundwater	Degradation of groundwater resource	• No variation to local groundwater levels due to construction • No contamination of local groundwater system	**Prevention**	• Determine water requirements for construction and identify suitable water sources • Assess the storativity and yield of aquifers within the project alignment • Conduct a census for potential unregistered groundwater wells located within 250m radius surrounding locations where dewatering is to be undertaken • Identify surface water bodies sensitive to groundwater movement (i.e. dams) • Identify all local users of groundwater resources within a 1km radius of the preferred alignment	• Comply with Emergency Spill Containment Plan in the event of a spillage/leak of potentially hazardous substances • Contain poor quality discharge water and treat prior to disposal, subject to achieving water quality guidelines • Subject as few sites as possible to dewatering activities	• No specific mitigation measures are considered necessary due to low potential risk

Environmental Factor	Potential Impact	Target	Management Objective			
				Design	Construction	Operation
			Contingency Measures	• N/A	• Investigate the nature of any spilled/leaked potentially hazardous/contaminating substances • Investigate the extent of any spillage/leakage of potentially hazardous/contaminating substances	• N/A
			Monitoring	• Conduct a detailed groundwater quality investigation using the existing registered bore hole network prior to commencing construction	• Gauge daily groundwater levels in nearby privately owned (with permission) and registered bore holes • Should groundwater quality in the immediate vicinity degrade, monitor down-gradient groundwater quality and downstream surface water quality	• Conduct groundwater quality sampling, using the existing registered bore hole network, following a major spillage/leakage event

19.4 Section 2: Nature conservation

Environmental Factor	Potential Impact	Target	Management Objective			
				Design	Construction	Operation
Nature Conservation	Direct loss of critically endangered *Melaleuca irbyana* vegetation community and species	• Compliance with the EPBC Act, NCA, VMA, and EPA, and consistency with the relevant policies of the SEQRP • Maintain the current extent of endangered *M. irbyana* vegetation community	**Prevention**	• Avoid all endangered regional ecosystem unless there is no suitable alternative • Co-locate services, drainage systems and service road to reduce area of vegetation clearing required	• Minimise construction activities within remnant vegetation • Locate all construction sites, such as site office, soil stockpiles, machinery/equipment storage within existing cleared areas or disturbed area • Impose strict no-go zones for construction workers and machinery within endangered vegetation	• Implement an offset management plan that specifies how the offset will be managed to ensure it achieves or maintains remnant regional ecosystem status and ecological equivalence, if required under statutory policy
			Contingency Measures	• Research viability of compensatory planting • Develop *M. irbyana* management and rehabilitation plan • Prior to clearing, collection of seeds from local trees for propagation and use in seed mixes, in particular *M. irbyana* and *Marsdenia coronata*	• All vegetation to be removed is clearly marked and clearing contractors briefed on clearing requirements • Educate all contractors on the importance of the vegetation and ensure no encroachment on surrounding vegetation • Implement the *M. irbyana* management and rehabilitation plan • Implement any offsets required in relation to *M. irbyana* impacts	• N/A
			Monitoring	• N/A	• Daily visual inspection of vegetation clearing boundaries • Monitor the success of any offsetting	• In conjunction with QPWS, institute a Monitoring and Reporting Program in accordance with the Offset Management Plan • Monitor the success of any offsetting
Nature Conservation	Direct loss of 'of concern' *Eucalyptus crebra, Corymbia citriodora* and *Lophostemon confertus* regional ecosystem	• Compliance with the EPBC Act, NCA, VMA, and EPA • Maintain the current extent of 'of concern' vegetation communities	**Prevention**	• Avoid all of concern regional ecosystem unless there is no suitable alternative • Railway tunnel designed to promote the retention of remnant vegetation through the Mount Flinders Range • Co-locate services, drainage systems and service road to reduce area of vegetation clearing required	• Minimise construction activities within remnant vegetation • Construction techniques employed for tunnel construction to promote the retention of remnant vegetation • Locate all construction sites, such as site office, soil stockpiles, machinery/equipment storage within existing cleared areas or disturbed area • Impose strict no-go zones for construction workers and machinery within remnant vegetation	• Implement an offset management plan that specifies how the offset will be managed to ensure it achieves or maintains remnant regional ecosystem status and ecological equivalence

Environmental Factor	Potential Impact	Target	Management Objective			
				Design	Construction	Operation
			Contingency Measures	• Research viability of compensatory planting • Develop a management and rehabilitation plan • Prior to clearing, collection of seeds from local trees for propagation and use in seed mixes, in particular *E. crebra, C. citriodora,* and *L. confertus*	• All vegetation to be removed is clearly marked and clearing contractors briefed on clearing requirements • Educate all contractors on the importance of the vegetation and ensure no encroachment on surrounding vegetation; • Implement the management and rehabilitation plan • Implement any offsets required in relation to loss of or damage to stands of regional ecosystem *Eucalyptus crebra, Corymbia citriodora* and *Lophostemon confertus*	• N/A
			Monitoring	• N/A	• Daily visual inspection of vegetation clearing boundaries • Monitor the success of any offsetting	• Perform a Monitoring and Reporting Program in accordance with the Offset Management Plan • Monitor the success of any offsetting
Nature Conservation	Direct loss of essential habitat for threatened *M. irbyana, Petrogale penicillata,* and *Phascolarctos cinereus*	• Compliance with the EPBC Act, NCA, VMA, and EPA • Maintain the current extent of 'of concern' vegetation communities	**Prevention**	• Avoid all essential habitat unless there is no suitable alternative • As with the clearing of regional ecosystems, co-locate services, drainage systems and service road to reduce area of vegetation clearing required	• Minimise construction activities within remnant vegetation • Locate all construction sites, such as site office, soil stockpiles, machinery/equipment storage within existing cleared areas or disturbed area • Impose strict no-go zones for construction workers and machinery within endangered vegetation	• Implement an offset management plan that specifies how the offset will be managed to ensure it achieves or maintains essential habitat status and ecological equivalence
			Contingency Measures	• Research viability of offset planting to achieve compensatory essential habitat	• All vegetation to be removed is clearly marked and clearing contractors briefed on clearing requirements • Educate all contractors on the importance of the vegetation and ensure no encroachment on surrounding vegetation	• N/A
			Monitoring	• N/A	• Daily visual inspection of vegetation clearing boundaries • Monitor the success of any offsetting	• Perform a Monitoring and Reporting Program in accordance with the Offset Management Plan • Monitor the success of any offsetting
Nature Conservation	Loss of Koala Conservation Area and/or loss of high value bushland koala habitat	• Compliance with the EPBC Act, NCA, VMA, and EPA. • Compliance with relevant koala conservation policies	**Prevention**	• Avoid all Koala Conservation Area and/or high value bushland koala habitat unless there is no suitable alternative • Accord with koala conservation policies relevant at the time of detailed design • Prepare Koala Management Plan and Koala Habitat Management Plan	• Minimise construction activities within areas supporting koala preferred feed trees and habitat • Undertake all clearing activities in accordance with a Koala Management Plan and Habitat Management Plan	• N/A

Environmental Factor	Potential Impact	Target	Management Objective			
				Design	Construction	Operation
			Contingency Measures	• Alignment to avoid koala preferred feed trees and pass through the most disturbed areas within the KCA	• Undertake all clearing activities in accordance with a Koala Management Plan and Habitat Management Plan • Clearing of koala habitat trees (Genera *Angophora, Corymbia, Eucalyptus, Lophostemon, Melaleuca)* must comply with sequential clearing conditions (s 15 Koala Plan) • Suitably qualified spotter catcher, with the necessary permits, to be present at all vegetation clearing to ensure minimal disturbance to onsite fauna and recover and rescue any injured or orphaned fauna during construction	• N/A
			Monitoring	• Establish monitoring program of koala habitat trees for koala usage within Koala Conservation Areas	• Continue koala monitoring as part of a standardised Flora and Fauna Monitoring Program	• In conjunction with QPWS, maintain activities as set out in the Flora and Fauna Monitoring Program
Nature Conservation	Degradation of vegetation communities and habitats through indirect impacts, including edge effects, spread of weeds, introduced pests, modified surface water drainage, light and noise intrusion	• Compliance with the EPBC Act, NCA, VMA, and EPA • No new infestations of weeds or pests attributable to the Project	**Prevention**	• Avoid further fragmentation of existing small patches (<5 ha) • Look for opportunities to expand and connect small patches of vegetation through the use of any statutorily required offsets • Conduct hydrologic and hydraulic analysis within affected catchments • Maintain, as far as practicable, existing surface drainage paths • Prepare Fire Ant Management Plan	• Minimise construction activities within remnant vegetation • Movement of fire ant infested material outside the restricted area in accordance with FAMP and with approval of a DPI&F Inspector and only to approved disposal sites within a restricted area • Install vehicle shakedown and washdown facilities at main site entry/exit points to remove soil and weeds • Develop and implement a Weed Management Plan that includes specific controls for environmental and noxious weeds along the corridor	• Revegetate disturbed areas as soon as practicable after works with appropriate native and locally endemic species that have high habitat value
			Contingency Measures	• N/A	• Implement the Offsetting Management Plan	• Maintain activities as set out in the Weed Management Plan • Implement the Offsetting Management Plan
			Monitoring	• N/A	• Imported topsoils/mulches to be weed-free prior to material arriving onsite • Visual inspections in accordance with the requirements set out in the Weed Management Plan • Monitor the success of any offsetting	• Visual inspections in accordance with the requirements set out in the Weed Management Plan • Monitor the success of any offsetting

Environmental Factor	Potential Impact	Target	Management Objective			
				Design	Construction	Operation
Nature Conservation	Mortality of native fauna	• No mortality of native fauna directly attributable to the project • Demonstrable inclusion of fauna-sensitive design for the railway line, structures and supporting infrastructure	**Prevention**	• Railway designed to promote the safe passage of fauna through measures including, but not limited to, fauna overpasses, fauna underpasses and appropriate fencing • Liaise with local conservation groups, including the Ipswich Koala Protection Society, to assist in the design of fauna-sensitive design in key areas of the alignment	• All potential habitat trees, i.e. trees containing hollows and potential koala habitat trees, shall be clearly marked with flagging tape/spray paint and all staff made aware that these trees must not be cleared until the hollows and/or koalas have been removed • Removal and translocation of hollows containing wildlife from habitat trees shall be conducted using a cherry picker, arborist and spotter/catcher • All nests and dreys shall be safely removed from trees prior to trees being felled • All native fauna are protected (including snakes) and shall not be intentionally harmed as a result of the works or workers actions • All site personnel shall be made aware of sensitive fauna/habitat areas and the requirements for the protection of these areas • Fauna exclusion devices shall be implemented where practical along the corridor to discourage fauna from entering the construction site • In accordance with statutory obligations/policies, construction activities to be monitored in accordance with a standardised Flora and Fauna Monitoring Program	• Maintenance of fauna exclusion systems and structures designed for safe fauna passage to enable these systems to function effectively
			Contingency Measures	• N/A	• Investigate the cause of any fauna injury or death • Information gained through investigations to be applied in adaptive management to prevent or minimise further losses or injuries where possible and practical and/or implement compensatory actions	• N/A
			Monitoring	• N/A	• Visual inspections in accordance with the Flora and Fauna Monitoring Program • Prepare a flora and fauna monitoring program that includes assessment of mortality of native fauna and adaptive management processes to prevent or minimise further losses or injuries and/or identifies measures to be implemented as compensatory actions	• Continued visual inspection of corridor for fauna mortality in conjunction with scheduled maintenance works and according to the requirements established in the Flora and Fauna Monitoring Program

Environmental Factor	Potential Impact	Target	Management Objective			
				Design	Construction	Operation
Nature Conservation	Impediment to movement of wildlife through natural wildlife corridors	• Compliance with the EPBC Act, NCA, VMA, and EPA	**Prevention**	• Include a tunnel design option through Mount Flinders Range to reduce the amount of vegetation clearing required • Liaise with local conservation groups, including the Ipswich Koala Protection Society, to assist in the design of fauna-sensitive design in key areas of the alignment • Fauna-friendly underpasses and culverts to be constructed at each creek/drainage line crossing where practicable. Bridges are to be used in preference to culverts as they allow revegetation and easy fauna movement. Where box culverts are used, dry cells shall be incorporated into the design of the culvert to allow safe passage of fauna during wet conditions	• Where possible, construction, and clearing of vegetation, should be staged to allow for continued wildlife movement outside the immediate danger of the construction site • All construction activities, e.g. site offices, stockpiles etc should be located in existing disturbed or cleared areas to minimise disruption of wildlife habitat • In accordance with statutory obligations, spotter/catchers will be present at all vegetation clearing to ensure minimal disturbance to onsite fauna and recover and rescue any injured or orphaned fauna during construction	• Maintenance of structures designed for safe fauna passage to enable these systems to function effectively
			Contingency Measures	• Consider the use of offsets from vegetation clearing to enhance the existing wildlife corridors • Offsets should focus on areas that provide greatest opportunity for connectivity and priority should go to the larger core habitat areas for restoration and enhancement	• In accordance with statutory obligations, spotter/catchers will be present at all vegetation clearing to ensure minimal disturbance to onsite fauna and recover and rescue any injured or orphaned fauna during construction • Implement offsets where applicable	• Implement offsets where applicable
			Monitoring	• N/A	• Visual inspections in accordance with the Flora and Fauna Monitoring Program • Monitor the success of any offsetting	• Continued visual inspection of corridor for fauna mortality in conjunction with scheduled maintenance works and according to the requirements established in the Flora and Fauna Monitoring Program in conjunction with QPWS • Monitor the success of any offsetting

19.5 Section 3: Water quality and riparian zones

Environmental Factor	Potential Impact	Target	Management Objective			
				Design	Construction	Operation
Water Quality	Sediment from disturbed areas may enter nearby waterways	• Compliance with current State and Commonwealth legislation • Compliance with current State and Commonwealth guidelines, strategies and standards • No visible evidence of sediment leaving construction sites • No visible increase in turbidity attributable to construction or operation of the railway	**Prevention**	• Treat railway verge to prevent soil erosion. Treatment may include placement of ballast adjacent the railway, and vegetation of the outer-verge	• Develop and implement of a Sediment and Erosion Control Plan in accordance with Engineers Australia's *Soil Erosion and Sediment Guidelines for Queensland Construction Sites* • Works within riparian zones to be scheduled outside the wetter months (November–February) as far as practicably possible	• Maintain vegetation along railway verge to prevent soil erosion
			Contingency Measures	• N/A	• Maintain, repair or reinstate damaged erosion and sediment control infrastructure • Investigate cause of increased turbidity or released sediment and address accordingly	• Implement erosion and sediment control measures if areas are causing high sediment loads or turbidity in nearby waterways
			Monitoring	• No background monitoring required	• Daily visual inspections of sediment control infrastructure • Weekly visual inspections of discharge water and receiving water bodies • Visual inspections of discharge water and receiving water bodies after rainfall • Turbidity monitoring in the event of turbid plumes from construction activities	• N/A
Water Quality	Contamination of nearby waterways caused by an accidental release of fuel, oils, etc or freight	• Compliance with current State and Commonwealth legislation • Compliance with current State and Commonwealth guidelines, strategies and standards • No spills or leaks enter waterways	**Prevention**	• Design of railway minimises potential derailment	• Develop and implement of a Dangerous Goods and Chemical Control Plan, detailing storage, handling and emergency procedures for fuels, oils and other substances	• Operate the railway in accordance with Queensland Rail requirements • Use containers and wagons that comply with approved design standards
			Contingency Measures	• N/A	• Contain and clean up spill in accordance with the Dangerous Goods and Chemical Control Plan • Investigate extent of impacted area and remediate accordingly • Investigate cause of spill or leak, remedy and update the Control Plan to prevent future incidents	• Contain and clean up spill in accordance with Queensland Transport emergency procedures • Investigate cause of spill and implement operational or wagon/container design changes where practicable
			Monitoring	• No background monitoring required	• Sample for relevant water quality parameters in the event of a spill or leak entering surface waters	• Sample for relevant water quality parameters in the event of a spill entering surface waters
Riparian Zone	Physical damage or alteration to riparian areas	• No net degradation of riparian areas attributable to construction or operation	**Prevention**	• Design to avoid structures within riparian areas where practicable • Design to include rehabilitation of riparian areas • Design to minimise scour and erosion of riparian areas	• Minimise vegetation removal and construction activities within waterways • Rehabilitate riparian areas as soon as practicable after construction	• N/A

Environmental Factor	Potential Impact	Target	Management Objective			
				Design	Construction	Operation
			Contingency Measures	• N/A	• Rehabilitate disturbed areas	• If vegetation in rehabilitation areas dies, investigate and address the cause and rehabilitate.
			Monitoring	• No background monitoring required	• Daily visual inspection of construction site for clearing or construction activities beyond designated areas • Weekly visual inspection of rehabilitated areas until construction period is complete	• N/A
Riparian Zone	Interference with stream flow	• No interference with stream flow attributable to construction or operation	**Prevention**	• Design to avoid construction within riparian areas where practicable • Investigate use of recycled water for construction purposes • Assess construction water supply requirements as part of design	• Obtain construction water from sources other than local waterways	• Obtain water for irrigation of revegetated areas from a source other than local waterways • Investigate use of recycled water for irrigation purposes
			Contingency Measures	• N/A	• Cease abstraction of water from local waterways • Acquire construction water from an alternative source	• Cease abstraction of water from local waterways • Acquire construction water from an alternative source
			Monitoring	• N/A	• N/A	• N/A
Riparian Zones	Introduction of weeds and pests	• No introduction of weeds or pests into riparian areas	**Prevention**	• Design to avoid construction within riparian areas where practicable • Design to include rehabilitation of riparian areas to prevent establishment of new weed and pest species	• Develop and implement a Weed and Pest Control Plan, detailing procedures for cleaning and checking construction vehicles entering the construction site • Minimise vegetation removal and construction activities within waterways • Rehabilitate riparian areas as soon as practicable after construction	• Maintain vegetation within the rail corridor to prevent the establishment of weed species
			Contingency Measures	• N/A	• Manually remove weed species within and adjacent construction areas • Remove overabundant or notifiable pest species in accordance with advice from the Department of Primary Industries and Fisheries	• Manually remove weed species within and adjacent the rail corridor in riparian areas • Spray weeds more than 100m from riparian areas with a herbicide that becomes deactivated once in contact with soil, for example glyphosate
			Monitoring	• No background monitoring required	• Weekly visual inspection of construction areas for new infestations of weeds or pests • Weekly inspections of weed or pest treatment areas to determine efficacy of measures	• Inspection of corridor during scheduled maintenance for weed infestation

19.6 Section 4: Flooding

Environmental Factor	Potential Impact	Target	Management Objective			
				Design	Construction	Operation
Flooding	Increased flood levels upstream and downstream of rail infrastructure	• Suitable flood immunity maintained for existing infrastructure • Increased flood levels do not affect land use	**Prevention**	• Provide sufficient bridge structure widths at crossing locations • Locate and orientate bridge piers to reduce flow disturbance	• Adopt bridge construction techniques to minimise flow disturbance • Minimise construction during the wet season	• Asset owner (likely QR Network) to maintain bridge structures (i.e. periodic clean outs) to prevent aggregation of silt
			Contingency Measures	• N/A	• N/A	• N/A
			Monitoring	• No monitoring required	• No monitoring required	• No monitoring required

19.7 Section 5: Land use and planning

Environmental Factor	Potential Impact	Target	Management Objective			
				Design	Construction	Operation
Land Use and Planning	Loss of rural character of the local area	• No complaints from residents relating to loss of rural character cause by the introduction of the railway	**Prevention**	• Investigate methods to incorporate the railway into the local environment with minimal character impacts (e.g. through landscape and visual design guidelines)	• Incorporate landscape and visual design guidelines and other strategies aimed at minimising changes to landscape character	• Incorporate landscape and visual design guidelines and other strategies aimed at minimising the changes to landscape character
			Contingency Measures	• Where the railway is incongruent with the rural character, landscape treatments should be developed to minimise the potential impact on the landscape character	• Investigate and implement ways to reduce affects on the rural character, such as screening the construction site	• Investigate complaints and address accordingly. Possible mitigation measures include establishing screening vegetation to reduce views of the railway • Implement a complaint recording, investigation and reporting system for construction and operation
			Monitoring	• Determine appropriate monitoring methods in consultation with community members (e.g. periodical survey)	• No monitoring required	• No monitoring required
Land Use and Planning	Loss of Good Quality Agricultural Land Disruption to agricultural practices	• No reduction in rural production or output caused by construction or operation of the railway	**Prevention**	• Consult with landowners to determine methods to prevent disruption to current agricultural practices; and • Avoid areas of GQAL where possible	• Develop and implement a CEMP, outlining how disruption of agricultural practices will be prevented during construction, based on discussions with landowners during the design phase	• Operate the railway in accordance with measures identified during the design phase
			Contingency Measures	• Where some disruption cannot be avoided, consult with landowners to identify ways to minimise impacts to agricultural practices	• Where disruption cannot be avoided, liaise with landowners to reduce potential impacts • Investigate the cause of complaints of disrupted activities and address the issue accordingly	• Investigate the cause of complaints of disrupted activities and address the issue accordingly • Implement a complaint recording, investigation and reporting system for construction and operation
			Monitoring	• No monitoring required	• No monitoring required	• No monitoring required
Land Use and Planning	Severance of driveways and connector roads	• Accessibility levels maintained for local residents	**Prevention**	• Avoid traversing driveways and local access roads	• Avoid severing driveways and local access roads wherever possible	• N/A
			Contingency Measures	• Explore access options in discussion with residents whose driveways or local access roads are traversed by the alignment	• Provide alternative access routes for residents where access is severed by construction activities	• Investigate the source of any accessibility complaints and address these on a case-by-case basis • Implement a complaint recording, investigation and reporting system for construction and operation
			Monitoring	• None required	• None required	• No monitoring required
Land Use and Planning	Severance of connector roads of high local and regional significance	• No impediment to traffic movement along key connector roads	**Prevention**	• Provide appropriate grade separation at road-rail intersections for all roads of high local and regional significance	• Avoid interference with operation of important roads	• Operate grade-separated crossings at the same time as the railway
			Contingency Measures	• N/A	• Plan and operate detours or alternative routes for vehicles travelling on these roads	• Investigate source of any complaints regarding key connector roads, and address the issue accordingly • Implement a complaint recording, investigation and reporting system for construction and operation
			Monitoring	• No monitoring required	• N/A	• No monitoring required

19.8 Section 6: Air quality, climate and climatic trends

Environmental Factor	Potential Impact	Target	Management Objective			
				Design	Construction	Operation
Air Quality	Gaseous/exhaust air emissions may reduce local air quality	• No sustained air quality complaints • Compliance with current State and National air quality guidelines	**Prevention**	• Railway designed to promote locomotive efficiency by considering acceleration and deceleration requirements, as well as vertical grade	• Regularly maintain all construction plant and site vehicles	• No specific preventative measures are considered necessary due to low potential risk
			Contingency Measures	• N/A	• Investigate source of complaint and address the issue accordingly	• Investigate source of complaint and address the issue accordingly • Implement a complaint recording, investigation and reporting system for construction and operation
			Monitoring	• No background sampling required	• No regular monitoring required • SO_x, NO_x, and VOCs sampling in the event of air quality complaints	• SO_x, NO_x, and VOCs sampling in the event of air quality complaints
Air Quality	Dust emissions may cause a nuisance to nearby receptors	• No sustained dust complaints • Compliance with current State and National air quality guidelines	**Prevention**	• Design railway verge to reduce potential dust generation. For example, place cobbles or coarse gravel (i.e. ballast) within and adjacent the railway line • Landscape with appropriate native species adjacent railway	• Develop and implement Dust Management Plan, which identifies potential sources of dust, preventative measures, monitoring, and complaints handling • Manage the construction site in accordance with best practice dust management, current at the time of construction	• Manage potentially dusty loads (e.g. coal) in accordance with current best practice • Maintain railway verge to prevent dust generation
			Contingency Measures	• N/A	• Investigate the cause of any dust complaint and address the issue accordingly	• Investigate the cause of any dust complaint and address the issue accordingly • Implement a complaint recording, investigation and reporting system for construction and operation
			Monitoring	• No background sampling required	• Daily visual inspection • PM_{10} sampling in the event of a dust complaint	• PM_{10} sampling in the event of a dust complaint
Air Quality	Waste at the construction site and odorous loads (such as livestock) may cause and odour nuisance	• No sustained odour complaints	**Prevention**	• N/A	• Develop and implement a Waste Management Plan, detailing storage and removal of wastes (including liquid wastes) from construction sites	• No specific preventative measures are considered necessary due to low potential risk
			Contingency Measures	• N/A	• Investigate the cause of any odour complaint and address the issue accordingly	• Investigate the cause of any odour complaint and address the issue accordingly • Implement a complaint recording, investigation and reporting system for construction and operation
			Monitoring	• No background monitoring required	• Daily olfactory inspection of potentially odorous areas, such as waste storage and ablutions areas	• Monitoring determined on a case-by-case basis

Environmental Factor	Potential Impact	Target	Management Objective			
				Design	Construction	Operation
Climate	Increased risk of bushfire along the rail corridor by possible sparking in areas of medium bushfire risk.	• No fires caused by construction or operation of the railway	**Prevention**	• Prepare a Bushfire Risk Management Plan	• Develop and implement a CEMP, incorporating provisions outlined in the Bushfire Risk Management Plan, including clearing an appropriate corridor for the alignment • Control ignition sources in accordance with the CEMP	• Maintain corridor in accordance with the Bushfire Risk Management Plan, including regular fuel load reduction through burn-off or slashing
			Contingency Measures	• Include provisions for early identification of bushfire risks, and emergency response procedures in the Bushfire Risk Management Plan	• Contain and extinguish wild fires with assistance from Emergency Services as required • Investigate cause of fire, and update facilities or procedures to prevent further incidents • Update the Emergency Plan as required	• Contain and extinguish wild fires with assistance from Emergency Services as required • Investigate cause of fire, and update infrastructure or procedures to prevent further incidents
			Monitoring	• Bushfire Risk Management Plan to include monitoring provisions	• Ongoing visual inspections for smoke or fire during construction • Visual inspection of construction areas for presence of dry fuel	• Visual inspection of gravel verge and corridor during scheduled maintenance for unwanted vegetation
Climatic Trends	Construction vehicles and diesel-electric locomotives will emit greenhouse gases	• Reduce greenhouse gas emissions as far as practicable	**Prevention**	• Design the railway to maximise locomotive efficiency by reducing areas of acceleration and deceleration, and considering vertical grade	• Develop and implement a Greenhouse Gas Management Plan, it should consider: - Use of recycled materials and less energy intensive construction processes - Use of locally supplied materials and equipment - Use of biodiesel - Regular maintenance and services of construction vehicles - On-site office accommodation - Renewable energy for on-site power - Emission offsets, including revegetation	• Maintain and regularly service locomotives • Consider the use of biodiesel
			Contingency Measures	• N/A	• N/A	• Investigate carbon offset options (e.g. revegetation) and implement as appropriate
			Monitoring	• No background monitoring required	• No monitoring required	• No monitoring required
Climatic Trends	Future climate change may affect the integrity of the railway and associated infrastructure	• As far as practicable, ensure the railway and supporting infrastructure can accommodate future climate change	**Prevention**	• Consider choice of materials, design standards, and location of infrastructure, along with alternative technologies • Make allowance in design for potential climate change impacts (e.g. increased flooding, increased temperature)	• N/A	• N/A
			Contingency Measures	• N/A	• N/A	• Upgrade railway and infrastructure as required to accommodate altered climatic conditions
			Monitoring	• No background monitoring required	• No monitoring required	• Monitor structural integrity of infrastructure in accordance with Government standards

19.9 Section 7: Visual amenity

Environmental Factor	Potential Impact	Target	Management Objective			
				Design	Construction	Operation
Visual Amenity	Reduced visual amenity and opportunities for weed infestation	• No weed infestation • No complaints relating to loss of visual amenity	**Prevention**	• Prepare an initial "Landscape Integration Strategy" followed by detailed Landscape, Revegetation and Urban Design Guidelines at the detailed design stage • Ensure embankments are sufficiently shallow (i.e. 1: 2.5 or preferably shallower) for a vegetated treatment such as planting and grass cover to be established and maintained • Ensure that sufficient funds are set aside for planting and landscape management • Retain physical and visual connectivity wherever possible i.e. using bridged crossings of watercourses in preference to culverts where viable	• Limit works compounds and restrict to areas of lower visual sensitivity and/or lesser visibility where possible to avoid unnecessary visual impact • Investigate ways of ensuring preparation of a Weed and Pest Management Plan to control invasive species • Investigate ways of ensuring employment of a bushland regeneration approach (hydromulching, hydroseeding, tubestock and limited container planting) to re-establish vegetation, using native species within planting mixes. Where possible, include rare and protected species where these can be obtained to contribute to wider ecological as well as visual objectives	• Maintain vegetation within the rail corridor to prevent the establishment of weed species
			Contingency Measures	• N/A	• Manually remove weed species within and adjacent construction areas • Remove overabundant or notifiable pest species in accordance with advice from the Department of Primary Industries and Fisheries	• Spray weeds more than 100m from riparian areas with a herbicide that becomes deactivated once in contact with soil, for example glyphosate
			Monitoring	• Monitoring of weed populations along the corridor during the detailed design stage	• Weekly visual inspection of construction areas for new infestations of weeds • Weekly inspections of weed treatment areas to determine efficacy of measures	• Regular visual inspections of rehabilitation areas for 12 months or until established for weed invasion • Inspection of corridor during scheduled maintenance for weed infestation
Visual Amenity	Increased availability/impact of views toward the preferred alignment from the removal of vegetation and the introduction of uncharacteristic transport infrastructure	• No sustained complaints relating to views of the railway caused by the removal of vegetation	**Prevention**	• Identify existing vegetation worthy of retention at detailed design stage, prior to construction • Investigate opportunities for advanced planting that would not be affected by the railway in areas of high visual exposure (for example off-site planting) • Prepare an initial "Landscape Integration Strategy" followed by detailed Landscape, Revegetation and Urban Design Guidelines at the detailed design stage	• Minimise removal of vegetation by protecting existing vegetation adjacent to the preferred alignment to prevent inadvertent damage or unnecessary removal during the construction process • Progressively restore the rail corridor as construction proceeds to encourage rapid screening of views and integration of the railway into the wider landscape to minimise visual disturbance	• N/A
			Contingency Measures	• N/A	• Investigate source of complaint and address the issue accordingly	• Investigate source of complaint and address the issue accordingly • Implement a complaint recording, investigation and reporting system for construction and operation
			Monitoring	• N/A	• Daily visual inspection of construction site for clearing or construction activities	• N/A

Environmental Factor	Potential Impact	Target	Management Objective			
				Design	Construction	Operation
					beyond designated areas • Weekly visual inspection of rehabilitated areas until construction period is complete	
Visual Amenity	Loss of characteristic landscape elements and fragmentation of landscape patterns through the removal of characteristic vegetation along the rail corridor (e.g. distinctive vegetation associated with creek corridors) Loss of daytime visual amenity for residents, travellers and/or recreational users (including future users of the Boonah to Ipswich trail) through the introduction of uncharacteristic elements into the landscape (e.g. the railway and associated physical infrastructure)	• No complaints relating to loss of visual amenity	**Prevention**	• Prepare a Landscape Integration Strategy prior to the detailed design • Prepare detailed Landscape, Revegetation, and Urban Design Guidelines at the detailed design stage	• Minimise removal of vegetation by protecting existing vegetation adjacent to the preferred alignment to prevent inadvertent damage or unnecessary removal during the construction process • Progressively restore the rail corridor as construction proceeds to encourage rapid screening of views and integration of the railway into the wider landscape to minimise visual disturbance	• N/A
			Contingency Measures	• N/A	• Undertake suitable replanting to reinstate characteristic vegetation and maintain linkages/patterns to the greatest extent possible (for example, along field boundaries, road boundaries, around properties and along waterways in settled pastures and watercourses with croplands) • Limit disturbance of existing topsoil. Where unavoidable, stockpile soil which is free from invasive species for use within the project	• Investigate source of complaint and address the issue accordingly • Implement a complaint recording, investigation and reporting system for construction and operation
			Monitoring	• No monitoring required	• Daily visual inspection of construction site for clearing or construction activities beyond designated areas • Weekly visual inspection of rehabilitated areas until construction period is complete	• No monitoring required
Visual Amenity	Impact on sense of remoteness at night with the introduction of lit rolling stock	• No complaints relating to light impacts after dark	**Prevention**	• N/A	• N/A	• Keep night-time rail movements to a minimum where possible
			Contingency Measures	• N/A	• N/A	• Investigate source of complaint and address the issue accordingly • Implement a complaint recording, investigation and reporting system for construction and operation
			Monitoring	• No monitoring required	• No monitoring required	• No monitoring required

19.10 Section 8: Noise and vibration

Environmental Factor	Potential Impact	Target	Management Objective			
				Design	Construction	Operation
Noise	Noise impacts at residential dwellings	• No impact on existing noise environment at residential dwellings • Compliance with Queensland Rail guidelines for operational noise	**Prevention**	• Noise barriers or earth berms (if appropriate) • Design of vertical geometry such that locomotive and rolling stock noise is minimised • Use of existing topographic features to prevent noise propagation	• Preparation of a Construction Environmental Management Plan (CEMP) • Scheduling of construction activities • Maintenance of construction equipment • Use of low-impact construction methods, where practicable	• Observe speed limits along the alignment
			Contingency Measures	• Resumption of dwelling	• Rescheduling of construction activities • At-house noise mitigation treatments	• At-house noise mitigation treatments
			Monitoring	• Background monitoring to describe existing noise environment	• Noise monitoring in accordance with the CEMP	• Management in accordance with QR Code of Practice for Railway Noise Management
Vibration	Vibration impacts at residential dwellings	• No impact adverse vibration impacts	**Prevention**	• N/A	• Preparation of a Construction Environmental Management Plan (CEMP) • Use of low-impact construction methods, where practicable • Scheduling of construction activities	• N/A
			Contingency Measures	• N/A	• N/A	• N/A
			Monitoring	• N/A	• Vibration monitoring in accordance with the CEMP	• N/A

19.11 Section 9: Aboriginal cultural heritage

Environmental Factor	Potential Impact	Target	Management Objective			
				Design	Construction	Operation
Aboriginal Cultural Heritage	Disturbance of items of Aboriginal Cultural Heritage	• Minimal reduction of Aboriginal Cultural Heritage values	**Prevention**	• Ongoing dialogue between proponents of the SFRC and Jagera Daran • Development of a Cultural Heritage Management Plan • Intensive field work (potentially a walk-through) of the four identified areas of potential Aboriginal Cultural Heritage Significance	• Include construction phase within the Cultural Heritage Management Plan	• Include operation phase within the Cultural Heritage Management Plan
			Contingency Measures	• For all sites or items of Aboriginal Cultural Heritage found within these four areas and directly impacted by the SFRC, consult with Jagera Daran to identify appropriate mitigation measures	• Appropriately mitigate any impacted items or areas of Aboriginal Cultural Heritage significance such that their cultural value remains despite the construction of the SFRC	• Investigate any Aboriginal heritage related complaints and address accordingly • Implement a complaint recording, investigation and reporting system for construction and operation
			Monitoring	• No monitoring required	• N/A	• Visual inspection of items of Aboriginal Cultural Heritage value in the event of a complaint

19.12 Section 10: European cultural heritage

Environmental Factor	Potential Impact	Target	Management Objective			
				Design	Construction	Operation
European Cultural Heritage	Disturbance of items of European Cultural Heritage	• Minimal reduction of European Cultural Heritage values	**Prevention**	• Consult with Scenic Rim Regional Council and landowner concerning potential effects on Undullah Station Homestead, Undullah • Relocate homestead to reduce potential impacts	• Prepare and implement a Conservation Management Plan (CMP) for the relocation of the Undullah Station Homestead • Prepare and implement a Cultural Heritage Management Agreement (CHMA)	• N/A
			Contingency Measures	• N/A	• Repair or reinstate damaged items of European Cultural Heritage	• Investigate any European heritage related complaints and address accordingly • Implement a complaint recording, investigation and reporting system for construction and operation
			Monitoring	• No monitoring required	• Daily visual inspection of items of known European Cultural Heritage value during construction activities that affect those items	• Visual inspection of items of European Cultural Heritage value in the event of a complaint

19.13 Section 11: Social impact

Environmental Factor	Potential Impact	Target	Management Objective			
				Design	Construction	Operation
Social Impact	Reduced accessibility to community services, facilities and key destinations in the local area through the formation of a major physical barrier potentially severing parts of the local community	• Number of properties affected by road closures • No observable impact on local social networks, community patterns and linkages	**Prevention**	• Avoid impacts upon local roads leading to community services, facilities, and key destinations • Ensure that high quality vehicle and pedestrian crossings are provided to connect communities on opposite sides of the railway line	• Provide alternative access where roads are closed during construction, including service roads and new driveways	• N/A
			Contingency Measures	• Where impacts are unavoidable, redesign the local road networks to ensure that access to these important community facilities and destinations is not reduced	• N/A	• Where impacts upon local social networks, community patterns, and linkages are reported, investigations into the issue must take place in order to appropriately mitigate the problem
			Monitoring	• N/A	• N/A	• No monitoring required.
Social Impact	Reduced safety as a result of level railway crossings	• No level crossings.	**Prevention**	• Maintain no occurrence of level crossings along the corridor	• N/A	• N/A
			Contingency Measures	• N/A	• N/A	• N/A
			Monitoring	• N/A	• N/A	• N/A
Social Impact	Reduced safety as a result of pedestrian access to the railway line, and stock wandering onto the rail line	• No pedestrian crossings of the railway except where incorporated in a grade-separated intersection • Occupational underpasses in rural areas	**Prevention**	• Include fencing with high-grade secure protective fencing to prevent pedestrians crossing, particularly in more densely populated locations • Consult with landowners to identify where occupational underpasses for stock and equipment are required	• Erect fencing around construction sites to prevent unauthorised access by the public and stock	• N/A

Environmental Factor	Potential Impact	Target	Management Objective			
				Design	Construction	Operation
			Contingency Measures	• N/A	• Repair or reinstate damaged fencing	• Repair, reinstate or upgrade any damaged fencing • Investigate source of complaint and address the issue accordingly, through investigation of the risk to pedestrians and the use of appropriate mitigation measures • Implement a complaint recording, investigation and reporting system for construction and operation
			Monitoring	• N/A	• Daily visual inspection of site fencing for damage	• Visual inspection of fencing during scheduled track maintenance
Social Impact	Residents leaving the local area because of the railway because of property acquisition, and to avoid amenity impacts Dislocation impacts on local communities as family and friendship linkages are disrupted	• Minimal numbers of residents leaving the community	**Prevention**	• Minimise the number of residents forced to leave because of property acquisition • Minimise amenity impacts	• Develop and implement a Construction Environmental Management Plan (CEMP), to minimise construction impacts on the local community	• N/A
			Contingency Measures	• Consult with landowners on an ongoing basis, in accordance with the CID Guidelines • Provide opportunity for each landowner to convey and document their opinions and feelings about the railway line, and how it affects their land and the activities undertaken on their land • Maintain regular contact with landowners to enable them to discuss a number of issues including land resumption and hardship applications, access and operational issues for one or more properties, and other amenity issues	• Investigate any source of amenity complaints and address the issue accordingly	• Investigate any source of amenity complaints and address the issue accordingly • Implement a complaint recording, investigation and reporting system for construction and operation
			Monitoring	• N/A	• N/A	• No monitoring required
Social Impact	Reduced accessibility of the community around Wild Pig Creek Road through multiple crossings of the railway and Wild Pig Creek Road	• No reduction in access to or from the community located on Wild Pig Creek Road	**Prevention**	• Ensure that detailed design maximises the access arrangements for Wild Pig Creek Road, through realignment/refinement of the road and its relationship with the railway • Minimise the number of times Wild Pig Creek Road crosses the railway • Ensure that every residence on Wild Pig Creek Road maintains access to an equivalent or improved standard	• Develop and implement a CEMP, to minimise disruption to the use of Wild Pig Creek Road	• N/A
			Contingency Measures	• N/A	• Investigate source of complaint and address the issue accordingly, through investigation of the impacts on Wild Pig Creek Road	• Investigate source of complaint and address the issue accordingly, through investigation of the impacts on Wild Pig Creek Road • Implement a complaint recording, investigation and reporting system for construction and operation
			Monitoring	• N/A	• N/A	• N/A

Environmental Factor	Potential Impact	Target	Management Objective			
				Design	Construction	Operation
Social Impact	Reduced local amenity, associated with the introduction of a railway line in a traditionally peaceful and idyllic rural area	• No complaints relating to loss of amenity	**Prevention**	• Incorporate mitigation measures outlined by Technical Papers relating to each element of amenity (i.e. noise, vibration, visual amenity, air quality, flora and fauna, etc)	• Develop and implement a CEMP, to minimise impacts on amenity by addressing specific environmental elements (e.g. noise, vibration)	• Incorporate mitigation measures outlined by Technical Papers relating to each element of amenity (i.e. noise, vibration, visual amenity, air quality, nature conservation etc)
			Contingency Measures	• N/A	• Investigate source of complaint and address the issue accordingly.	• Investigate source of complaint and address the issue accordingly • Implement a complaint recording, investigation and reporting system for construction and operation
			Monitoring	• N/A	• No monitoring required	• No monitoring required
Social Impact	Reduced rural production values in the local area	• No reduction in rural production	**Prevention**	• Avoid areas of GQAL and other cropland where possible	• CEMP should ensure that impacts upon GQAL, other cropland, and farming practices are avoided	• N/A
			Contingency Measures	• Where impacts upon rural production are likely, discuss with implicated landowners to identify opportunities to minimise these impacts	• Where impacts upon rural production are likely, discuss with implicated landowners to identify opportunities to minimise these impacts	• Investigate source of complaint and address the issue accordingly • Implement a complaint recording, investigation and reporting system for construction and operation
			Monitoring	• No monitoring required	• No monitoring required	• No monitoring required
Social Impact	Consultation fatigue within the community, particularly in the areas of Ebenezer, Purga and Bromelton	• Input from every identified stakeholder	**Prevention**	• Consult with landowners in accordance with the CID guidelines • Provide opportunity for each landowner to convey and document their opinions and feelings about the railway line and how it affects their land and their activities • Maintain regular contact with landowners to enable them to discuss a number of issues including land resumption and hardship applications, access and operational issues for one or more properties, and other amenity issues	• N/A	• N/A
			Contingency Measures	• Actively seek input from stakeholders who do not respond to initial attempts to engage them in the process	• N/A	• N/A
			Monitoring	• Monitor the response to the community engagement activities and identify those who are not responding	• N/A	• N/A

Chapter 20
References

20.0 References

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Appendix A

Community infrastructure designation checklist

Appendix A

Community Infrastructure Designation Checklist

Matter	Relevant?	Relevant Section of Summary Document (Volume 1)	Relevant Technical Paper and Section (Volume 2)
1. Soils and Geology			
1.1 – Is the proposal compatible with the geology and topography of the site?	Yes	Section 7.0	Technical Paper 1 – Sections 2.0 & 3.1
1.2 – Does the site have acid sulfate soils or potential acid sulfate soils?	No	Section 7.0	Technical Paper 1 – Sections 2.5 & 3.3
1.3 – Does the site's soils have erosion potential or does the site have potential hill-slope stability problems?	Yes	Section 7.0	Technical Paper 1 – Sections 2.5 & 3.3
1.4 – Is the site subject to salinity or soil degradation? Is any part of the site subject to an approved plan for soil conservation under the *Soil Conservation Act 1986*?	No	N/A	Technical Paper 1 – Section 3.3
2. Natural Resources			
2.1 – Does the site include land identified as good quality agricultural land, or is the site adjacent to agricultural areas? If so, will the proposal be compatible with agricultural activities?	Yes	Sections 11.2.5 & 11.4.2	Technical Paper 5 – Sections 2.5 & 2.8.1
2.2 – Are there fisheries habitats or fish habitat areas located on or adjacent to the site?	No	Section 8.2.3	Technical Paper 2 – Section 2.3
2.3 – Will the proposal require the removal, destruction or damage of marine plants?	No	N/A	N/A
2.4 – Will the proposal involve the construction of waterway barrier works in waterways, or require the construction of a fish way?	Yes	Section 3.2.2	N/A
2.5 – Will the proposal involve taking, using or interfering with the flow of water on, under or adjoining any part of the site?	Yes	Section 10.0	Technical Paper 4 – Sections 2.0, 4.0 & 5.0
2.6 – Is the site located in or adjacent to a Sate forest or timber reserve under the *Forestry Act 1959*?	No	N/A	N/A
2.7 – Does the proposal include clearing of native vegetation not covered by 2.8 below?	Yes	Sections 8.2.1 & 8.3.1	Technical Paper 2 – Sections 2.1 & 3.0

Matter	Relevant?	Relevant Section of Summary Document (Volume 1)	Relevant Technical Paper and Section (Volume 2)
2.8 – Does the proposal include clearing native vegetation in— a) a forest reserve or protected area under the *Nature Conservation Act 1992*; or b) a State forest or timber reserve under the *Forestry Act 1959*?	Yes	Sections 8.2, 8.3 & 8.4	Technical Paper 2 – Sections 2.4.5 & 4.0
2.9 – Does the site include or is it adjacent to any identified mineral, oil, gas or extractive resources, pipelines or haul routes servicing these resources?	Yes	Sections 11.2 & 11.3	Technical Paper 5 – Sections 2.3, 2.6 & 2.8.1
2.10 – Does any part of the site include land that is part of the State Stock Route network?	No	N/A	N/A
2.11 – Does the site include any part of land leased, reserved, or granted in trust under the *Land Act 1994*?	Yes	Section 11.2.2	Technical Paper 5 – Section 2.2
2.12 – Is any part of the site within a port or on strategic port land?	No	N/A	N/A
3 Natural Hazards			
3.1 – Is the site or its access at risk from natural hazards, such as flooding or drainage, bushfire and landslip?	Yes	N/A	Technical Paper 5 – Sections 2.6 & 2.8.1
3.2 – Is the site or its access at risk from storm surge?	No	N/A	N/A
3.3 – Are there any declared pests in the area or is any part of the site subject to a local government pest management plan?	Yes	Section 8.2	Technical Paper 2 – Section 2.2.3
4 Water Quality			
4.1 – Will the proposal have impacts on surface or groundwater quality?	Yes	Sections 7.2.5, 7.3.3, 7.4.2, 9.2.2 & 9.3.1	Technical Paper 1 – Sections 2.7 & 3.5 Technical Paper 3 – Sections 2.2 & 3.0
4.2 – Is the site in close proximity to a watercourse?	Yes	Sections 9.2 & 10.2	Technical Paper 3 – Section 2.0 Technical Paper 4 – Section 2.0
4.3 – Is any part of the site within a wild river area declared under the *Wild Rivers Act 2005?*	No	N/A	N/A

Matter	Relevant?	Relevant Section of Summary Document (Volume 1)	Relevant Technical Paper and Section (Volume 2)
4.4 – Does any part of the proposal involve development below high water mark (tidal), or within the beds and banks of a watercourse, lake or spring (non-tidal)?	Yes	Table 8, Table 10 Sections 10.2 & 10.3	Technical Paper 4 – Section 4.0
4.5 – Will wastewater disposal or stormwater from the proposal affect water quality either by sedimentation or contamination from effluent?	Yes	Sections 9.2.2 & 9.3.1	Technical Paper 3 – Sections 2.2 & 3.0
4.6 – Will the proposal have impact on hydrology, including– a) change to existing drainage patterns; and b) groundwater flow?	Yes	Sections 10.2 & 10.3	Technical Paper 4 – Sections 2.0 & 4.0
5 Conservation Values			
5.1 – Is the site identified in the SEQ Regional Plan and/or the Koala Conservation Plan and Management Program 2006 as a Koala Conservation Area, Koala Sustainability Area or Urban Koala Area?0	Yes	Section 8.4.4	Technical Paper 2 – Sections 2.4.2 & 4.5
5.2 – Is the site in or adjacent to an area protected under the *Nature Conservation Act 1992*?	Yes	Sections 8.2 & 8.4.3	Technical Paper 2 – Sections 2.0 & 4.0
5.3 – Is the site in an area or adjacent to an area likely to have rare, endangered or threatened flora or fauna?	Yes	Section 8.2	Technical Paper 2 – Section 2.0
5.4 – Does the proposal involve building work on land that is partly or completely seaward of a coastal building line under the *Coastal Protection and Management Act 1995*?	No	N/A	N/A
5.5 – Does the proposal involve work within a coastal management district under the *Coastal Protection and Management Act 1995*?	No	N/A	N/A
5.6 – Is the site included in an area over which a State or regional coastal management plan applies?	No	N/A	N/A
5.7 – Is the site in or adjacent to an area protected under the *Marine Parks Act 1982*?	No	N/A	N/A
5.8 – Will the proposal affect the biodiversity and conservation values of the site?	Yes	Section 8.3	Technical Paper 2 – Section 3.0

Matter	Relevant?	Relevant Section of Summary Document (Volume 1)	Relevant Technical Paper and Section (Volume 2)
6 *Environment Protection and Biodiversity Conservation Act 1999* (Cth)			
6.1 – Does part or all of the proposal significantly impact upon a matter of national environmental significance? If so, the proposal needs to be referred to the Commonwealth Department of Environment, Water, Heritage and the Arts for a determination as to whether or not it is a controlled action under the EBPC Act, Section 67.	Yes	Sections 8.4.1 & 8.5	Technical Paper 2 – Sections 4.1, 5.0 & Appendix F
7 Cultural Heritage			
7.1 – Does the site involve, or is the site adjacent to, any place entered in the heritage register under the *Queensland Heritage Act 1992*, or identified as having cultural heritage significance in the relevant planning scheme?	Yes	Sections 15.2 & 16.2	Technical Paper 9 – Section 2.6 Technical Paper 10 – Section 2.3
7.2 – Does the site contain any items on the register of the Queensland Estate, Aboriginal and Torres Strait Islander Cultural Heritage Register or Cultural Heritage Database?	Yes	Sections 15.2 & 16.2	Technical Paper 9 – Section 2.6 Technical Paper 10 – Section 2.3
7.3 – Is it possible the site may contain areas or objects of archaeological or historical significance for Aboriginal or Torres Strait Island cultural heritage values?	Yes	Section 15.2	Technical Paper 9 – Section 2.0
7.4 – Does any part of the site include Aboriginal or Torres Strait Islander land, or land subject to a native title claim or Indigenous Land Use Agreement?	Yes	Section 11.2.2	Technical Paper 5 – Section 2.2.1
8 Health, Safety, Amenity and Social Impacts			
8.1 – Is the proposal an environmentally relevant activity as listed in Schedule 1 of the *Environmental Protection Regulation 1998*?	No	N/A	N/A
8.2 – Does the site include lands recorded in the environmental management register or contaminated land register under the *Environmental Protection Act 1994*, or a notifiable activity under Schedule 2 of the Act?	Yes	Sections 7.2.4 & 7.3.2	Technical Paper 1 – Sections 2.6 & 3.4

Matter	Relevant?	Relevant Section of Summary Document (Volume 1)	Relevant Technical Paper and Section (Volume 2)
8.3 – Does the proposal have the potential to release contaminants, or include a notifiable activity under the *Environmental Protection Act 1994*, Schedule 2?	No	N/A	N/A
8.4 – Is the proposal sensitive to air quality?	No	N/A	N/A
8.5 – Are there known or potential air quality problems in the area that may affect the proposal?	No	N/A	N/A
8.6 – Does the proposal have the potential to create air quality problems for the area or odour emissions? If so, will the proposal affect the amenity of adjoining or nearby uses due to the times, nature, intensity and proximity of the air quality problems or odour?	Yes	Sections 12.2 & 12.3	Technical Paper 6 – Sections 2.0 & 3.0
8.7 – Will the proposal generate significant greenhouse gas emissions?	Yes	Section 12.3.2	Technical Paper 6 – Section 3.1.2
8.8 – Is the proposal a noise sensitive land use? If so, are surrounding uses compatible?	No	N/A	N/A
8.9 – Does the proposal have the potential to create noise nuisance for the surrounding area? If so, will the proposal affect the amenity of adjoining or nearby uses due to the times, nature, intensity and proximity of the noise?	Yes	Sections 14.1, 14.3, 14.4 & 14.6	Technical Paper 8 – Sections 3.0, 4.0 & 6.0
8.10 – Will the proposal include external lighting? If so, will the proposal affect the amenity of adjoining or nearby uses due to the times, nature, intensity and proximity of external lighting?	No	N/A	N/A
8.11 – Will the appearance of the proposal, including the physical compatibility of the proposal (e.g. scale, height, materials, colours, site coverage) affect the amenity of adjoining or nearby uses?	Yes	Sections 13.2 & 13.3	Technical Paper 7 – Sections 2.0 & 3.0
8.12 – Will the proposal impact on scenic values including landscape character and visual amenity?	Yes	Sections 13.2 & 13.3	Technical Paper 7 – Sections 2.0 & 3.0

Matter	Relevant?	Relevant Section of Summary Document (Volume 1)	Relevant Technical Paper and Section (Volume 2)
8.13 – Will the proposal generate significant amounts of traffic? If so, will the proposal affect the amenity of adjoining or nearby uses due to the times and nature of traffic generation, the location of access points, and the adequacy of on-site parking and public transport?	No	N/A	N/A
8.14 – Will the proposal generate significant amounts, or sensitive types, of waste? If so, will the waste affect the health, safety or amenity of adjoining or nearby uses?	No	N/A	N/A
8.15 – Will the proposal create a need for personal safety and building security measures? If so, is there a need for crime prevention measures for users of the site and for access to the site? Would such measures affect the safety and amenity of adjoining or nearby uses?	No	N/A	N/A
8.16 – Is the proposal likely to have any impacts on the economic activities of the area, including— a) labour markets; b) service delivery; and c) local industries?	Yes	Sections 18.2 & 18.4	Technical Paper 12 – Sections 2.0 & 4.0
8.17 – Is the proposal controversial or could it lead to conflict or concern in the community?	Yes	Sections 5.0, 17.2 & 17.3	Technical Paper 11 – Sections 2.0 & 3.0
8.18 – Is the proposal a childcare centre? If so, building requirements under the *Queensland Development Code*, part 22, may apply.	No	N/A	N/A
8.19 – Is the proposal a nursing home or hostel? If so, requirements under the *Health Regulation 1996*, may apply.	No	N/A	N/A
8.20 – Is the proposal a private health facility? If so, requirements under the *Queensland Development Code*, part 7, may apply.	No	N/A	N/A
8.21 – Does the proposal involve a major hazard facility or is the site within or adjacent to a major hazard facility under the *Dangerous Goods Safety Management Act 2001*?	No	N/A	N/A

Matter	Relevant?	Relevant Section of Summary Document (Volume 1)	Relevant Technical Paper and Section (Volume 2)
9 Infrastructure			
9.1 – Does the proposal create additional demand for infrastructure, including augmentation of existing networks, for— a) water; b) sewerage; c) roads; d) wastewater management; e) solid waste management; f) energy; and g) telecommunications?	Yes	Sections 4.4 & 4.5	N/A
9.2 – Is the site in the vicinity of an airport or aviation facilities, or both?	Yes	Sections 11.2 & 11.4	Technical Paper 5 – Sections 2.3, 2.6.3 & 2.8.1
9.3 – Is any part of the site situated in an electricity easement or within 100m of a substation site?	Yes	Sections 4.4.3 & 4.5	N/A
10 Traffic and Transport			
10.1 – Will the proposal generate additional vehicle, pedestrian or cycle traffic, or increase demand for public transport? If so, is there a need to change one or more of the following in the locality to meet the needs of those using the community infrastructure— a) traffic management arrangements; b) public transport networks and services; and c) pedestrian and cycling networks?	No	N/A	N/A
10.2 – Does the location and design of the proposed community infrastructure enable connections to public transport, cycling and pedestrian networks?	No	N/A	N/A
10.3 – Is the proposal consistent with the land use and transport planning principles detailed in relevant integrated regional transport plans?	Yes	Section 4.1	N/A
10.4 – Are changes proposed to the traffic ingress and egress for the site?	No	N/A	N/A

Matter	Relevant?	Relevant Section of Summary Document (Volume 1)	Relevant Technical Paper and Section (Volume 2)
10.5 – Does the site adjoin or gain access from a State-controlled road? Will the proposal impact on a State-controlled road?	Yes	Sections 4.4 & 4.5	N/A
10.6 – Will the proposal impact on the provision of existing or future public passenger transport services or facilities?	No	N/A	N/A
10.7 – Will the proposal impact on existing or future railway land or facilities?	No	N/A	N/A
10.8 – Does the proposal involve tidal works or prescribed tidal works?	No	N/A	N/A

Appendix B

Community infrastructure designation plans

Appendix B

Community Infrastructure Designation Plans

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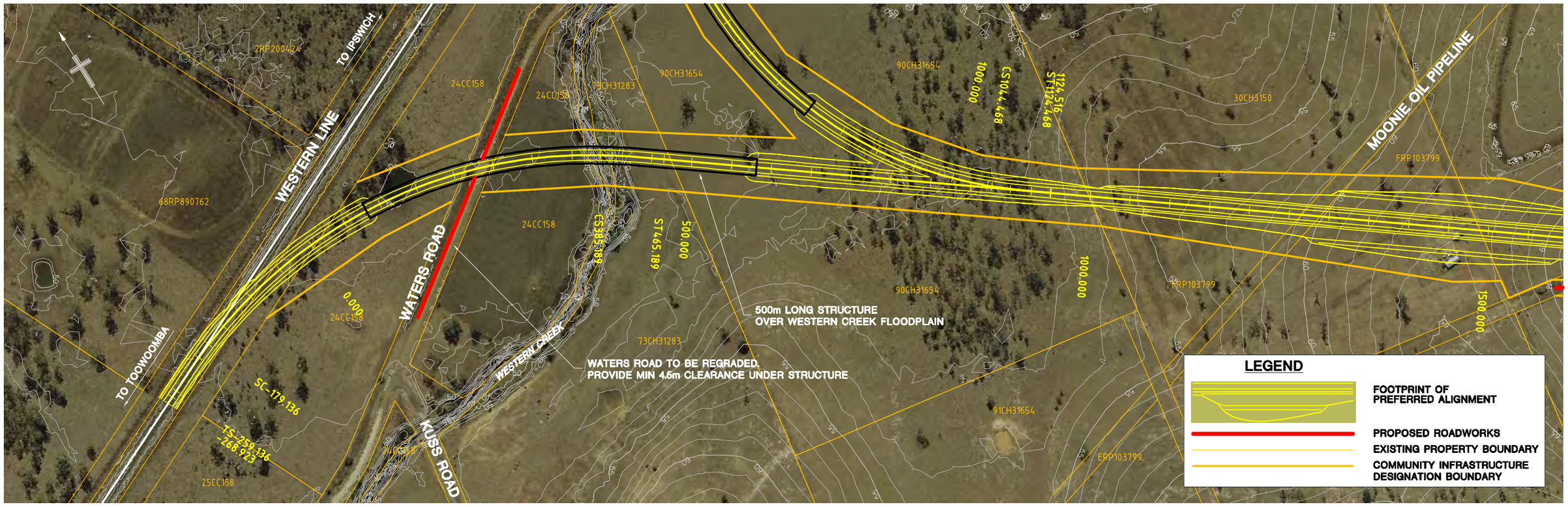

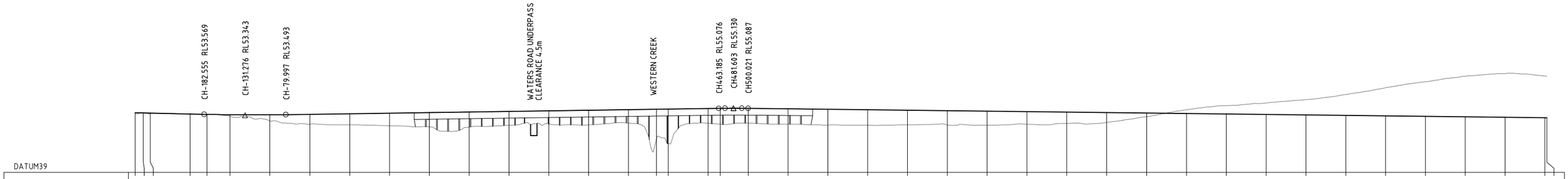

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EXISTING LEVELS	53.679	53.870	53.697	53.699	53.522	53.091	51.942	51.114	50.928	50.679	50.377	50.348	50.799	51.002
LEVEL DIFFERENCE	-0.271	-0.037	-0.169	0.053	-0.032	-0.372	-1.506	-2.466	-2.797	-3.193	-3.640	-3.815	-3.510	-3.453
CHAINAGES	-268.923	-259.136	-250.000	-200.000	-179.136	-150.000	-100.000	-50.000	0.000	50.000	100.000	150.000	200.000	250.000

DESIGN LEVELS	54.600	54.746	54.849	54.892	55.038	55.082	55.087	54.970	54.852	54.735	54.618	54.500	54.383	54.266
EXISTING LEVELS	50.926	51.344	47.385	46.149	51.322	51.084	51.331	51.085	50.860	50.839	50.919	50.861	50.824	51.074
LEVEL DIFFERENCE	-3.675	-3.402	-7.464	-8.743	-3.716	-3.997	-3.756	-3.884	-3.993	-3.896	-3.699	-3.639	-3.559	-3.192
CHAINAGES	300.000	350.000	385.189	400.000	450.000	465.189	500.000	550.000	600.000	650.000	700.000	750.000	800.000	850.000

DESIGN LEVELS	54.148	54.031	53.914	53.796	53.679	53.562	53.444	53.327	53.210	53.092	52.975	52.858	52.740	52.734
EXISTING LEVELS	51.280	51.532	52.959	54.701	55.719	56.398	57.251	58.552	60.249	61.765	63.136	63.828	63.163	63.111
LEVEL DIFFERENCE	-2.869	-2.498	-0.955	0.905	2.040	2.836	3.807	5.225	7.039	8.673	10.161	10.970	10.423	10.377
CHAINAGES	900.000	950.000	1000.000	1050.000	1100.000	1150.000	1200.000	1250.000	1300.000	1350.000	1400.000	1450.000	1500.000	1502.500

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SOUTHERN FREIGHT RAIL CORRIDOR STUDY
PLAN AND LONGITUDINAL SECTION
COMMUNITY INFRASTRUCTURE DESIGNATION PLANS - SHEET 1

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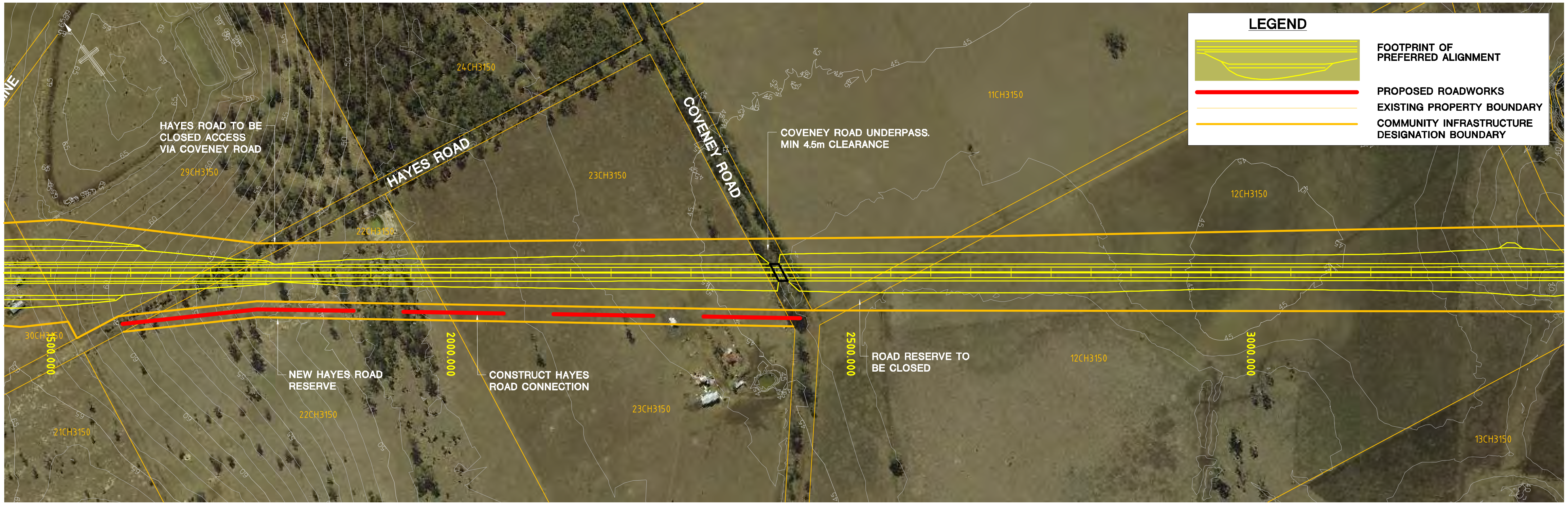

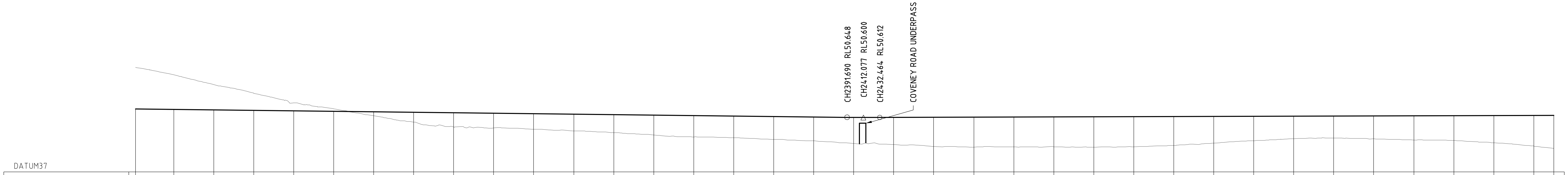

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DESIGN LEVELS	52.734	52.623	52.506	52.388	52.271	52.154	52.036	51.919	51.802	51.684	51.567	51.450	51.332	51.215
EXISTING LEVELS	63.111	61.265	58.822	56.671	54.247	52.767	51.008	49.453	48.207	47.981	47.651	47.252	46.791	46.201
LEVEL DIFFERENCE	10.377	8.642	6.317	4.282	1.976	0.613	-1.028	-2.466	-3.595	-3.703	-3.916	-4.198	-4.541	-5.014

CHAINAGES	2200.000	2250.000	2300.000	2350.000	2400.000	2450.000	2500.000	2550.000	2600.000	2650.000	2700.000	2750.000	2800.000	2850.000
DESIGN LEVELS	51.098	50.980	50.863	50.746	50.631	50.621	50.650	50.678	50.706	50.735	50.763	50.791	50.820	50.848
EXISTING LEVELS	45.738	45.498	45.104	44.768	44.083	43.807	43.332	43.202	43.219	43.284	43.162	43.283	43.579	44.200
LEVEL DIFFERENCE	-5.360	-5.482	-5.759	-5.978	-6.548	-6.815	-7.317	-7.476	-7.487	-7.450	-7.601	-7.508	-7.241	-6.648

CHAINAGES	2900.000	2950.000	3000.000	3050.000	3100.000	3150.000	3200.000	3250.000	3275.000
DESIGN LEVELS	50.876	50.904	50.933	50.961	50.989	51.018	51.046	51.074	51.088
EXISTING LEVELS	44.759	45.309	45.473	45.270	44.979	44.818	44.267	43.445	42.862
LEVEL DIFFERENCE	-6.117	-5.595	-5.460	-5.691	-6.010	-6.200	-6.779	-7.629	-8.226

Last modified: 18 Mar 10 - 09:00
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SOUTHERN FREIGHT RAIL CORRIDOR STUDY
PLAN AND LONGITUDINAL SECTION
COMMUNITY INFRASTRUCTURE DESIGNATION PLANS - SHEET 2
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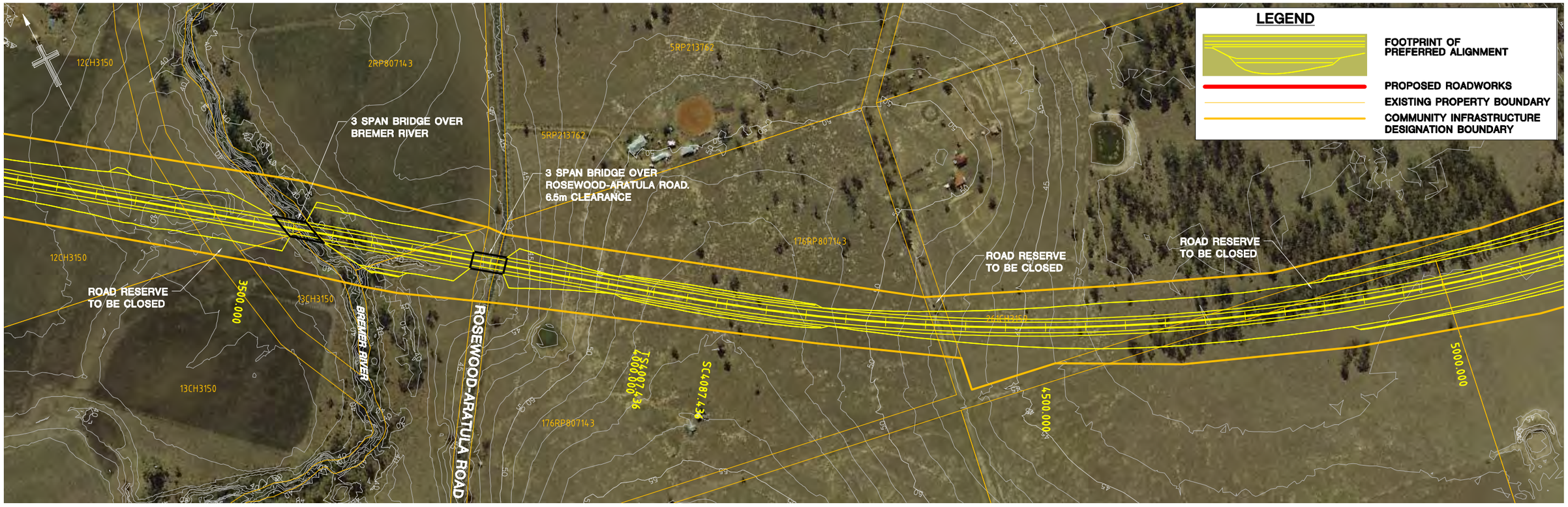

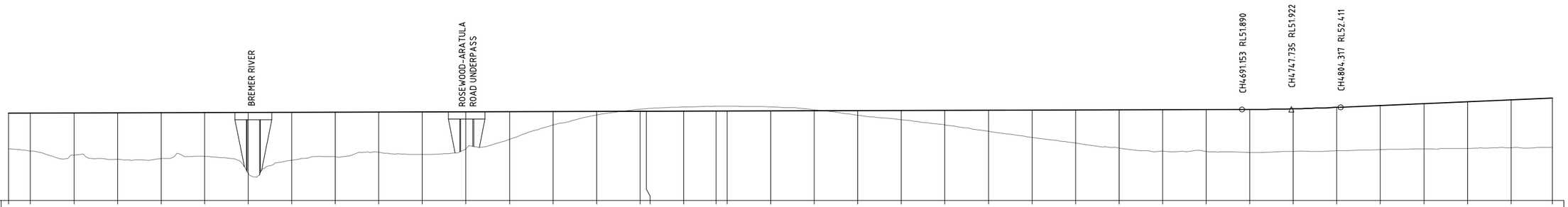

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DESIGN LEVELS	51.088	51.102	51.131	51.159	51.187	51.216	51.244	51.272	51.301	51.329	51.357	51.385
EXISTING LEVELS	42.862	42.352	41.427	40.427	40.601	41.114	37.213	40.226	41.025	42.083	41.576	42.871
LEVEL DIFFERENCE	-8.226	-8.750	-9.703	-10.732	-10.586	-10.102	-14.031	-11.047	-10.275	-9.245	-9.781	-8.514

CHAINAGES	3850.000	3900.000	3950.000	4000.000 4007.436	4050.000	4087.436 4100.000	4150.000	4200.000	4250.000	4300.000	4350.000	4400.000
DESIGN LEVELS	51.414	51.442	51.470	51.499 51.503	51.527	51.548 51.555	51.583	51.612	51.640	51.668	51.697	51.725
EXISTING LEVELS	45.015	48.328	50.645	51.943 52.075	52.461	52.668 52.659	52.494	51.837	50.572	49.537	48.352	46.858
LEVEL DIFFERENCE	-6.399	-3.114	-0.825	0.445 0.573	0.934	1.120 1.104	0.911	0.226	-1.068	-2.131	-3.345	-4.867

CHAINAGES	4450.000	4500.000	4550.000	4600.000	4650.000	4700.000	4750.000	4800.000	4850.000	4900.000	4950.000	5000.000	5047.500
DESIGN LEVELS	51.753	51.782	51.810	51.838	51.866	51.898	52.047	52.374	52.806	53.239	53.671	54.104	54.514
EXISTING LEVELS	45.498	44.166	43.045	42.317	42.250	42.000	42.237	42.375	42.663	42.817	42.932	43.126	43.148
LEVEL DIFFERENCE	-6.255	-7.616	-8.765	-9.521	-9.617	-9.897	-9.810	-10.000	-10.143	-10.422	-10.739	-10.977	-11.367

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SOUTHERN FREIGHT RAIL CORRIDOR STUDY
PLAN AND LONGITUDINAL SECTION
COMMUNITY INFRASTRUCTURE DESIGNATION PLANS - SHEET 3
60028616-CID003-C

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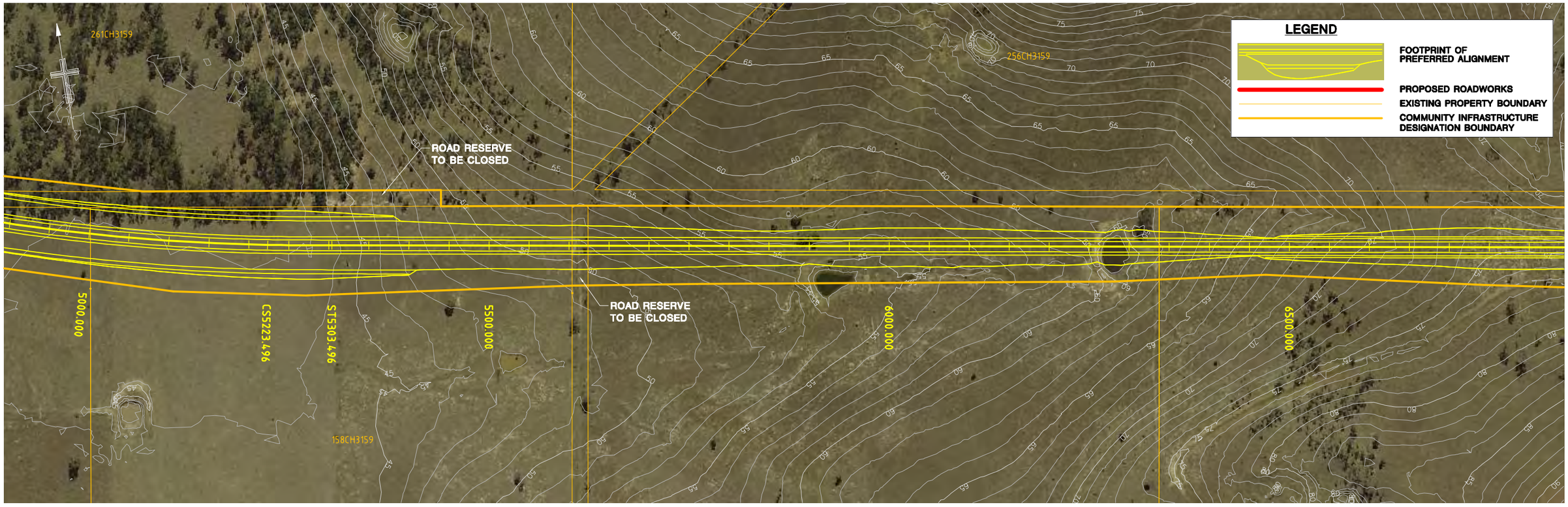

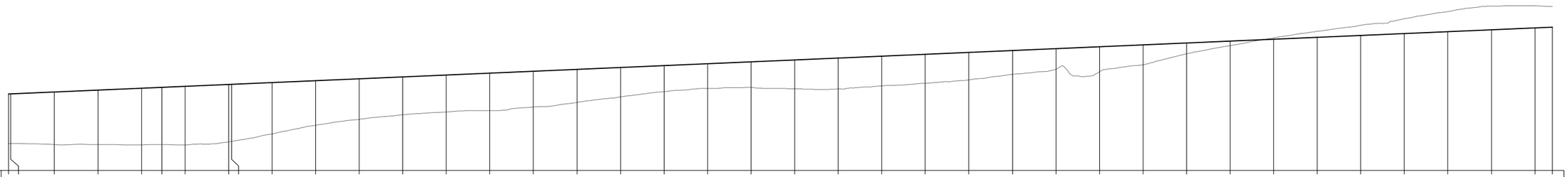

VERTICAL DETAILS	0.865% 1 IN 115.621																			
HORIZONTAL DETAILS	R=-2500.000					T=80.000			L=5057.975											
DESIGN LEVELS	54.514	54.536	54.968	55.401	55.833	56.037	56.266	56.698	56.729	57.131	57.563	57.996	58.428	58.861	59.293	59.725	60.158	60.590	61.023	61.455
EXISTING LEVELS	43.148	43.148	42.906	42.926	42.859	42.913	42.816	43.534	43.622	45.374	47.339	48.687	49.740	50.373	50.672	51.501	52.594	53.828	55.041	55.784
LEVEL DIFFERENCE	-11.367	-11.388	-12.063	-12.475	-12.974	-13.124	-13.450	-13.165	-13.106	-11.757	-10.224	-9.309	-8.688	-8.487	-8.621	-8.224	-7.564	-6.762	-5.982	-5.671
CHAINAGES	5047.500	5050.000	5100.000	5150.000	5200.000	5223.496	5250.000	5300.000	5303.496	5350.000	5400.000	5450.000	5500.000	5550.000	5600.000	5650.000	5700.000	5750.000	5800.000	5850.000

DESIGN LEVELS	61.888	62.320	62.753	63.185	63.617	64.050	64.482	64.915	65.347	65.780	66.212	66.645	67.077	67.509	67.942	68.374	68.807	69.239	69.672	69.845
EXISTING LEVELS	56.021	55.676	55.654	56.400	56.965	57.735	59.035	60.209	59.617	61.230	63.728	65.611	67.382	68.877	70.236	71.749	73.430	74.668	74.722	74.570
LEVEL DIFFERENCE	-5.867	-6.644	-7.098	-6.785	-6.652	-6.315	-5.447	-4.706	-5.730	-4.550	-2.484	-1.033	0.305	1.367	2.294	3.374	4.623	5.429	5.050	4.725
CHAINAGES	5900.000	5950.000	6000.000	6050.000	6100.000	6150.000	6200.000	6250.000	6300.000	6350.000	6400.000	6450.000	6500.000	6550.000	6600.000	6650.000	6700.000	6750.000	6800.000	6820.000

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SOUTHERN FREIGHT RAIL CORRIDOR STUDY
PLAN AND LONGITUDINAL SECTION
COMMUNITY INFRASTRUCTURE DESIGNATION PLANS - SHEET 4
60028616-CID004-C

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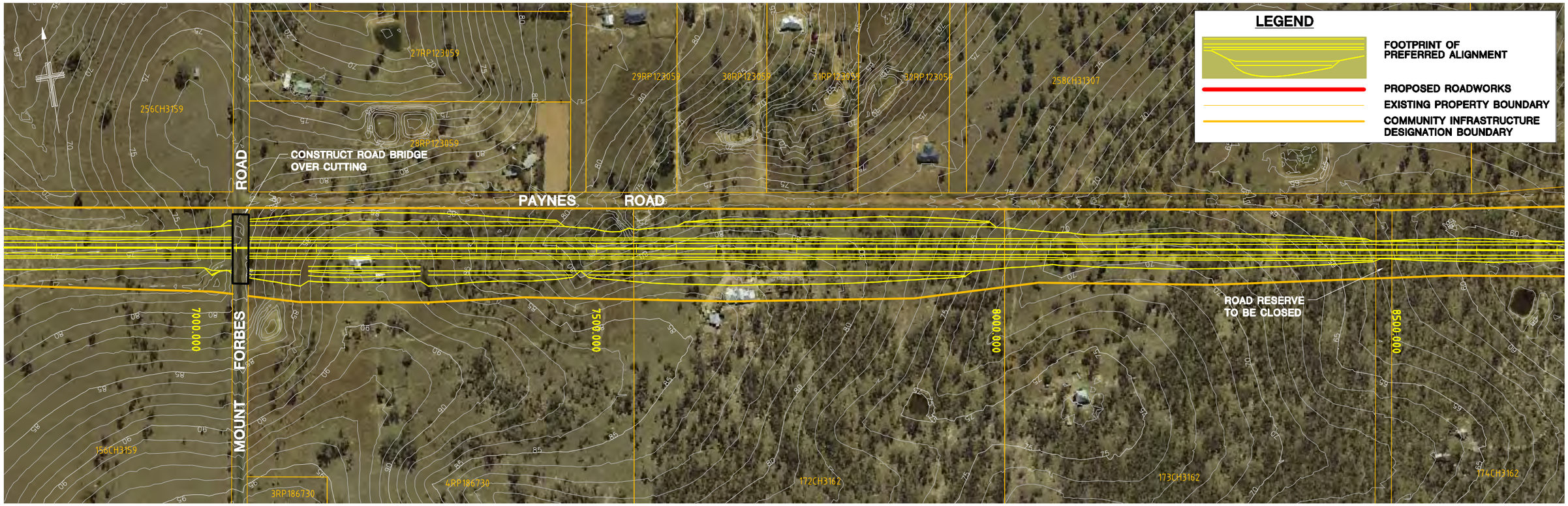

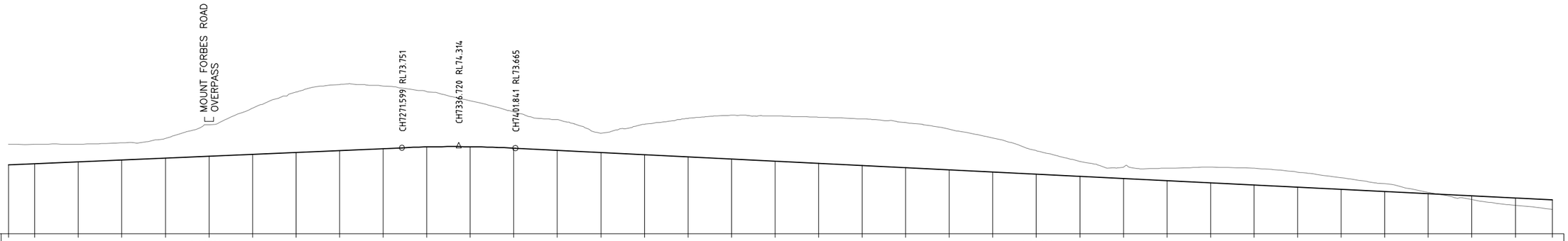

VERTICAL DETAILS: 0.865% 1 IN 115.621 — R=7000.000 — -0.996% 1 IN -100.432

HORIZONTAL DETAILS: L=5057.975

DESIGN LEVELS	69.845	70.104	70.537	70.969	71.402	71.834	72.266	72.699	73.131	73.564	73.939	73.990	73.683
EXISTING LEVELS	74.570	74.557	74.595	74.879	75.881	79.060	82.868	86.567	88.307	87.949	86.686	84.550	81.968
LEVEL DIFFERENCE	4.725	4.452	4.058	3.910	4.479	7.226	10.601	13.868	15.175	14.385	12.747	10.561	8.285
CHAINAGES	6820.000	6850.000	6900.000	6950.000	7000.000	7050.000	7100.000	7150.000	7200.000	7250.000	7300.000	7350.000	7400.000

DESIGN LEVELS	73.186	72.688	72.190	71.692	71.194	70.697	70.199	69.701	69.203	68.705	68.207	67.710
EXISTING LEVELS	80.226	77.104	79.155	80.497	81.219	81.106	80.779	80.419	79.517	77.997	75.984	73.085
LEVEL DIFFERENCE	7.040	4.416	6.964	8.805	10.025	10.409	10.581	10.718	10.314	9.292	7.777	5.376
CHAINAGES	7450.000	7500.000	7550.000	7600.000	7650.000	7700.000	7750.000	7800.000	7850.000	7900.000	7950.000	8000.000

DESIGN LEVELS	67.212	66.714	66.216	65.718	65.220	64.722	64.225	63.727	63.229	62.731	62.233	61.810
EXISTING LEVELS	70.603	69.311	69.021	69.290	69.016	68.149	66.846	65.462	63.476	61.822	60.532	59.609
LEVEL DIFFERENCE	3.391	2.597	2.805	3.572	3.796	3.427	2.622	1.736	0.248	-0.909	-1.701	-2.201
CHAINAGES	8050.000	8100.000	8150.000	8200.000	8250.000	8300.000	8350.000	8400.000	8450.000	8500.000	8550.000	8592.500

Last modified: 18 Mar 10 - 09:04

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SOUTHERN FREIGHT RAIL CORRIDOR STUDY
PLAN AND LONGITUDINAL SECTION
COMMUNITY INFRASTRUCTURE DESIGNATION PLANS - SHEET 5
60028616-CID005-C

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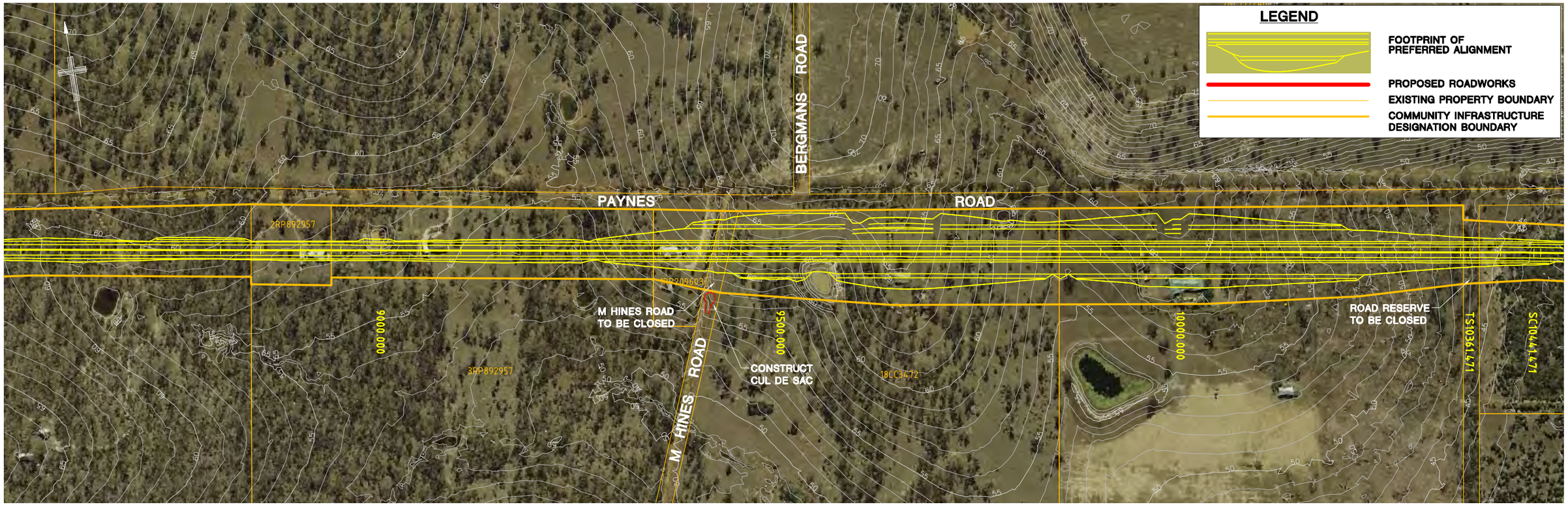

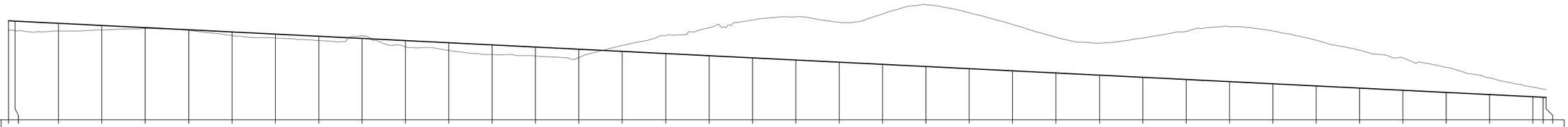

VERTICAL DETAILS	-0.996% 1 IN -100.432											
HORIZONTAL DETAILS	L=5057.975											
DESIGN LEVELS	61.810 61.735	61.237	60.740	60.242	59.744	59.246	58.748	58.250	57.753	57.255	56.757	56.259
EXISTING LEVELS	59.609 59.551	59.486	59.748	60.045	59.665	58.445	57.828	57.295	58.374	55.827	54.974	54.018
LEVEL DIFFERENCE	-2.201 -2.184	-1.752	-0.992	-0.196	-0.079	-0.801	-0.920	-0.955	0.621	-1.428	-1.782	-2.241
CHAINAGES	8592.500 8600.000	8650.000	8700.000	8750.000	8800.000	8850.000	8900.000	8950.000	9000.000	9050.000	9100.000	9150.000

VERTICAL DETAILS												
HORIZONTAL DETAILS												
DESIGN LEVELS	55.761	55.263	54.765	54.268	53.770	53.272	52.774	52.276	51.778	51.280	50.783	50.285
EXISTING LEVELS	53.708	53.353	56.155	58.439	60.251	62.022	62.758	61.517	63.452	65.559	63.676	61.010
LEVEL DIFFERENCE	-2.053	-1.910	1.390	4.171	6.481	8.750	9.984	9.241	11.673	14.278	12.894	10.725
CHAINAGES	9200.000	9250.000	9300.000	9350.000	9400.000	9450.000	9500.000	9550.000	9600.000	9650.000	9700.000	9750.000

VERTICAL DETAILS												
HORIZONTAL DETAILS												T=80.000
DESIGN LEVELS	49.787	49.289	48.791	48.293	47.795	47.298	46.800	46.302	45.804	45.306	44.808	44.311 44.196 44.161
EXISTING LEVELS	58.038	56.685	57.902	59.429	60.521	59.477	57.357	55.046	53.276	51.111	48.628	46.522 46.074 45.945
LEVEL DIFFERENCE	8.251	7.396	9.111	11.136	12.726	12.179	10.558	8.744	7.472	5.804	3.820	2.211 1.878 1.784
CHAINAGES	9800.000	9850.000	9900.000	9950.000	10000.000	10050.000	10100.000	10150.000	10200.000	10250.000	10300.000	10350.000 10361.471 10365.000

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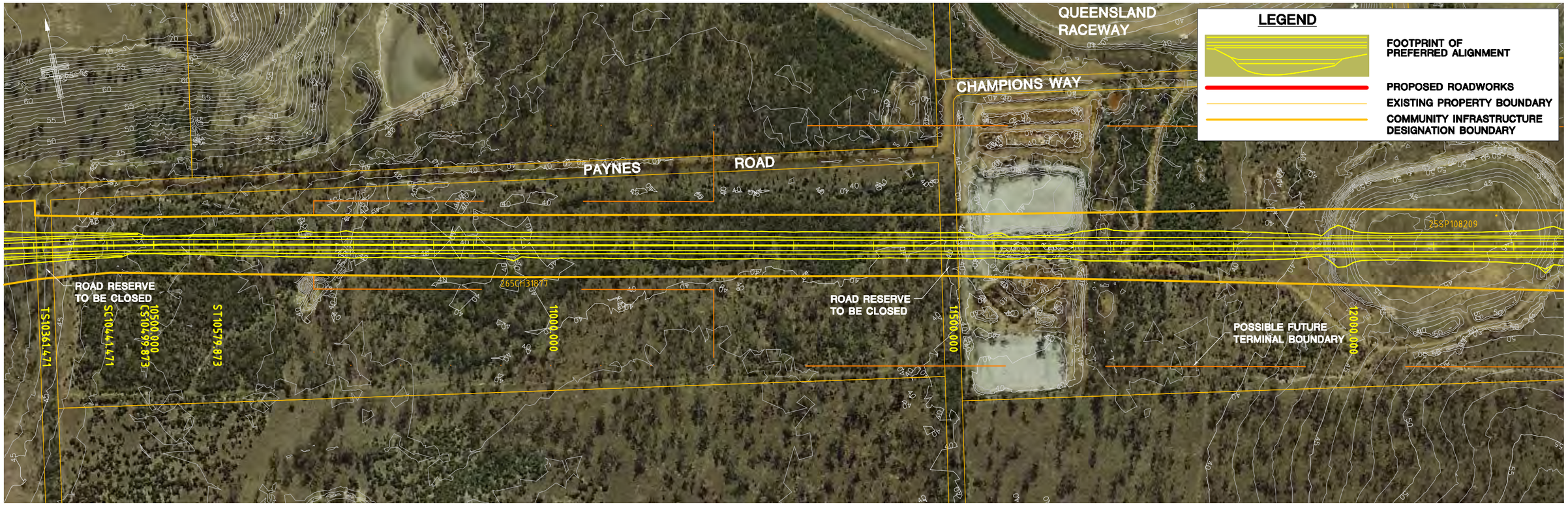
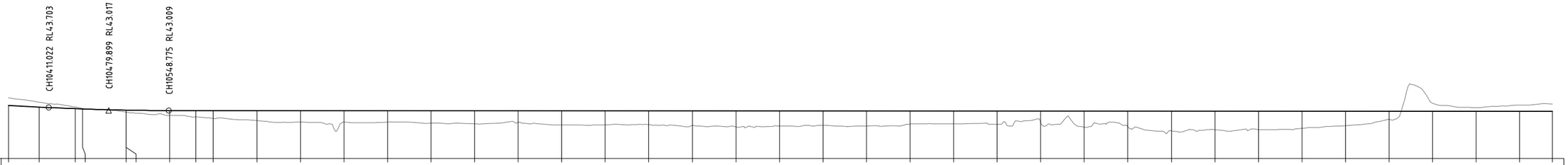
SOUTHERN FREIGHT RAIL CORRIDOR STUDY
PLAN AND LONGITUDINAL SECTION
COMMUNITY INFRASTRUCTURE DESIGNATION PLANS - SHEET 6
60028616-CID006-C





VERTICAL DETAILS: -0.996% 1 IN -100.432 R=14000.000 -0.012% 1 IN -8508.605

HORIZONTAL DETAILS: T=80.000 R=4000.000 T=80.000 L=3356.281

DESIGN LEVELS	44.161	43.813	43.433 43.369	43.100 43.100	43.009	43.005	43.003	42.997	42.991	42.985	42.979
EXISTING LEVELS	45.945	44.924	43.802 43.463	42.641 42.636	41.900	41.519	41.176	40.675	40.335	40.361	40.327
LEVEL DIFFERENCE	1.784	1.112	0.369 0.094	-0.459 -0.463	-1.109	-1.486	-1.827	-2.323	-2.656	-2.624	-2.652
CHAINAGES	10365.000	10400.000	10441.471 10450.000	10499.873 10500.000	10550.000	10579.873	10600.000	10650.000	10700.000	10750.000	10800.000

DESIGN LEVELS	42.974	42.968	42.962	42.956	42.950	42.944	42.938	42.932	42.927	42.921	42.915	42.909
EXISTING LEVELS	40.070	39.974	40.283	39.702	39.708	39.787	39.584	39.276	39.427	39.607	39.462	39.895
LEVEL DIFFERENCE	-2.903	-2.994	-2.679	-3.254	-3.242	-3.157	-3.354	-3.656	-3.500	-3.313	-3.453	-3.014
CHAINAGES	10850.000	10900.000	10950.000	11000.000	11050.000	11100.000	11150.000	11200.000	11250.000	11300.000	11350.000	11400.000

DESIGN LEVELS	42.903	42.897	42.891	42.885	42.880	42.874	42.868	42.862	42.856	42.850	42.844	42.838	42.833	42.827	42.822
EXISTING LEVELS	39.928	39.877	40.286	39.194	39.361	38.323	38.602	38.601	38.900	39.495	40.964	44.661	43.688	44.282	44.509
LEVEL DIFFERENCE	-2.975	-3.020	-2.605	-3.691	-3.518	-4.551	-4.265	-4.261	-3.956	-3.355	-1.880	1.823	0.855	1.456	1.686
CHAINAGES	11450.000	11500.000	11550.000	11600.000	11650.000	11700.000	11750.000	11800.000	11850.000	11900.000	11950.000	12000.000	12050.000	12100.000	12137.500

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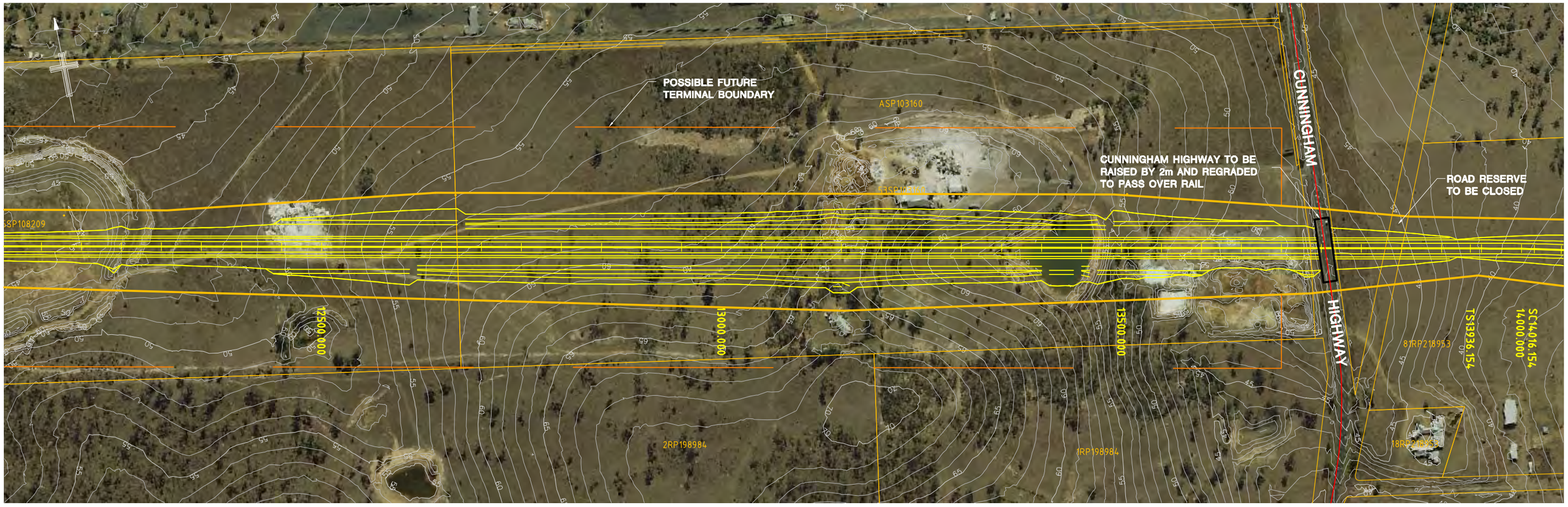
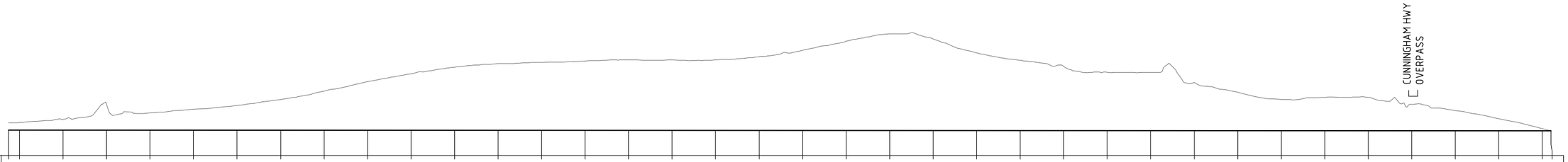
SOUTHERN FREIGHT RAIL CORRIDOR STUDY
PLAN AND LONGITUDINAL SECTION
COMMUNITY INFRASTRUCTURE DESIGNATION PLANS - SHEET 7
60028616-CID007-C





VERTICAL DETAILS	-0.012% 1 IN -8508.605												
HORIZONTAL DETAILS	L=3356.281												
DESIGN LEVELS	42.822	42.821	42.815	42.809	42.803	42.797	42.791	42.786	42.780	42.774	42.768	42.762	42.756
EXISTING LEVELS	44.509	44.565	45.240	48.840	46.785	47.662	48.478	49.875	51.806	53.968	55.814	57.325	58.126
LEVEL DIFFERENCE	1.686	1.745	2.425	6.031	3.981	4.865	5.686	7.089	9.027	11.194	13.046	14.563	15.370
CHAINAGES	12137.500	12150.000	12200.000	12250.000	12300.000	12350.000	12400.000	12450.000	12500.000	12550.000	12600.000	12650.000	12700.000

DESIGN LEVELS	42.750	42.744	42.739	42.733	42.727	42.721	42.715	42.709	42.703	42.697	42.692	42.686	42.680
EXISTING LEVELS	58.435	58.749	58.986	58.974	58.982	59.725	61.185	63.279	64.977	63.854	60.604	58.896	57.503
LEVEL DIFFERENCE	15.685	16.005	16.248	16.241	16.255	17.004	18.470	20.570	22.273	21.156	17.912	16.210	14.823
CHAINAGES	12750.000	12800.000	12850.000	12900.000	12950.000	13000.000	13050.000	13100.000	13150.000	13200.000	13250.000	13300.000	13350.000

DESIGN LEVELS	42.674	42.668	42.662	42.656	42.650	42.645	42.639	42.633	42.627	42.621	42.615	42.614
EXISTING LEVELS	56.153	56.133	53.758	51.584	49.874	50.383	50.367	48.750	47.339	45.462	43.152	42.652
LEVEL DIFFERENCE	13.479	13.465	11.096	8.928	7.223	7.738	7.728	6.117	4.712	2.841	0.537	0.038
CHAINAGES	13400.000	13450.000	13500.000	13550.000	13600.000	13650.000	13700.000	13750.000	13800.000	13850.000	13900.000	13910.000

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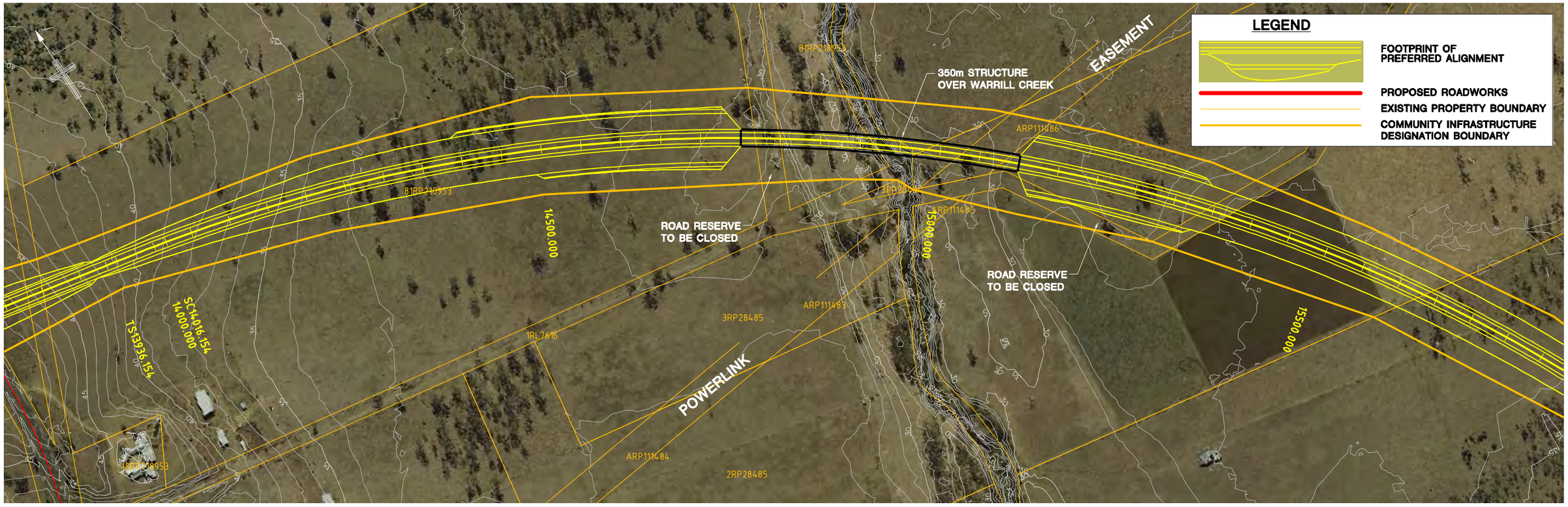
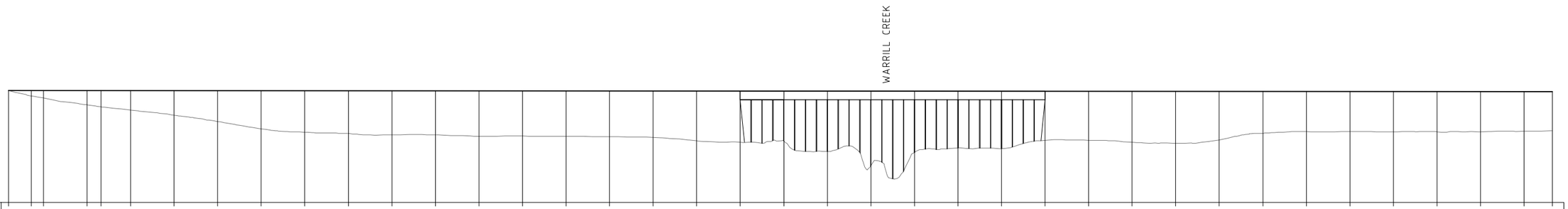
SOUTHERN FREIGHT RAIL CORRIDOR STUDY
PLAN AND LONGITUDINAL SECTION
COMMUNITY INFRASTRUCTURE DESIGNATION PLANS - SHEET 8

60028616-CID008-C





DATUM17

VERTICAL DETAILS: -0.012% 1 IN -8508.605

HORIZONTAL DETAILS: L=3356.281 T=80.000 R=2000.000

DESIGN LEVELS	42.614	42.611	42.609	42.603	42.602	42.598	42.592	42.586	42.580	42.574	42.568	42.562	42.556
EXISTING LEVELS	42.652	41.396	40.915	39.378	38.896	38.147	36.994	35.539	33.852	33.065	32.788	32.469	32.495
LEVEL DIFFERENCE	0.038	-1.215	-1.695	-3.225	-3.705	-4.450	-5.598	-7.046	-8.728	-9.509	-9.780	-10.093	-10.061
CHAINAGES	13910.000	13936.154	13950.000	14000.000	14016.154	14050.000	14100.000	14150.000	14200.000	14250.000	14300.000	14350.000	14400.000

DESIGN LEVELS	42.551	42.545	42.539	42.533	42.527	42.521	42.515	42.509	42.504	42.498	42.492	42.486	42.480
EXISTING LEVELS	32.150	32.180	32.121	32.068	31.860	31.111	30.778	31.033	28.669	25.425	28.438	29.468	29.301
LEVEL DIFFERENCE	-10.401	-10.365	-10.418	-10.465	-10.667	-11.410	-11.737	-11.476	-13.834	-17.073	-14.054	-13.018	-13.179
CHAINAGES	14450.000	14500.000	14550.000	14600.000	14650.000	14700.000	14750.000	14800.000	14850.000	14900.000	14950.000	15000.000	15050.000

DESIGN LEVELS	42.474	42.468	42.462	42.456	42.451	42.445	42.439	42.433	42.427	42.421	42.415	42.409	42.406
EXISTING LEVELS	31.212	31.241	30.757	30.547	31.331	32.827	33.195	33.205	33.186	33.159	33.148	33.297	33.371
LEVEL DIFFERENCE	-11.262	-11.228	-11.705	-11.909	-11.120	-9.618	-9.244	-9.228	-9.241	-9.262	-9.267	-9.113	-9.035
CHAINAGES	15100.000	15150.000	15200.000	15250.000	15300.000	15350.000	15400.000	15450.000	15500.000	15550.000	15600.000	15650.000	15682.500

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SOUTHERN FREIGHT RAIL CORRIDOR STUDY
PLAN AND LONGITUDINAL SECTION
COMMUNITY INFRASTRUCTURE DESIGNATION PLANS - SHEET 9

60028616-CID009-C

AECOM

DATUM28

VERTICAL DETAILS	-0.012% (1 IN -8508.605)
HORIZONTAL DETAILS	R=2000.000 · T=80.000 · L=1769.777

CHAINAGES	DESIGN LEVELS	EXISTING LEVELS	LEVEL DIFFERENCE
15682.500	42.406	33.371	-9.035
15700.000	42.404	33.404	-8.999
15750.000	42.398	33.443	-8.955
15800.000	42.392	33.669	-8.723
15850.000	42.386	33.986	-8.400
15900.000	42.380	34.561	-7.820
15950.000	42.374	35.174	-7.200
16000.000	42.368	35.880	-6.489
16050.000	42.362	36.694	-5.669
16100.000	42.357	37.458	-4.898
16117.593	42.355	37.763	-4.591
16150.000	42.351	37.985	-4.366
16197.593	42.345	38.289	-4.056
16200.000	42.345	38.314	-4.030
16250.000	42.339	38.343	-3.995
16300.000	42.333	38.432	-3.902
16350.000	42.327	38.301	-4.026
16400.000	42.321	38.336	-3.985
16450.000	42.315	37.738	-4.578
16500.000	42.310	36.532	-5.777
16550.000	42.304	35.651	-6.653
16600.000	42.298	35.216	-7.081
16650.000	42.292	34.565	-7.727
16700.000	42.286	34.371	-7.916
16750.000	42.280	34.489	-7.791
16800.000	42.274	34.347	-7.928
16850.000	42.268	34.522	-7.747
16900.000	42.263	34.952	-7.311
16950.000	42.257	35.514	-6.743
17000.000	42.251	35.936	-6.315
17050.000	42.245	36.334	-5.911
17100.000	42.239	36.620	-5.619
17150.000	42.233	36.912	-5.321
17200.000	42.227	37.716	-4.511
17250.000	42.221	38.724	-3.497
17300.000	42.216	39.820	-2.396
17350.000	42.210	40.338	-1.872
17400.000	42.204	40.810	-1.394
17450.000	42.198	40.535	-1.662
17455.000	42.197	40.494	-1.703

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1 : 5000 (A3) 1 : 2500 (A1)

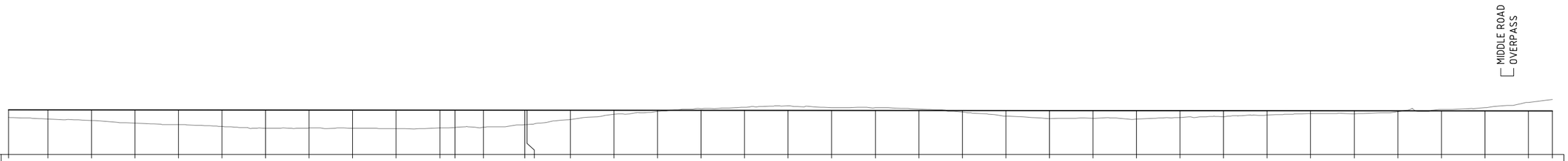
SOUTHERN FREIGHT RAIL CORRIDOR STUDY

PLAN AND LONGITUDINAL SECTION

COMMUNITY INFRASTRUCTURE DESIGNATION PLANS - SHEET 10

60028616-CID010-C

AECOM



VERTICAL DETAILS: -0.012% 1 IN -8508.605

HORIZONTAL DETAILS: L=1769.777 T=80.000 R=-1500.000

DESIGN LEVELS	42.197	42.192	42.186	42.180	42.174	42.169	42.163	42.157	42.151	42.145	42.139	42.137	42.133
EXISTING LEVELS	40.494	40.116	39.780	39.158	38.825	38.384	37.994	38.082	38.002	37.895	38.033	38.200	38.217
LEVEL DIFFERENCE	-1.703	-2.076	-2.406	-3.022	-3.349	-3.785	-4.169	-4.075	-4.149	-4.250	-4.106	-3.937	-3.917
CHAINAGES	17455.000	17500.000	17550.000	17600.000	17650.000	17700.000	17750.000	17800.000	17850.000	17900.000	17950.000	17967.370	18000.000

DESIGN LEVELS	42.128	42.127	42.122	42.116	42.110	42.104	42.098	42.092	42.086	42.080	42.075	42.069	42.063
EXISTING LEVELS	38.800	38.838	40.017	41.183	41.855	42.516	42.817	43.182	42.774	42.705	42.409	41.676	40.799
LEVEL DIFFERENCE	-3.328	-3.289	-2.105	-0.933	-0.255	0.412	0.719	1.090	0.688	0.624	0.335	-0.392	-1.264
CHAINAGES	18047.370	18050.000	18100.000	18150.000	18200.000	18250.000	18300.000	18350.000	18400.000	18450.000	18500.000	18550.000	18600.000

DESIGN LEVELS	42.057	42.051	42.045	42.039	42.033	42.028	42.022	42.016	42.010	42.004	41.998	41.992	41.989
EXISTING LEVELS	40.209	40.302	40.067	40.479	40.619	41.003	41.352	41.326	41.831	42.335	42.695	43.958	44.600
LEVEL DIFFERENCE	-1.848	-1.749	-1.978	-1.560	-1.414	-1.024	-0.670	-0.690	-0.179	0.331	0.697	1.966	2.611
CHAINAGES	18650.000	18700.000	18750.000	18800.000	18850.000	18900.000	18950.000	19000.000	19050.000	19100.000	19150.000	19200.000	19227.500

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SOUTHERN FREIGHT RAIL CORRIDOR STUDY
PLAN AND LONGITUDINAL SECTION
COMMUNITY INFRASTRUCTURE DESIGNATION PLANS - SHEET 11
60028616-CID011-C

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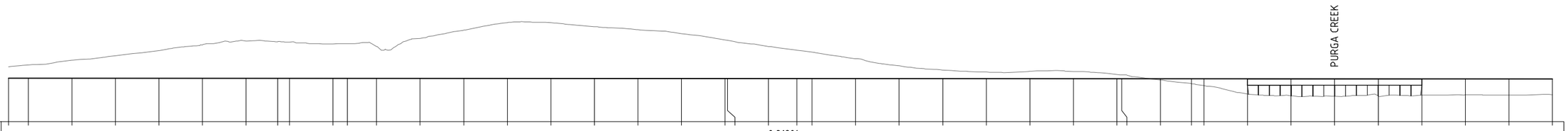

VERTICAL DETAILS: -0.012% 1 IN -8508.605

HORIZONTAL DETAILS: R=-1500.000 | T=80.000 | L=436.512 | T=80.000 | R=1500.000 | T=80.000 | L=2753.813

CHAINAGES	DESIGN LEVELS	EXISTING LEVELS	LEVEL DIFFERENCE
19227.500	41.989	44.600	2.611
19250.000	41.986	45.049	3.063
19300.000	41.981	46.128	4.147
19350.000	41.975	47.120	5.146
19400.000	41.969	48.348	6.379
19450.000	41.963	49.659	7.696
19500.000	41.957	50.558	8.601
19536.190	41.953	50.396	8.443
19550.000	41.951	50.274	8.323
19600.000	41.945	49.883	7.938
19616.190	41.943	49.917	7.974
19650.000	41.939	49.275	7.336
19700.000	41.933	51.137	9.204
19750.000	41.928	53.027	11.099
19800.000	41.922	54.773	12.851
19850.000	41.916	54.736	12.820
19900.000	41.910	53.852	11.942
19950.000	41.904	53.111	11.207
20000.000	41.898	52.253	10.355
20050.000	41.892	50.779	8.887
20052.703	41.892	50.679	8.787
20100.000	41.886	49.285	7.398
20132.702	41.883	48.406	6.523
20150.000	41.881	47.944	6.063
20200.000	41.875	46.459	4.584
20250.000	41.869	44.857	2.988
20300.000	41.863	43.860	1.997
20350.000	41.857	43.376	1.519
20400.000	41.851	43.542	1.691
20450.000	41.845	43.526	1.681
20500.000	41.839	42.836	0.996
20505.653	41.839	42.742	0.903
20550.000	41.834	41.568	-0.266
20685.653	41.829	40.712	-1.117
20600.000	41.828	40.256	-1.572
20650.000	41.822	38.307	-3.515
20700.000	41.816	37.930	-3.886
20750.000	41.810	37.801	-4.009
20800.000	41.804	37.896	-3.908
20850.000	41.798	38.082	-3.716
20900.000	41.792	38.127	-3.665
20950.000	41.787	38.089	-3.698
21000.000	41.781	38.195	-3.586

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SOUTHERN FREIGHT RAIL CORRIDOR STUDY
PLAN AND LONGITUDINAL SECTION
COMMUNITY INFRASTRUCTURE DESIGNATION PLANS - SHEET 12
60028616-CID012-C

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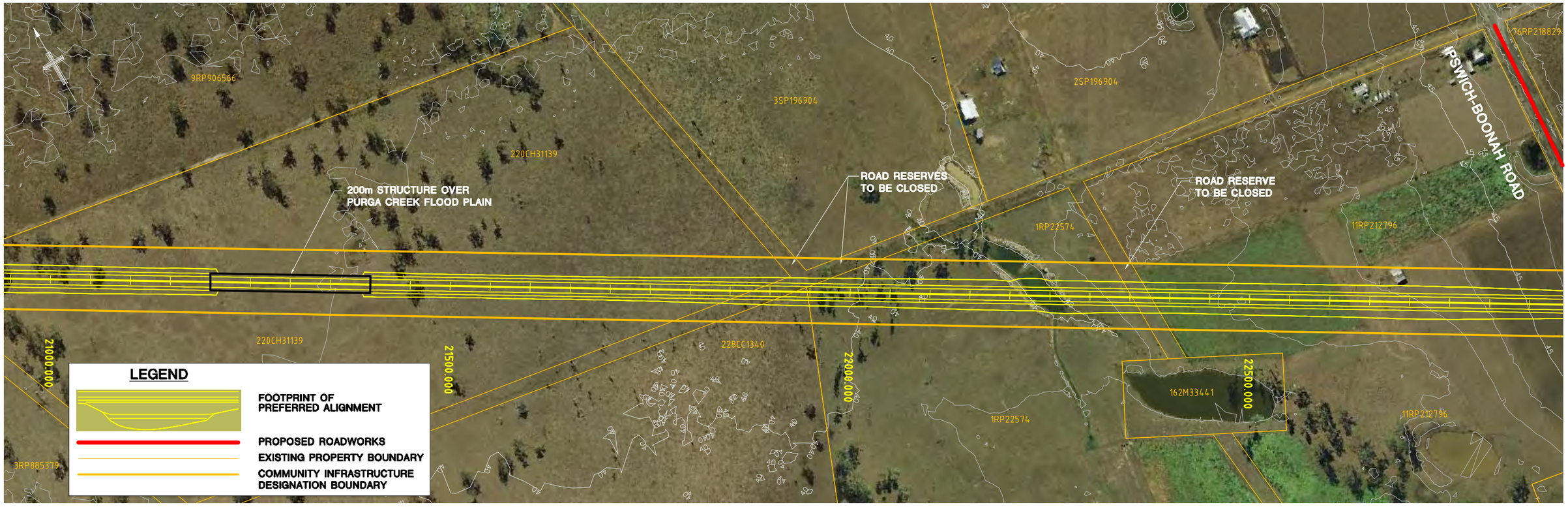

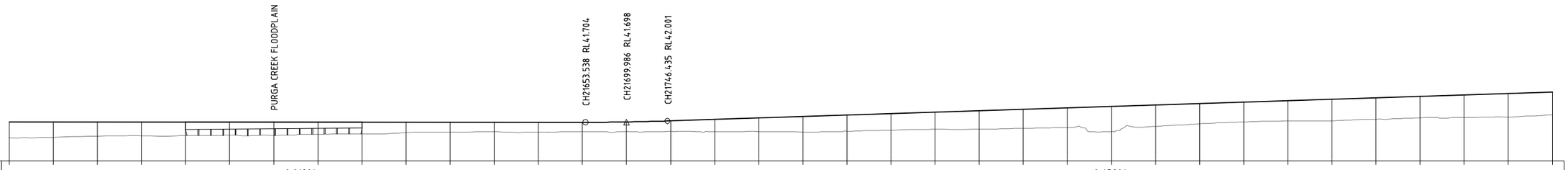

VERTICAL DETAILS: -0.012% 1 IN -8508.605; R=14000.000; 0.652% 1 IN 153.422

HORIZONTAL DETAILS: L=2753.813

DESIGN LEVELS	41.781	41.775	41.769	41.763	41.757	41.751	41.745	41.740	41.734	41.728	41.722	41.716	41.710	41.704	41.776	42.024	42.350	42.676
EXISTING LEVELS	38.195	38.314	38.574	38.651	38.704	38.779	38.743	39.008	39.036	39.422	39.480	39.558	39.448	39.568	39.592	39.610	39.592	39.603
LEVEL DIFFERENCE	-3.586	-3.460	-3.195	-3.112	-3.053	-2.973	-3.002	-2.731	-2.698	-2.305	-2.242	-2.158	-2.262	-2.136	-2.184	-2.414	-2.758	-3.074
CHAINAGES	21000.000	21050.000	21100.000	21150.000	21200.000	21250.000	21300.000	21350.000	21400.000	21450.000	21500.000	21550.000	21600.000	21650.000	21700.000	21750.000	21800.000	21850.000

DESIGN LEVELS	43.002	43.328	43.654	43.980	44.306	44.632	44.958	45.283	45.609	45.935	46.261	46.587	46.913	47.239	47.565	47.891	48.217	48.542
EXISTING LEVELS	39.502	39.689	39.911	40.118	40.118	40.326	40.459	39.559	40.770	41.358	41.787	41.998	42.042	42.398	42.690	42.782	42.897	43.402
LEVEL DIFFERENCE	-3.500	-3.639	-3.743	-3.861	-4.187	-4.306	-4.498	-5.725	-4.839	-4.577	-4.474	-4.589	-4.871	-4.841	-4.875	-5.109	-5.319	-5.141
CHAINAGES	21900.000	21950.000	22000.000	22050.000	22100.000	22150.000	22200.000	22250.000	22300.000	22350.000	22400.000	22450.000	22500.000	22550.000	22600.000	22650.000	22700.000	22750.000

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SOUTHERN FREIGHT RAIL CORRIDOR STUDY
PLAN AND LONGITUDINAL SECTION
COMMUNITY INFRASTRUCTURE DESIGNATION PLANS - SHEET 13

60028616-CID013-C

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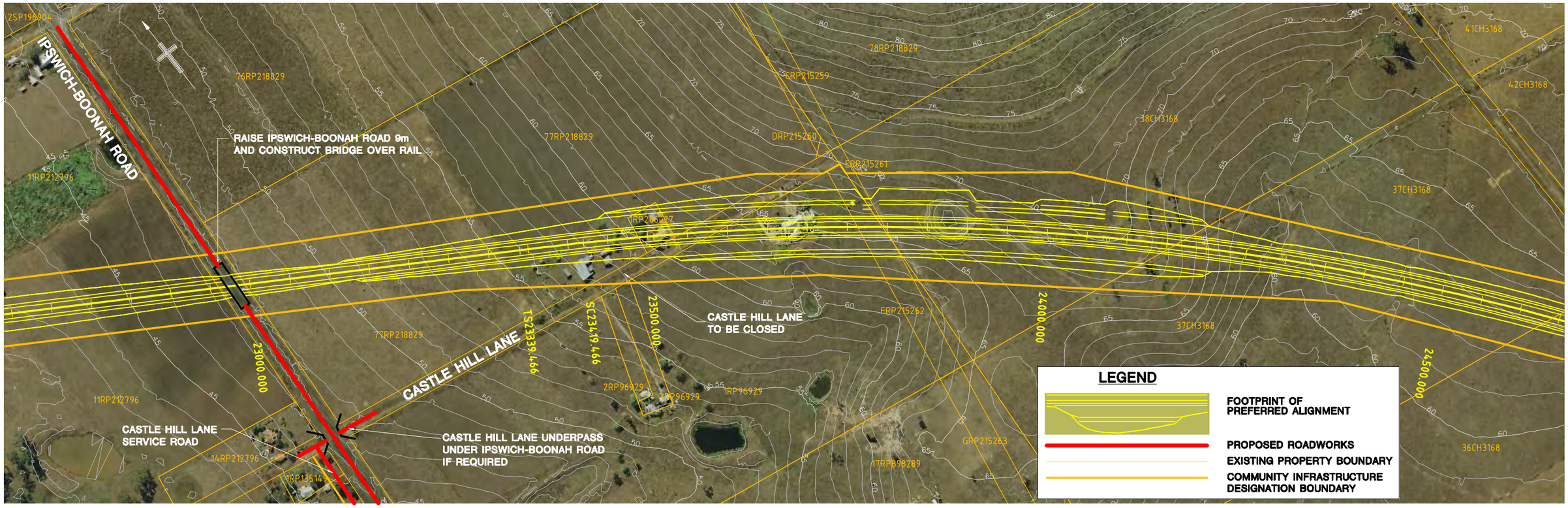

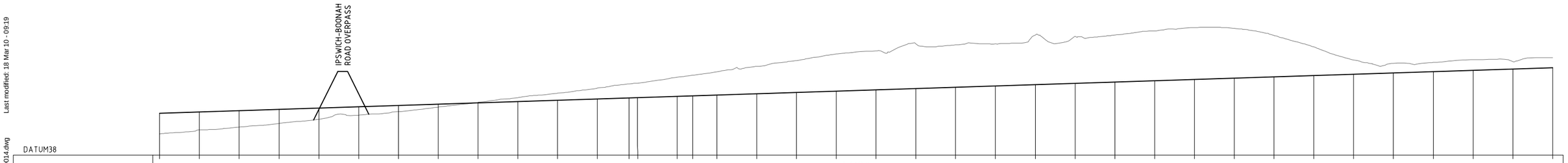

VERTICAL DETAILS: 0.652% — 1 IN 153.426

HORIZONTAL DETAILS: L=2904.134 — T=80.000 — R=3250.000

CHAINAGES	22750.000	22800.000	22850.000	22900.000	22950.000	23000.000	23050.000	23100.000	23150.000	23200.000	23250.000	23300.000	23339.466	23350.000	23400.000	23419.466	23450.000	23500.000	23550.000
DESIGN LEVELS	48.549	48.875	49.201	49.527	49.853	50.179	50.505	50.830	51.156	51.482	51.808	52.134	52.391	52.460	52.786	52.913	53.112	53.438	53.763
EXISTING LEVELS	43.402	44.363	45.063	45.990	47.032	48.064	48.955	50.094	51.293	52.475	53.593	54.849	55.904	56.115	57.595	58.091	58.957	60.304	61.782
LEVEL DIFFERENCE	-5.147	-4.512	-4.138	-3.537	-2.821	-2.115	-1.550	-0.736	0.137	0.993	1.785	2.715	3.513	3.655	4.809	5.178	5.845	6.866	8.018

CHAINAGES	23600.000	23650.000	23700.000	23750.000	23800.000	23850.000	23900.000	23950.000	24000.000	24050.000	24100.000	24150.000	24200.000	24250.000	24300.000	24350.000	24400.000	24450.000	24500.000
DESIGN LEVELS	54.089	54.415	54.741	55.067	55.393	55.719	56.045	56.371	56.696	57.022	57.348	57.674	58.000	58.326	58.652	58.978	59.304	59.629	59.955
EXISTING LEVELS	63.423	64.196	66.022	65.701	65.948	68.198	67.810	68.166	69.178	70.059	69.857	68.078	65.199	61.945	61.078	61.287	61.981	61.501	62.548
LEVEL DIFFERENCE	9.334	9.780	11.281	10.634	10.555	12.479	11.765	11.795	12.482	13.037	12.509	10.404	7.199	3.619	2.426	2.310	2.677	1.872	2.592

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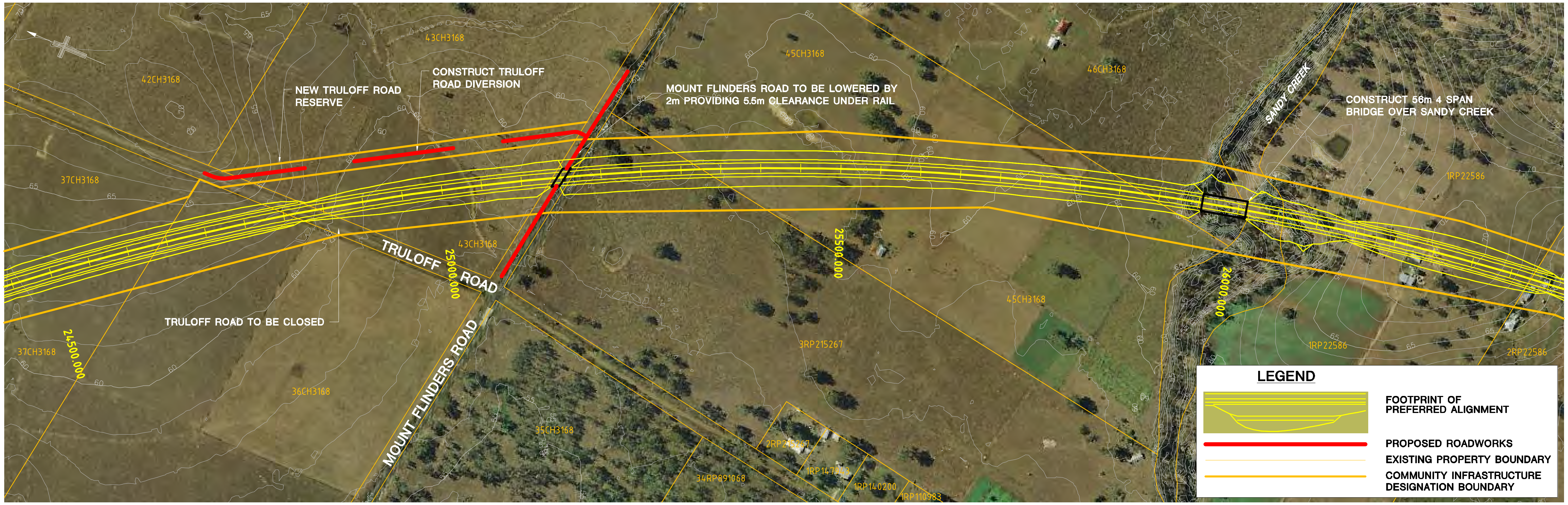
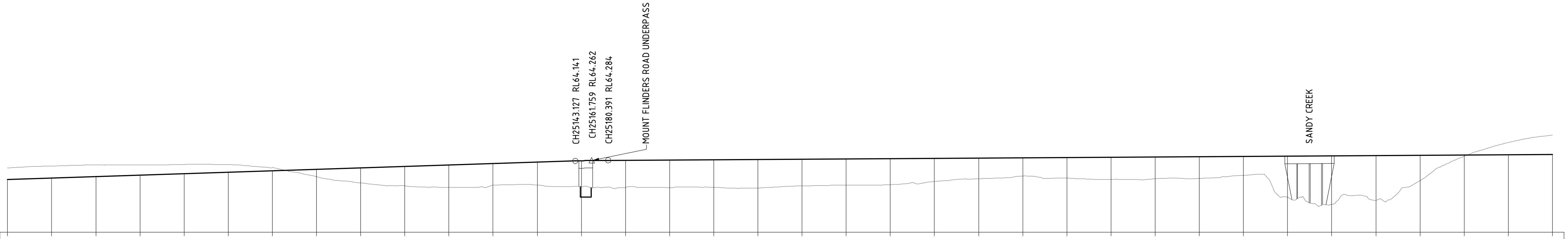
SOUTHERN FREIGHT RAIL CORRIDOR STUDY
PLAN AND LONGITUDINAL SECTION
COMMUNITY INFRASTRUCTURE DESIGNATION PLANS - SHEET 14

60028616-CID014-C





VERTICAL DETAILS: 0.652% 1 IN 153.422 — R=7000.000 — 0.119% 1 IN 837.102

HORIZONTAL DETAILS: R=3250.000

DESIGN LEVELS	59.949	60.275	60.601	60.927	61.252	61.578	61.904	62.230	62.556
EXISTING LEVELS	62.548	62.972	63.227	63.250	63.332	63.297	62.595	60.558	59.142
LEVEL DIFFERENCE	2.599	2.697	2.626	2.323	2.079	1.719	0.690	-1.672	-3.414
CHAINAGES	24500.000	24550.000	24600.000	24650.000	24700.000	24750.000	24800.000	24850.000	24900.000

DESIGN LEVELS	62.882	63.208	63.534	63.860	64.182	64.308	64.368	64.427	64.487
EXISTING LEVELS	58.512	58.165	58.661	58.691	58.257	58.166	58.090	58.126	57.991
LEVEL DIFFERENCE	-4.370	-5.042	-4.872	-5.169	-5.925	-6.142	-6.278	-6.301	-6.496
CHAINAGES	24950.000	25000.000	25050.000	25100.000	25150.000	25200.000	25250.000	25300.000	25350.000

DESIGN LEVELS	64.547	64.607	64.666	64.726	64.786	64.845	64.905	64.965	65.025
EXISTING LEVELS	58.452	58.653	58.763	59.463	60.113	60.717	60.255	59.957	60.090
LEVEL DIFFERENCE	-6.094	-5.953	-5.903	-5.263	-4.673	-4.128	-4.650	-5.008	-4.935
CHAINAGES	25400.000	25450.000	25500.000	25550.000	25600.000	25650.000	25700.000	25750.000	25800.000

DESIGN LEVELS	65.084	65.144	65.204	65.264	65.323	65.383	65.443	65.502	65.562
EXISTING LEVELS	60.185	60.848	55.910	54.288	55.180	59.671	65.200	68.321	69.999
LEVEL DIFFERENCE	-4.899	-4.296	-9.294	-10.975	-10.143	-5.712	-0.243	2.819	4.436
CHAINAGES	25850.000	25900.000	25950.000	26000.000	26050.000	26100.000	26150.000	26200.000	26250.000

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SOUTHERN FREIGHT RAIL CORRIDOR STUDY
PLAN AND LONGITUDINAL SECTION
COMMUNITY INFRASTRUCTURE DESIGNATION PLANS - SHEET 15

60028616-CID015-C

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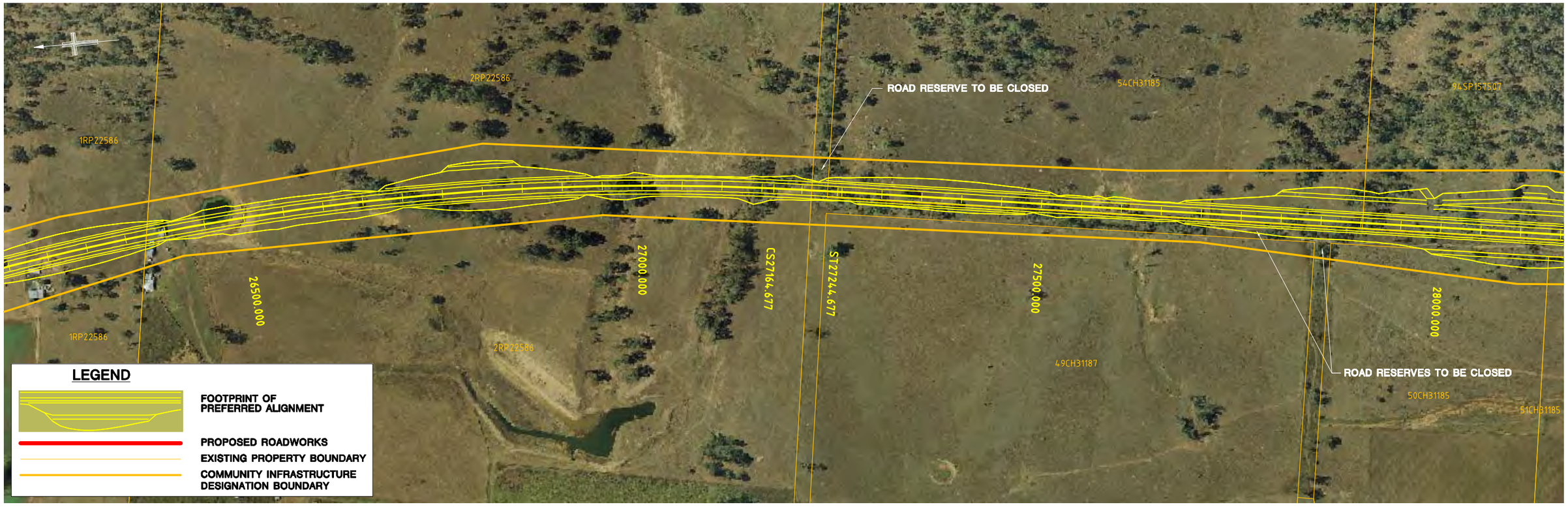

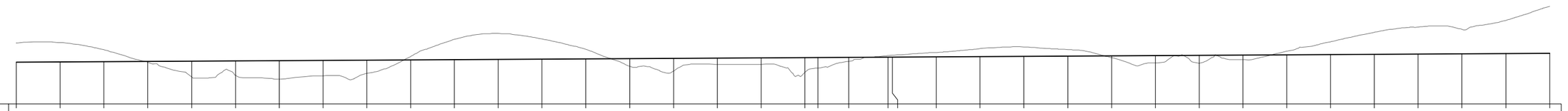

VERTICAL DETAILS: 0.119% — 1 IN 837.102

HORIZONTAL DETAILS: R=3250.000 — T=80.000 — L=2076.278

DESIGN LEVELS	65.563	65.623	65.683	65.743	65.802	65.862	65.922	65.981	66.041	66.101	66.161	66.220
EXISTING LEVELS	69.999	70.094	68.467	65.548	62.216	62.596	61.688	62.495	63.018	66.901	70.812	72.175
LEVEL DIFFERENCE	4.435	4.471	2.784	-0.194	-3.586	-3.266	-4.234	-3.487	-3.023	0.800	4.651	5.955
CHAINAGES	26250.000	26300.000	26350.000	26400.000	26450.000	26500.000	26550.000	26600.000	26650.000	26700.000	26750.000	26800.000

DESIGN LEVELS	66.280	66.340	66.400	66.459	66.519	66.579	66.639 66.656	66.698	66.752 66.758	66.818	66.877	66.937
EXISTING LEVELS	70.908	68.530	64.644	63.560	65.103	65.129	63.250 64.269	65.801	67.107 67.198	67.818	68.714	69.086
LEVEL DIFFERENCE	4.628	2.191	-1.756	-2.900	-1.417	-1.450	-3.389 -2.387	-0.897	0.355 0.440	1.000	1.837	2.149
CHAINAGES	26850.000	26900.000	26950.000	27000.000	27050.000	27100.000	27150.000 27164.682	27200.000	27244.682 27250.000	27300.000	27350.000	27400.000

DESIGN LEVELS	66.997	67.057	67.116	67.176	67.236	67.296	67.355	67.415	67.475	67.534	67.594	67.654
EXISTING LEVELS	68.500	66.643	65.438	65.314	66.218	68.096	70.289	72.460	73.678	73.161	75.198	78.405
LEVEL DIFFERENCE	1.503	-0.414	-1.679	-1.862	-1.018	0.800	2.934	5.045	6.203	5.626	7.604	10.751
CHAINAGES	27450.000	27500.000	27550.000	27600.000	27650.000	27700.000	27750.000	27800.000	27850.000	27900.000	27950.000	28000.000

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SOUTHERN FREIGHT RAIL CORRIDOR STUDY
PLAN AND LONGITUDINAL SECTION
COMMUNITY INFRASTRUCTURE DESIGNATION PLANS - SHEET 16

60028616-CID016-C

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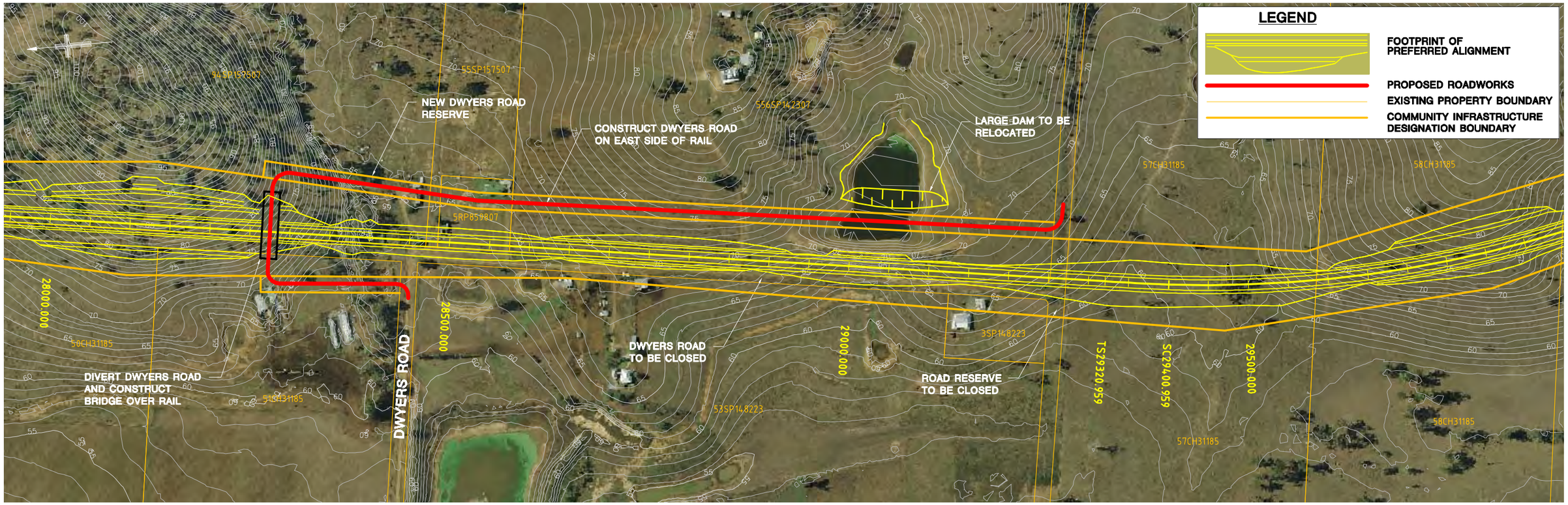

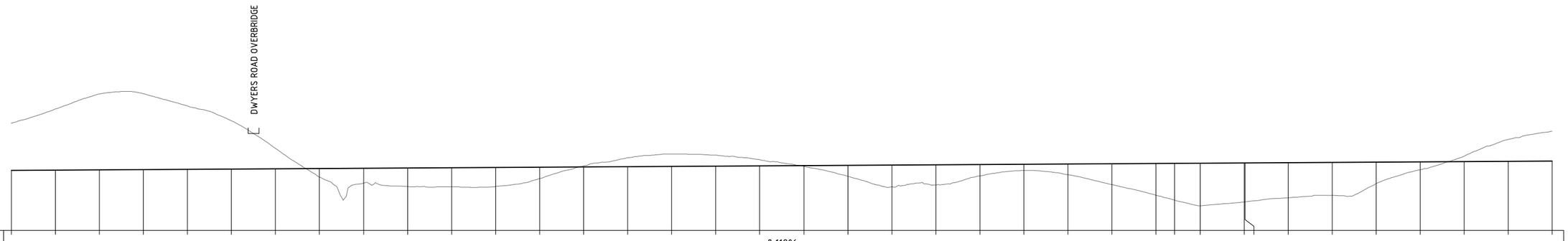

	28000.000	28050.000	28100.000	28150.000	28200.000	28250.000	28300.000	28350.000	28400.000	28450.000	28500.000	28550.000	28600.000
VERTICAL DETAILS	0.119% 1 IN 837.102												
HORIZONTAL DETAILS	L=2076.278												
DESIGN LEVELS	67.654	67.714	67.773	67.833	67.893	67.953	68.012	68.072	68.132	68.191	68.251	68.311	68.371
EXISTING LEVELS	78.405	81.596	85.028	85.087	82.299	78.954	72.681	66.176	64.740	63.995	63.918	63.987	65.760
LEVEL DIFFERENCE	10.751	13.882	17.254	17.254	14.407	11.001	4.669	-1.896	-3.392	-4.197	-4.333	-4.324	-2.610
CHAINAGES	28000.000	28050.000	28100.000	28150.000	28200.000	28250.000	28300.000	28350.000	28400.000	28450.000	28500.000	28550.000	28600.000

	28650.000	28700.000	28750.000	28800.000	28850.000	28900.000	28950.000	29000.000	29050.000	29100.000	29150.000	29200.000	29250.000
DESIGN LEVELS	68.430	68.490	68.550	68.610	68.669	68.729	68.789	68.849	68.908	68.968	69.028	69.087	69.147
EXISTING LEVELS	68.690	70.501	71.399	71.118	70.074	68.563	66.338	63.929	64.331	66.420	67.648	66.685	64.439
LEVEL DIFFERENCE	0.259	2.010	2.849	2.508	1.405	-0.166	-2.450	-4.920	-4.577	-2.548	-1.380	-2.403	-4.708
CHAINAGES	28650.000	28700.000	28750.000	28800.000	28850.000	28900.000	28950.000	29000.000	29050.000	29100.000	29150.000	29200.000	29250.000

	29300.000	29320.960	29350.000	29400.000 29400.960	29450.000	29500.000	29550.000	29600.000	29650.000	29700.000	29750.000
HORIZONTAL DETAILS		T=80.000		R=-1500.000							
DESIGN LEVELS	69.207	69.232	69.267	69.326 69.328	69.386	69.446	69.506	69.565	69.625	69.685	69.744
EXISTING LEVELS	62.024	60.917	59.648	60.486 60.507	61.416	61.972	64.647	67.825	70.908	74.686	76.585
LEVEL DIFFERENCE	-7.183	-8.315	-9.618	-8.840 -8.821	-7.970	-7.474	-4.858	-1.740	1.283	5.001	6.840
CHAINAGES	29300.000	29320.960	29350.000	29400.000 29400.960	29450.000	29500.000	29550.000	29600.000	29650.000	29700.000	29750.000

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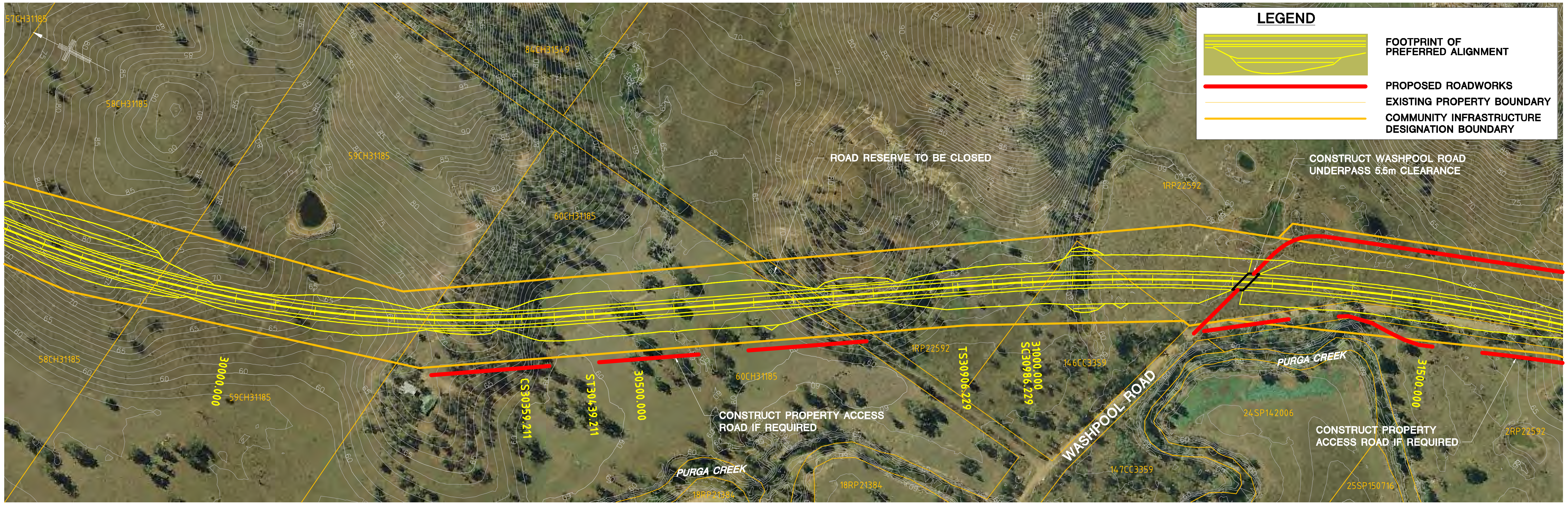
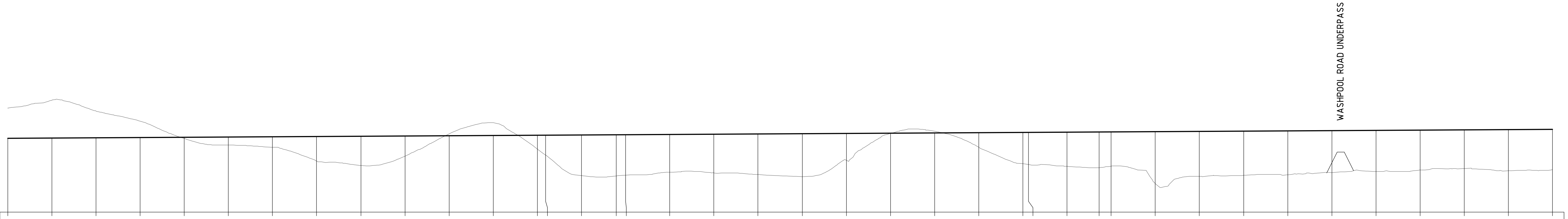
1 : 5000 (A3) 1 : 2500 (A1)

SOUTHERN FREIGHT RAIL CORRIDOR STUDY
PLAN AND LONGITUDINAL SECTION
COMMUNITY INFRASTRUCTURE DESIGNATION PLANS - SHEET 17
60028616-CID017-C

AECOM





DATUM53

VERTICAL DETAILS	0.119% 1 IN 837.102											
HORIZONTAL DETAILS	R=-1500.000											
DESIGN LEVELS	69.744	69.804	69.864	69.924	69.983	70.043	70.103	70.163	70.222	70.282	70.342	70.402
EXISTING LEVELS	76.585	78.420	75.964	73.672	69.749	68.241	67.738	64.595	63.601	65.721	70.768	73.294
LEVEL DIFFERENCE	6.840	8.615	6.100	3.749	-0.234	-1.802	-2.365	-5.568	-6.622	-4.561	0.426	2.893
CHAINAGES	29750.000	29800.000	29850.000	29900.000	29950.000	30000.000	30050.000	30100.000	30150.000	30200.000	30250.000	30300.000

VERTICAL DETAILS												
HORIZONTAL DETAILS		T=80.000		L=467.018								
DESIGN LEVELS	70.461 70.472	70.521	70.568 70.581	70.640	70.700	70.760	70.820	70.879	70.939	70.999	71.059	71.118 71.126
EXISTING LEVELS	67.330 65.955	61.276	61.225 61.404	62.036	61.908	61.514	61.078	64.798	70.873	71.354	67.739	63.974 63.822
LEVEL DIFFERENCE	-3.131 -4.517	-9.245	-9.342 -9.177	-8.604	-8.792	-9.246	-9.742	-6.081	-0.066	0.355	-3.319	-7.145 -7.304
CHAINAGES	30350.000 30359.212	30400.000	30439.212 30450.000	30500.000	30550.000	30600.000	30650.000	30700.000	30750.000	30800.000	30850.000	30900.000 30906.230

VERTICAL DETAILS												
HORIZONTAL DETAILS	T=80.000		R=2500.000									
DESIGN LEVELS	71.178	71.221 71.238	71.297	71.357	71.417	71.477	71.536	71.596	71.656	71.716	71.775	71.835
EXISTING LEVELS	63.394	63.097 63.449	59.511	61.133	61.386	61.498	61.982	62.245	62.545	62.931	62.408	62.632
LEVEL DIFFERENCE	-7.784	-8.124 -7.788	-11.786	-10.224	-10.031	-9.979	-9.554	-9.351	-9.111	-8.785	-9.367	-9.203
CHAINAGES	30950.000	30986.230 31000.000	31050.000	31100.000	31150.000	31200.000	31250.000	31300.000	31350.000	31400.000	31450.000	31500.000

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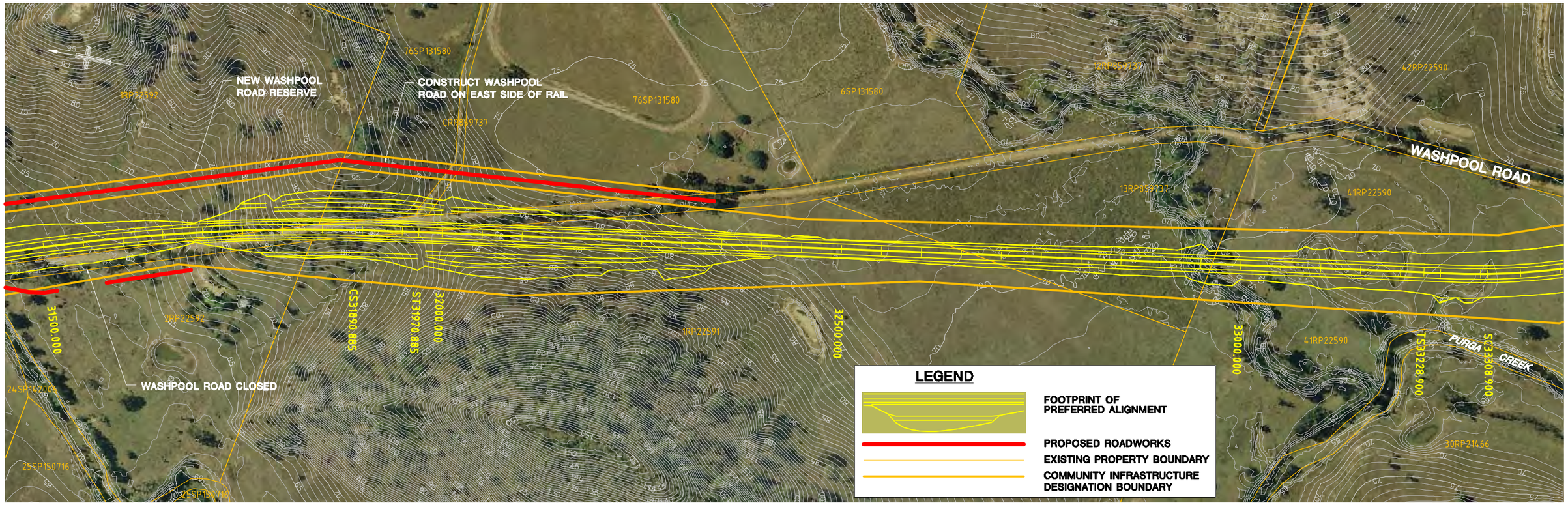
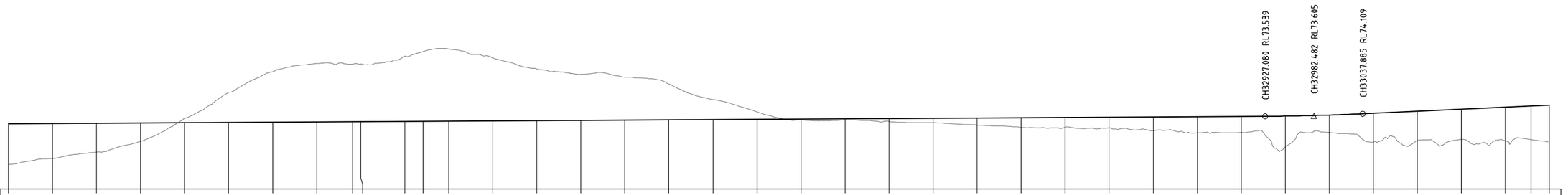
SOUTHERN FREIGHT RAIL CORRIDOR STUDY
PLAN AND LONGITUDINAL SECTION
COMMUNITY INFRASTRUCTURE DESIGNATION PLANS - SHEET 18

60028616-CID018-C



LEGEND

▨	FOOTPRINT OF PREFERRED ALIGNMENT
🟥	PROPOSED ROADWORKS
—	EXISTING PROPERTY BOUNDARY
—	COMMUNITY INFRASTRUCTURE DESIGNATION BOUNDARY



VERTICAL DETAILS: 0.119% / 1 IN 837.102; R=14000.000; 0.911% / 1 IN 109.779

HORIZONTAL DETAILS: R=2500.000; T=80.000; L=1258.015; T=80.000

DESIGN LEVELS	71.834	71.894	71.953	72.013	72.073	72.132	72.192	72.252	72.301	72.312	72.371	72.396	72.431
EXISTING LEVELS	62.632	63.962	65.397	67.835	73.048	78.948	83.680	85.525	85.413	85.392	87.171	88.243	88.833
LEVEL DIFFERENCE	-9.202	-7.932	-6.557	-4.178	0.975	6.816	11.488	13.273	13.113	13.080	14.799	15.847	16.402
CHAINAGES	31500.000	31550.000	31600.000	31650.000	31700.000	31750.000	31800.000	31850.000	31890.885	31900.000	31950.000	31970.885	32000.000

DESIGN LEVELS	72.491	72.551	72.610	72.670	72.730	72.790	72.849	72.909	72.969	73.028	73.088	73.148	73.208
EXISTING LEVELS	86.804	84.301	83.058	82.457	80.855	77.356	74.553	72.675	72.669	72.358	72.077	71.532	71.023
LEVEL DIFFERENCE	14.313	11.751	10.448	9.786	8.125	4.566	1.703	-0.234	-0.300	-0.670	-1.011	-1.616	-2.185
CHAINAGES	32050.000	32100.000	32150.000	32200.000	32250.000	32300.000	32350.000	32400.000	32450.000	32500.000	32550.000	32600.000	32650.000

DESIGN LEVELS	73.267	73.327	73.387	73.447	73.506	73.585	73.816	74.220	74.675	75.131	75.586	75.849	76.042
EXISTING LEVELS	71.047	70.880	70.303	69.785	69.855	66.584	69.870	67.704	68.092	68.262	67.960	68.262	67.651
LEVEL DIFFERENCE	-2.221	-2.447	-3.084	-3.662	-3.651	-7.000	-3.946	-6.516	-6.584	-6.869	-7.627	-7.587	-8.391
CHAINAGES	32700.000	32750.000	32800.000	32850.000	32900.000	32950.000	33000.000	33050.000	33100.000	33150.000	33200.000	33228.900	33250.000

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SOUTHERN FREIGHT RAIL CORRIDOR STUDY
PLAN AND LONGITUDINAL SECTION
COMMUNITY INFRASTRUCTURE DESIGNATION PLANS - SHEET 19
60028616-CID019-C

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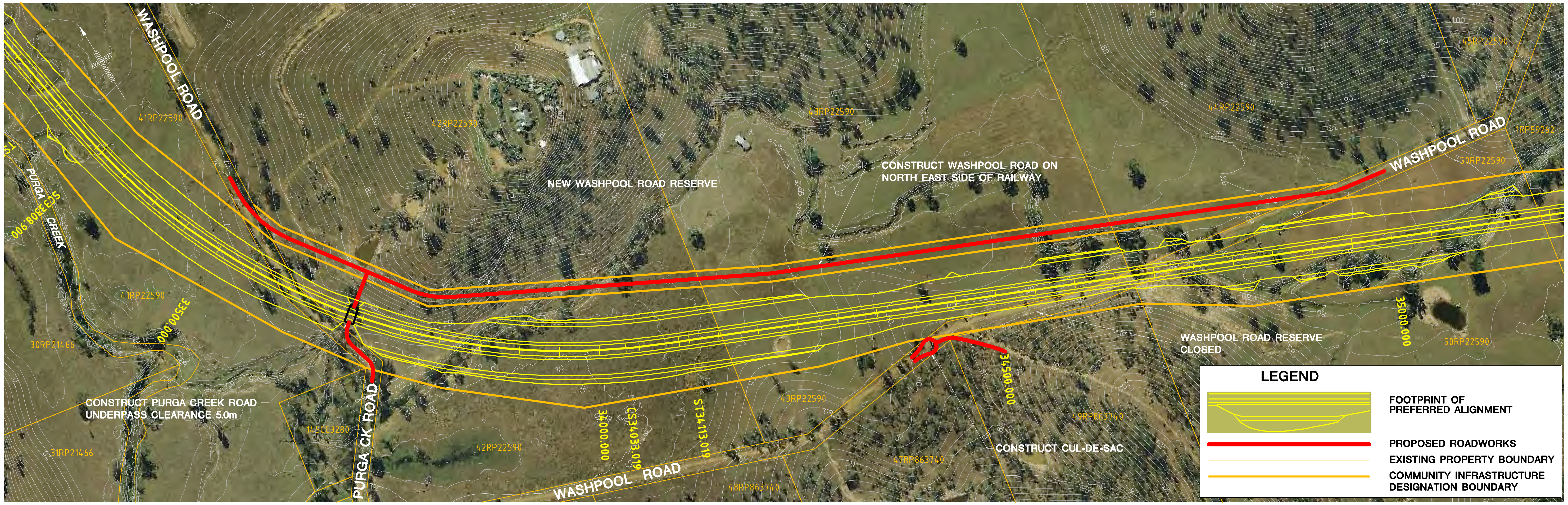

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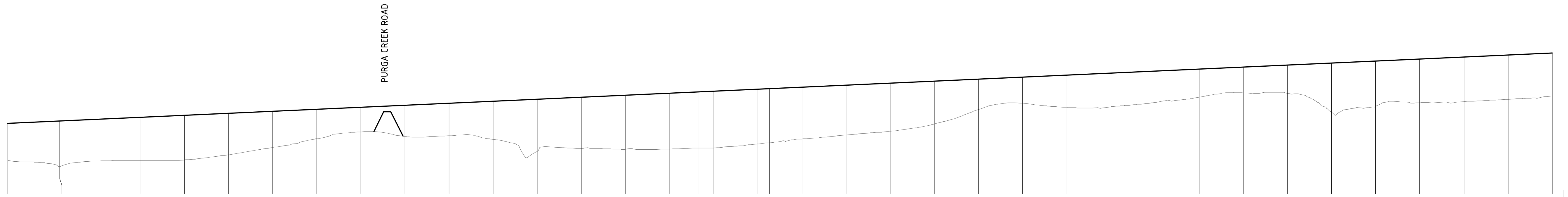


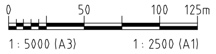
VERTICAL DETAILS: 0.911% / 1 IN 109.779

HORIZONTAL DETAILS: T=80.000 | R=-800.000 | T=80.000 | L=1163.898

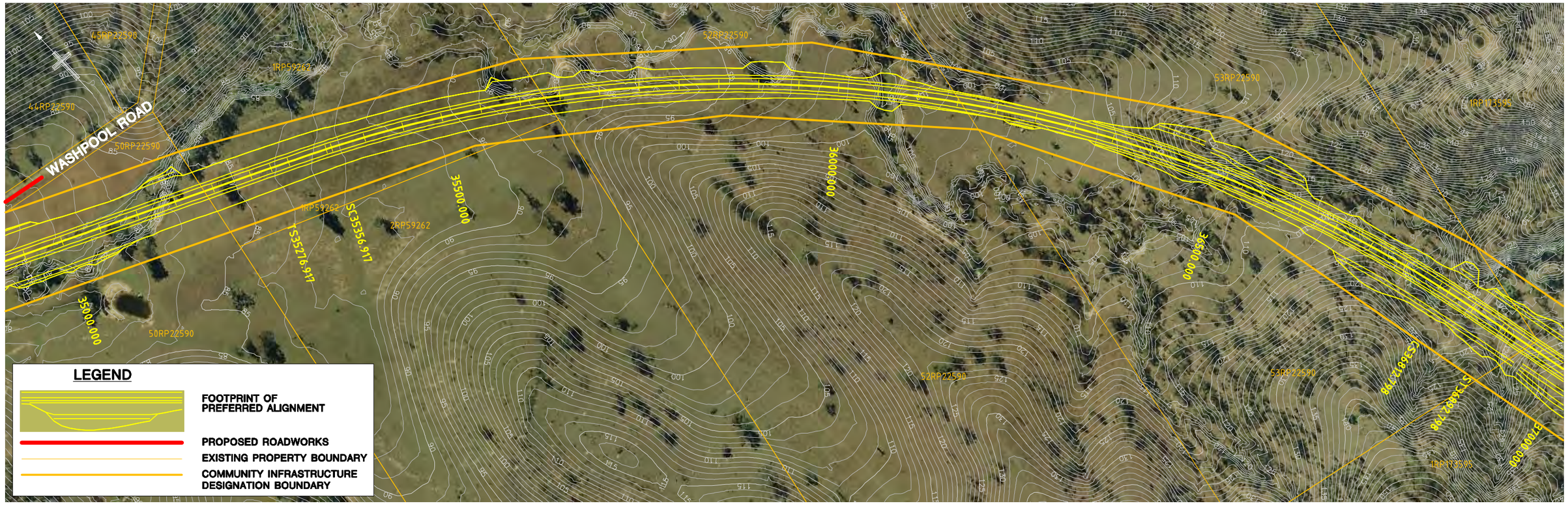
CHAINAGES	33250.000	33300.000	33308.901	33350.000	33400.000	33450.000	33500.000	33550.000	33600.000	33650.000	33700.000	33750.000	33800.000
DESIGN LEVELS	76.051	76.506	76.587	76.962	77.417	77.872	78.328	78.783	79.239	79.694	80.150	80.605	81.061
EXISTING LEVELS	67.651	66.885	66.196	67.514	67.684	67.775	68.931	70.574	72.554	74.084	73.073	73.239	72.406
LEVEL DIFFERENCE	-8.400	-9.621	-10.391	-9.447	-9.733	-10.098	-9.397	-8.209	-6.685	-5.610	-7.077	-7.367	-8.655

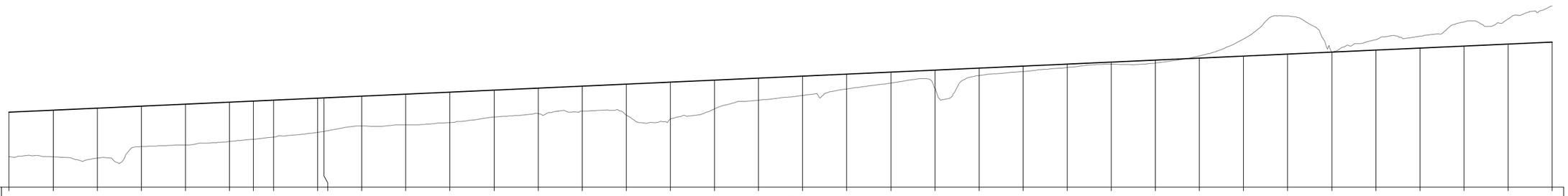
CHAINAGES	33850.000	33900.000	33950.000	34000.000	34033.020	34050.000	34100.000	34113.020	34150.000	34200.000	34250.000	34300.000	34350.000
DESIGN LEVELS	81.516	81.972	82.427	82.883	83.183	83.338	83.793	83.912	84.249	84.704	85.160	85.615	86.071
EXISTING LEVELS	69.716	70.406	70.165	70.239	70.448	70.486	71.366	71.664	72.524	73.422	74.241	75.909	79.178
LEVEL DIFFERENCE	-11.800	-11.565	-12.262	-12.643	-12.735	-12.852	-12.428	-12.248	-11.725	-11.282	-10.918	-9.706	-6.893

CHAINAGES	34400.000	34450.000	34500.000	34550.000	34600.000	34650.000	34700.000	34750.000	34800.000	34850.000	34900.000	34950.000	35000.000
DESIGN LEVELS	86.526	86.982	87.437	87.893	88.348	88.804	89.259	89.714	90.170	90.625	91.081	91.536	91.992
EXISTING LEVELS	80.584	79.648	79.799	80.766	81.975	82.930	82.852	78.557	79.842	80.718	80.965	81.469	81.942
LEVEL DIFFERENCE	-5.943	-7.334	-7.638	-7.127	-6.374	-5.874	-6.407	-11.158	-10.328	-9.907	-10.116	-10.068	-10.050



SOUTHERN FREIGHT RAIL CORRIDOR STUDY
PLAN AND LONGITUDINAL SECTION
COMMUNITY INFRASTRUCTURE DESIGNATION PLANS - SHEET 20
60028616-CID020-C





VERTICAL DETAILS	0.911% 1 IN 109.779		
HORIZONTAL DETAILS	L=1163.898	T=80.000	R=1650.000

DESIGN LEVELS	91.992	92.447	92.903	93.358	93.814	94.269	94.514	94.725	95.180 95.243
EXISTING LEVELS	81.942	81.852	81.598	84.205	84.590	85.365	85.865	86.376	87.438 87.646
LEVEL DIFFERENCE	-10.050	-10.595	-11.305	-9.153	-9.224	-8.904	-8.650	-8.348	-7.742 -7.597
CHAINAGES	35000.000	35050.000	35100.000	35150.000	35200.000	35250.000	35276.918	35300.000	35350.000 35356.918

DESIGN LEVELS	95.635	96.091	96.546	97.002	97.457	97.913	98.368	98.824	99.279	99.735
EXISTING LEVELS	88.857	89.109	89.642	90.879	91.694	92.220	91.351	90.454	92.793	94.731
LEVEL DIFFERENCE	-6.778	-6.982	-6.905	-6.123	-5.763	-5.693	-7.017	-8.369	-6.487	-5.004
CHAINAGES	35400.000	35450.000	35500.000	35550.000	35600.000	35650.000	35700.000	35750.000	35800.000	35850.000

DESIGN LEVELS	100.190	100.646	101.101	101.556	102.012	102.467	102.923	103.378	103.834
EXISTING LEVELS	95.818	97.258	98.640	97.388	100.339	101.273	102.163	102.909	103.168
LEVEL DIFFERENCE	-4.372	-3.388	-2.461	-4.169	-1.673	-1.194	-0.760	-0.469	-0.666
CHAINAGES	35900.000	35950.000	36000.000	36050.000	36100.000	36150.000	36200.000	36250.000	36300.000

DESIGN LEVELS	104.289	104.745	105.200	105.656	106.111	106.567	107.022	107.477	107.933
EXISTING LEVELS	104.797	108.625	113.848	105.672	108.472	109.255	112.513	113.189	116.102
LEVEL DIFFERENCE	0.508	3.880	8.647	0.017	2.361	2.688	5.491	5.711	8.170
CHAINAGES	36350.000	36400.000	36450.000	36500.000	36550.000	36600.000	36650.000	36700.000	36750.000

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0 50 100 125m
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SOUTHERN FREIGHT RAIL CORRIDOR STUDY
PLAN AND LONGITUDINAL SECTION
COMMUNITY INFRASTRUCTURE DESIGNATION PLANS - SHEET 21
60028616-CID021-C

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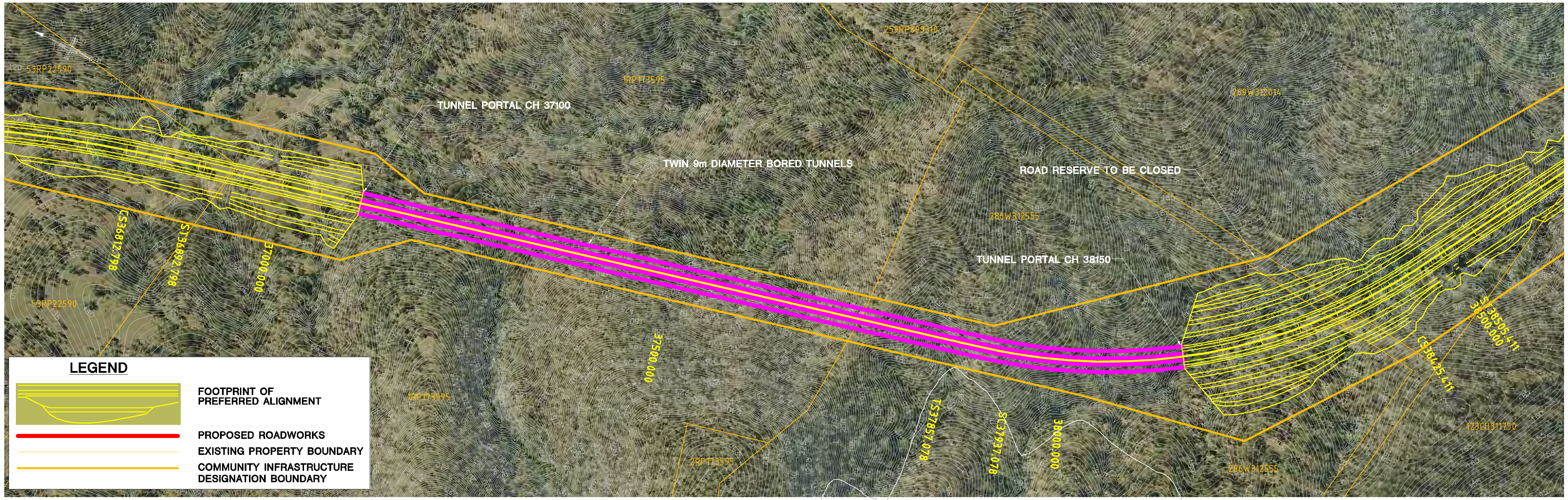
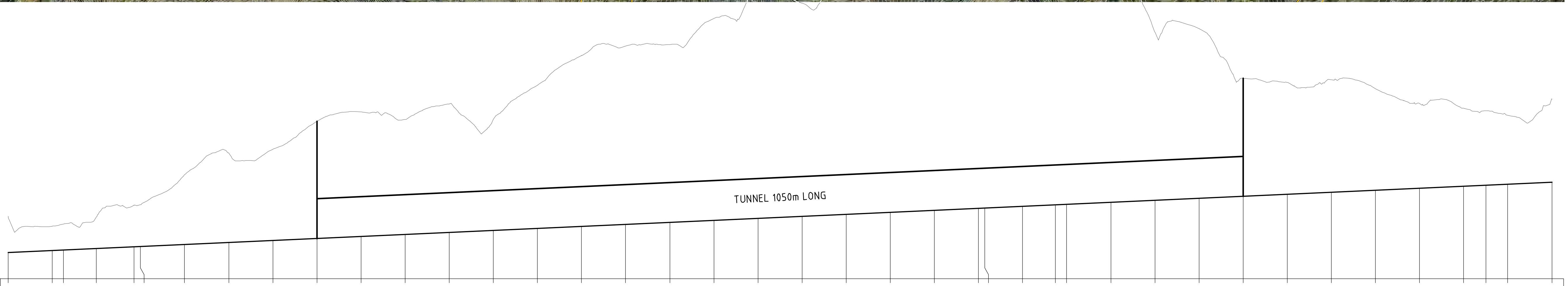
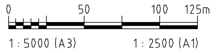




VERTICAL DETAILS													
HORIZONTAL DETAILS	R=1650.000		T=80.000										L=964.280
DESIGN LEVELS	107.933	108.388 108.505	108.844	109.234 109.299	109.755	110.210	110.666	111.121	111.577	112.032	112.488	112.943	113.398
EXISTING LEVELS	116.102	113.936 114.419	115.973	118.676 118.795	125.583	130.459	131.325	137.674	139.809	138.124	141.626	138.084	145.858
LEVEL DIFFERENCE	8.170	5.548 5.914	7.130	9.443 9.496	15.828	20.249	20.659	26.552	28.232	26.092	29.138	25.141	32.460
CHAINAGES	36750.000	36800.000 36812.799	36850.000	36892.799 36900.000	36950.000	37000.000	37050.000	37100.000	37150.000	37200.000	37250.000	37300.000	37350.000

VERTICAL DETAILS					0.911% 1 IN 109.779							
HORIZONTAL DETAILS											T=80.000	
DESIGN LEVELS	113.854	114.309	114.765	115.220	115.676	116.131	116.587	117.042	117.498	117.953 118.018	118.409	118.746 118.864
EXISTING LEVELS	152.554	154.701	155.087	160.942	168.728	164.425	179.151	196.865	189.118	176.143 177.146	183.337	180.345 178.010
LEVEL DIFFERENCE	38.700	40.391	40.322	45.722	53.052	48.294	62.564	79.823	71.620	58.190 59.129	64.929	61.599 59.146
CHAINAGES	37400.000	37450.000	37500.000	37550.000	37600.000	37650.000	37700.000	37750.000	37800.000	37850.000 37857.079	37900.000	37937.079 37950.000

VERTICAL DETAILS												
HORIZONTAL DETAILS					R=-700.000						T=80.000	
DESIGN LEVELS	119.319	119.775	120.230	120.686	121.141	121.597	122.052	122.508	122.963	123.195	123.419	123.874
EXISTING LEVELS	171.592	157.826	158.716	147.393	146.485	147.095	145.060	141.735	140.613	140.032	139.026	142.709
LEVEL DIFFERENCE	52.272	38.051	38.486	26.707	25.343	25.498	23.008	19.227	17.650	16.837	15.607	18.835
CHAINAGES	38000.000	38050.000	38100.000	38150.000	38200.000	38250.000	38300.000	38350.000	38400.000	38425.412	38450.000	38500.000



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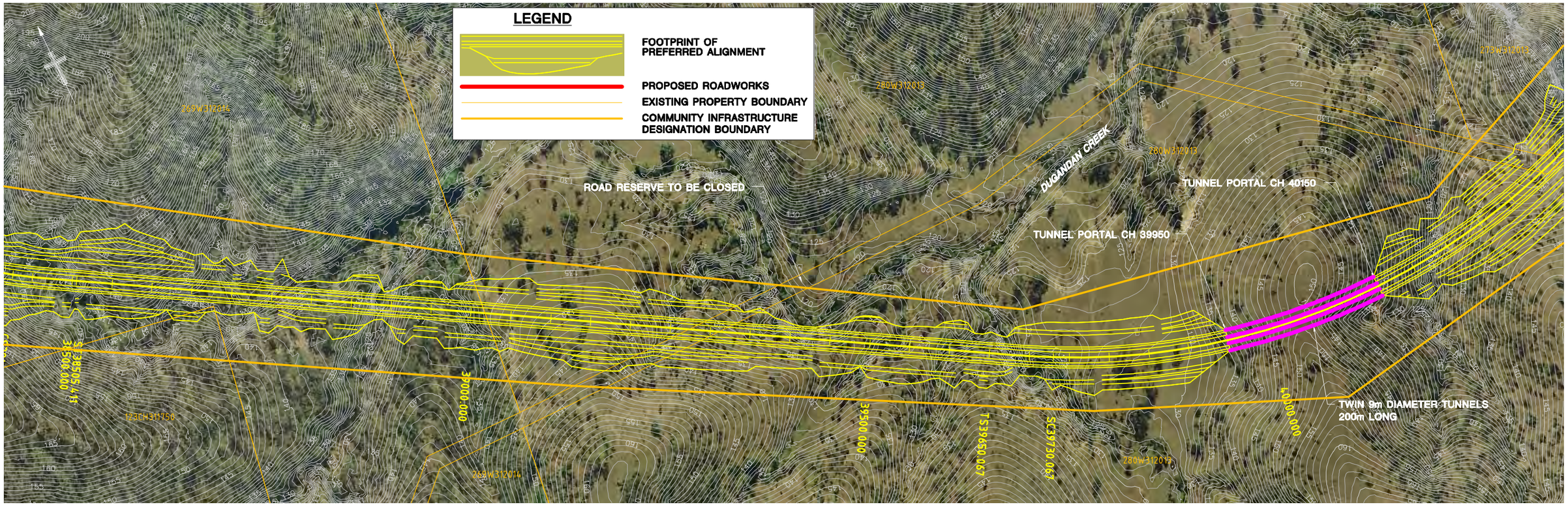
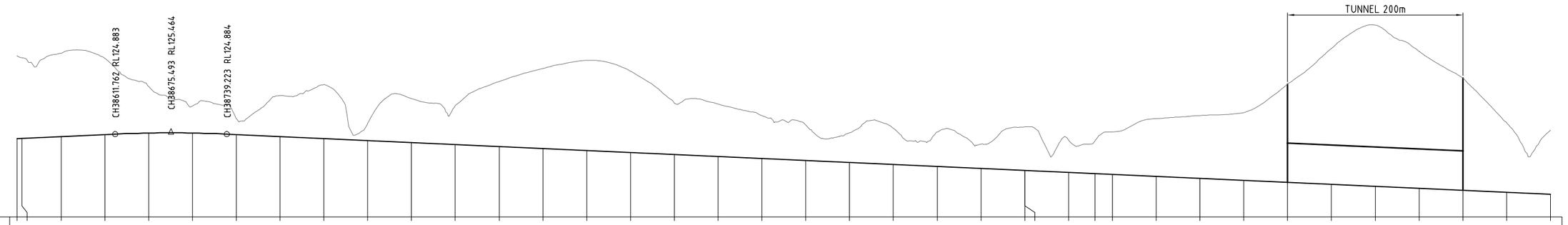
SOUTHERN FREIGHT RAIL CORRIDOR STUDY
PLAN AND LONGITUDINAL SECTION
COMMUNITY INFRASTRUCTURE DESIGNATION PLANS - SHEET 22

60028616-CID022-C

AECOM





VERTICAL DETAILS	0.911% 1 IN 109.779		R=7000.000			-0.910% 1 IN -109.896						
HORIZONTAL DETAILS	T=80.000	L=1144.656										
DESIGN LEVELS	123.865 123.914	124.321	124.776	125.127	125.131	124.786	124.331	123.876	123.421	122.966	122.511	122.056
EXISTING LEVELS	142.709 142.330	143.354	142.165	135.748	131.333	128.389	133.676	136.166	127.281	132.985	131.381	136.885
LEVEL DIFFERENCE	18.843 18.416	19.033	17.389	10.621	6.203	3.603	9.346	12.291	3.860	10.019	8.870	14.829
CHAINAGES	38500.000 38505.411	38550.000	38600.000	38650.000	38700.000	38750.000	38800.000	38850.000	38900.000	38950.000	39000.000	39050.000

VERTICAL DETAILS												
HORIZONTAL DETAILS												T=80.000
DESIGN LEVELS	121.601	121.146	120.691	120.236	119.781	119.326	118.871	118.416	117.961	117.506	117.051	116.596 116.596
EXISTING LEVELS	139.864	141.692	139.232	131.954	131.746	129.116	126.982	125.171	126.212	125.344	122.585	126.530 126.531
LEVEL DIFFERENCE	18.263	20.546	18.542	11.718	11.965	9.790	8.111	6.755	8.251	7.837	5.533	9.934 9.935
CHAINAGES	39100.000	39150.000	39200.000	39250.000	39300.000	39350.000	39400.000	39450.000	39500.000	39550.000	39600.000	39650.000 39650.067

VERTICAL DETAILS													
HORIZONTAL DETAILS			R=-850.000										
DESIGN LEVELS	116.141	115.868	115.686	115.231	114.776	114.321	113.866	113.411	112.956	112.501	112.046	111.591	111.136
EXISTING LEVELS	123.545	123.354	125.399	128.429	129.132	129.813	136.264	144.435	149.731	143.763	137.708	127.475	125.757
LEVEL DIFFERENCE	7.404	7.486	9.713	13.198	14.356	15.492	22.398	31.024	36.774	31.261	25.661	15.884	14.621
CHAINAGES	39700.000	39730.067	39750.000	39800.000	39850.000	39900.000	39950.000	40000.000	40050.000	40100.000	40150.000	40200.000	40250.000

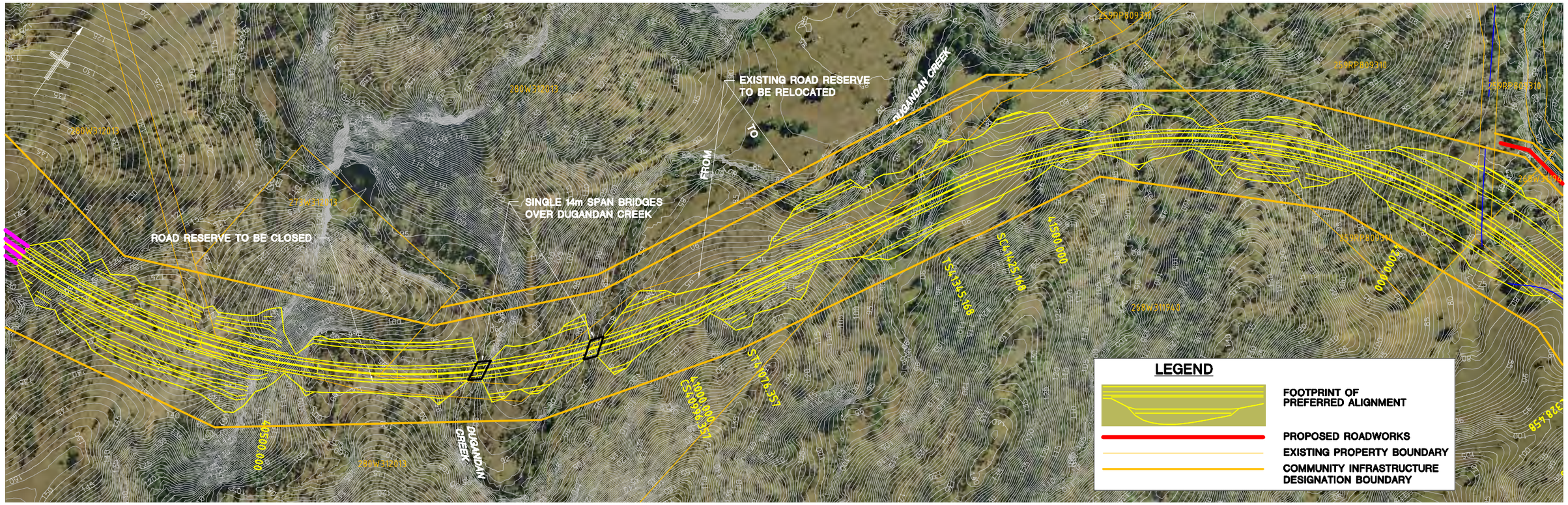
Cad ref: J:\MMPL\60026338\Cad\SFRC_60028616\CID_Plans\60028616-CID023.DWG

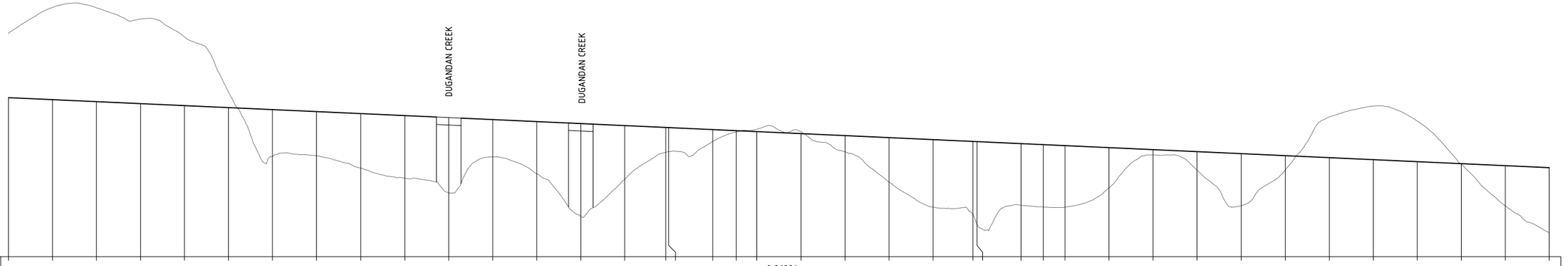
Last modified: 18 Mar 10 - 09:32

0 50 100 125m
1 : 5000 (A3) 1 : 2500 (A1)

SOUTHERN FREIGHT RAIL CORRIDOR STUDY
PLAN AND LONGITUDINAL SECTION
COMMUNITY INFRASTRUCTURE DESIGNATION PLANS - SHEET 23
60028616-CID023-C

AECOM





VERTICAL DETAILS: -0.910% / 1 IN -109.896

HORIZONTAL DETAILS: R=-850.000 | T=80.000 | L=268.811 | T=80.000 | R=700.000

DESIGN LEVELS	111.128	110.673	110.218	109.763	109.308	108.853	108.398	107.943	107.488	107.033
EXISTING LEVELS	125.757	131.625	131.533	128.967	124.954	112.354	97.734	97.911	95.073	92.785
LEVEL DIFFERENCE	14.629	20.952	21.316	19.205	15.646	3.501	-10.664	-10.031	-12.415	-14.247
CHAINAGES	40250.000	40300.000	40350.000	40400.000	40450.000	40500.000	40550.000	40600.000	40650.000	40700.000

DESIGN LEVELS	106.578	106.123	105.668	105.213	104.758	104.336	104.303	103.848	103.608	103.393
EXISTING LEVELS	89.466	97.668	93.754	84.093	92.590	98.695	98.851	101.188	103.305	103.958
LEVEL DIFFERENCE	-17.111	-8.454	-11.914	-21.120	-12.168	-5.641	-5.452	-2.660	-0.303	0.565
CHAINAGES	40750.000	40800.000	40850.000	40900.000	40950.000	40996.358	41000.000	41050.000	41076.358	41100.000

DESIGN LEVELS	102.938	102.483	102.028	101.573	101.162	101.118	100.663	100.434	100.208	99.753
EXISTING LEVELS	103.367	98.797	91.921	86.216	84.643	82.279	86.681	86.261	86.199	90.570
LEVEL DIFFERENCE	0.430	-3.686	-10.107	-15.357	-16.519	-18.839	-13.982	-14.173	-14.009	-9.183
CHAINAGES	41150.000	41200.000	41250.000	41300.000	41345.169	41350.000	41400.000	41425.169	41450.000	41500.000

DESIGN LEVELS	99.298	98.843	98.388	97.933	97.478	97.023	96.568	96.113	95.658	95.203
EXISTING LEVELS	98.095	94.609	86.540	94.647	106.715	109.197	105.788	95.968	86.501	80.355
LEVEL DIFFERENCE	-1.203	-4.234	-11.849	-3.286	9.237	12.174	9.220	-0.145	-9.157	-14.848
CHAINAGES	41550.000	41600.000	41650.000	41700.000	41750.000	41800.000	41850.000	41900.000	41950.000	42000.000

Last modified: 18 Mar 10 - 09:33

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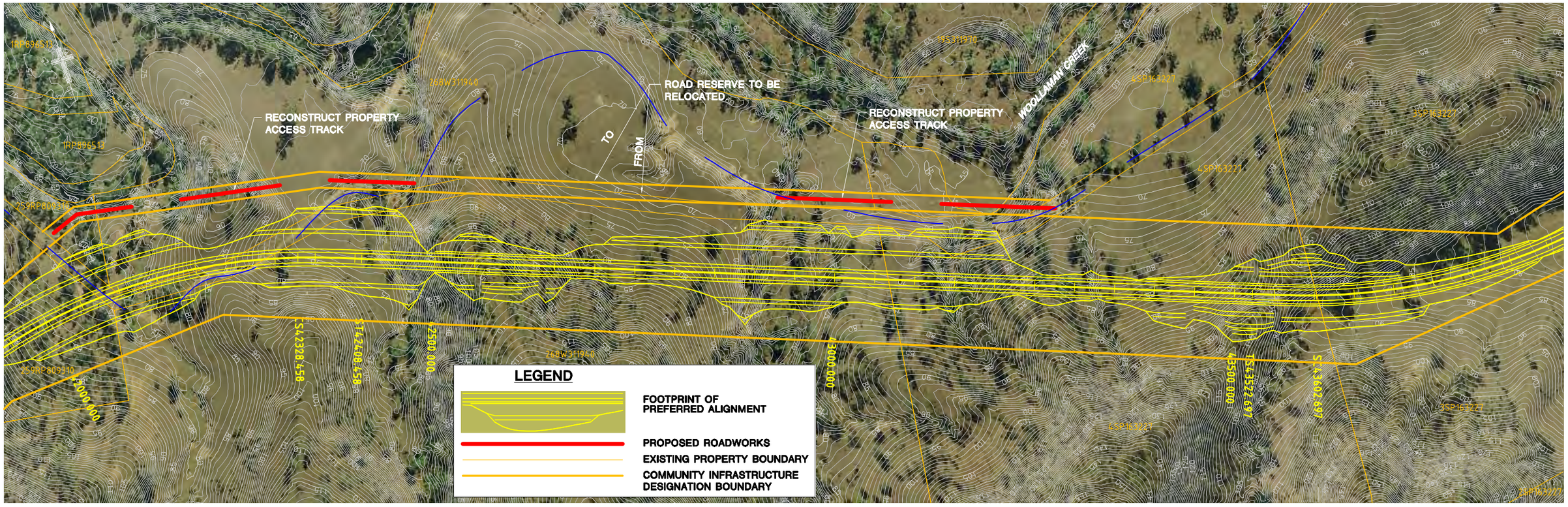
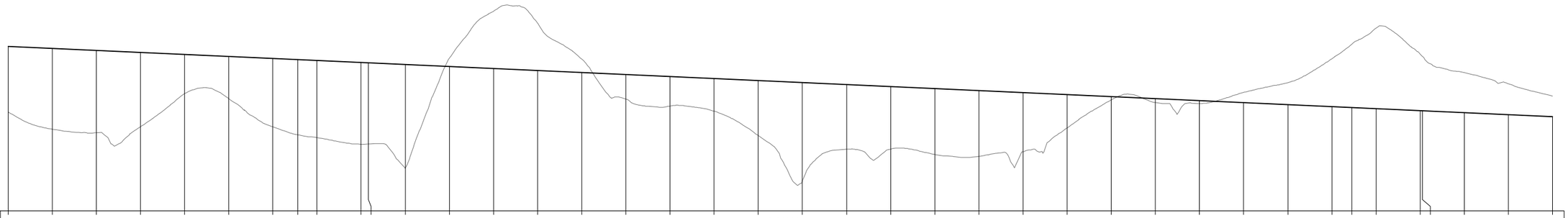
0 50 100 125m
1 : 5000 (A3) 1 : 2500 (A1)

SOUTHERN FREIGHT RAIL CORRIDOR STUDY
PLAN AND LONGITUDINAL SECTION
COMMUNITY INFRASTRUCTURE DESIGNATION PLANS - SHEET 24
60028616-CID024-C

AECOM





VERTICAL DETAILS: -0.910% / 1 IN -109.896

HORIZONTAL DETAILS: R=700.000 | T=80.000 | L=1114.239 | T=80.000 | R=-750.000

DESIGN LEVELS	95.203	94.748	94.293	93.838	93.383	92.928	92.473	92.214	92.018	91.563 91.487	91.109
EXISTING LEVELS	80.355	76.456	75.674	77.040	84.515	83.398	76.996	75.191	74.554	73.064 73.096	67.697
LEVEL DIFFERENCE	-14.848	-18.292	-18.620	-16.798	-8.868	-9.531	-15.478	-17.023	-17.464	-18.500 -18.391	-23.412
CHAINAGES	42000.000	42050.000	42100.000	42150.000	42200.000	42250.000	42300.000	42328.459	42350.000	42400.000 42408.459	42450.000

DESIGN LEVELS	90.654	90.199	89.744	89.289	88.834	88.379	87.924	87.469	87.014	86.559	86.104	85.649
EXISTING LEVELS	92.571	103.200	100.460	92.378	83.267	81.709	80.537	75.032	64.719	71.923	71.951	70.720
LEVEL DIFFERENCE	1.917	13.001	10.716	3.089	-5.567	-6.669	-7.387	-12.436	-22.295	-14.636	-14.153	-14.929
CHAINAGES	42500.000	42550.000	42600.000	42650.000	42700.000	42750.000	42800.000	42850.000	42900.000	42950.000	43000.000	43050.000

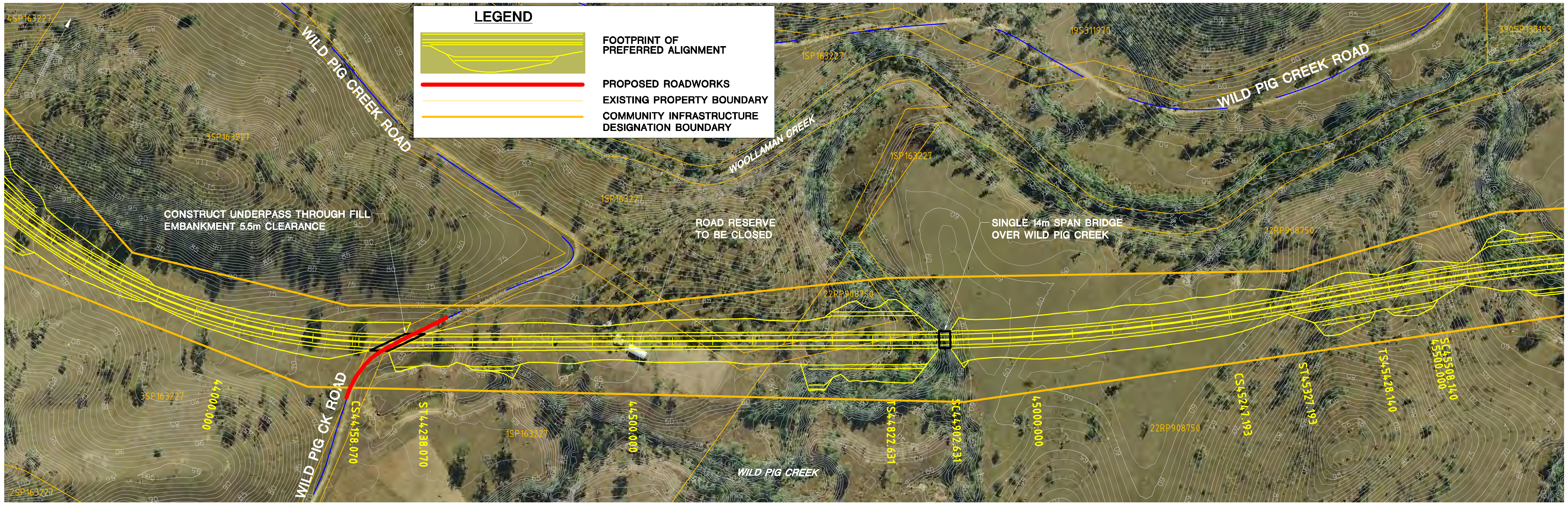
DESIGN LEVELS	85.194	84.739	84.284	83.829	83.374	82.919	82.464	82.009	81.554	81.347	81.099	80.644 80.619	80.189	79.734	79.279
EXISTING LEVELS	70.309	71.358	76.772	83.115	82.496	82.272	84.784	87.014	92.466	95.749	99.372	93.461 92.917	89.301	86.719	83.979
LEVEL DIFFERENCE	-14.885	-13.381	-7.511	-0.714	-0.878	-0.647	2.320	5.005	10.912	14.402	18.273	12.817 12.297	9.112	6.985	4.700
CHAINAGES	43100.000	43150.000	43200.000	43250.000	43300.000	43350.000	43400.000	43450.000	43500.000	43522.698	43550.000	43600.000 43602.698	43650.000	43700.000	43750.000

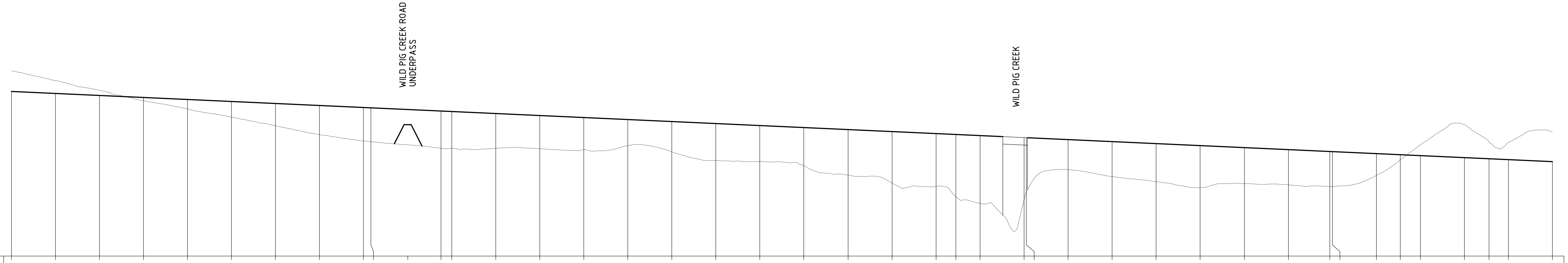
Last modified : 18 Mar 10 - 09:28

Cad ref: J:\MMPL\60026338\Cad\SFRC_60028616\CID_Plans\60028616-CID025.DWG

0 50 100 125m
1 : 5000 (A3) 1 : 2500 (A1)

SOUTHERN FREIGHT RAIL CORRIDOR STUDY
PLAN AND LONGITUDINAL SECTION
COMMUNITY INFRASTRUCTURE DESIGNATION PLANS - SHEET 25
60028616-CID025-C





VERTICAL DETAILS: -0.910% / 1 IN -109.896

HORIZONTAL DETAILS: R=-750.000 | T=80.000 | L=584.561 | T=80.000 | R=-2500.000 | T=80.000 | L=100.948 | T=80.000

CHAINAGES	DESIGN LEVELS	EXISTING LEVELS	LEVEL DIFFERENCE
43750.000	79.279	83.979	4.700
43800.000	78.824	81.781	2.957
43850.000	78.369	79.553	1.184
43900.000	77.914	77.222	-0.692
43950.000	77.459	75.332	-2.127
44000.000	77.004	73.499	-3.505
44050.000	76.549	71.529	-5.020
44100.000	76.094	69.523	-6.571
44150.000	75.639	68.077	-7.562
44158.071	75.566	67.900	-7.665
44200.000	75.184	67.210	-7.974
44238.071	74.838	66.415	-8.423
44250.000	74.729	66.407	-8.322
44300.000	74.274	66.426	-7.848
44350.000	73.819	66.316	-7.504
44400.000	73.364	66.101	-7.264
44450.000	72.909	67.023	-5.886
44500.000	72.454	65.573	-6.881
44550.000	71.999	63.613	-8.387
44600.000	71.545	63.392	-8.152
44650.000	71.090	62.497	-8.593
44700.000	70.635	60.302	-10.333
44750.000	70.180	58.575	-11.605
44800.000	69.725	57.781	-11.943
44822.632	69.519	55.429	-14.090
44850.000	69.270	53.930	-15.339
44900.000	68.815	54.686	-14.128
44902.632	68.791	56.482	-12.309
44950.000	68.360	61.580	-6.780
45000.000	67.905	59.994	-7.910
45050.000	67.450	58.810	-8.640
45100.000	66.995	57.492	-9.503
45150.000	66.540	58.422	-8.118
45200.000	66.085	58.102	-7.983
45247.194	65.655	57.755	-7.900
45250.000	65.630	57.733	-7.897
45300.000	65.175	60.225	-4.949
45327.194	64.927	63.849	-1.078
45350.000	64.720	67.179	2.459
45400.000	64.265	71.753	7.488
45428.141	64.009	67.869	3.861
45450.000	63.810	67.737	3.927
45500.000	63.355	70.127	6.772

Last modified: 18 Mar 10 - 09:37

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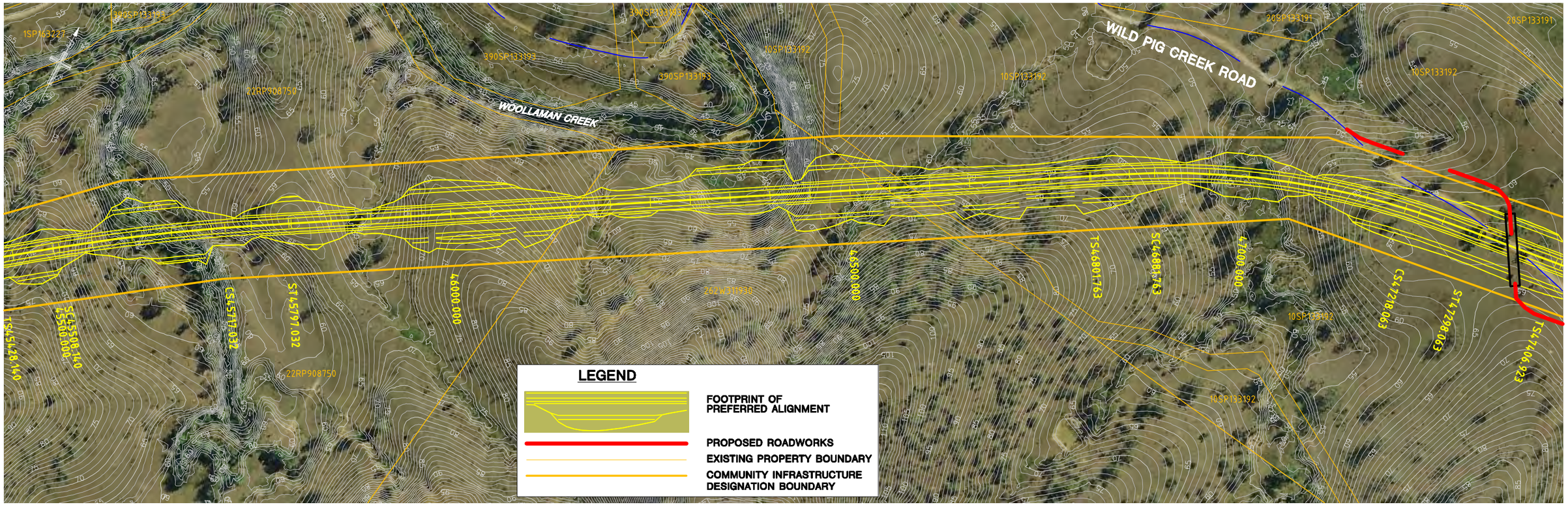
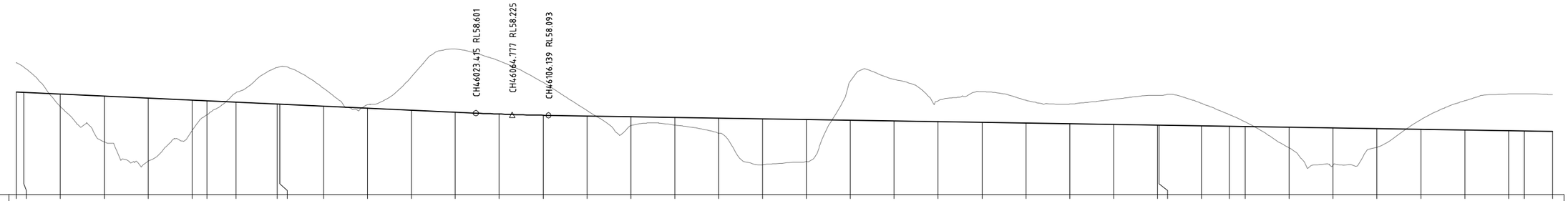
0 50 100 125m
1 : 5000 (A3) 1 : 2500 (A1)

SOUTHERN FREIGHT RAIL CORRIDOR STUDY
PLAN AND LONGITUDINAL SECTION
COMMUNITY INFRASTRUCTURE DESIGNATION PLANS - SHEET 26
60028616-CID026-C





VERTICAL DETAILS								-0.910% 1 IN -109.896						
HORIZONTAL DETAILS	T=80.000			R=2500.000				T=80.000						
DESIGN LEVELS	63.364	63.290	62.909	62.454	61.999	61.544	61.389	61.089	60.661	60.634	60.179	59.724	59.269	58.814
EXISTING LEVELS	70.127	69.119	60.106	52.050	47.688	54.618	58.223	63.245	69.032	69.163	64.233	60.499	66.854	73.191
LEVEL DIFFERENCE	6.763	5.829	-2.803	-10.404	-14.310	-6.926	-3.166	2.156	8.371	8.529	4.054	0.775	7.585	14.377
CHAINAGES	45500.000	45508.140	45550.000	45600.000	45650.000	45700.000	45717.032	45750.000	45797.032	45800.000	45850.000	45900.000	45950.000	46000.000

VERTICAL DETAILS	R=14000.000												-0.319% 1 IN -313.413	
HORIZONTAL DETAILS						L=1004.730								
DESIGN LEVELS	58.384	58.114	57.953	57.793	57.634	57.474	57.315	57.155	56.996	56.836	56.676	56.517	56.357	56.198
EXISTING LEVELS	70.500	65.604	59.200	55.754	55.869	54.030	46.843	47.536	65.875	66.299	61.373	63.477	61.516	60.661
LEVEL DIFFERENCE	12.116	7.490	1.247	-2.039	-1.764	-3.444	-10.471	-9.619	8.880	9.463	4.697	6.960	5.158	4.463
CHAINAGES	46050.000	46100.000	46150.000	46200.000	46250.000	46300.000	46350.000	46400.000	46450.000	46500.000	46550.000	46600.000	46650.000	46700.000

VERTICAL DETAILS														
HORIZONTAL DETAILS				T=80.000					R=1000.000					T=80.000
DESIGN LEVELS	56.038	55.879	55.873	55.719	55.618	55.560	55.400	55.241	55.081	54.922	54.762	54.603	54.545	54.443
EXISTING LEVELS	61.761	62.644	62.645	60.845	58.250	56.594	50.707	46.762	50.809	57.117	61.429	62.944	62.999	62.790
LEVEL DIFFERENCE	5.723	6.766	6.772	5.126	2.632	1.035	-4.693	-8.478	-4.272	2.195	6.667	8.342	8.454	8.347
CHAINAGES	46750.000	46800.000	46801.763	46850.000	46881.763	46900.000	46950.000	47000.000	47050.000	47100.000	47150.000	47200.000	47218.063	47250.000

Last modified: 18 Mar 10 - 09:36

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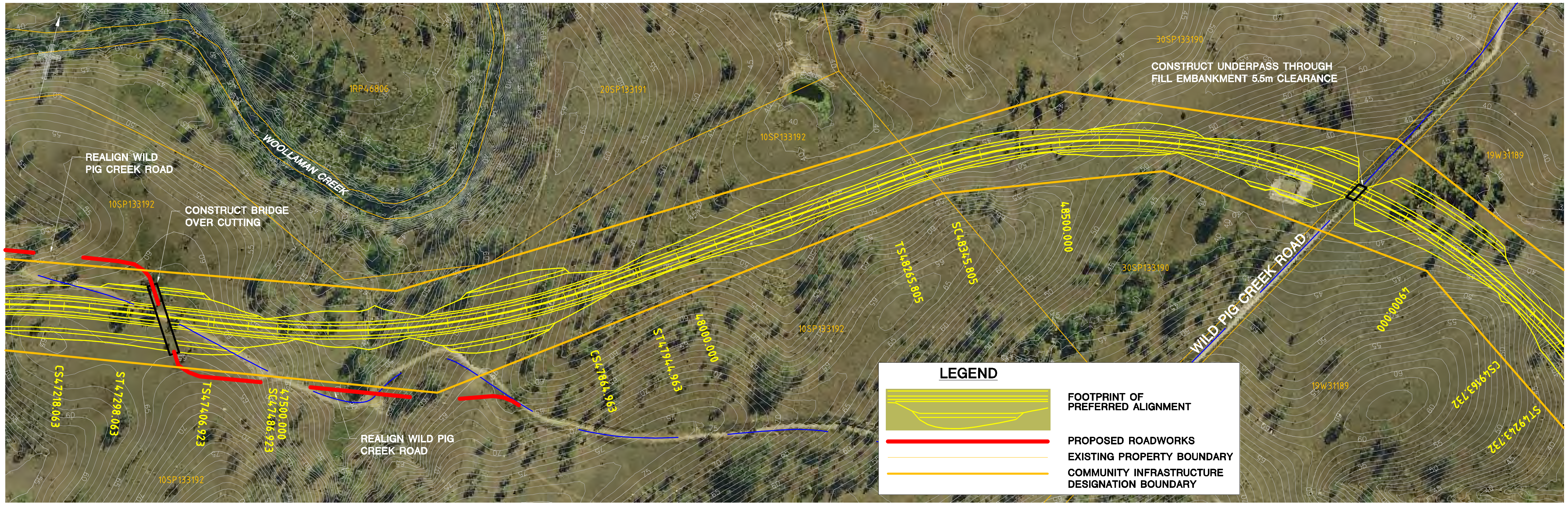
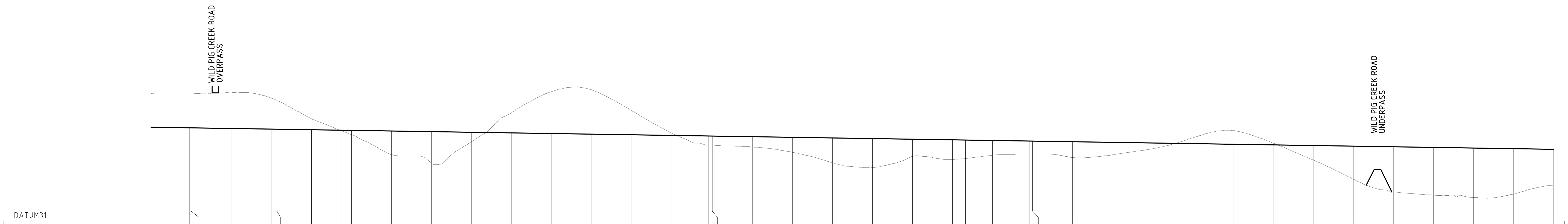
0 50 100 125m
1 : 5000 (A3) 1 : 2500 (A1)

SOUTHERN FREIGHT RAIL CORRIDOR STUDY
PLAN AND LONGITUDINAL SECTION
COMMUNITY INFRASTRUCTURE DESIGNATION PLANS - SHEET 27
60028616-CID027-C

AECOM





VERTICAL DETAILS: -0.319% / 1 IN -313.413

HORIZONTAL DETAILS: T=80.000 | L=108.860 | T=80.000 | R=-1000.000 | T=80.000 | L=320.842 | T=80.000 | R=750.000

CHAINAGES	47250.000	47298.064 47300.000	47350.000	47400.000 47406.924	47450.000	47486.924 47500.000	47550.000	47600.000	47650.000	47700.000	47750.000	47800.000
DESIGN LEVELS	54.440	54.286 54.280	54.121	53.961 53.939	53.802	53.684 53.642	53.483	53.323	53.164	53.004	52.845	52.685
EXISTING LEVELS	62.790	62.699 62.709	62.967	61.652 61.100	56.521	53.549 52.507	47.559	45.429	50.809	58.075	63.315	63.671
LEVEL DIFFERENCE	8.351	8.412 8.429	8.846	7.690 7.161	2.719	-0.135 -1.135	-5.924	-7.894	-2.354	5.071	10.470	10.986

CHAINAGES	47850.000 47864.964	47900.000	47944.964 47950.000	48000.000	48050.000	48100.000	48150.000	48200.000	48250.000 48265.806	48300.000	48345.806 48350.000	48400.000
DESIGN LEVELS	52.525 52.478	52.366	52.222 52.206	52.047	51.887	51.728	51.568	51.409	51.249 51.199	51.090	50.943 50.930	50.771
EXISTING LEVELS	58.489 56.717	52.857	49.998 49.960	49.477	48.171	45.545	44.355	47.103	46.378 46.589	47.417	47.673 47.680	46.845
LEVEL DIFFERENCE	5.964 4.240	0.491	-2.225 -2.247	-2.570	-3.717	-6.182	-7.213	-4.305	-4.871 -4.610	-3.673	-3.271 -3.250	-3.926

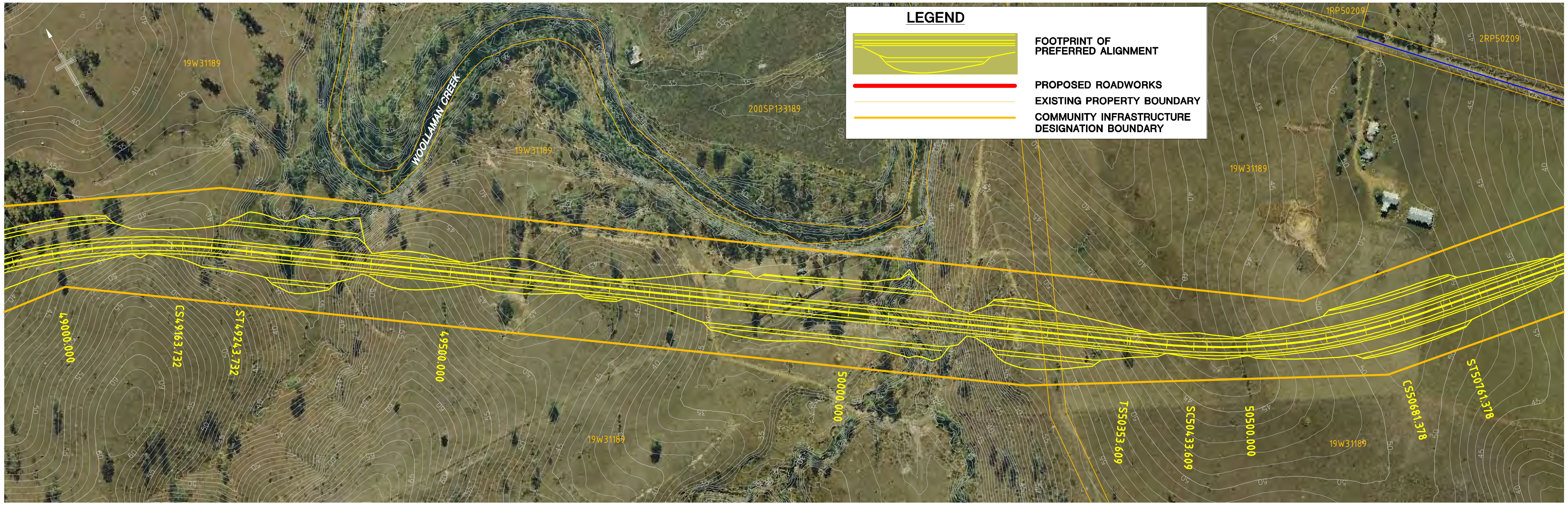
CHAINAGES	48450.000	48500.000	48550.000	48600.000	48650.000	48700.000	48750.000	48800.000	48850.000	48900.000	48950.000	49000.000
DESIGN LEVELS	50.611	50.451	50.292	50.132	49.973	49.813	49.654	49.494	49.335	49.175	49.016	48.856
EXISTING LEVELS	47.536	49.057	51.777	53.565	50.459	46.237	41.429	38.262	37.474	36.889	37.751	39.977
LEVEL DIFFERENCE	-3.075	-1.394	1.485	3.432	0.486	-3.577	-8.224	-11.233	-11.860	-12.286	-11.265	-8.879

Last modified: 18 Mar 10 - 09:37

Cad ref: J:\MMPL\60026338\Cad\SFRC_60028616\CID_Plans\60028616-CID028.DWG

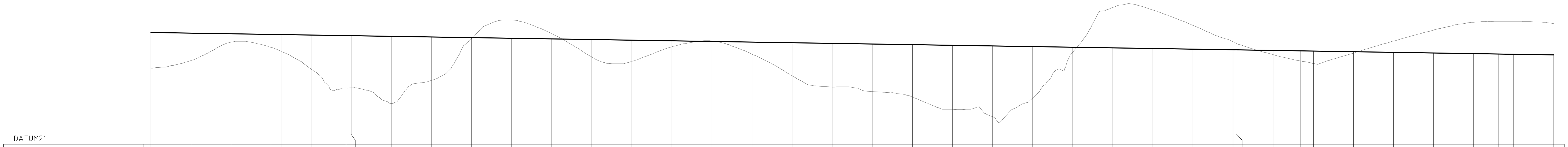
SOUTHERN FREIGHT RAIL CORRIDOR STUDY
PLAN AND LONGITUDINAL SECTION
COMMUNITY INFRASTRUCTURE DESIGNATION PLANS - SHEET 28
60028616-CID028-C

AECOM



LEGEND

- FOOTPRINT OF PREFERRED ALIGNMENT
- PROPOSED ROADWORKS
- EXISTING PROPERTY BOUNDARY
- COMMUNITY INFRASTRUCTURE DESIGNATION BOUNDARY



VERTICAL DETAILS	-0.319% 1 IN -313.413													
HORIZONTAL DETAILS	R=750.000				T=80.000		L=1109.877							
DESIGN LEVELS	48.856	48.697	48.537	48.378	48.334	48.218	48.078	48.058	47.899	47.739	47.580	47.420	47.261	47.101
EXISTING LEVELS	39.977	41.892	46.479	45.176	44.095	39.749	35.105	35.039	31.173	36.954	47.306	51.984	48.588	42.760
LEVEL DIFFERENCE	-8.879	-6.805	-2.058	-3.201	-4.239	-8.469	-12.974	-13.020	-16.726	-10.786	-0.274	4.564	1.327	-4.342
CHAINAGES	49000.000	49050.000	49100.000	49150.000	49163.733	49200.000	49243.733	49250.000	49300.000	49350.000	49400.000	49450.000	49500.000	49550.000

VERTICAL DETAILS														
HORIZONTAL DETAILS														
DESIGN LEVELS	46.942	46.782	46.623	46.463	46.304	46.144	45.985	45.825	45.665	45.506	45.346	45.187	45.027	44.868
EXISTING LEVELS	41.624	45.311	46.749	43.489	38.057	35.279	34.152	32.823	29.706	27.889	32.545	43.975	55.157	54.482
LEVEL DIFFERENCE	-5.317	-1.471	0.127	-2.974	-8.246	-10.865	-11.833	-13.002	-15.960	-17.617	-12.802	-1.212	10.129	9.615
CHAINAGES	49600.000	49650.000	49700.000	49750.000	49800.000	49850.000	49900.000	49950.000	50000.000	50050.000	50100.000	50150.000	50200.000	50250.000

VERTICAL DETAILS													
HORIZONTAL DETAILS			T=80.000		R=-750.000						T=80.000		
DESIGN LEVELS	44.708	44.549	44.537	44.389	44.282	44.230	44.070	43.911	43.751	43.592	43.491	43.432	43.272
EXISTING LEVELS	50.621	46.554	46.203	43.344	41.791	41.162	43.745	46.737	49.472	51.424	51.642	51.648	51.079
LEVEL DIFFERENCE	5.913	2.005	1.666	-1.045	-2.491	-3.068	-0.325	2.826	5.721	7.832	8.151	8.216	7.807
CHAINAGES	50300.000	50350.000	50353.610	50400.000	50433.610	50450.000	50500.000	50550.000	50600.000	50650.000	50681.379	50700.000	50750.000

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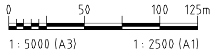
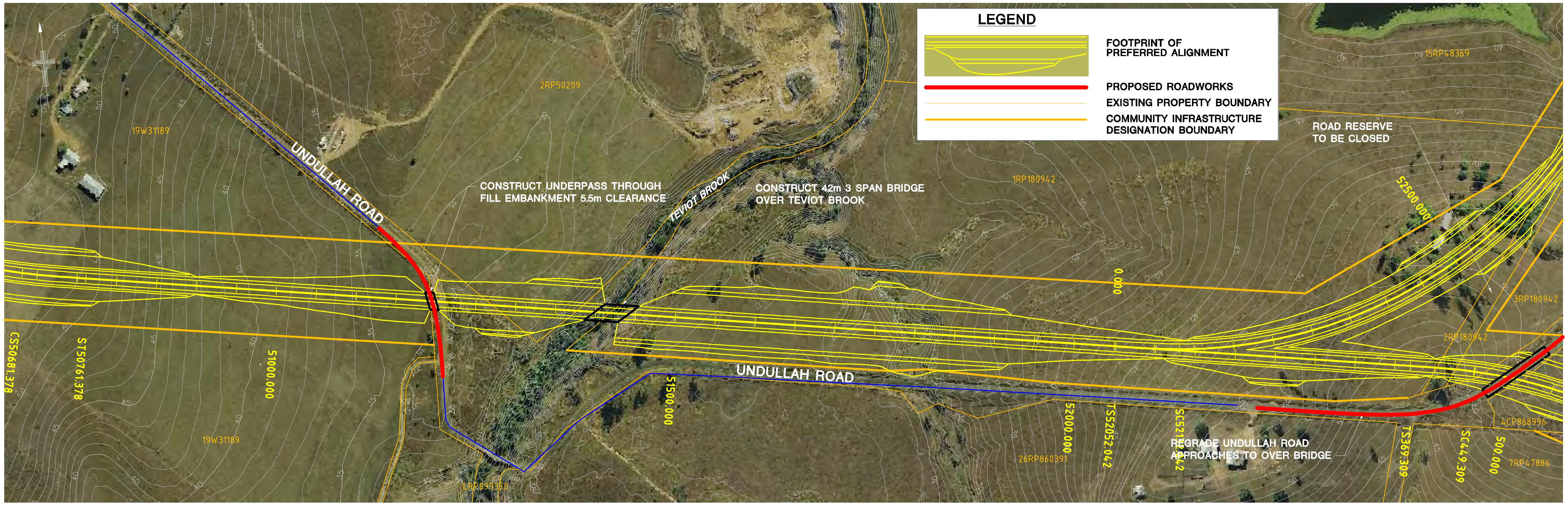
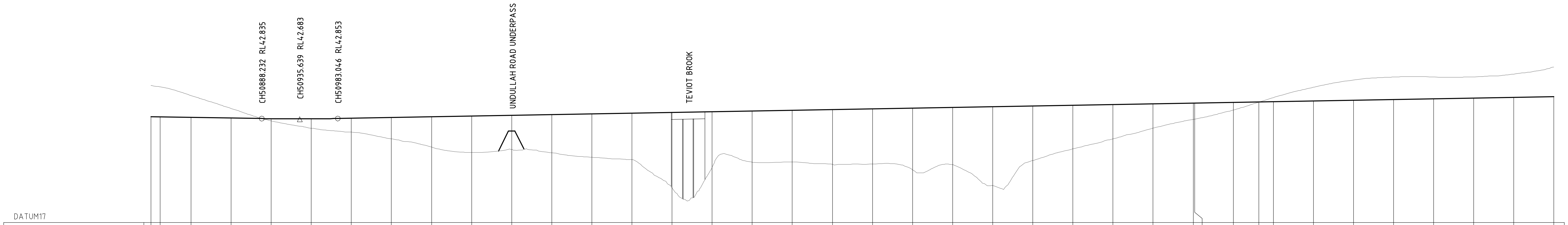


SOUTHERN FREIGHT RAIL CORRIDOR STUDY
PLAN AND LONGITUDINAL SECTION
COMMUNITY INFRASTRUCTURE DESIGNATION PLANS - SHEET 29

60028616-CID029-C





VERTICAL DETAILS: -0.319% 1 IN -313.413 | R=14000.000 | 0.358% 1 IN 279.195

HORIZONTAL DETAILS: L=80.000 | L=1290.663 | T=80.000 | R=-600.000

CHAINAGES	DESIGN LEVELS	EXISTING LEVELS	LEVEL DIFFERENCE
50750.000 50761.378	43.276 43.239	51.079 50.741	7.803 7.502
50800.000	43.116	48.562	5.446
50850.000	42.957	45.358	2.401
50900.000	42.802	42.249	-0.553
50950.000	42.774	40.435	-2.338
51000.000	42.914	39.442	-3.472
51050.000	43.093	37.774	-5.319
51100.000	43.272	35.747	-7.525
51150.000	43.451	34.388	-9.063
51200.000	43.630	35.132	-8.498
51250.000	43.809	34.315	-9.494
51300.000	43.988	33.200	-10.788
51350.000	44.167	32.602	-11.566
51400.000	44.346	25.566	-18.781
51450.000	44.526	30.743	-13.782
51500.000	44.705	31.973	-12.731
51550.000	44.884	32.024	-12.859
51600.000	45.063	31.420	-13.643
51650.000	45.242	31.521	-13.721
51700.000	45.421	30.067	-15.354
51750.000	45.600	31.393	-14.207
51800.000	45.779	26.146	-19.633
51850.000	45.958	32.382	-13.576
51900.000	46.137	35.298	-10.840
51950.000	46.316	37.786	-8.530
52000.000	46.496	40.456	-6.040
52050.000 52052.042	46.675 46.682	42.634 42.707	-4.041 -3.975
52100.000	46.854	44.972	-1.882
52132.042	46.968	46.919	-0.050
52150.000	47.033	48.056	1.023
52200.000	47.212	50.619	3.407
52250.000	47.391	52.402	5.012
52300.000	47.570	53.181	5.611
52350.000	47.749	53.167	5.418
52400.000	47.928	53.231	5.303
52450.000	48.107	53.914	5.807
52500.000	48.286	55.657	7.370

Last modified: 18 Mar 10 - 09:29

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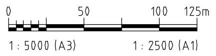
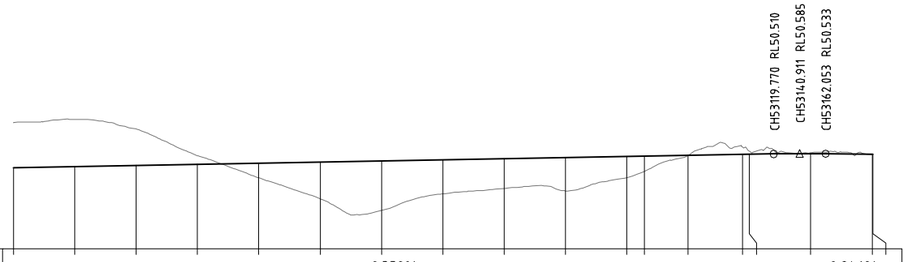


SOUTHERN FREIGHT RAIL CORRIDOR STUDY
PLAN AND LONGITUDINAL SECTION
COMMUNITY INFRASTRUCTURE DESIGNATION PLANS - SHEET 30

60028616-CID030-C

AECOM



DATUM35

VERTICAL DETAILS	0.358% 1 IN 279.195													-0.246% R=7000.000		1 IN 406.714	
HORIZONTAL DETAILS	R=-600.000											T=80.000		L=106.205			
DESIGN LEVELS	48.290	48.469	48.648	48.827	49.006	49.185	49.364	49.544	49.723	49.902	50.081	50.132	50.260	50.418	50.439	50.553	50.440	50.439
EXISTING LEVELS	55.657	56.150	54.581	50.218	46.619	43.190	41.278	44.009	44.877	44.463	46.649	47.671	50.290	51.628	50.955	50.672	50.453	50.438
LEVEL DIFFERENCE	7.367	7.681	5.933	1.391	-2.388	-5.995	-8.087	-5.535	-4.846	-5.438	-3.431	-2.460	0.030	1.210	0.516	0.119	0.013	-0.001
CHAINAGES	52500.000	52550.000	52600.000	52650.000	52700.000	52750.000	52800.000	52850.000	52900.000	52950.000	53000.000	53014.206	53050.000	53094.206	53100.000	53150.000	53200.000	53200.411

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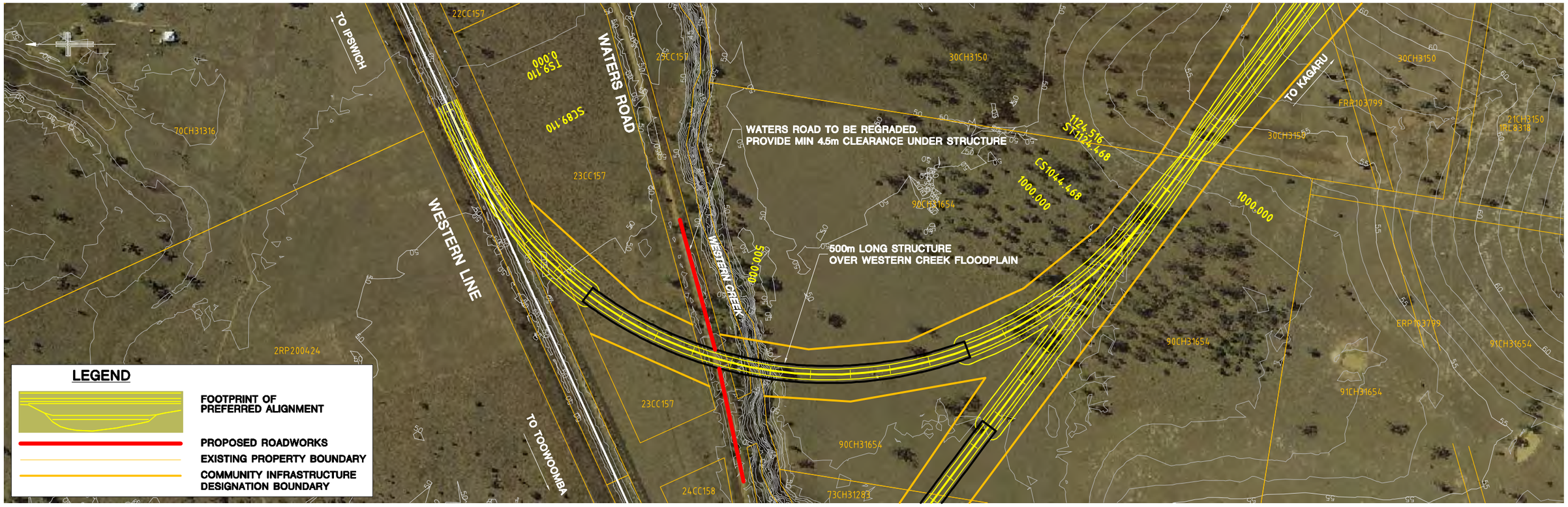
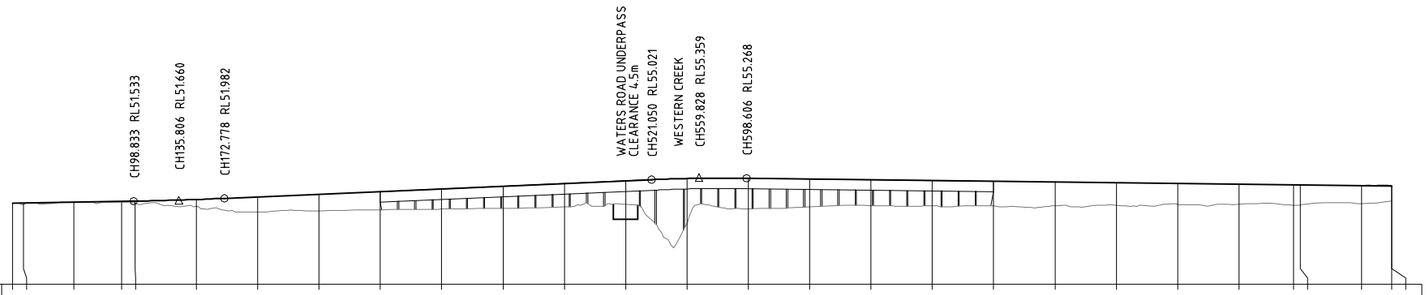
SOUTHERN FREIGHT RAIL CORRIDOR STUDY
PLAN AND LONGITUDINAL SECTION
COMMUNITY INFRASTRUCTURE DESIGNATION PLANS - SHEET 31
60028616-CID031-C





VERTICAL DETAILS: 0.344% 1 IN 290.496 · R=14000.000 · 0.872% 1 IN 114.624 · R=7000.000 · −0.236% 1 IN −424.583

HORIZONTAL DETAILS: L=9.110 T=80.000 · R=−500.000 · T=80.000 L=0.048

DESIGN LEVELS	51.192 51.224	51.365	51.499 51.537	51.802	52.220	52.656	53.092	53.529	53.965	54.401	54.837	55.214	55.265	55.147	55.029	54.911	54.793	54.676	54.558	54.440	54.322	54.218 54.205	54.087	54.029 54.029
EXISTING LEVELS	51.192 50.996	51.350	51.388 51.200	50.649	49.776	49.965	50.137	50.228	50.354	50.576	51.009	48.008	50.299	50.603	50.795	50.798	50.777	50.765	50.847	50.988	51.000	50.899 50.912	51.135	51.548 51.549
LEVEL DIFFERENCE	0.000 −0.228	−0.015	−0.111 −0.337	−1.153	−2.443	−2.691	−2.955	−3.301	−3.611	−3.825	−3.828	−7.205	−4.965	−4.544	−4.234	−4.113	−4.017	−3.911	−3.711	−3.452	−3.322	−3.318 −3.293	−2.952	−2.481 −2.480
CHAINAGES	0.000 9.110	50.000	89.110 100.000	150.000	200.000	250.000	300.000	350.000	400.000	450.000	500.000	550.000	600.000	650.000	700.000	750.000	800.000	850.000	900.000	950.000	1000.000	1044.468 1050.000	1100.000	1124.468 1124.516

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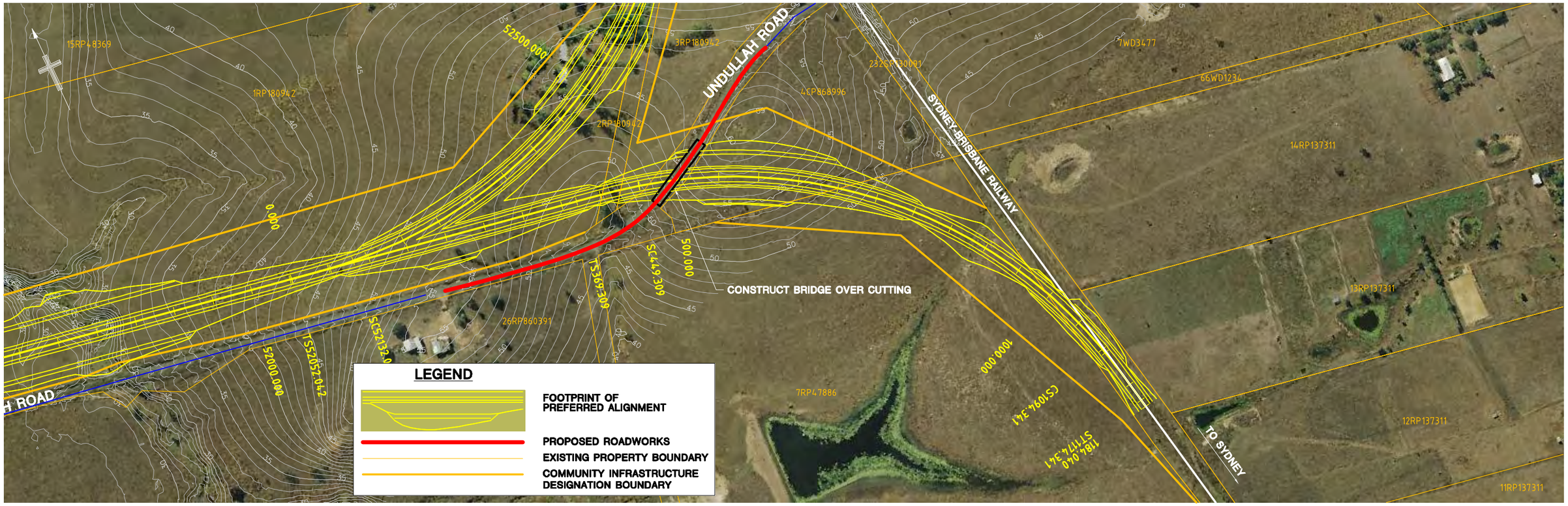
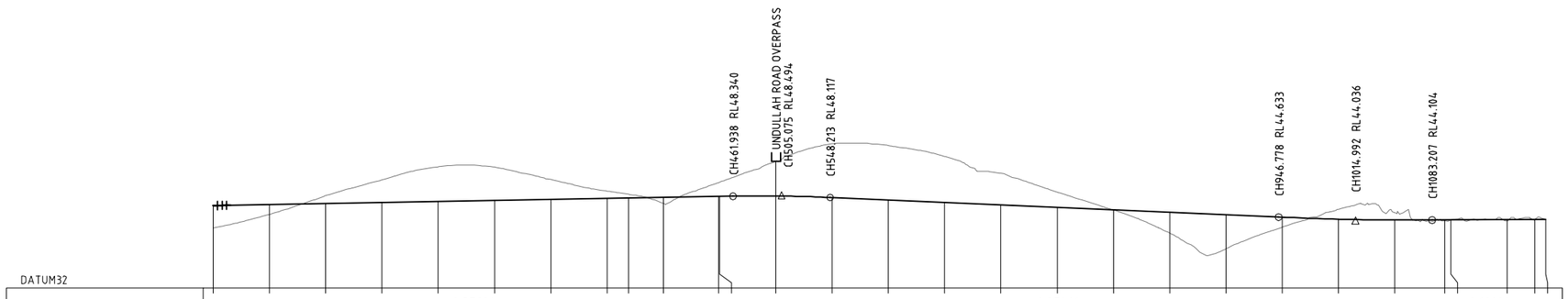
1 : 5000 (A3) 1 : 2500 (A1)

SOUTHERN FREIGHT RAIL CORRIDOR STUDY
PLAN AND LONGITUDINAL SECTION
COMMUNITY INFRASTRUCTURE DESIGNATION PLANS - SHEET 32
60028616-CID032-C





VERTICAL DETAILS: 0.358% 1 IN 279.195; R=7000.000; -0.874% 1 IN -114.373; R=14000.000; 0.100% 1 IN 998.452

HORIZONTAL DETAILS: L=369.309; T=80.000; R=600.000; T=80.000 L=9.699

DESIGN LEVELS	46.685	46.865	47.044	47.223	47.402	47.581	47.760	47.939	48.008	48.118
EXISTING LEVELS	42.707	45.106	48.422	51.239	53.575	53.494	51.301	49.241	48.681	47.068
LEVEL DIFFERENCE	-3.978	-1.759	1.378	4.016	6.173	5.913	3.542	1.302	0.672	-1.050
CHAINAGES	0.000	50.000	100.000	150.000	200.000	250.000	300.000	350.000	369.309	400.000

DESIGN LEVELS	48.295	48.297	48.373	48.102	47.665	47.227	46.790	46.353	45.916	45.479
EXISTING LEVELS	50.774	50.825	54.584	57.686	57.340	55.403	52.413	49.087	45.870	41.803
LEVEL DIFFERENCE	2.479	2.527	6.211	9.584	9.675	8.176	5.623	2.733	-0.046	-3.676
CHAINAGES	449.309	450.000	500.000	550.000	600.000	650.000	700.000	750.000	800.000	850.000

DESIGN LEVELS	45.042	44.605	44.268	44.111	44.116	44.121	44.171	44.196	44.205	
EXISTING LEVELS	39.004	42.839	46.026	45.417	43.965	44.164	43.996	44.182	44.205	44.215
LEVEL DIFFERENCE	-6.037	-1.766	1.758	1.306	-0.151	0.042	-0.175	-0.013	0.000	
CHAINAGES	900.000	950.000	1000.000	1050.000	1094.341	1100.000	1150.000	1174.341	1183.919	1184.040

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SOUTHERN FREIGHT RAIL CORRIDOR STUDY
PLAN AND LONGITUDINAL SECTION
COMMUNITY INFRASTRUCTURE DESIGNATION PLANS - SHEET 33

60028616-CID033-C

AECOM

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0 1km 2km 3km
N.T.S

SOUTHERN FREIGHT RAIL CORRIDOR STUDY
COMMUNITY INFRASTRUCTURE DESIGNATION PLANS
KEY PLAN
60028616-CID100-B

AECOM

ROSEWOOD
ROSEWOOD LAIDLEY ROAD
WESTERN NARROW GUAGE RAILWAY
WESTERN CREEK
MOONIE OIL PIPELINE
BREMER RIVER
EBENEZER
ROSEWOOD - ARATULA ROAD
MOUNT FORBES ROAD
BERGMANS ROAD
QUEENSLAND RACEWAY
CONTINUED BELOW
POWERLINK EASEMENT
CALVERT
0
269
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000
11000
12000
13000

LEGEND

- PREFERRED ALIGNMENT
- EXISTING PROPERTY BOUNDARY
- COMMUNITY INFRASTRUCTURE DESIGNATION BOUNDARY

WILLOWBANK
CUNNINGHAM HIGHWAY
CONTINUED ABOVE
POWERLINK EASEMENT
LUBES ROAD
MORGANS ROAD
PURGA CREEK
DUNRAD ROAD
MIDDLE ROAD
TEN MILE SWAMP
WARRILL CREEK
MT FLINDERS ROAD
IPSWICH-BOONAH ROAD
SANDY CREEK
CONTINUED ON DRG CID201
PEAK CROSSING
12000
13000
14000
15000
16000
17000
18000
19000
20000
21000
22000
23000
24000
25000
26000
27000
28000

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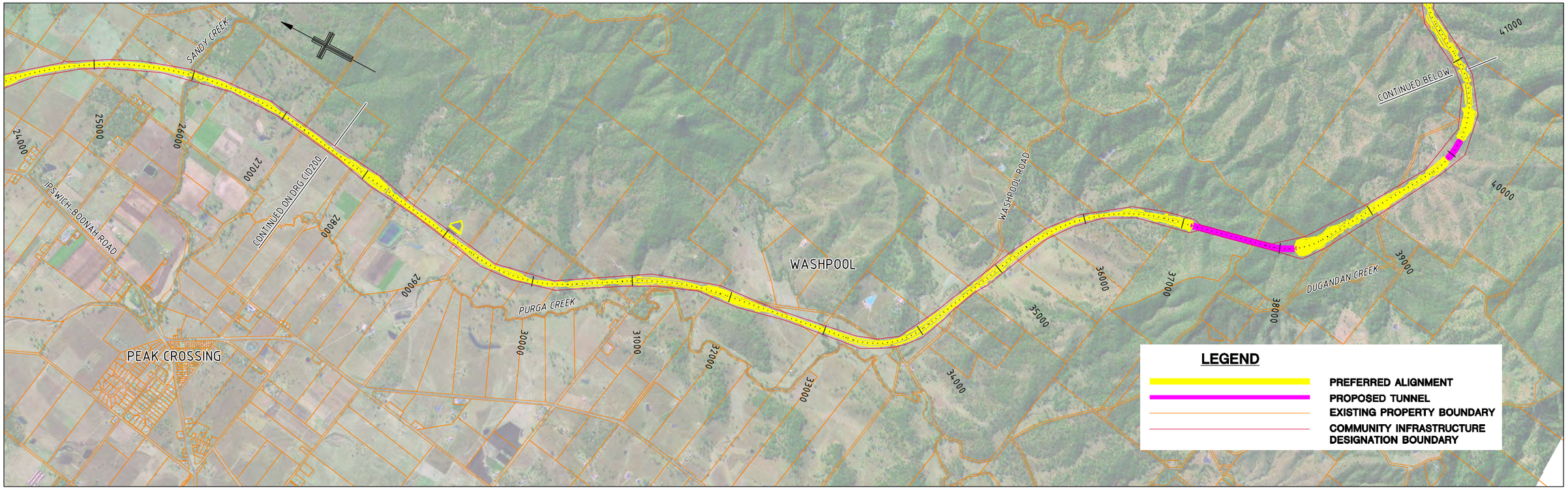
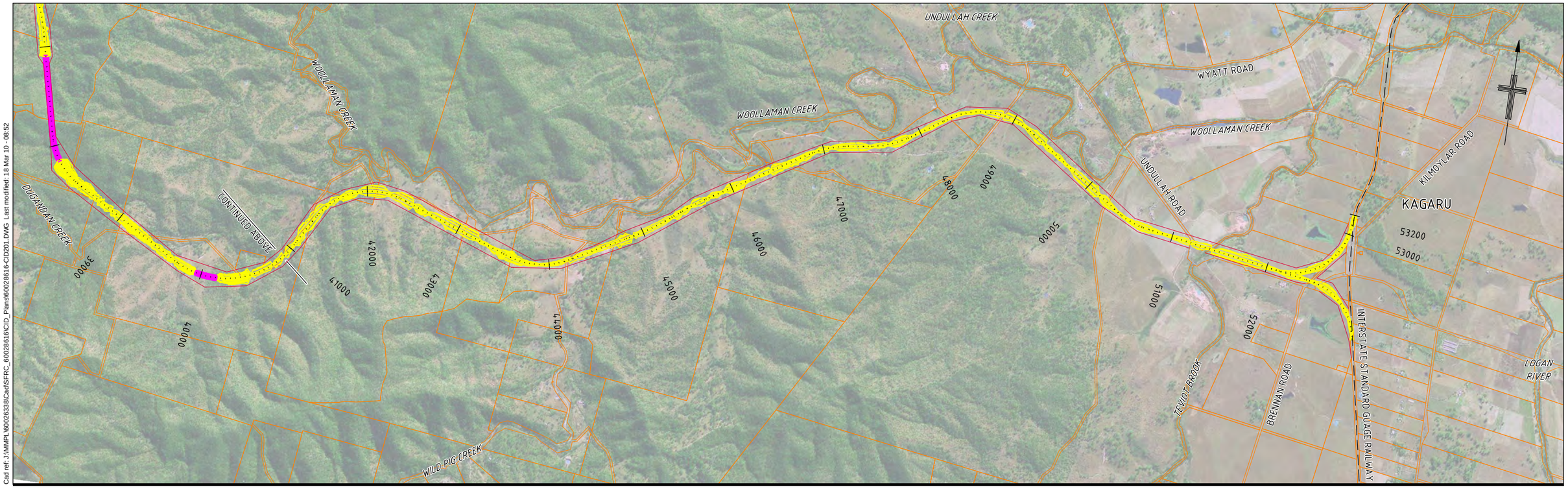
0 0.2 0.4 0.6 0.8 1km
1:40000 (A3) 1:20000 (A1)

SOUTHERN FREIGHT RAIL CORRIDOR STUDY
COMMUNITY INFRASTRUCTURE DESIGNATION PLANS
OVERALL LAYOUTS - SHEET 1 OF 2
60028616-CID200-B

AECOM





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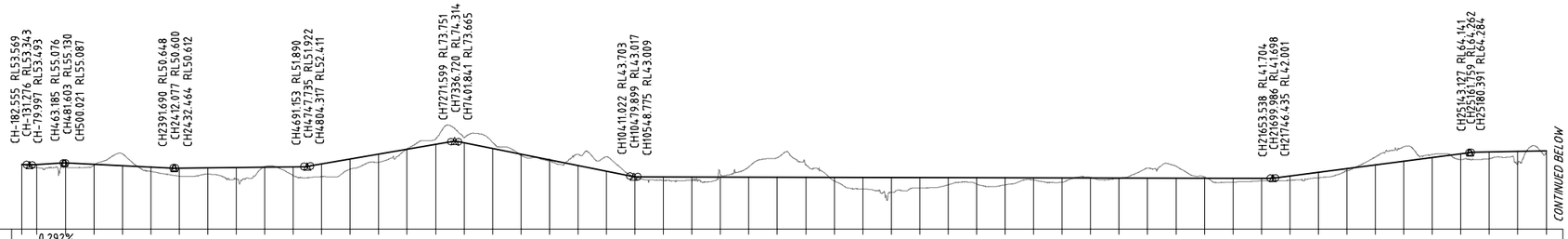
0 0.2 0.4 0.6 0.8 1km
1:40000 (A3) 1:20000 (A1)

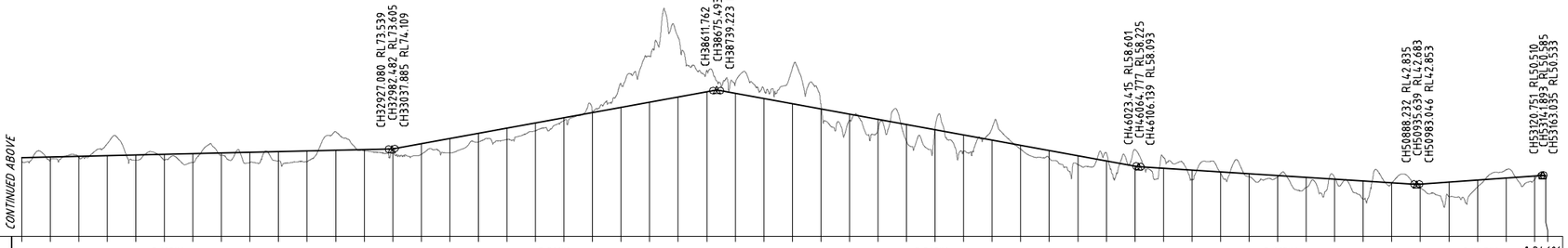
SOUTHERN FREIGHT RAIL CORRIDOR STUDY
COMMUNITY INFRASTRUCTURE DESIGNATION PLANS
OVERALL LAYOUTS - SHEET 2 OF 2

60028616-CID201-B



DATUM-3

VERTICAL DETAILS	-0.441% R=14000; 0.292% R=7000; -0.235% 1 in -426.153 R=14000; 0.057% 1 in 1767.114 R=14000; 0.865% 1 in 115.621 R=7000; -0.996% 1 in -100.432 R=14000; -0.012% 1 in -8508.605 R=14000; 0.652% 1 in 153.422 R=7000
HORIZONTAL DETAILS	L=10 R600 T80 T80; L=3542; R-2500 T80 T80; L=5058; R4000 T80 T80; L=3356; R2000 T80 T80; L=1770; R-1500 T80; L=437 R1500 T80 T80; L=2754; R3250 T80
DESIGN LEVELS	53.950 53.726 55.087 53.914 52.740 51.567 50.650 50.933 51.216 51.499 51.782 54.104 58.428 62.753 67.077 71.402 72.688 67.710 62.731 57.753 52.774 47.795 43.100 42.956 42.897 42.838 42.780 42.721 42.662 42.603 42.545 42.486 42.427 42.368 42.310 42.251 42.192 42.133 42.075 42.016 41.957 41.898 41.839 41.781 41.722 43.654 46.913 50.172 53.431 56.690 59.949 63.208 64.666 65.264 65.861
EXISTING LEVELS	53.679 50.928 51.331 52.959 63.163 47.651 43.332 45.473 41.114 51.943 44.166 43.126 49.740 55.654 67.382 75.881 77.104 73.085 61.822 58.374 62.758 60.521 42.636 39.702 39.877 44.661 51.806 59.725 53.758 39.378 32.180 29.468 33.186 35.880 36.532 35.936 40.116 38.217 42.409 41.326 50.558 52.253 42.836 38.195 39.480 39.911 42.042 48.064 60.304 69.178 62.548 58.165 58.763 54.288 62.596
LEVEL DIFFERENCE	-0.271 -2.797 -3.756 -0.955 10.423 -3.916 -7.317 -5.460 -10.102 0.445 -7.616 -10.977 -8.688 -7.098 0.305 4.479 4.416 5.376 -0.909 0.621 9.984 12.726 -0.463 -3.254 -3.020 1.823 9.027 17.004 11.096 -3.225 -10.365 -13.018 -9.241 -6.489 -5.777 -6.315 -2.076 -3.917 0.335 -0.690 8.601 10.355 0.996 -3.586 -2.242 -3.743 -4.871 -2.108 6.873 12.489 2.599 -5.042 -5.903 -10.975 -3.265
CHAINAGES	-269 0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 6000 6500 7000 7500 8000 8500 9000 9500 10000 10500 11000 11500 12000 12500 13000 13500 14000 14500 15000 15500 16000 16500 17000 17500 18000 18500 19000 19500 20000 20500 21000 21500 22000 22500 23000 23500 24000 24500 25000 25500 26000 26500



DATUM-3

VERTICAL DETAILS	0.119% 1 in 837.102 R=14000; 0.911% 1 in 109.779 R=7000; -0.910% 1 in -109.896 R=14000; -0.319% 1 in -313.413 R=14000; 0.358% 1 in 279.195 R=7000; -0.246% R=7000
HORIZONTAL DETAILS	T80; L=2076; R-1500 T80 T80; L=467 R2500 T80 T80; L=1258; R-800 T80 T80; L=1164; R1650 T80 T80; L=964; R-700 T80 T80; L=1145; R-850 T80 T80; L=269 R700 T80; L=1114; R-750 T80 T80; L=585 R-2500 T80 T80; L=107 R2500 T80 T80; L=1005 R1000 T80 T80; L=109 R-1000 T80 T80; L=321 R750 T80; L=1110; R-750 T80 T80; L=1291; R-600 T80 T80; L=106
DESIGN LEVELS	65.861 66.458 67.055 67.653 68.250 68.847 69.445 70.042 70.639 71.237 71.834 72.431 73.028 73.816 78.319 82.874 87.428 91.983 96.537 101.092 105.647 110.201 114.756 119.311 123.865 122.511 117.961 113.411 108.862 104.312 99.762 95.212 90.662 86.113 81.563 77.013 72.463 67.914 63.364 58.814 56.836 55.241 53.645 52.050 50.455 48.859 47.264 45.669 44.073 42.914 44.705 46.496 48.286 50.077 50.442
EXISTING LEVELS	62.596 63.560 66.643 78.405 63.918 63.929 61.972 68.241 62.036 63.449 62.632 88.833 72.358 69.870 68.931 70.239 79.799 81.942 89.642 98.640 105.672 130.459 155.087 171.591 142.709 131.381 126.212 144.435 112.353 98.851 90.571 80.355 92.571 71.951 92.466 73.499 65.573 59.994 70.127 73.191 66.299 46.762 52.507 49.477 49.057 39.977 48.588 29.706 43.745 39.442 31.973 40.456 55.657 46.649 50.438
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SOUTHERN FREIGHT RAIL CORRIDOR STUDY

ALIGNMENT LONGITUDINAL SECTION

60028616-CID300-A

Appendix C

Community consultation correspondence

Appendix C

Community Consultation Correspondence

Appendix C

Media Release 1: Planning begins for rail freight growth

PRESS RELEASE

Minister for Transport, Trade, Employment and Industrial Relations The Honourable John Mickel

01/10/2007

PLANNING BEGINS FOR RAIL FREIGHT GROWTH

The second and major stage of an investigation will begin soon to identify a potential route for a rail freight corridor connecting the western rail line near Ebenezer/Rosewood to the interstate rail line north of Beaudesert.

Transport Minister John Mickel said the Southern Freight Rail Corridor Study was a significant step in preparing for major growth that is forecast for the movement of freight in Queensland.

"Freight movement across the state is expected to double by the year 2020, with the most rapid growth anticipated in south east Queensland," Mr Mickel said.

"Efficient freight movement is essential to the economy.

"If it isn't properly managed ahead of time, this incredible growth in freight could cause problems for our future infrastructure and economy."

Queensland Transport carried out preliminary scoping works in 2005 to look at the feasibility of a range of route options.

This second stage of the study would proceed to define a preferred corridor. It will also include an assessment of the environmental, economic and social impacts associated with the corridor when it is defined.

Mr Mickel said the study would result in the preservation of a preferred corridor.

"Any decision regarding whether a rail freight line would ultimately be constructed would be guided by factors such as whether or not the proposed inland rail goes ahead," he said.

"Community consultation is a key part of the study.

"The whole community, particularly local residents and businesses, must be included in the planning.

"We want to have a full understanding of the community issues around this new rail corridor and will consider feedback in the development of a preferred corridor," Mr Mickel said.

Media contact: Chris Brown 3237 1944 or Elouise Campion 3237 1125.

October 1, 2007

Correspondence to property owners – Letter 1

4 October 2007

Dear Property Owner/s,

RE: Southern Freight Rail Corridor Study - Landowner Briefing
Your Property: [lot plan number]

Queensland Transport (QT), on behalf of the State Government, is undertaking a corridor planning study to identify a potential route for a rail freight corridor in the Ipswich – Beaudesert area.

The study is being undertaken in response to the South East Queensland Regional Plan 2005-2026, which identified that freight movements across Queensland are forecast to double by the year 2020. Much of this growth will be in South East Queensland (SEQ) and the ability to move freight into and around SEQ efficiently will be essential for economic growth.

The Southern Freight Rail Corridor Study Team will investigate the potential for connecting the Western Railway near Rosewood to the interstate rail line north of Beaudesert. The State Government has outlined the study in the *South East Queensland Infrastructure Plan and Program 2007-2026* and the study corridor is shown in the newsletter enclosed.

Maunsell Australia has been appointed to undertake this study on behalf of QT, to determine if there is a preferred feasible option within the study corridor and report its findings to the State Government.

The Study Team would like to contact all residents and businesses whose properties could be affected by the corridor option to brief them about the study. We invite you to attend such a briefing.

The purpose of the briefing is to:
- Provide you with an overview and content for the study;
- Inform you of the potential impact of the corridor on your property;
- Seek your opinion about the corridor; and
- Help the Study Team understand the benefits and challenges of the corridor to report objectively to Government.

To arrange a briefing date and time, please contact the Project's 1800 freecall number and leave your name, property address and daytime telephone number.

Involvement of landowners affected by the potential corridor is an important part of this study and you are encouraged to contact the Study Team to organise a briefing.

In the meantime, if you have any questions or issues about the project, please feel free to contact the Study Team on **freecall 1800 116 215** or visit **www.transport.qld.gov.au** (search under projects and initiatives).

We look forward to hearing from you about this study.

Yours Sincerely,

Lawrence Hannah
Director Rail Network and Strategy

Correspondence to property owners – Letter 2

30 November 2007

Dear Property Owner,

RE: Southern Freight Rail Corridor Study - Landowner Briefing
Your Property: [lot plan number]

You may have recently received a letter from Queensland Transport inviting you to contact our study team to arrange a time to receive a briefing about the Southern Freight Rail Corridor Study currently underway. That letter was sent as your property has been identified as potentially being within the 2 km wide corridor of interest under investigation in the study.

In order to assist you to understand the location of the corridor of interest in relation to your property we have included a detailed map. As part of the study, work is underway to refine this 2km wide corridor of interest to a 50-100m wide preferred future rail alignment.

It is very important that the study team meet with as many residents and business owners as possible, within the 2km corridor of interest, to ensure that their input is included in the draft Impact Assessment Report that will be developed as part of the study. The timeline for the release of the draft report is currently being reviewed, as the field work necessary to undertake the impact assessment has been postponed due to the presence of Equine Influenza virus in the study area. Field work cannot commence until the Department of Primary Industries gives Queensland Transport the clearance to do so, and this has implications for the timing of completion of the draft report.

The project team has already met with a number of landowners in the 2 km wide corridor of interest and have held Community Information Days in the Rosewood, Peak Crossing, Boonah and Beaudesert areas.

If you have not already met with the study team and would like a briefing we would be pleased to speak with you. The purpose of the briefing is to:

- Inform you of the potential affect of the corridor of interest on your property;
- Seek your opinion about the issues affecting your property; and
- Help the study team understand the benefits and challenges of the Southern Freight Rail Corridor to report objectively to Government.

To arrange a time and date for a briefing please contact the study team on free call 1800 116 215 **by Friday 14 December 2007** and leave your name, property address and daytime telephone number. A member of the study team will then call you back to arrange a convenient time.

In the meantime, if you have any questions or issues about the project, please feel free to contact the Study Team on **freecall 1800 116 215** or visit **www.transport.qld.gov.au** (search under projects and initiatives).

We look forward to hearing from you about this study.

Yours Sincerely,

Lawrence Hannah
Director Rail Network and Strategy
Enc Southern Freight Rail Corridor Study Detailed Map

Newsletter 1: Future freight rail corridor planning under way

Queensland **Transport**

October 2007

Southern Freight **Rail Corridor Study**

Future freight rail corridor planning under way

Queensland Transport has commenced planning and community consultation for the proposed Southern Freight Rail Corridor (SFRC) connecting the Western Railway near Rosewood to the interstate rail line north of Beaudesert (previously known as the Southern Infrastructure Corridor).

The study will take up to 10 months to complete and will conclude with the finalisation of an Impact Assessment Report (IAR). This IAR will contain a comprehensive assessment of the potential social, environmental and economic impacts along the corridor's 55 kilometre length. It will include thorough investigation of environmental impacts, flooding, geotechnical conditions, cultural heritage issues and will report on community concerns raised. The IAR will enable the study team to identify any potential issues and develop strategies to manage these issues. A draft of the IAR will be available for public comment prior to being finalised.

Queensland Transport has appointed consulting firm Maunsell to assist with the planning study.

Queensland Transport is seeking input from residents, business, key stakeholders, government agencies and industry groups as well as the wider community throughout the study.

Background

The Queensland Government's *South East Queensland Infrastructure Plan and Program 2007-2026* identifies the corridor as a key piece of regional freight infrastructure for the western region. The government needs to properly plan the corridor in order to ensure a link between a future Melbourne to Brisbane inland rail line and existing freight terminals at Acacia Ridge and the Port of Brisbane.

In 2005, Queensland Transport undertook a feasibility study which investigated a number of different options for the corridor. Following consultation with a range of key stakeholders the current corridor was identified as the preferred option for further investigation. This current study will build on previous investigations to help the study team identify the land needed for the corridor. We need to set aside this land now to protect the corridor from any future planning and development.

South East Queensland is the fastest growing region in Australia and the government is ensuring our infrastructure keeps pace with the population growth.

Queensland **the Smart State**

Queensland Government
Queensland Transport

Study Update

Queensland Transport

February 2008

Southern Freight Rail Corridor Study

Study update

Queensland Transport is currently conducting the Southern Freight Rail Corridor Study. The aim of the study is to investigate a potential route for a freight rail corridor connecting the western rail line near Rosewood to the interstate rail line north of Beaudesert.

The Southern Freight Rail Corridor will provide a key link from the proposed Melbourne to Brisbane Inland Rail line to the interstate rail line north of Beaudesert, providing an alternative route to existing freight centres at Acacia Ridge and the Port of Brisbane.

The study area is currently 55 km long and 2 km wide and detailed work is now taking place to refine this to a width of approximately 50-100m required for the proposed freight rail line.

The corridor is part of the Queensland Government's long-term strategy to invest in the region's transport system, to build and shape the state for our next generation. It is part of the *South East Queensland Infrastructure Plan and Program 2007-2026*, where the Queensland Government will spend $82 billion over the next 20-years to plan and manage population growth, and to protect our lifestyle and economic prosperity.

Horse flu outbreak holds up field work

The recent outbreak of equine influenza (horse flu) has meant that field work scheduled to commence in October 2007 was delayed until the Queensland Department of Primary Industries and Fisheries could give Queensland Transport clearance to start work. Clearance was provided in February 2008 and field work is now underway.

Field work will involve investigating a range of issues including:

- Noise
- Flooding
- Land use
- Nature conservation
- Cultural heritage

Field work will provide key information for the Impact Assessment of the proposed rail corridor. Some properties will need to be accessed to conduct field studies. Where this is the case the study team will contact the property owners to discuss arrangements.

Once the necessary field work has been conducted a draft Impact Assessment Report will be released for public comment before a final report is produced.

Community consultation

One of the priorities for this study is to understand community issues throughout the study area and capture these issues in the draft Impact Assessment Report.

Our 2007 community consultation activities included:

- Potentially affected property owner briefing sessions
- A newsletter to 16,000 residents
- Community Information Days at Rosewood, Peak Crossing, Boonah and Beaudesert

Queensland Government

Queensland Transport

Media Release

6 October 2008

Southern Freight Rail Study Corridor route announced

Queensland Transport has taken steps to protect a preferred southern freight rail corridor route in South East Queensland.

A Queensland Transport spokesperson said freight movement across the state is expected to double by the year 2020 and the aim of the study was to preserve a preferred alignment for the future.

The route for the Southern Freight Rail Corridor was established after careful consultation and detailed technical investigations by Queensland Transport.

The proposed Southern Freight Rail Corridor connects the Western Railway near Rosewood to the interstate rail line north of Beaudesert, and is part of long-term planning for South East Queensland.

Community consultation has played a key part in the study. Feedback from the community along with technical, social and environmental investigations have contributed to the identification of the preferred corridor route.

The corridor is identified in the Queensland Government's South East Queensland Infrastructure Plan and Program 2008-2026 and is also part of long-term planning for regional freight infrastructure.

The preferred alignment will be considered for community infrastructure designation under the *Integrated Planning Act 1997*.

While it is important to protect the corridor now, a range of factors will influence any future decision on whether the freight rail line will ultimately be constructed.

A draft Assessment Report is available for public comment until 31 October 2008. Assessment criteria for the report included property impacts, engineering, ecology and community consultation.

The report is available on the Queensland Transport website www.transport.qld.gov.au along with details on how to make a submission.

ENDS

Media contact: Brian Bolton 3306 7550

Newsletter 2: Preferred alignment released

Newsletter 2
Spring 2008

Queensland Transport

Southern Freight Rail Corridor Study

Preferred alignment released

Queensland Transport has released the preferred alignment for the proposed Southern Freight Rail Corridor.

Feedback from the community, council and state agencies, along with technical, social and environmental investigations have contributed to the identification of a preferred alignment.

In 2007, the Queensland Government began a study to identify an appropriate alignment for the Southern Freight Rail Corridor. The purpose of this freight rail line is to connect the Western rail line near Rosewood to the interstate rail line to the north of Beaudesert.

A Corridor of Interest approximately 55 km in length and 2 km wide was investigated, running between Rosewood and Kagaru. The study has now identified a preferred alignment within the corridor.

The Southern Freight Rail Corridor is needed to cater for the expected future growth in the transport of freight into and out of south east Queensland, as freight movement is expected to double by 2020. The corridor is identified in the *South East Queensland Infrastructure Plan and Program 2008-2026* and is considered important to the region's economic growth and development.

The study team has now identified the land requirements for this alignment. Once the study is completed the land will be set aside under a process called 'Community Infrastructure Designation'.

Briefings with directly affected landowners will take place in the coming weeks.

What is Community Infrastructure Designation?

The *Integrated Planning Act 1997* allows the Minister for Transport to designate land for community infrastructure purposes. Railways are defined as community infrastructure under this legislation.

The designation process will result in the land required for the rail alignment being reflected in local government planning schemes. This is to ensure the land designated for the rail line is protected for the future and to provide certainty to the community about its location.

The designation process provides two opportunities for the community to comment before the Minister makes a decision whether to designate the land.

It is important to note that designation will preserve the land for the future to ensure it is available when needed, but it is unlikely that construction of the line would take place in the next 10-15 years.

Your chance to comment on draft report

A draft Assessment Report on the preferred alignment is now available for public comment.

The draft Assessment Report contains a summary of the investigations carried out by the study team.

The report identifies potential benefits, opportunities and impacts on the environment and the community surrounding the preferred alignment.

Queensland Transport invites you to view and submit comments on this draft report. Please refer to the 'How to make a submission' section on the back page.

View maps and the draft Assessment Report

Copies of the report and maps of the alignment are now available at www.transport.qld.gov.au (search under projects and initiatives) and at locations listed on the back of this newsletter.

First submissions for the draft assessment report need to be received by 31 October 2008.

Queensland the Smart State

Queensland Government
Queensland Transport

Fact Sheet 1

Fact Sheet 1
Why is this study happening?

Queensland **Transport**

Southern Freight **Rail Corridor Study**

The study

What is the Southern Freight Rail Corridor Study?

The purpose of this study is to identify a preferred freight rail connection between the existing narrow gauge western rail line near Rosewood and the interstate standard gauge rail corridor near Kagaru, north of Beaudesert. The freight-only corridor is being planned to ensure a link between a future Melbourne to Brisbane inland rail and the existing freight terminals at Acacia Ridge and the Port of Brisbane.

Actual construction of a rail line is part of long term planning and may not begin for 10-15 years. However, planning is underway now to preserve the land for the future rail corridor. This will ensure the rail line can be constructed at some point in the future.

The Southern Freight Rail Corridor falls under the jurisdiction of Ipswich City Council and the Scenic Rim Regional Council (formerly the Boonah and Beaudesert Shire Councils).

The preferred alignment passes through the areas of Lanefield, Ebenezer, Purga, Peak Crossing, Washpool, Woolooman, Undullah and Kagaru.

Why is the Southern Freight Rail Corridor needed?

The Southern Freight Rail Corridor is identified in the Queensland Government's *South East Queensland Infrastructure Plan and Program 2008-2026* as a key piece of regional freight infrastructure for the western region.

Freight movement into and out of south east Queensland is expected to double by 2020 so by planning smartly now we can make sure the rail corridor is protected for the future.

The corridor would feature as a key section of a future inland railway connecting Melbourne and Brisbane, and will also support emerging industrial sites at Ebenezer and Bromelton. Queenslanders need this corridor to ensure that our future freight networks are efficient and can effectively keep up with the region's economic growth and development.

Increasing the share of freight that is transported by rail has major environmental benefits and will improve safety on our local road and highway network.

The draft Assessment Report produced for the Southern Freight Rail Corridor Study provides a detailed description of how the preferred alignment was developed and the environmental, social and economic factors taken into account. Copies of the draft Assessment Report and maps of the alignment are available at www.transport.qld.gov.au (search under projects and initiatives).

Fact Sheet 2

Fact Sheet 2
What did the study consider?

Queensland **Transport**

Southern Freight **Rail Corridor Study**

Waterhole on Dugandan Creek to the north of the alignment

Identifying the alignment

How was the preferred alignment developed?

A Corridor of Interest 2 km wide and 155 km long was investigated and refined down to a preferred alignment of around 100 m in width. A program of detailed field studies took place, along with a range of desktop assessments. Community engagement also played an important role in the process with local landowners and members of the public providing detailed information to the study team.

Among the studies that took place were assessments of noise and vibration, water quality, land use and planning, economic and social impacts and cultural heritage. These investigations helped develop a thorough understanding of various environmental factors and constraints. The study team considered these together with engineering requirements and community feedback to develop the preferred alignment.

What were the design considerations?

The design process included operational requirements such as train speeds, axle loads, and train dimensions. Gradients and infrastructure requirements such as bridges and tunnels, were also considered. Initially it is intended that the rail line would be constructed as a single track dual gauge railway. It is recognised that there may be a need to duplicate the line in the future and for this reason the study used a double track earthworks footprint in planning the alignment. This ensures the rail line can be upgraded in the future.

Will tunnels be required?

Due to severe terrain, two sections of tunnel are required in the Washpool/ Woolooman area. The first tunnel is approximately 1 km in length. Land above the tunnel will provide a corridor for vegetation and animal movement.

The second tunnel is approximately 200 m long and is required as a result of the alignment being moved south to avoid a large waterhole on Dugandan Creek (the watering hole is considered to be culturally and ecologically important).

How will local road access be maintained?

Level crossings have been avoided and overpasses and underpasses will be used to maintain traffic flow on local roads. In some places the preferred alignment crosses local roads multiple times, for example Wild Pig Creek Road. In such cases roads may be realigned to reduce the number of crossings needed. Road and property access will be further considered during the detailed design phase. A summary of all road crossings can be found in Volume 1 of the draft Assessment Report.

The draft Assessment Report produced for the Southern Freight Rail Corridor Study provides a detailed description of how the preferred alignment was developed and the environmental, social and economic factors taken into account. Copies of the draft Assessment Report and maps of the alignment are available at www.transport.qld.gov.au (search under projects and initiatives).

Fact Sheet 3

Fact Sheet 3
How do I make a submission?

Queensland Transport

Southern Freight Rail Corridor Study

Making a submission

A formal submissions process is now underway with members of the public invited to submit comments on the draft Assessment Report.

Copies of the report and maps of the alignment are available at www.transport.qld.gov.au (search under projects and initiatives).

You can view a printed copy of the draft Assessment Report at these locations:

Councillor David Pahlke's Office
Shop 5 & 6 Rosewood Plaza
John Street, Rosewood 4340

Ipswich Library
40 South Street, Ipswich 4305

Boonah Library
High Street, Boonah 4310

Scenic Rim Council Office
82 Brisbane Street, Beaudesert 4285

Guidelines for making a proper submission are defined under the *Integrated Planning Act 1997*.

These guidelines must be followed for a submission to be considered as part of the study.

- Your submission must be received on or before 31 October 2008. A second submission period will be scheduled at a later date (check website for details).

- Submissions are to be made in writing and must include the name, address and original signature of each person making the submission.
- Handwritten submissions are acceptable but please ensure that your handwriting is legible.
- We are looking for detailed information about how the proposed alignment may affect you, your surrounding environment and the community.
- It is important that you directly reference the section/s of the draft report that your submission concerns, including volume and page number.
- Please ensure that the structure, argument and conclusion of your submission are clear. You may want to include supporting information.

Submissions must be sent to:

The Honourable John Mickel MP
Minister for Transport, Trade, Employment and Industrial Relations
Attention SFRC Study
GPO Box 2644, Brisbane QLD 4001

Visit the project page online at **www.transport.qld.gov.au** or contact the study team if you require further information about making a submission.

The draft Assessment Report produced for the Southern Freight Rail Corridor Study provides a detailed description of how the preferred alignment was developed and the environmental, social and economic factors taken into account. Copies of the draft Assessment Report and maps of the alignment are available at www.transport.qld.gov.au (search under projects and initiatives).

Advertisement: Southern Freight Rail Corridor Study, Preferred alignment released

Southern Freight Rail Corridor Study

Preferred Alignment Released

Queensland Transport has released the preferred alignment for the proposed Southern Freight Rail Corridor, connecting the western railway near Rosewood to the interstate rail line, north of Beaudesert.

The draft Assessment Report on the preferred alignment is now available for public comment. Queensland Transport invites you to view and submit comments on this draft report.

Community Information Day

As part of our commitment to keep the community informed Queensland Transport is holding a community information day. Individual members of the public are invited to come to the venue below and speak to the study team throughout the day.

Saturday 18 October 2008, 10 am - 4 pm
Peak Crossing Community Hall
(Corner Fassifern Street and Hall Street), Peak Crossing

View the report and maps of the alignment online at **www.transport.qld.gov.au** and also at the following locations:

Councillor David Pahlke's Office
Shops 5 and 6 Rosewood Plaza
John Street, Rosewood 4340

Boonah Library
High Street
Boonah 4310

Ipswich Library
40 South Street
Ipswich 4305

Scenic Rim Council Office
82 Brisbane Street
Beaudesert 4285

To find out about making a submission call **1800 116 215**, email **SFRCStudy@maunsell.com** or visit **www.transport.qld.gov.au** (search under projects and initiatives).

Closing date for submissions is **Friday 31 October 2008**.

Queensland Government
Queensland Transport

Media Release 3: New Freight corridor better for people and koalas

Minister for Transport
The Honourable Rachel Nolan
26/11/2009

New freight corridor better for people and koalas

Transport Minister Rachel Nolan has released the revised alignment for the Southern Freight Rail Corridor - a future rail corridor linking the existing Western line at Rosewood with the interstate line near Beaudesert.

The new corridor has a 12km deviation from the corridor which was previously released after community consultation revealed the existence of a koala habitat at Ebenezer / Willowbank.

The revised alignment protects that habitat and minimises human impact - cutting the number of affected properties by seven.

Minister Nolan said that with the size of the freight task set to double over the next 20 years it was vital that a future rail corridor be protected now before it is too late.

"Right now in South East Queensland we are paying the price for past governments' failure to plan for growth," Ms Nolan said.

"The Bligh Government is not going to make the same mistake and is taking the hard decisions to protect future transport corridors like this one."

It is not intended that the Southern Freight Rail Corridor will need to be used for at least 10-15 years.

Ms Nolan said that while planning was difficult and often disruptive for communities, government consulted widely and dealt compassionately with affected landholders.

"A draft Assessment Report on this corridor showing a preferred alignment, associated impacts and land requirements was released for public consultation in 2008.

"That process revealed community concern about the existence of the koala habitat and so government has gone back to the drawing board with independent experts confirming the existence of the habitat and the new alignment being decided.

"Government will now consult both with affected landholders and the broader community with a Revised Assessment Report due to be released early next year."

A map showing the relocated alignment in the Ebenezer / Willowbank area is available on the Department of Transport and Main Roads website www.tmr.qld.gov.au or can be requested by calling 1800 116 215.

Media contact: 3237 1111.

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Appendix D

Submissions report

Appendix D

Submissions Report

Southern Freight Rail Corridor Study

Department of Transport and Main Roads

March 2010

Submissions Report

Revised Assessment Report

Submissions Report

Revised Assessment Report

Prepared for

Department of Transport and Main Roads

Prepared by

AECOM Australia Pty Ltd
12 Cribb Street, PO Box 1823, Milton QLD 4064, Australia
T +61 7 3858 6700 F +61 7 3858 6705 www.aecom.com
ABN 20 093 846 925

12 March 2010

60028616

Quality Information

Document Submissions Report

Ref 60028616

Date 12 March 2010

Prepared by Chris Cantwell, Brian Gibbs

Reviewed by Todd Battley, James Fjeldsoe, Shannon Gordon

Revision History

Revision	Revision Date	Details	Authorised	
			Name/Position	Signature
A	16/01/2009	Draft for client review	Todd Battley Project Manager	Original Signed
B	25/09/2009	Draft	Todd Battley Project Manager	Original Signed
0	12/03/2010	Final for Public Consultation	Todd Battley Project Manager	

Table of Contents

1.0 Introduction

1.1 Background to submissions report

This report outlines the submissions received for the Southern Freight Rail Corridor Study (SFRC) Draft Assessment Report between 6 October and 12 December 2008, and the process for addressing any issues and concerns that were raised.

The issues and concerns have been categorised according to topic, allowing the study team to address them appropriately. In some cases, changes have also been made to the Revised Assessment Report as a result of submissions.

Seventy-eight (78) unique submissions were received from stakeholders including government agencies, property owners and developers, business owners and community groups. This report provides a detailed analysis of the submissions received, and resulting changes to the Revised Assessment Report.

The release of the SFRC Draft Assessment Report on 6 October 2008 triggered the submission period, as required in step 2 of the community infrastructure designation (CID) guidelines. Initially the submission period was four weeks, or 20 working days (a minimum of 15 working days are required). However following feedback from stakeholders this was extended to a period of ten weeks, or 50 working days. The revised closing date of 12 December 2008 was publicised on the Department of Transport and Main Roads (TMR) website, in local newspapers, at community information days and via a letter to stakeholders.

1.2 Community infrastructure designation

TMR is seeking to designate the Southern Freight Rail Corridor as community infrastructure in accordance with Chapter 5 of the *Sustainable Planning Act 2009* (SP Act). CID provides for the forward identification of land for community infrastructure in order to facilitate the integration of land use and infrastructure planning, and the efficient and cost-effective provision of the infrastructure.

Section 207 of the SP Act specifies that before designating land, the Minister must be satisfied that, for the development the subject of the proposed designation:

a) adequate environmental assessment has been carried out;

b) in carrying out environmental assessment under paragraph (a), there was adequate public consultation; and

c) adequate account has been taken of issues raised during the public consultation.

A range of community engagement activities have taken place since the study was announced in October 2007. These activities have included one-on-one landowner briefings (for landowners within the study area) and community information days (for the wider community). These activities are additional to the minimum environmental assessment and consultation procedures set out in the *Guidelines about Environmental Assessment and Public Consultation Procedures for Designating Land for Community Infrastructure* (the CID Guidelines) (DLGPSR, 2006).

The Environmental Assessment and Consultation Procedures under the CID Guidelines are divided into six discrete steps, beginning with the preparation of an Initial Assessment Report, and concluding with the forwarding of the final assessment report to the Minister for their consideration (see Figure 1 for an outline of the six step CID process.)

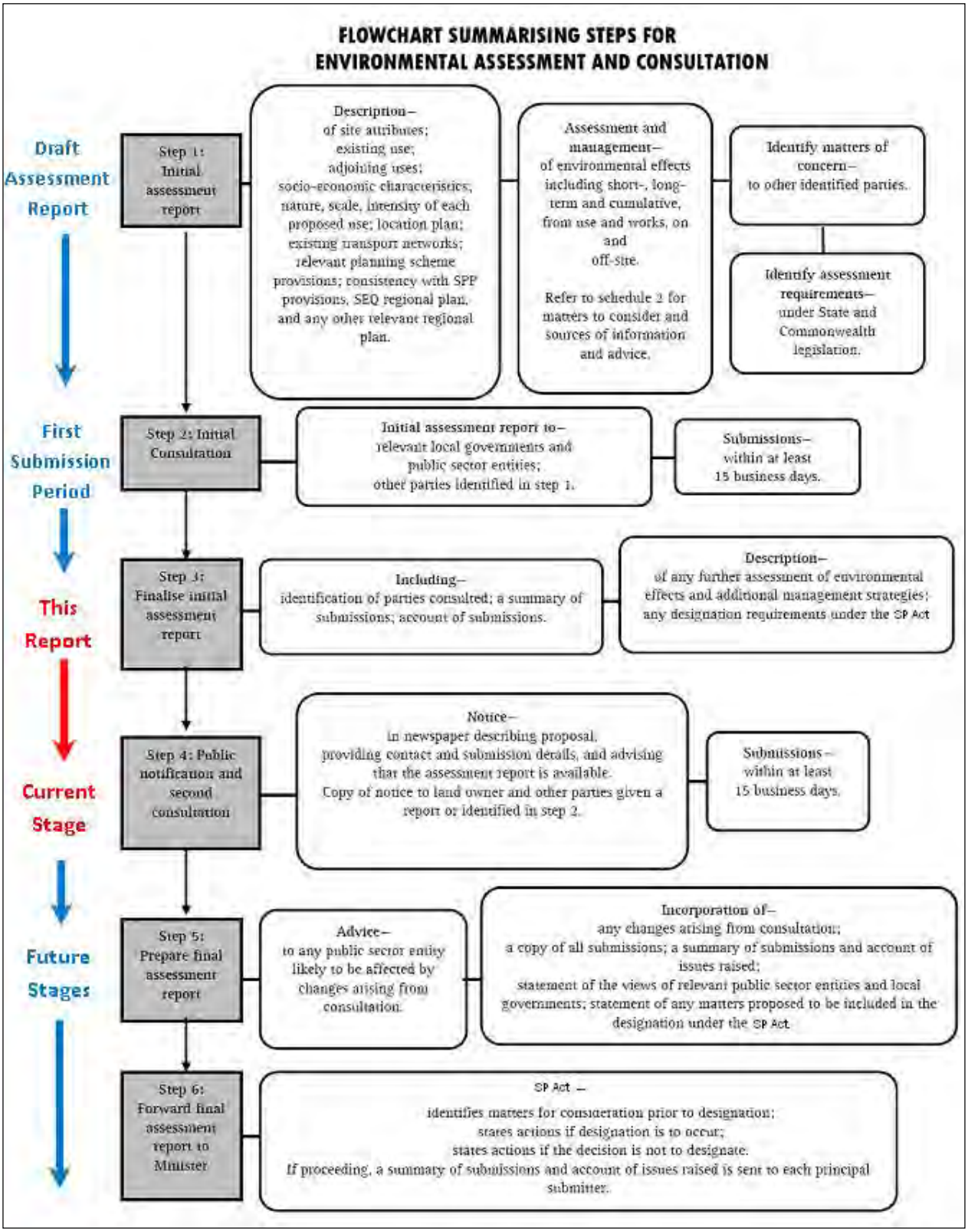

Figure 1: The CID Process for the SFRC study

1.3 Format of submissions report

The methodology used for logging and categorising submissions is outlined in Section 2.1. Table 1 shows the list of respondents (initials have been used for privacy) along with the section numbers of this report that address the issues raised. Responses to the issues raised can be tracked by following these reference numbers. In Section 2.3 issues have been categorised according to topic and responses are provided.

The SFRC study is a planning study to identify and designate a freight rail corridor so that it can be reserved until construction is required. Detailed design for the SFRC has not yet taken place; it is currently at a preliminary alignment design stage. Detailed design is likely to be undertaken approximately 2 years prior to construction, which could be post 2031. Therefore, the environmental assessment undertaken for this study is not a complete and final assessment; further assessment will be required at the time of detailed design. It will be at the detailed design stage that many of the specific design-related questions raised in submissions will be able to be answered more precisely. For the purposes of this planning study the level of environmental assessment undertaken is considered adequate to achieve the desired outcomes for this stage of the project. It should be noted that many responses in this Submissions Report refer to the detailed design phase.

2.0 Consideration of submissions

2.1 Methodology

Submissions received during the public display period (6 October – 12 December 2008) were logged and considered by the study team. This process involved:

- Entering the details of each respondent into a database
- Allocating a unique reference number to each submission
- Categorising each issue according to topic (e.g. topography, nature conservation, visual amenity)
- Considering issues within the database. The study team considered all issues raised, and have prepared responses accordingly. These responses are included in Section 2.3 and where appropriate, changes have been made to the content of the Revised Assessment Report.

2.2 Respondents

Table 1 lists details of the 78 unique submissions received, and references the section/s where issues are addressed.

Table 1: Submission reference number, respondent and section where issues are addressed in this Submissions Report

Ref No.	Respondent's Initials	Organisation	Section Where Issues are Addressed in this Submissions Report
1	A.S.	Powerlink	2.3.22; 2.3.23; 2.3.29
2	S.D.	Main Roads	2.3.27; 2.3.29
3	W.M.	Mortons Urban Solutions -Pacific International Development Corp & Pacific Exchange Holdings	2.3.8; 2.3.14; 2.3.24; 2.3.26; 2.3.27
4	D.L.	Department of Primary Industries	2.3.5; 2.3.8; 2.3.23; 2.3.27
5	G.B.	QR Network	2.3.23
6	I.J.		2.3.5
7	B.J.T.	FOSEQ/SGAP	2.3.5; 2.3.6; 2.3.28; 2.3.29
8	L.W.		2.3.24
9	R.P. & S. P.		2.3.16; 2.3.29
10	K.P. & A.H.P.	H.&P. Family Trust	2.3.12; 2.3.15; 2.3.16
11	T.S., S.S., K.S.& R.S.		2.3.9; 2.3.12; 2.3.15; 2.3.24
12	M.P.		2.3.5
13	L.E.		2.3.15; 2.3.22; 2.3.25
19	A.J.		2.3.5; 2.3.8; 2.3.15
20	M.B.	New Hope Coal Australia	2.3.8; 2.3.20; 2.3.22; 2.3.27
21	P.P.		2.3.22; 2.3.27
22	P.C.		2.3.5; 2.3.8; 2.3.9; 2.3.11; 2.3.12; 2.3.16; 2.3.19; 2.3.24; 2.3.26
23	K.M.	Environmental Protection Agency	2.3.2; 2.3.3; 2.3.4; 2.3.5; 2.3.6; 2.3.8; 2.3.9; 2.3.12; 2.3.17; 2.3.18; 2.3.20
24	J.K.	Department of Defence	
25	G.M.	City of Ipswich	2.3.5; 2.3.6; 2.3.7; 2.3.8; 2.3.10; 2.3.23; 2.3.26
26	P.S.	Harvey World Travel	2.3.16

Ref No.	Respondent's Initials	Organisation	Section Where Issues are Addressed in this Submissions Report
27	S.M.		2.3.5; 2.3.9; 2.3.11; 2.3.12; 2.3.26; 2.3.29
28	W.V.C.		2.3.15; 2.3.24; 2.3.29
29	K.H. & L.L.B	Freehills	2.3.11; 2.3.12; 2.3.16; 2.3.29
31	K.A. & M.A.		2.3.5; 2.3.11; 2.3.15; 2.3.21; 2.3.26
32	L.C.		2.3.7; 2.3.11; 2.3.12; 2.3.13; 2.3.26
34	P.J.O & S.M.B.		2.3.15; 2.3.16; 2.3.23; 2.3.24; 2.3.25
41	G.B. & C.B.		2.3.12; 2.3.15; 2.3.22; 2.3.25
42	G.J.H. & J.M.H.		2.3.5; 2.3.9; 2.3.11; 2.3.12; 2.3.15
43	D.A.G. & P.R.G.		2.3.5; 2.3.6; 2.3.9; 2.3.12; 2.3.15; 2.3.21; 2.3.23; 2.3.24
44	C.M.		2.3.5; 2.3.7; 2.3.15; 2.3.22
45	N.P.G. & B.N.G.		2.3.11; 2.3.15; 2.3.22; 2.3.27; 2.3.29
46	G.L. & M.M.		2.3.5; 2.3.7; 2.3.9; 2.3.12; 2.3.15; 2.3.27
47	J.M. & L.M.		2.3.5; 2.3.7; 2.3.12; 2.3.28
48	A.B. & M.B.		2.3.6; 2.3.15; 2.3.16; 2.3.22; 2.3.27
50	J.L. & T.T.		2.3.9; 2.3.11; 2.3.12; 2.3.15; 2.3.20; 2.3.22
51,52 ,53	H.D.	Ipswich Koala Protection Society Inc	2.3.5; 2.3.15; 2.3.26; 2.3.29
*54	K.H. & L.L.B.	Freehills (for Ivory's Rock Conference Centre)	2.3.5; 2.3.8; 2.3.9; 2.3.11; 2.3.12; 2.3.13; 2.3.14; 2.3.16; 2.3.18; 2.3.21; 2.3.22; 2.3.26; 2.3.27; 2.3.29
77	S.P. & D.P.		2.3.5; 2.3.11; 2.3.12; 2.3.15; 2.3.16; 2.3.17; 2.3.20; 2.3.21; 2.3.26; 2.3.29
78	S. W.		2.3.4; 2.3.5; 2.3.6; 2.3.11; 2.3.12; 2.3.15; 2.3.29
81	G.S. & A.S.		2.3.9; 2.3.11; 2.3.12; 2.3.15; 2.3.29
86	R.F. & D.F.		2.3.8; 2.3.15; 2.3.29
88	P.N. & H.N.		2.3.4; 2.3.5; 2.3.6; 2.3.7; 2.3.7; 2.3.9; 2.3.11; 2.3.12; 2.3.15; 2.3.19; 2.3.22; 2.3.26
92	S.P.		2.3.11; 2.3.12; 2.3.15; 2.3.16
94	D.Y.		2.3.5; 2.3.6; 2.3.7; 2.3.8; 2.3.11; 2.3.12; 2.3.13; 2.3.14; 2.3.15; 2.3.16; 2.3.19; 2.3.21; 2.3.26; 2.3.27; 2.3.29
95	D.B.		2.3.20; 2.3.26; 2.3.27
96	D.B. & K.B.		2.3.5; 2.3.8; 2.3.15
97	B.G.		2.3.5; 2.3.7; 2.3.9; 2.3.12; 2.3.15; 2.3.16; 2.3.21; 2.3.26
98	D.H. & F.H.		2.3.15; 2.3.16
99	G.C.	Doyle Group	2.3.8; 2.3.16; 2.3.22; 2.3.23; 2.3.26; 2.3.27
100	D.S. & L.S.		2.3.3; 2.3.8; 2.3.12; 2.3.14; 2.3.15; 2.3.19; 2.3.20; 2.3.22; 2.3.26; 2.3.27
101	M.P.W.		2.3.5; 2.3.8; 2.3.15; 2.3.18; 2.3.29
102	V.S.		2.3.1; 2.3.4; 2.3.5; 2.3.9; 2.3.12; 2.3.14; 2.3.15; 2.3.19; 2.3.26
103	M.P.S.		2.3.1; 2.3.4; 2.3.5; 2.3.9; 2.3.12; 2.3.14; 2.3.15; 2.3.19; 2.3.26
104	A.S.		2.3.1; 2.3.4; 2.3.5; 2.3.9; 2.3.12; 2.3.14; 2.3.15; 2.3.19; 2.3.26
105	D.S.		2.3.1; 2.3.4; 2.3.5; 2.3.9; 2.3.12; 2.3.14; 2.3.15; 2.3.19; 2.3.26
106	L.S.		2.3.1; 2.3.4; 2.3.5; 2.3.9; 2.3.12; 2.3.14; 2.3.15;

Ref No.	Respondent's Initials	Organisation	Section Where Issues are Addressed in this Submissions Report
			2.3.19; 2.3.26
107	M.J.B.		2.3.4; 2.3.5; 2.3.7; 2.3.8; 2.3.11; 2.3.16; 2.3.19; 2.3.21; 2.3.22; 2.3.26
108	J.S.B. & M.J.B.		2.3.4; 2.3.5; 2.3.6; 2.3.7; 2.3.11; 2.3.12; 2.3.16; 2.3.19; 2.3.21; 2.3.26
109	A.G. & A.D.G		2.3.3; 2.3.4; 2.3.5; 2.3.6; 2.3.8; 2.3.9; 2.3.11; 2.3.12; 2.3.15; 2.3.16; 2.3.17; 2.3.19; 2.3.20; 2.3.22; 2.3.25; 2.3.26; 2.3.27; 2.3.29
110	T.W. & W.P.		2.3.4; 2.3.5; 2.3.6; 2.3.12; 2.3.15; 2.3.22; 2.3.29
111	J.B.		2.3.4; 2.3.5; 2.3.8; 2.3.11; 2.3.15; 2.3.16; 2.3.18; 2.3.19; 2.3.21; 2.3.26; 2.3.29
112	D.S.	Fair GO Committee	2.3.3; 2.3.4; 2.3.5; 2.3.6; 2.3.7; 2.3.8; 2.3.9; 2.3.11; 2.3.14; 2.3.15; 2.3.18; 2.3.19; 2.3.20; 2.3.22; 2.3.23; 2.3.26; 2.3.27; 2.3.29
123	D.J.D. & E.D.D.		2.3.8; 2.3.12; 2.3.15; 2.3.16; 2.3.24; 2.3.26
124	K.M. & C.A.	Gumtips Nature Refuge	2.3.4; 2.3.5; 2.3.8; 2.3.10; 2.3.16; 2.3.20; 2.3.22; 2.3.26
125	R.B. & K.B.		2.3.5; 2.3.11; 2.3.15; 2.3.18; 2.3.21; 2.3.22; 2.3.29
126	B.V.	Santos	2.3.8; 2.3.16
127	S.J.V. & T.L.V.		2.3.7; 2.3.11; 2.3.12; 2.3.15; 2.3.16; 2.3.24; 2.3.29
128	M.M.		2.3.5; 2.3.8; 2.3.11; 2.3.12; 2.3.15; 2.3.16; 2.3.18; 2.3.19; 2.3.20; 2.3.21; 2.3.23; 2.3.26; 2.3.27; 2.3.29
129	C.M.		2.3.5; 2.3.8; 2.3.11; 2.3.12; 2.3.15; 2.3.16; 2.3.18; 2.3.19; 2.3.20; 2.3.21; 2.3.23; 2.3.26; 2.3.27; 2.3.29
130	T.L.		2.3.5; 2.3.15; 2.3.29
131	S.T.	Scenic Rim Regional Council	2.3.5
132	A.D.	Department of Natural Resources and Mines	2.3.5
134	P.C. on behalf of M.M. & G.M.		
136	C.K.		2.3.29
137	D.M.		2.3.5

*Submission 54 included a further 291 submissions relating to the Ivory's Rock Conference Centre (IRCC). In addition to this, a further 92 submissions also relating to the IRCC were received. These submissions were made by visitors to the IRCC, and generally raise similar issues and concerns; many being template letters. Due to the similar content of these letters, the issues and concerns raised in them have been summarised and considered as one submission.

These letters highlighted how IRCC contributes to the local tourism industry through various events and conventions, which have some flow-on effect to the local economy. IRCC's rural location is understood to be a fundamental factor contributing to the use of the facility for conferences and functions.

2.3 Categories

2.3.1 Topography

Comments and concerns relating to topography include the following:

1) In some areas the rail line will be built on banks up to 12m in height.
2) If the ground is too unstable for the rail line then it will be unstable also for the banks.
3) The section of the route located in low lying areas of land adjacent to Woollaman Creek and Undullah Creek has the potential to create a number of flooding, environmental, economic and social impacts.

Submissions: 102, 103, 104, 105, 106.

Response:

1. In some locations along the corridor, preliminary earthworks information indicates that the SFRC will be built on embankments of up to 12m. The need for embankments in some areas is a result of a combination of a number of factors, including topography and rail design criteria.

2. It is acknowledged that some of the ground within the SFRC study area is relatively unstable, particularly in times of inundation. The detailed design of the SFRC will require detailed geotechnical assessment and will ensure that the SFRC is constructed to achieve adequate stability of foundations and structures. The work undertaken to date has not uncovered any show-stopping issues relating to ground stability in the study area.

3. The preferred alignment travels through valleys in the Woollaman Creek and Undullah Creek areas. It is acknowledged that this has the potential to change the way water flows in this area. Flood modelling conducted for the study to date has used accurate surveying information about the topographical features of the entire corridor. Impacts of the SFRC preferred alignment have been identified through simulation of particular inundation events. The purpose of the hydraulic study was to ensure that there were no net negative impacts upon the surface flow of water during times of inundation. These design measures will be incorporated into the detailed design of the SFRC, and are identified in Technical Paper 4 of the Revised Assessment Report. It is also acknowledged that in this area the preferred alignment will potentially have an impact upon various parts of the environment, local economy and social networks. However, the varied (often steep) topography throughout this location provides limited options with respect to the location of the preferred alignment. It is expected that any negative impacts caused by the alignment in this area can be appropriately mitigated. Proposed mitigation measures are discussed in Section 19 of the Revised Assessment Report (Volume 1).

2.3.2 Geology

Comments and concerns relating to geology include the following:

1) The report indicates that blasting will be required near Peak Crossing during construction and that other small isolated outcrops may be identified during field surveys and also require blasting. Further detailed reports are required to assess the potential environmental impacts of any blasting required to be undertaken during construction, and identify mitigation measures to prevent or minimise any impacts.

Submissions: 23

Response:

1. During detailed design of the SFRC, full assessment of the potential environmental impacts of any blasting that may be required to be undertaken during the construction phase of the project will be undertaken. If any potential environmental impacts are identified, appropriate mitigation measures will be designed to prevent or minimise these impacts. All required approvals for such activities will be sought prior to construction, and the Department of Environment and Resource Management will be consulted about these construction activities.

2.3.3 Soils

Comments and concerns relating to soils include the following :

1) The report indicates that loamy soils developed on alluvial plains and terraces will be more prone to erosion and that mitigation measures will be required to minimise longer-term erosion. It is not clear that all of the erosion impacts will be addressed in the Construction Environmental Management Plan (CEMP).
2) Lot 2 RP 22586 may be a contaminated site.
3) Vol. 2, Tech Paper 1…page 9. makes reference to the incorrect schedule in the EP Act for the list of notifiable activities. It should be Schedule 2 of the EP Act.
4) Questions about the potential for soils to become quicksand.
5) The potential for UXO throughout the corridor.
6) Concerns about potential soil contamination, particularly the impacts upon primary production.
7) The report states that UXO potential is slight. Eye-witness accounts do not match up with this. In 1941-43, four large artillery guns fired shells south west up Woollaman Valley from 22SP164832 at Wyatt Rd. UXO has been found and sighted further west than indicated on Map 1.4 and outside areas indicated on map 1.4. Geo-exploration for Wyaralong Dam encountered UXO down to 4 metres. Therefore the risk of UXO is SUBSTANTIAL and not SLIGHT. Vibration from freight trains could set off UXO.
8) In the light of the potential UXO, there are questions surrounding the validity of the entire report.

Submissions: 23, 100, 109 (A), 109(B), 112

Response:

1. The Construction Environmental Management Plan (CEMP) will be further developed during the detailed design stage of the project, and will include relevant measures to prevent erosion both in the short term (i.e. during construction), and in the long term (i.e. during operation).

2. It is acknowledged that Lot 2RP22586 may be a contaminated site. The site is not listed on any contaminated land register; however current and past land uses contribute to the possibility of the site being contaminated. The site has been added to the list of potentially contaminated sites in Technical Paper 1 of the Revised Assessment Report (Volume 2). A thorough study of contaminated land will be conducted during the detailed design stage.

3. It is acknowledged that Technical Paper 1 refers to the incorrect schedule in the EP Act for the list of notifiable activities. The correct schedule is Schedule 2 of the EP Act. The report has been revised accordingly.

4. Observations from a number of landowners in the study corridor indicate that some land in and around the SFRC preferred alignment may take on the properties of quicksand. Photographic evidence has been provided to the study team to support this. This information is acknowledged and will be considered for the remainder of the project. This issue will be investigated further during the detailed design stage, and appropriate design responses developed. Given that this issue is anticipated to be addressed through design measures, it is not considered to be serious enough to warrant relocation of the alignment.

5, 7, 8. Some landowners have indicated there is a history of military activity in areas within the study area, and have highlighted the potential for unexploded ordnance (UXO) on some properties. Section 2.6.3 of Technical Paper 1 (Volume 2) outlines that 71 properties have been identified (through Defence mapping) as having "slight" potential for UXO. 69 of these properties are subject to Area Management Advice (AMA) under the *Sustainable Planning Act 2009* (SP Act). Regardless of the "slight" potential for UXO identified by Defence mapping, it is recognised that there is a high likelihood of encountering UXO within the preferred alignment. This is not considered to be a significant constraint as it is an issue that can be effectively dealt with through appropriate construction practices.

6. Significant areas of the SFRC study area are used for primary production purposes. As such, quality assurance (to meet supermarket requirements) and the prospect of potential contamination from the freight railway are valid concerns of many people in the study area. The location of the preferred alignment achieved separation from many areas of good quality agricultural land throughout the study area, minimising the potential impacts on these production areas. Any potential effects of contamination from the SFRC on primary production areas will be addressed and prevented during the detailed design phase.

2.3.4 Groundwater

Comments and concerns relating to groundwater include the following :

1) The report indicates a strong reliance on groundwater as a resource for drinking or irrigation use within the study area is not expected.
2) The statement in the report that groundwater is not widely utilised and is of poor quality in the study area is false. Groundwater is widely used by a variety of farms in the Peak Crossing area.
3) Bores contain some of the best water bearing gravel and water in Bremer Valley.
4) The area between Sandy Creek and Mt Flinders Rd – excellent quality groundwater (supported by past government laboratory analysis).
5) Landowners depend on bores for cattle, irrigation and sometimes drinking.
6) The proposed alignment would effectively take out irrigation bores operated by landowners.
7) Concerns about the degradation of bore water quantity - bore on property and surrounding farms is used for drinking (low conductivity and TDS readings) and domestic use when tank water is low.
8) A more detailed assessment of groundwater must be undertaken to determine the potential environmental impacts to groundwater (e.g. water levels, quality and likely duration of impact) and users (e.g. registered and domestic) from each stage of the project, and identify mitigation measures to prevent or minimise any impacts.
9) Investigation should be undertaken to determine if additional boreholes in unrepresented areas is viable to enable a complete assessment of groundwater and any potential impacts along the entire length of the Corridor of Interest.
10) There is inadequate research and information contained within the study.
11) The report includes limited historical water quality data, and therefore is somewhat flawed in its assessment.
12) Placing water at risk for the purposes of the freight line is unacceptable.
13) Is there a guarantee that the freight line will not have lasting degradation to quality and quantity of bore water in the area (vol. 1 Chapter 9.4)?
14) If aquifers are not replenished due to drought, how can it be proven that water groundwater will be the same?
15) Concerns about water quality and potential contamination.
16) Concerns that creeks and aquifers will be affected, potentially detrimentally affecting wildlife.
17) The report indicates a census of unregistered groundwater wells within a 250m radius of the preferred alignment will be conducted. The rationale for this distance and whether it is sufficient is unknown.
18) The report states that aquifers will be drained during construction.
19) Concerns that draining aquifers to build the rail line will affect water quantity. Why hasn't this been taken into account, and what is the evidence to support the statements in the report?

Submissions: 23, 78, 88, 102, 103, 104, 105, 106, 107, 108, 109(A), 109(B), 110, 111, 112, 124, 134.

Response:

1-16. The Revised Assessment Report includes a desktop study of available information for the groundwater assessment. This high level study is considered to be sufficient for the purposes of corridor designation. The lack of groundwater quality data representative of the area (extending eastwards from Warrill Creek to the end of the corridor) has been acknowledged in the report. As such, the later stages of the project will need to undertake a thorough investigation of groundwater resources in areas beneath and adjacent to the preferred alignment.

Feedback from respondents and stakeholders consulted during the Study indicates a strong reliance on groundwater throughout the study area (for stock, crops and personal use), and that any potential impacts on groundwater quality and groundwater bores are highly significant to landowners. Discussions with landowners indicate the groundwater in some of these areas is of a very good standard. It will be important for later stages of the SFRC project to investigate the characteristics of the existing groundwater, identify any potential impacts and list any mitigation measures to reduce these impacts. Future investigation will also need to consider any potential impacts upon wildlife as a result of potential modifications to the aquifers in the area.

2-4. The groundwater assessment contained within the Revised Assessment Report includes an assessment of water quality information for registered groundwater wells within the study area. It should be noted that limited information was available for the area east of Purga Creek. From the data, it was noted that all registered wells in the study area exceeded at least one of the guideline analyte levels for drinking and/or irrigation water, with three wells exceeding two analyte levels, and one well exceeding all three analyte levels for drinking water. The report recommends further survey of unregistered bores within a 250m radius of the preferred alignment, as well as identifying any nearby ecological environments that would be severely impacted by temporary drawdown from potential dewatering sites or potential surface chemical spills during construction activities.

17-19. Questions and comments regarding the potential for aquifers to be drained as part of the SFRC are noted. Further assessment of potential water sources for the study will take place during the detailed design and construction planning stages of the project. Potential water sources for the construction stage of the project will be investigated, and may include alternative sources such as recycled water. The potential affect on existing groundwater in the study area will need to be assessed at this later stage.

2.3.5 Nature conservation

Comments and concerns relating to nature conservation include the following:

1) There is an abundant amount of wildlife, some species unique to the area.
2) Why make the corridor running through a designated koala conservation area?
3) In 1994(?), the SFRC was planned to go through the Ripley area, where there is no koala conservation areas. Why was it shifted into a koala protected area?
4) Koalas are present through the study area, often in places not represented by Map 2.5 the report.
5) Further study should be undertaken to update EPA mapping to show koala habitat in the study area.
6) Development of the corridor will require clearing in habitat areas identified in Ipswich City Council's Nature Conservation Strategy 2008. In this regard, locations for fauna movement along the corridor should be nominated for further investigations during the design phase.
7) Where vegetation clearing occurs, offsets should be provided in the local area or at least the Ipswich LGA.
8) ICC property (9RP906566) has a potential land requirement for the alignment. This land is currently utilised for carbon sequestration. Compensation for any acquisition must reflect this use.
9) Concerns about the potential spread of fire ants during construction.
10) Vegetation clearing will destroy habitat for a variety of wildlife.
11) Will practises be in place to ensure that trees are not cut down with animals inside?
12) The corridor will be passing through land which is untouched by humans, and where wildlife has been able to thrive for centuries.
13) Concerns about potential impacts on *Melaleuca irbyana* essential habitat.
14) Concerns about potential impacts on rare species of possums.
15) Much of the corridor was declared green space.
16) Why is the Minister "hell bent" on destroying koalas and their habitat?
17) During the construction phase, the Scenic Rim Regional Council will require adequate offsets for vegetation clearing, especially with respect to koala habitat.
18) Wildlife movement devices (and exclusions) should be used at every opportunity along the SFRC, particularly along Wild Pig Creek.
19) If the Nature Conservation Technical Paper had been considered, the area should never have been considered as a potential route.
20) Tea Tree Avenue has an extensive area of Swamp Tea Trees which thrive in 224CH31200 which becomes swampy during rain. The SFRC will endanger this swampy environment.
21) Some landowners have undertaken extensive environmental rehabilitation and property improvement, including maintaining endangered natural wetlands. To have the SFRC then pass through some of these environmentally significant areas is difficult to bear.

22) The report contains no satisfactory mitigation strategies for impact on endangered wildlife.
23) What are the mitigation measures for noise and lighting impacts on native fauna and domestic animals?
24) Concerns that the potential introduction of infectious weeds would require control at land owners' expense.
25) Some areas throughout the corridor are used for koala and wildlife rehabilitation by wildlife groups. This land is also wedge-tail eagle habitat.
26) The C3 option passes through one of the largest Koala Conservation Areas south of Brisbane, unlike the N1 option which only passed through a small portion.
27) The corridor includes an area where a pair of protected wedge-tailed eagles lives. How will these be dealt with?
28) Concerns that the koala population will be killed off, as the preferred alignment cuts through wildlife corridors.
29) Many species of frog breed in shallow temporary water of a number of properties throughout the study area.
30) The ICC recognises conservation values of this area however State Government does not.
31) Stock and wildlife rely on dams throughout the study area for drinking water.
32) The ICC purchased a green corridor in the study area, at rate payers' expense, which will be destroyed.
33) Some implicated properties are zoned for conservation purposes and are connected to larger areas of conserved bushland.
34) The Nature Conservation Technical Paper is extremely vague and requires more investigation.
35) There are significant parts of the Ivory's Rock Conference Centre property which are subject to wildlife protection.
36) The report fails to adequately address issues of koala and fauna protection and movement.
37) Ipswich contains approximately one-third of SEQ's koala population.
38) The project does not appropriately apply the precautionary principle.
39) The report does not indicate there is no alternative alignment at this location, as required by environmental legislation.
40) No information is provided in the report to demonstrate an overriding public interest for the SFRC to go through Koala Conservation Area, near Peak Crossing.
41) Concerns that the IRCC's values will be compromised by the SFRC:
    - Significant areas are under conservation agreement.
    - Long-term member commitment to Land for Wildlife.
    - Status and release site – injured native wildlife.
    - High population and variety of fauna, including the vulnerable brush-tailed rock wallaby.
    - All of IRCC's boundaries are within a Koala Conservation Zone.
    - National Heritage Site (Ivory's Rock).
42) The environmental study was only conducted on 4 or 5 properties along the whole 55km route. There are concerns that some areas throughout the corridor were ignored in these studies.
43) The SFRC will destroy koala habitat, and is contrary to government's commitment to save koalas.
44) Is destroying a large population of koalas in the public interest?
45) Will the government engage a full, independent report of the entire corridor before designation?
46) Concerns that some areas were only surveyed by drive-by and satellite photos, and that this is not adequate.
47) King parrots are successfully breeding in some areas along the alignment, and there are concerns that this may stop due to the SFRC.
48) The SFRC study only identified 6 point for the fauna surveys - is this adequate considering project scale, or all budget allowed?
49) The preferred alignment is to pass through endangered regional ecosystems and essential habitat.
50) Concerns that construction, operation and maintenance of the SFRC will lead to ongoing damage to wildlife and their habitat.
51) The report states there may be a significant long term impact to nature conservation values of the study area. This statement is of great concern.

52) Maps 2.3 and 2.5 appear to be incorrect:
    - Koala habitat exists in other areas.
53) The restriction of koala movement is a concern.
54) There is agreement with the report with respect to the need for a referral to the federal Minister for the Department of Environment, Water, Heritage and the Arts.
55) The IKPS made a proposal for the Queensland Government to purchase and lease land to IKPS surrounding the IKPS facility, as the land has high conservation and biodiversity value.
56) The report refers to *M.irbyana* being listed as rare. It is restricted to the Moreton Basin around Ipswich with only 2% remaining of the original 1200ha.
57) Narrow-leaved Ironbark woodland occurs east of Mt Forbes. Preservation of this area is crucial as it contains largest remaining population of koalas and the Rescue/Rehabilitation clinic. Of the disturbed trees mentioned by report, 4 of 6 are preferred koala food trees.
58) Concerns that the SFRC will contribute to the potential extinction of koalas in 20yrs.
59) There are many negative impacts and no positive outcomes as a result of the SFRC.
60) The SFRC is against the public interest.
61) The following sections of the report should not be taken lightly:
    - Page 5-6/2.0 Description of Environmental Values:
        - 2.1 Flora; and
        - 2.1.1 Vegetation Communities.
    - Page 22 - 2.4.5 Protected Areas:
        - 2.4.6 Community Values.
        - The SFRC will divide and fragment excellent quality habitat for koalas which is the home range for much of the koala population. Concerns also about the impact of diesel fumes on koalas.
        - The report only describes BPA and BAMM and doesn't state if land is of state significance, regional significance or local significance.
        - Concerns that the preferred alignment should not/cannot be approved without amendments to various environmental acts.
        - What is the purpose of ecological/biodiversity classifications? Concerns that they will be ignored and that the public interest will not be met.
        - Many landowners throughout the study area have been diligent in weed maintenance.
        - A covered railway line through Peak Crossing would allow for improved wildlife movement.
        - Developers utilise unusable strips of land as 'ecological' or 'wildlife' focussed open space. However, a habitat is compromised if any elements are removed. These strips of land end up being badly managed leading to many feral species. The requirements to classify as regrowth mean that all of SEQ can meet the criteria. Therefore, those profiting from the clearing avoid responsibility.
        - The report indicates the crossing of, and negative impacts upon, extensive riparian corridors and wetlands which does not correlate with contemporary science.
        - Three simple criteria apply when attempting to save the koala:
            - Maintenance/Protection of all habitat.
            - Removal of all threats/impacts.
            - Removal of the remnant/regrowth anomaly in legislation.
62) Land development and loss of companion animals are causing koala populations to decline or become extinct, other threats include:
    - Transport infrastructure cutting through habitats utilising least expensive construction methods.
    - Koala friendly development does not maintain complete habitats as at least 2 strata of vegetation are removed and are not connected to other areas of habitat.
    - The proposed corridor will further decimate populations already impacted by habitat loss.
63) Section 8.3.2 refers to the following mitigation measures:

- Compliance with relevant legislation:
  - This legislation is not sufficient.
- Maintenance of current extent of 'Endangered' and 'Of Concern' Regional Ecosystem (RE) vegetation:
  - No reference to current legislated acceptance of degradation of 'not of concern' RE and their likelihood of being reclassified in the future.
- Maintenance of current level of critical habitat:
  - Essential habitat is not sufficient habitat to protect species.
  - Hollows are important.
  - Single food trees alone are not sufficient.
  - Potential mitigation measure could be: Maintain the current extent of ecological links and wildlife corridors.
- Inclusion of fauna sensitive design:
  - Department of Main Roads has wildlife friendly design manuals however such manuals are not utilised.
  - What guarantee is there that the assurances of the SFRCS will be implemented on the ground?
- No new infestations of weeds or pests:
  - DPI's version of Declared Weeds creates far too many exemptions for land owners.
- Retention of koala food trees within koala conservation areas:
  - Koala conservation not preservation should be the aim.
  - Retention of food trees and offsets alone are not sufficient.
  - Holistic view is required – protection of habitat beyond just food trees.
- Relocation of native wildlife:
  - Relocation of Koalas has proven in past cases to be unsuccessful.
- Investigate the use of fauna friendly culverts…….koala exclusion fencing:
  - Investigation does not commit to implementation.
- The SFRC must demonstrate an overriding need to justify its location:
  - We cannot reduce critical habitat, environment as we don't understand the complexities of natural systems.
  - Economic accounting criteria cannot capture social and environmental criteria.
  - General Comment: extremely vague, not thorough enough, inaccurate and requires much more investigation.

64) A 19km section from Purga to Woolooman has not been investigated. The whole corridor should be investigated.
65) Have the movements of a large population of kangaroos in the study area been considered?
66) Has the safety of kangaroos been taken into account, especially in the Ebenezer area?
67) The SFRC will add additional survival pressure.
68) Could safety measures be included to ensure the protection of these animals?
69) The report cites that only a small part of habitat used by wildlife will be affected, however the mapping isn't correct - koalas and wildlife range across the entire SFRC.
70) Concerns that the report suggests impacts on areas of potential environmental significance can be overcome.
71) The report doesn't address the impacts of work camps, access roads, quarries etc.
72) Refer 4.4, Table 6 p42 - need to clear environmentally significant areas, need to keep corridor width to a minimum. There should be no impact at all to critically endangered vegetation.
73) Refer 8.2.4 - importance of NC Act and other legislation. Legislation is in place to protect flora and fauna.
74) Refer 8.3.1 table 14 - potential impacts. Concerns that this section is deceptive.

75) Refer 8.3.2 - Mitigation Measures. Concerns that the mitigation measures proposed will not be effective - offsets, fragmentation, fauna sensitive design, weed infestations.

76) Refer 8.4.2 - SFRC would not meet the requirements for approval of clearing native vegetation. Concerns that the SFRC aims to avoid this by gaining approval under DEWHA, and that the SFRC is 'getting around' provisions put in place for a reason.

77) Koala areas should be strictly protected from all threats including infrastructure development.

78) Red Imported Fire Ants are dealt with in the Technical Reports however are not dealt with in the main document. The proposed alignment passes through a Fire Ant Restricted Area (FARA), construction should follow DPI&F protocols for FARA and the issue should be documented in the main report.

79) A rail freight line between Rosewood and Beaudesert will wipe out approximately 1000 Koalas and threaten a Koala rescue and rehab clinic. Koala habitat can be preserved by preventing the freight line.

80) Proposal will impact on assessable vegetation. The Queensland Government has an interest in assessable vegetation as identified in the IPA 1999.

81) The assessment process allowed no scope to consider variations to the actual Corridor of Interest, but only variations within the Corridor of Interest. Given the very considerable nature conservation impacts clearly identified in the report, a review of the location of the Corridor of Interest is recommended.

82) The importance of wildlife corridors and other nature conservation factors should be validated now, prior to CID, rather than at the detailed design stage when variations to the alignment are no longer possible or feasible.

83) Despite the report recognising nature conservation issues associated with the SFRC, limited consideration is given to whether variations to the Corridor of Interest is warranted. Considerable effort should be taken to consider alternatives and variations to the Corridor of Interest to reduce the identified significant impacts.

84) The report implies that the project team sees the area in and around the Corridor of Interest as only of interest to the "local community", thus overlooking the very high value of the Mount Flinders Ranges/Peak Crossing area to visitors and tourists from a wide area. The impacts of the SFRC must be viewed in a wider context of the regional significance of this area.

85) Given the long-term nature of the project, more time should be invested at this early stage to review alignment options.

86) Given the identification of major conservation impacts, it is recommended that more detailed investigations should be done to provide more accurate information.

87) Section 2.4.2 of Technical Paper 2 overlooks that the Koala Conservation Area in Peak Crossing is an important movement area for koalas moving through the wider region, and that the SFRC will seriously impact on the ability of koalas to move through this area. The impact will be increased by the preferred alignment being proposed as 6m above ground level, making it more difficult for koalas to move through this area.

88) A complete review of the preferred alignment through the Peak Crossing/Mount Flinders Road area should be undertaken to avoid the Koala Conservation Area.

89) The protection of nature conservation areas and wildlife corridors is becoming increasingly important to compensate for the loss of natural areas to the urban footprint that has already occurred.

90) No indication is provided of how koalas would move through this area once the SFRC is built.

91) How would "train kill" of koalas be avoided in some of these areas?

92) Given the Mount Flinders Ranges area is of regional significance to the wider public interest in maintaining the conservation and scenic amenity values of this important area, this must also be considered when assessing the public interest of the SFRC itself.

93) No fauna survey was undertaken in the Koala Conservation Area or any areas in the Peak Crossing/Mt Flinders Road/Washpool area.

94) The report does not demonstrate that there is no suitable alternative.

95) The difference in legislative requirements between Koala Essential Habitat and Koala Habitat Areas should be clearly distinguished in section 8.2.4 of the report. The report should clearly state the Essential Habitat mapping for koalas is within the management protection of the VMA 1999.

96) Two corridors are recognised in the report in relation to wildlife connectivity at a regional scale. However, the EPA biodiversity planning assessment (BPA) identifies five corridors that will be impacted, namely:

- Western Creek (riparian)
- Bremer River (riparian)
- Warrill Creek (riparian)
- A north-south state significance terrestrial corridor
- Teviot Brook Creek (riparian)

97) The state and regional corridors identified in the BPA should be formally recognised in the report and impacts considered when designing mitigation measures.

98) Subsection 8.3.1 Potential Impacts – the first dot point does not include "fragmentation" amongst the listed examples of impacts. Amend the first dot point to, "Degradation of the above vegetation communities and habitat values through direct impacts including fragmentation, edge effects, the spread of weeds, modified surface water drainage patterns, light and noise intrusion".

99) Include a short paragraph identifying a further impact as "the disruption to the actual and potential effectiveness of wildlife corridors".

100) Subsection 8.3.2 Mitigation Measures – include another dot point, to the list of project-specific objectives as mitigation measures referencing the SEQRP, then have a short paragraph identifying those of particular relevance to the SFRC.

101) Further information regarding the location and design of koala exclusion fencing and wildlife crossings should be provided to allow for an accurate assessment of the project's impact upon the local koala population.

102) Sub-section 8.4.3 – indicate within this sub-section that:
- A permit may be required even for clearing on freehold land.
- A full botanical survey of the land to be cleared will be undertaken before applying for a clearing permit, given that a permit is based on the classification of the plants to be cleared, and the extent of clearing required.
- An offsetting process may be required to achieve a 'net conservation gain' associated with endangered and vulnerable protected plants, and to achieve 'no net conservation loss' associated with rare and least concern plants.
- In relation to tampering with an animal breeding place, Section 332 of the NCA (Wildlife Management Regulation) 2006 identifies a specific offence for tampering with an animal breeding place. While spotter/catchers are endorsed to manage animal breeding places in imminent danger of habitat destruction, if a spotter/catcher will not be present prior to and during clearing to identify animal breeding places, QT will develop a Species Management Program with the EPA Wildlife Branch outlining the approach that will be taken to risk manage animal breeding place issues associated with the clearing that will be undertaken.

103) Section 8.4.4 should clearly state that the SFRC project will provide a net benefit to koalas under the Koala Plan and that QT and the EPA will be working together to secure an offset to achieve this. This work should begin as soon as possible to reduce any impacts on koalas.

104) The summary of findings should include a dot point which summarises the total amount of Koala Conservation Area to be disturbed.

105) Section 4.1.4 should include a dot point that states that in addition to the requirement to demonstrate overriding need in the public interest, the project must also provide net benefit to koalas in accordance with Policy 2 of the Koala Plan.

106) The conclusion should clearly state that koalas are currently listed as vulnerable under the NCA 1992 and that the proposed alignment will result in the direct loss/disturbance of 19.64ha of Koala Conservation Area. The conclusion should also outline proposed mitigation and koala habitat offset measures.

107) Further information in Appendix G is required to demonstrate the proposal's compliance with the Koala Plan. It is recommended that specific details of the following be provided:
- The proposed development has not provided details of an offset package to account for the loss or disturbance to koala habitat
- Specific details such as quantity, location and size of wildlife crossings, exclusion and friendly fencing

- An ecological assessment and landscape management plan should be provided as soon as possible. In addition, the EPA recommends that a Koala Management Plan be prepared to ensure koalas and koala habitat is protected throughout the lifetime of the project

108) Various submissions highlighted the presence of a wide range of wildlife throughout the study corridor. Some of these are listed below:

- Echidna
- Paddymelon, Redneck Wallaby's, Echidnas, Several species of Possums, Glider Possums, Owls, Night Jars, Double Bar and other native Finches, Wrens and Koalas
- Koalas in the area, eagles nest across road from house, large amounts of bird life in area, kangaroos and wallabies traverse on property, water fowl and corellas in area
- magpie geese, pelicans, jabiru, swans, ibis, egrets, spoonbills, herons, grebes, cormorants, black duck, white eyed duck, waterhen, landrail, white-headed stilt, curlew, plover
- koalas, possums, sugar gliders, wallabies, mopokes, frogmouth, nightjars, antechinus, cockatiels, sulphur crested cockatoos, wedge-tailed eagle, nankeen kestrel, goshawk, quail, curlew, doves, pigeons, parrots (king), lorikeet, bronze cuckoo, coucal, hoel, kingfisher, kookaburra, rainbow bird, roller, swallow, black faced cuckoo shrike
- koalas, rufus bettongs, pygmy possums, sugar gliders, kangaroos (big reds), various wallabies and a multitude of bird species
- rock wallabies, koalas, Eagles, frogs
- A waterhole containing platypus (CID Sheet 20)
- Magpies, Crows, Peewees, Black Ducks, Whistling Ducks, Grebes, Hawks, Harriers, Wedge tailed Eagles, Mopokes, Quails, Plovers, Ibises, Pelicans, Spoonbills, Noisy Miners, Apostle Birds, Blue Eared Honeyeaters, Bristlebirds, Coucal Pheasants, Pardalotes, Scrub wrens, Fairy wrens, Red Backed Fairy Wrens, Corellas, Galahs, Sulphur Crested Cockatoos, Pale Faced Rosellas, Scaly Breast Lorikeets, Rainbow Lorikeets, King Parrots, Currawongs, Weebills, Butcher Birds, Mistletoe Bird, Double Bar Finches, Crested Pigeons, Bronzing Doves, Emerald Doves, Brown Cuckoo Dove, Channel Billed Cuckoo, Kingfishers, Kookaburras, Cuckoo Shrike, Swallows, small nocturnal mammals, koalas, Kangaroos, Wallabies, Possums, Bandicoots, Snakes and Frogs, Jumping spider, and large unidentified earthworms

109) With the C3 option passing through koala conservation area, there is a direct conflict with IPA CID process.

110) How does passing through endangered regional ecosystems and essential habitat meet requirements for CID?

Submissions: 4, 6, 7, 12, 19, 22, 23, 25, 27, 31, 42, 43, 44, 46, 47, 51, 54, 77, 78, 88, 94, 96, 97, 101, 102, 103, 104, 105, 106, 107, 108, 109(a), 109(b), 110, 111, 112, 124, 125, 128, 129, 130, 131, 132, 137.

Response:

1, 10, 12, 14, 19, 22, 25, 27-30, 33, 37, 47, 49-51, 59, 61, 63, 65-72, 75, 80, 86, 89-91, 101, 106, 107. The diverse range of flora and fauna (some endemic to the region) throughout the study area is noted, and recognised in the Revised Assessment Report. The environmental characteristics of the study area were a significant factor in the determination of the preferred alignment. All efforts were made to avoid any potential major adverse impacts upon the nature conservation values of the study area. The alignment has been realigned in the Ebenezer area to minimise potential impacts on koala habitat. The Revised Assessment Report identifies the potential nature conservation impacts of the SFRC, and also lists numerous mitigation measures to prevent or minimise these impacts. Additional mitigation measures (largely through design considerations) will be required to address the potential nature conservation impacts during the detailed design stage. This will include design measures to promote wildlife movement under or over the SFRC, so that ecosystems and ecological corridors can continue to perform their important roles within the region. It is noted that habitat values such as hollow-bearing trees and logs are important aspects in the maintenance of quality habitat. Spotter/catchers will be used during construction to minimise direct impact to animals inhabiting trees within the area of the preferred alignment. Measures to ensure that microhabitats are maintained (such as small temporary ponds for native frogs during rain) will also be investigated.

With respect to the concern that the assurances of the SFRC study may not be implemented on the ground, the Minister may place conditions on designation of the SFRC. This may include implementation of the mitigation measures outlined in the Revised Assessment Report during future stages of the project.

It is also important to note that the detailed design stage of the project will investigate potential effects of work camps, access roads, temporary quarries, etc. upon all aspects of the environment, including nature conservation.

2, 26, 39, 40, 43, 44, 52, 53, 58, 60-62, 77, 79, 87, 88, 92-94, 106, 107, 109, 110. The *Nature Conservation (Koala) Conservation Plan 2006 and Management Program 2006-2016* (Koala Plan) states that uncommitted community infrastructure such as the SFRC can only be located in Koala Conservation Areas (KCAs) when there is an overriding need in the public interest for the location of that infrastructure within a KCA. In determining an overriding need in the public interest, it must be shown that:

- There is no suitable alternative location outside of a KCA;
- The overall social, economic and environmental benefits of the development outweigh any detrimental impact upon the natural values of the site, conflicts with the desired outcomes of the SEQRP, and conflicts with the Koala Plan; and
- Whether the community would experience significant adverse economic, social or environmental impacts if the development proposal were not to proceed.

Further, the following do <u>not</u> establish an overriding need in the public interest:

- Activities or uses with relatively few locational requirements;
- Interests in or options over the site; or
- The site's ownership or availability.

Investigations preceding the SFRC study have demonstrated there is no suitable alternative location for a connection between the western and interstate railways. Rail infrastructure such as the SFRC has specific locational requirements, described in Section 4.3 of the Revised Assessment Report (Volume 1). The location of the KCA is recognised in the report, and was a constraint with respect to the location of the preferred alignment in this area. However, there were a variety of factors which influenced the location of the preferred alignment within a portion of the KCA near Peak Crossing, including the location of major facilities (Purga Quarry, Ivory's Rock Conference Centre), the location of Good Quality Agricultural Land (GQAL), and the township of Peak Crossing itself.

Section 4.6.1 of the Revised Assessment Report (Volume 1) outlines the need for the project, and demonstrates there is an overriding need for this SFRC in the context of the future growth of SEQ and Queensland. The wide-ranging social and economic benefits expected to accrue as a result of the SFRC are considered to outweigh any potential localised impacts upon the natural values of the local area – particularly considering that many of these potential localised impacts are expected to be capable of being effectively mitigated during detailed design. Should the Inland Rail project proceed in the absence of the SFRC, there are likely to be significant economic and social impacts resulting from the absence of an efficient rail link to existing and future intermodal freight terminals in locations such as Bromelton, Acacia Ridge and the Port of Brisbane.

3, 26. The SFRC was never planned to go through the Ripley area. The SIC Study (2005) concluded that two options were potentially feasible – the N1 option and the C3 option. The Minister stated that the C3 option should be the one investigated further, as the N1 option posed too many issues with existing and future residential development (including the future master planned community of Ripley Valley). This is the reason why the C3 option was chosen for further investigation, and the SFRC preferred alignment is a derivative of this C3 option.

4, 5, 16, 25, 28, 36, 37 43, 44, 52, 53, 55, 57, 58, 61-63, 69, 77, 79, 87, 88, 90, 91, 93, 101, 103, 107, 109. Concerns about potential impacts of the SFRC on koala habitat are noted. It is acknowledged that koalas exist throughout the study area, and in areas not represented in koala habitat mapping. This information is useful to the study team, as it provides a more accurate picture of the potential impacts of the SFRC. The SEQ Koala

Habitat Assessment and Mapping Project (DERM 2009) was the most extensive koala habitat assessment and mapping project undertaken in Queensland, and formally recognises areas throughout SEQ that provide habitat for koalas. The project is focused on local governments within the SEQ region where the threats to koalas from urban expansion are the greatest (i.e. the high-growth local government areas). One such high growth area is Ipswich City. The project has utilised koala records from local wildlife and conservation groups, as well as members of the public. The results of DERM's mapping project are relevant to the SFRC study.

The SFRC study team held discussions with DERM, the Ipswich Koala Protection Society, the Moggill Koala Hospital Association and other stakeholders (as part of the Koala, Threatened Species and Habitat Working Group (KTSHWG)) about the this mapping project and its implications for the SFRC study.

The previous SFRC alignment (as proposed in the Draft Assessment Report) traversed some areas of high value bushland in the Ebenezer area (DERM 2009) (see Map 2.9, Volume 2). This supports information provided through submissions and through meetings with the KTSHWG.

Since the release of the Draft Assessment Report in October 2008, new information from the public (including the high value placed on the koala habitat in Ebenezer) and from DERM (including the importance of the Ebenezer area in the SEQ Habitat Assessment and Mapping Project) prompted the SFRC study team to investigate alternative alignments for the SFRC in this area. The alignment has been revised to largely avoid core koala habitat (mapped as high value bushland by DERM), and is now positioned up to 2km north of its previous location through Ebenezer, to the south of Paynes Road (See Appendix B – CID Plans). Further details of the revised alignment are provided in Section 4.3.3 of Volume 1.

6, 30, 33, 61, 63, 65-69. Ipswich City Council's Nature Conservation Strategy 2008 (NCS) is identified in Technical Paper 2 (Volume 2). It is acknowledged that some areas identified in the NCS as habitat areas are traversed by the SFRC alignment (see Map 2.3). Suitable opportunities for fauna movement across the SFRC will be investigated during the detailed design stage of the project. A key aim will be to ensure that access for wildlife is maintained (either over or under the SFRC) in important habitat and corridor locations. It is understood that liaison with Ipswich City Council (ICC) about this issue would be useful at the detailed design stage.

7, 17. A major target for the SFRC project will be to ensure that any vegetation required to be cleared for the project will be offset in areas as close to the area of cleared vegetation as possible. ICC and Scenic Rim Regional Council (SRRC) offset requirements are also noted. The detailed design stage of the project will identify adequate offsets for all vegetation cleared for the SFRC within these local government areas. Vegetation connectivity will be an important consideration in the determination of offsets.

8, 32. It is noted that the ICC property 9RP906566 is currently used for carbon sequestration, and falls within the preferred alignment for the SFRC. When acquisition of land occurs for the SFRC, compensation for the acquisition of this land will reflect its current use, and will be based on market values.

9. Concern regarding the potential spread of fire ants during the construction of the SFRC is noted, and is identified in Section 8.2.2 of Volume 1, and also in Technical Paper 2 (Volume 2). A Construction Environmental Management Plan (CEMP) will be developed at the detailed design stage of the project, and will outline measures to adequately manage the risk of spreading fire ants.

11. As identified in Section 8.3.2 of Volume 1, and also in Technical Paper 2 (Volume 2), suitably qualified spotter/catchers will ensure that wildlife within/on vegetation to be cleared is identified, removed and relocated in a suitable local area to avoid any injuries from construction activities. Hollow logs will be retained wherever possible within the areas surrounding the preferred alignment.

13, 20, 54, 56, 72, 76. Concerns about potential effects upon *Melaleuca irbyana* (swamp tea tree) essential habitat are noted. The *M. irbyana* is recognised by the Department of Environment, Water, Heritage and the Arts (DEWHA) as a critically endangered ecological community under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Further, it is classed as an Endangered Regional Ecosystem under the Queensland *Vegetation Management Act 1999* (VMA). The location of *M. irbyana* was an important determining factor in the location of the preferred alignment, notably in the areas of Mount Forbes, Ebenezer and Purga. One such area through Ebenezer is the appropriately named Tea Tree Avenue. Discussions have been held with DEWHA regarding the potential for the SFRC to be classed as a "controlled action" under the EPBC Act due to its potential to affect *M. irbyana* communities. The study team has been advised that DEWHA does not require a referral for the project under the EPBC Act until such time as the detailed design of the project has been undertaken, and the construction of the SFRC is imminent. Ensuring minimal impacts upon *M. irbyana* was a primary consideration which underpinned the planning and design stages of the SFRC study. The Section 8.4 of Volume 1 discusses the implications of the potential impacts upon *M. irbyana* in the context of the EPBC Act and the VMA.

15, 35, 89. Areas of green space, nature conservation areas and wildlife corridors throughout the study area have been acknowledged in Technical Paper 2 (Volume 2). These areas were considered in determining the preferred alignment, and where possible, the preferred alignment was located to avoid these areas. In the case of wildlife corridors traversed by the alignment, mitigation measures will be identified at the detailed design stage to ensure that suitable and appropriate connectivity is maintained despite the construction and operation of the SFRC.

18, 36, 61, 101. It is acknowledged that some habitat and corridor areas are traversed by the SFRC preferred alignment in various parts of the study area. Suitable opportunities for fauna movement across the SFRC will be investigated during the detailed design stage of the project. A key aim will be to ensure that access for wildlife is maintained (either over or under the SFRC) in important habitat and corridor locations, including the area around Wild Pig Creek.

21, 41, 61. It is acknowledged that some landowners have undertaken extensive environmental rehabilitation on their properties, and they have been excellent custodians of their land with respect to nature conservation values. It is acknowledged that these landowners are likely to feel disheartened by the SFRC preferred alignment being located in some of these areas. As previously indicated, suitable opportunities for fauna movement across the SFRC will be investigated during the detailed design stage of the project. A key aim will be to ensure that access for wildlife is maintained (either over or under the SFRC) in important habitat and corridor locations.

23. It is unclear how noise and lighting from the SFRC might affect native fauna and domestic animals. These effects are likely to vary depending on the area in question, but may include effects on critical behaviours including foraging, reproduction and communication. Some studies have recently been undertaken into the effect of light on particular wildlife species. Two such studies are listed below:

- Stone *et al.* (2009) – investigating the effects of street lighting on commuting bats (results indicate that light pollution may have significant negative impacts upon the selection of flight routes by bats);

- Baker and Richardson (2006) – investigating the effects of artificial light on male breeding-season behaviour in green frogs (results indicate that male green frog behaviour is affected by the presence of artificial light in a manner that has the potential to reduce recruitment rates and thus affect population dynamics).

With respect to noise pollution, it is generally held that noise can affect wildlife through increasing stress, changing natural predator/prey detection and avoidance relationships, and interfering with communication (with respect to reproduction and navigation).

These effects will be investigated further during the detailed design stage of the project, so that any potential impacts upon native fauna and domestic animals from noise or lighting can be identified and appropriately mitigated.

24. Concerns relating to the potential spread of weeds on adjoining properties are noted. A Weed Management Plan will be prepared during the detailed design stage of the project, which will outline measures to minimise or

prevent the potential spread of weed species in the study area. This is not likely to create any added imposition upon landowners outside of their existing responsibilities with respect to weed management.

31. It is recognised that stock and wildlife rely on dams throughout the study area for drinking water. Aspects such as dam access will be investigated on a case-by-case basis, including consultation with relevant landowners, during the detailed design stage. The issue of stock (and wildlife) access will be included in these investigations. Mitigation measures may include the reinstatement of dams outside of the rail corridor where appropriate.

34, 42, 46, 48, 61, 63, 64, 70, 74, 75, 82, 86, 93. It is noted that some stakeholders consider the Nature Conservation Technical Paper (Volume 2) to be too vague, and that these aspects require more investigation prior to seeking Community Infrastructure Designation (CID) under the *Sustainable Planning Act 2009* (SP Act).

The field component of the SFRC study included flora and fauna surveys in a number of locations throughout the study area. With respect to flora, the Regional Ecosystem (RE) mapping data throughout the study area was verified during site inspection through ground truthing. Six locations were selected for fauna surveys, considered representative of the study area, and considered to demonstrate the greatest ecological value. "Representativeness" was determined by the site's commonality, and "high ecological value" was assessed through a combination of ecological factors including (but not limited to) legislative protection, rarity, condition, connectivity, patch size and habitat value. These aspects are outlined in Section 1.2, and Appendix B of Technical Paper 2 (Volume 2). For the purposes of this planning study, the adopted field survey methodology (in combination with the desktop assessment) is considered to be an adequate assessment of the nature conservation values of the study area at this stage.

The SFRC study is a planning study, aimed at identifying a future corridor for a freight railway line – it does not represent a commitment to construct the railway line at this stage. Given that there is likely to be at least 10-15 years before the SFRC is constructed, it should be noted that the environmental significance of the study area (and areas therein) is likely to change between now and the construction date. As such, a more comprehensive nature conservation investigation will be required at later project stages (i.e. about two years prior to construction). For the purposes of this study, the nature conservation study included in the Revised Assessment Report is deemed to be adequate to satisfy the objectives of the study at this stage – to identify ecological constraints throughout the study area, to consider these in the determination of the preferred alignment within the study area, and to highlight potential effects upon these ecological factors as a result of the preferred alignment. At this stage, some of the nature conservation assessment is necessarily broad in nature, and it is expected that the assessment during detailed design will be a more focused and comprehensive one, based on the final engineering characteristics of the SFRC.

38. The precautionary principle states that the absence of scientific certainty should not be used as a reason to undertake a specific action. With respect to nature conservation, the application of the precautionary principle effectively means that an action should not be undertaken if there is a lack of information about whether or not that action would lead to impacts upon the nature conservation values. The notion of the precautionary principle is acknowledged by the study team as being of high importance to ecologically sustainable development. However, when referring to the precautionary principle with respect to the SFRC study, it is important to recognise the timeframes associated with the project. The purpose of the SFRC study is to identify and preserve a corridor for the future development of a freight railway line – not for the construction of the railway line itself. The nature conservation study at this stage of the project focused on significant environmental constraints relating to the rail corridor, and these constraints were used in the determination of the preferred alignment. It must be noted that the detailed design stage of the project will include a more comprehensive understanding of the potential environmental effects of the SFRC, as the future study (likely to be an Environmental Impact Statement or equivalent) will be based on specific design components.. When adopting the precautionary principle, it is vital to appropriately view this stage of the project as a planning study for the identification of a corridor for a future freight railway, as distinct from the construction and operation of the future freight railway (which will be more comprehensively assessed during detailed design).

41. It is acknowledged that the Ivory's Rock Conference Centre (IRCC) site is characterised by significant nature conservation values. These values have been recognised and incorporated into the SFRC study, through the

determination of the preferred alignment within the study area, and the identification of mitigation measures (at this stage, and at the future detailed design stage).

45, 110. The Draft Assessment Report and Revised Assessment Report are considered to be adequate for, and compliant with, the *Guidelines about Environmental Assessment and Public Consultation Procedures for Designating Land for Community Infrastructure* (CID Guidelines). Prior to designating community infrastructure under the SP Act, the Minister must be convinced that adequate environmental assessment and adequate community engagement has been undertaken. The SP Act states that adequate environmental assessment and community engagement can be demonstrated through adherence to the CID Guidelines. It is important to note that the environmental assessment and community engagement processes undertaken for the SFRC study not only meets the requirements of the CID Guidelines, but exceeds them in many areas.

63, 73, 76. The opinion that the environmental legislation is not sufficient to ensure nature conservation impacts are avoided is noted. However, TMR has an obligation to comply with the relevant legislation (both Queensland and Commonwealth) at any particular point in time, and may seek to exceed these obligations where possible.

78. It is noted that the Summary (Volume 1) document does not deal with red imported fire ants, as they are in Technical Paper 2 (Volume 2). This has been changed in the Revised Assessment Report.

81, 83, 85. Section 4.0 of the Volume 1 summary document outlines the rigorous process involved in identifying the Corridor of Interest, which included analysis of many options throughout the study area. Although the Corridor of Interest was determined, variations were still considered outside the Corridor of Interest if particular circumstances required this. For example, the preferred alignment is situated slightly outside the Corridor of Interest in the eastern end of the corridor, in order to achieve optimal alignment considering road networks and hydrological factors. The revised alignment is located north of the original Corridor of Interest, as this was considered the most suitable alignment option in the Ebenezer area.

84. The importance of the Mount Flinders/Peak Crossing area with respect to tourism is recognised. Nature conservation values throughout the study area are important to various tourism activities. It is important to ensure that mitigation measures are identified to reduce or prevent any effects upon flora and fauna as a result of the SFRC.. It is acknowledged that scenic amenity is a strong driver of tourism in the local area (see Section 2.3.11 of this report).

95. It is noted that the difference in legislative requirements between koala essential habitat and koala areas under the Koala Plan should be clearly distinguished in the summary document (Volume 1) and Technical Paper 2 (Volume 2). Section 2.4.2 of Technical Paper 2 (Volume 2) has been amended to include this distinction.

96, 97. The corridors for wildlife connectivity identified in the biodiversity planning assessment (BPA) by DERM are acknowledged; namely the riparian corridors of Western Creek, Bremer River, Warrill Creek and Teviot Brook, as well as a north-south state significance terrestrial corridor. These corridors have been included in the Revised Assessment Report, and the assessment of impacts has been considered in the identification of suitable mitigation measures.

98-100, 102, 104-106. These suggestions for amendments to the Draft Assessment Report are noted. Technical Paper 2 (Volume 2) includes these amendments.

108. Various submissions highlighted the presence of a range of wildlife throughout the study area. This input is appreciated, as local knowledge is essential to a robust reporting process. The species identified within these submissions have been noted and included in the Revised Assessment Report, namely in Appendix E of Technical Paper 2 (Volume 2).

2.3.6 Surface water

Comments and concerns relating to surface water include the following:

1) Concerns about water quality and potential contamination in waterways and dams.
2) Need to provide access to and preserve natural water courses which transport water to dams.
3) Question about design of cuttings to ensure suitable run off for dams.
4) Potential contamination during construction and in the event of accidents during operation.
5) Potential contamination of tank (potable) water by dust and emissions.
6) Concerns that chemical spills, dust, emissions and herbicides will pollute water supplies.
7) Concerns about potential impacts to drinking water harvested from roofs into rainwater tanks.
8) The risk of contamination is not reflected in Vol 1 Ch9.4 of the report.
9) Have samples along the corridor been taken for comparison?
10) Will water monitoring occur?
11) Will town water be installed to affected properties?
12) Natural lay of the land allows surface water to go where it should and allows seepage to replenish aquifers as well as from Sandy Creek. Whenever Sandy Creek floods, the northern banks erode – this has been more noticeable in recent years.
13) Soil in the area has no bottom when saturated. There will be a monumental engineering task for design and construction of the rail, and this will also be expensive.
14) Warrants looking at options to place rail where such large banks would not be required and soil is more stable.
15) Mention should be made to the *Healthy Waterways Strategy 2007-2012* and its relevance to the management of the Bremer and Logan River catchments and efforts to enhance water quality.
16) Consultation with SEQ Catchments group to align possible offset work, including rehabilitation and restoration of selected areas of relevant riparian areas already identified elsewhere in these catchments is worth consideration, and may help offset other environmental impacts as a result of the SFRC.
17) The report refers mainly to potential impacts on riparian zones during construction of the SFRC, and does not clearly identify precautions that will be taken to minimise impacts on the riparian zone. Additionally, the report makes little consideration of rehabilitation and restoration of riparian zones post-construction, and misses an opportunity to consider offsetting for the project in terms of restoring riparian areas.
18) Applying policies 2.5.1, 2.5.2, and 2.5.4 of the SEQRP will ensure that riparian areas receive minimum disturbance during construction and are rehabilitated and restored as part of the project.
19) The mitigation measures section of the report does not reference the *Queensland Water Quality Guidelines 2006* (QWQG).
20) Mitigation measures (dot point 3) should be amended to state 'Net improvement to riparian areas as a result of rehabilitation and restoration after construction'.
21) Proposed management strategies during construction and operation should comply with relevant policies of the SEQRP. Amend the list of proposed strategies during construction and operation to ensure compliance with the relevant SEQRP policies.
22) The conclusion (page 83) contains no reference to improving riparian health locally as an approach to environmentally sustainable development. Amend the conclusion so that it recognises the proponent's responsibilities under the SEQRP and outcomes that compliance will provide for the local and downstream environment.
23) The preferred alignment passes adjacent to crucial watering points for stock. Eastern meanders are only permanent waterholes for linked properties.

24) Concerns that water movement over various properties will change, causing erosion and altering supply of water to existing dams.

25) Vol. 1, chapter 9.4. of the study states that there 'no effect to water quality'. What tests were conducted (and supporting evidence) to claim this?

26) How does the SFRC support the Ipswich City Council's recent endorsement of the South-East Queensland Healthy Waterways Strategy 2007-2012 and Bremer Action Plan?

27) Any detailed design phase would need to review and update the ICC Ipswich Rivers Study Phase 3 to reflect advances in analysis and data availability.

28) The SFRC would transverse a wide range of soils and lithologies with most of the corridor having soils derived of sedimentary rocks formed under a marine environment. Weathered rocks have inherit salt and historical salt from rainfall.

29) As the SFRC would traverse a variety of landforms, it is of utmost importance that natural flows of both surface and ground water be unobstructed by the construction of the railway line.

30) It is strongly advised that where land is truncated for the construction of the railway line unimpeded natural flow of both surface and ground waters should be maintained to avoid occurrence of salinity on the land surface.

31) Structures should be in place to intercept hill slope flow and divert groundwater so that the both surface and ground water is free draining along the length of the railway line.

32) Interference with overland flow requires compliance with the Code for self-assessable development for taking overland flow water using limited capacity works.

33) The SFRC transverses two Water Resource Plan (WRP) areas: the Logan WRP and Moreton WRP. The interference and taking of overland flow in the Moreton WRP is self assessable development under the IPA. When the time is appropriate, the project proponent should contact NRW if any of the above activities are proposed, prior to commencing any works.

34) The SFRC crosses the following drainage features identified as 'watercourses' under the *Water Act 2000*:

- The Bremer River, Dugandan Creek, waterhole on Dugandan Creek, Purga Creek, Sandy Creek, Teviot Brook, Warrill Creek, Western Creek, Wild Pig Creek and Woollaman Creek. Further Investigation will be required to determine if other minor drainage features along the corridor are classified as watercourses under the *Water Act 2000*.

35) Construction of Railway Crossings – Excavation, placing of fill and destruction of vegetation in a watercourse. The excavation, placing of fill and destruction of non-remnant vegetation in a watercourse is not assessable development under the IPA, but it does trigger the requirement for a Riverine Protection Permit under the *Water Act 2000*.

36) Works undertaken by an 'entity' – Works must be undertaken under the Guideline - Activities in a watercourse, lake or spring carried out by an entity.

37) Works not undertaken by an entity – For works not undertaken by an entity requires a Riverine Protection Permit (RPP).

38) Draft conditions from the DNRW are to be met during construction and operation of the SFRC.

39) Concerns that the report dismisses land and creeks as already being degraded and not worth preserving. Landowners find this disrespectful and not scientifically based.

Submissions: 7, 23, 25, 43, 48, 78, 88, 94, 108, 109(B), 110, 112

Response:

1. Concern about the potential contamination of waterways and dams is noted. However, the design of the SFRC will be such that the risk of contaminated runoff being transported to water bodies in the study area (both natural and artificial) is minimised. The SFRC will be required to comply with legislation which regulates activities that have the potential to create contamination. This legislation includes the EP Act and the EPP (Water). The detailed design of the SFRC will ensure that all measures are taken to maximise access to natural waterways (particularly for stock watering and irrigation) and that the flow of these natural waterways continues to service existing dams throughout the study area. It is acknowledged that this may not always be possible, with alternatives such as construction of new dams being one example of an alternative measure that may be investigated.

2-3. It is noted that the location of some cuttings along the SFRC will affect the level of runoff to existing dams. During the detailed design stage, these impacts will be investigated in more detail and discussions will be held with relevant landowners to develop solutions to this issue on a case-by-case basis.

4, 6, 8. Water contamination risks posed by the construction of the SFRC and any accident during the operation of the SFRC are noted. All risks associated with construction activities will be identified in the CEMP at the detailed design stage, and mitigation measures will be identified to prevent or minimise these risks. With respect to the risks posed by an operational accident, a hazard and risk assessment will be conducted during the detailed design stage to identify and quantify these risks, and to adopt mitigation measures to reduce these risks to an industry-accepted level. These risks are expected to be very low. The main way to minimise these risks is through adherence to the preferred rail design criteria (i.e. curve radii, speed limits and no level crossings). Risk is also reduced through operation as a dedicated freight railway, as there are no potential conflicts between passenger and freight traffic.

5-7, 11. In addition to the risk of contamination to surface water, the concern over the potential for potable tank water to be contaminated is also acknowledged. There is a particularly high level of water tank usage in the study area, due to the lack of a reticulated water supply. Consequently, there is the potential for dust and emissions from the construction and operation of the SFRC to contaminate this water source. Appropriate dust suppressing measures will be incorporated into the CEMP to ensure that no excess dust leaves the construction sites. The operation of the SFRC will generate diesel emissions and could potentially disperse dust particles on some occasions, however the risk of this is considered to be very low, and relevant only for very localised areas. Nevertheless, it is acknowledged that some water tanks with potable water are likely to be within these areas. The rail verges will be lined with ballast, and vegetated to prevent or minimise any airborne pollution. Most of the freight carried by trains using the SFRC is likely to be on containers; however there is the possibility of bulk materials also being transported along the corridor. All freight carried on the SFRC will be required to comply with current suppression requirements. The assessment of localised air quality impacts for the SFRC indicates that no exceedance of the EPP (Air) will occur through the operation of the SFRC, and hence the guidelines of the EPP (Water) with respect to the perceived risk of contaminated rainwater through air emissions will also be met. Hence, there is no commitment to install reticulated water infrastructure to those properties in proximity to the SFRC. It is also important to note that the overall impact of the SFRC is expected to result in a reduction in emissions on a broad scale.

9. Water quality samples were taken throughout the study area during field work in February 2008. In addition, the study has utilised data from DERM's Ecosystem Health Monitoring Program (EHMP). The EHMP data contains annual water quality information for the watercourses in the study area.

10. Water quality monitoring in the study area will continue to take place annually, for as long as the EHMP remains a commitment of DERM.

12. Concerns about potential impacts upon the northern banks of Sandy Creek are noted. During the detailed design stage of the SFRC, a CEMP will be prepared which will outline all erosion and sediment control measures to be adopted during the construction phase of the project. With respect to the operation of the SFRC, a cross-drainage study will be undertaken during the detailed design which will investigate localised flooding impacts and mitigate these accordingly.

13, 14. Some stakeholders have expressed concern that the soil in the study area is unstable, particularly during times of inundation. Technical Paper 1 (Volume 2) identifies measures to prevent and/or minimise the potential for mass wasting along the alignment. With respect to more gently sloping areas, it is acknowledged that some landowners have indicated there is a tendency for the soil to act as quicksand when wet. During the detailed design of the SFRC, there will be more comprehensive geotechnical investigations, including drilling along the preferred alignment. However, it is expected that the issues of mass wasting and quicksand can be mitigated through rock bolting, retaining walls and stable cuts where appropriate, as well as the removal of any potentially hazardous soil along the preferred alignment. The specific details of these mitigation measures will be investigated during the detailed design stage of the project. It should be noted that whilst having cost

implications for construction of some sections of the alignment, these issues are not considered to pose a significant constraint to the project.

15. The *Healthy Waterways Strategy 2007-2012* (HWS) is identified in the report as a key document to ensure compliance of water quality mitigation measures (refer Section 9.3.3 (Volume 1) and Section 3.2 of Technical Paper 3 (Volume 2)). All SFRC waterway crossings will be of a standard acceptable under the HWS.

16. Consultation with the SEQ Catchments group to align possible offset work is noted as being a worthwhile activity. Rehabilitation works (where required) would be undertaken by TMR in consultation with local catchment groups, including SEQ Catchments.

17-18, 21. The precautions that will be taken to minimise impacts of the SFRC on the riparian zone are listed in Table 3 5 of Technical Paper 3 (Volume 2). Policies 11.4.1, 11.4.2 and 11.4.3 of the SEQRP relating to waterway health are now referenced in Table 3 5 of Technical Paper 3 (Volume 2).

19. The *Queensland Water Quality Guidelines 2006* (QWQG) have been added to the management strategies section of Technical Paper 3.

20. Reference WQ.03 in Table 3 4 of Technical Paper 3 (Volume 2) has been amended to state "Net improvement to riparian areas as a result of rehabilitation and restoration after construction".

22. The proponent has a responsibility to ensure that local riparian health is improved with the development of the SFRC. The SEQRP contains a number of policies identifying the responsibility to protect, maintain and enhance the natural functions and environmental, social and economic values of the region's waterways, wetlands, riparian areas and floodplains. Technical Paper 3 (Volume 2) has been amended to include acknowledgement of this responsibility.

23. The issue of access for stock to crucial watering points are noted as being key concerns for landowners in the area. All landowner-specific requirements such as access arrangements to continue activities on their property during the construction and operation of the SFRC will be fully investigated during the detailed design stage of the SFRC on a case-by-case basis. This will include the proponent holding discussions with individual landowners to work out acceptable solutions to these issues.

24, 29-31. The SFRC study is a planning study for the identification of a corridor for a freight railway line. In this sense, the hydraulic study conducted to date suits the purposes of the SFRC study. The outcome was that flooding impacts from major waterways were determined. It is recognised that further, more detailed work will need to be undertaken during detailed design for detailed assessment of local cross drainage requirements,. This later stage will also be used to gain an appreciation of water yield in surrounding creeks and dams.

25. Section 9.4 of Volume 1 states that "the ***operation*** of the SFRC is not expected to affect water quality or riparian areas". The basis for stating this is that the existing water quality in the area was found to be relatively poor, and that there is likely to be minimal affect on water quality as a result of the operational SFRC (covered loads, ballast and vegetation on rail verges).

26. The SFRC will contribute to the objectives of the HWS and Bremer Action Plan through causing no increase in flooding, the low likelihood of water quality impacts, and through the rehabilitation of riparian areas.

27. The data gathered during the detailed design stage will be provided to Ipswich City Council, such that Council can review and update the ICC Ipswich Rivers Study Phase 3.

28. The risk of salinity resulting from the SFRC is negligible compared to that posed by land clearing throughout the study area for improved pastures. The extent of rock exposure as a result of the SFRC is low, and it is

possible that salts could leach from these rocks and cause some minimal short-term impacts. However, this impact is expected to be relatively low, and short-term in nature.

32-38. The statutory requirements under the *Water Act 2000* for new works taking overland flow, and under the SP Act for taking overland flow in the Moreton Water Resource Plan area, are recognised by the study team. The points listed in 32-38 outline legislation and policy which must be complied with by the SFRC prior to construction. The draft conditions from DNRW will be received by the study team at the detailed design stage of the project, and these conditions will need to be complied with during the construction and operation of the SFRC.

2.3.7 Hydraulic processes

Comments and concerns relating to hydraulic processes include the following:

1) Further disturbance to landscape is 'intolerably risky'.
2) It is not logical to try to build a railway on flood plain.
3) The report contains no historical info on extent or quality of water in Bremer Valley.
4) The study team has no idea of the potential amount of surface runoff on property.
5) There are not adequate culverts for water to disperse.
6) Flood modelling is potentially inadequate.
7) Some properties traversed by the SFRC preferred alignment handle heavy flows during flood events.
8) Photographic evidence of ground flooding provided in various submissions.
9) Flooding would have significant impacts if there was a large rainfall event (e.g. 250mm) of rain with the rail line in place.
10) There is potential for impending local flows from north to south in this same area (to the east of Warrill Creek). The overall impacts of this flooding should be analysed.
11) Water flows through Purga Nature Reserve should be examined. It appears that the rail line will completely stop the flow of water in this area.
12) There is a lack of understanding of flooding impact - rail line will act as dam especially in area of Sheet 20 appendix B Volume 1.
13) Washpool Road is subject to flooding in several places.
14) Tea Tree Avenue floods at least 40cm. If the train line is placed in this location it will create a dam effect.
15) Water flow has already changed in the reserve near the Powerlink causeway.
16) Concerns that low lying areas will become dams due to construction of banks up to 12m in height.
17) An elevated railway (6-8m) will ruin valley with the first flood.
18) Report has a complete lack of understanding of the intensity of flooding in local creeks.
19) Has local flooding impacts on properties been investigated and taken into account? Where is the evidence?
20) A comparison of council's flood modelling and infrastructure data against the SFRC Draft Assessment Report's flood and afflux levels shows a significant difference in flood levels in a Q100 event at this location. Despite this, the use of the afflux of 0.3m by the SFRCDAR would appear to not have any significant impact on the flood area.
21) Potential impacts on water supply for surrounding creeks for animals.
22) The SFRC will cut water supply mains from irrigation dams on various properties, and will create a significant reduction in the catchment areas of existing dams.
23) Alternate sources of water supply will be required for some land owners.
24) It is extremely costly to build replacement dams, and there are many topographic and land constraints in many cases which would not make the construction of another dam feasible.

Submissions: 25, 32, 44, 46, 47, 54, 88, 94, 97, 107, 108, 112, 127, 134

Response:

1. Concern over disturbance to the landscape and the risk that it poses for flooding characteristics is noted. However, flood risk is a function of flood levels and flood receptors. The hydraulic study demonstrated that catchment functions remain unchanged with the SFRC, and that there are no adverse impacts on flood risk as a result of the SFRC.

2. The notion of building the SFRC on areas of flood plain is acknowledged. However, as identified in other sections of the report, there is no feasible alternative in finding a connection between the Western Railway and the Interstate Railway lines. Engineering design measures can be used effectively to ensure that building the SFRC on flood plain areas does not increase flood risk. This has been demonstrated in the hydraulic study.

3. Technical Paper 4 (Volume 2) contains information about historical flood extent. Technical Paper 3 (Volume 2) contains information about historical water quality.

4, 7, 18, 19. Calibrated rainfall-runoff models were developed for the Teviot/Woollaman catchment, including Wild Pig Creek and Purga Creek catchments. Good representation was achieved between recorded and predicted flow. A calibrated hydraulic model provides understanding of flooding in major waterways, based on these historical floods and design events. For the Bremer River, Warrill Creek and Western Creek, an existing calibrated rainfall-runoff model was prepared as part of the Ipswich River Flood Studies (IRFS) commissioned by the Ipswich City Council. This model is used for planning purposes by the Council. The hydraulic study identified suitable major bridge structures to accommodate water flow throughout the study area. Flooding in local creeks and drains was not assessed as part of this hydraulic study. This will be undertaken during detailed design, and it is expected that this will involve substantial additional drainage infrastructure to mitigate local cross drainage issues.

5. The focus of the hydraulic study was to determine the impact on major waterways and flood levels as a result of the SFRC. An assessment of cross-drainage is to be undertaken at a later stage (during detailed design), and it is expected that a substantial cross-drainage system will be required.

6, 10, 12, 16, 17, 21. The SFRC study is a planning study for the identification of a corridor for a freight railway line. In this sense, the hydraulic study conducted to date suits the purposes of the SFRC study. The outcome was that flooding impacts from major waterways were determined. It is recognised that further, more detailed work will need to be undertaken at a later stage for detailed assessment of local cross drainage requirements. This later stage will also be used to gain an appreciation of water yield in surrounding creeks and dams.

8. Photographic evidence of flooding in various parts of the study area was received by the study team. The photographs are consistent with the flooding predicted in the hydraulic investigation of the SFRC study. The input from the landowners providing this evidence is appreciated.

9. Historical events used for calibration of models included significant events greater than 250mm depth. The flooding impacts of the SFRC were tested against a 100 year ARI event, which is also greater than 250mm in depth.

11, 14. The low-lying areas of Purga Nature Reserve and Tea Tree Avenue are noted. The hydraulic study investigated flooding at major waterways. All cross-drainage in these areas will be investigated in detail during the detailed design stage of the project. It should be noted that the revised alignment is now located north of Tea Tree Avenue.

13. The flood risk assessment shows no increase in flooding at Washpool Road.

15. The flooding experienced in and around the Powerlink easement is noted.

20. This point about flood modelling is noted.

22, 23, 24. Requirements for services crossing the rail line will be determined as part of the detailed design stage, and through consultation with land owners. This will include discussions about flows to existing dams, the potential for the construction of alternate dams, and water supply for properties with land requirements. It is understood that each land owner has their own specific needs and that their situations are unique within the study area. For this reason, the above factors will need to be discussed in depth with each land owner during the detailed design stage.

2.3.8 Land use and planning

Comments and concerns relating to land use and planning include the following:

1) Refer 11.2.1 p89 - Significant impact on land use and environmental values - why have these not been taken into consideration?
2) The future of enterprises in the corridor of interest including the Santrev Fertilised Egg (Poultry) Farm and the Gibb Bros. farming enterprise and packing facility are unclear from the report. DPI&F supports viable agri-business and their capacity to expand which should be considered when determining the preferred route.
3) Concerns over the possible loss of Good Quality Agricultural land.
4) Recommendations that the land use and planning chapter (Technical Paper 5) incorporates further information regarding the impacts upon likely and future development opportunities within the Corridor of Interest.
5) Undullah Station is an important greenfield site which will contribute to land supply for a growing population.
6) Ivory's Rock Conference Centre is the most sensitive land use in SFRC.
7) The IRCC has been completely overlooked:
   - The preferred alignment was moved closer to IRCC
   - IRCC is not mentioned in the notable land use maps and references
   - There is only 1 paragraph in Land Use and Planning technical paper detailing significant info on IRCC
   - The report fails to identify IRCC as major convention and tourism facility –and future tourism, eco-tourism, outdoor recreation
8) The IRCC should be considered in scope of a small tourism township of temporary guests but with unique outdoor qualities.
9) Regional significance of Flinders Peak – Ivory's Rock (Register of National Estate) has been overlooked.
10) The IRCC has an intensity of notable land uses, and is not recognised as such in the report.
11) The report overlooks the IRCC as a significant and sensitive land use constraint in the Peak Crossing area and does not identify tourism, eco-tourism and recreational activity in the neighbouring Flinders Peak area as significant land uses.
12) The approach and methodology does not adequately identify the IRCC as a significant land use in close proximity to the preferred alignment, and does not clearly identify the existing and future activity associated with the IRCC in terms of residential staff and guest occupancy and usage. Due to this, the paper fails to take into consideration the location and unique characteristics of the IRCC when determining the preferred alignment.

13) The distance quoted (that the IRCC is 1.2km east of the Corridor of Interest) is incorrect and falsely suggests that the IRCC is remote from the Corridor of Interest. The COI includes a corner of the IRCC properties, and existing major campground facilities and approved future development areas are less than 500m from the COI, the manager's residence is less than 200m from the COI, and many other existing IRCC facilities and approved future development areas between 200m and 2km from the COI.

14) In section 11.2.7 (Vol 1), it would be appropriate to include that the IRCC has existing approval for expansion of facilities.

15) Table 20 (Vol 1) and Table 5 6 (Vol 2) state that the IRCC is 1km east of the preferred alignment. This is incorrect, as the IRCC is between 1km and 2.5km from the preferred alignment at the closest boundary of the property, and less than 1km from the manager's residence and areas approved for future development of guest and staff accommodation.

16) The proposed mitigation measures in Table 22 (Vol 1) are totally inadequate to address the potential impacts of the SFRC on the IRCC:

- The rail line is proposed to be 6m above ground level, therefore reducing potential to mitigate noise
- The proposal to protect air quality by planting of trees is impacted by the preferred alignment being 6m above ground level and above the road over Mt Flinders Road
- Loss of rural character will be serious in this area – a high recreational and tourist traffic area
- Decreased local biodiversity, as the SFRC will seriously impact on the movement of koalas and other wildlife

17) The report does not clearly identify the IRCC as a significant sensitive land use, and therefore the preferred alignment has *not* been "designed to avoid land use impacts as much as possible, minimising impacts upon these sensitive land uses".

18) Section 11.4.2 (Vol. 1) states "the approach was taken to avoid clusters of houses or areas of higher residential density". The IRCC was overlooked in this regard, and is equivalent to a small township, with an anticipated regular conference, meeting or event population of 50 to 5000 attendees and existing town planning permits for future guest accommodations for more than 500 guests, with an anticipated 200 or more guest beds potentially to be constructed within the next 5-10 years.

19) The notable land use maps fail to identify the IRCC as a notable land use. This is a major oversight and appears to have influenced the proposed alignment as the alignment was moved closer to the IRCC, although the IRCC provided a comprehensive submission and clearly identified the location and extent of the conference centre to the study team.

20) Section 2.1 (Vol. 2) overlooks the level of tourism/meeting industry activity in the region and the level of outdoor nature-based recreation. These important activities are not listed in stakeholder observations.

21) Section 11.4.3 (Vol. 1) states "the SFRC complements the future planning intent for much of the study area". This statement is wrong with regard to the Peak Crossing/Flinders Peak/Washpool region, which is of high recreational and tourism activity and scenic amenity – the SFRC is in contradiction to this uses.

22) Section 11.4.4 (Vol. 1) – given the high number of sensitive land uses, particularly in the Peak Crossing area, and the very significant nature and conservation impacts of the SFRC, it is unacceptable that the project would proceed without a thorough review of what alternatives are available.

23) A much higher level of mitigation must be planned than indicated in the report – the suggested measures would only be of a standard expected in a relatively unpopulated rural area.

24) The SFRC is clearly inconsistent with the existing zoning designations throughout much of the study area, however little attention is given to how such mitigation would be designed and implemented.

25) The IRCC will be an important facility providing conference, meeting and recreational facilities to the Western Corridor business and residential community and visitors. It will be one of few facilities in SEQ capable of accommodating large residential and day conferences and tourism activities and special events in an outdoor natural environment close to urban populations.

26) The glossary definition of sensitive land uses fails to include tourism and eco-tourism as a land use.

27) Section 4.0, Conclusion (Vol. 2) – the IRCC should be listed as a land use constraint.

28) The IRCC is identified on Map 5.2, but not on Maps 5.5 and 5.11. However, the identification on Map 5.2 is of the IRCC property on the northern side of Mt Flinders Road and the identification may overlook that the IRCC is also located on the southern side of Mt Flinders Road.

29) While the SFRC may complement the planning intent for Ebenezer, Purga and Bromelton areas, this is not the case for the remaining length of the corridor – the majority of the corridor passes through quiet rural land and small rural townships and communities of high scenic amenity.

30) There is no indication in the report that any consideration has been given to variations to the preferred alignment outside of the Corridor of Interest, other than those previously considered.

31) Page 25 of Technical Paper 5 - Land Use Planning (Vol 2) states that sand deposits along the alluvial plan of Teviot/Woollaman Creeks should be preserved. There is a current sand mining extraction operation as part of Undullah Station and as a result the alignment should avoid this resource and the current activities.

32) The SFRC should be in an alignment which minimises noise impacts and provides amelioration to protect current and future residential amenity. A significant landowner in the eastern end of the study area has the right to establish further residences on existing allotments. Undullah Station has 9 allotments within the corridor of interest; however the report only mentions 5 residences in the Undullah/Kagaru area. This underestimates impacts on existing and approved residents in this area.

33) The report underestimates potential future multiple uses of the environmental corridor along Woollaman and Undullah Creeks such as for recreational activities.

34) Scenic Rim Regional Council is preparing Structure Plan for Bromelton (required under IPA and SEQRP), and a portion of SFRC lies within this area.

35) SRRC would invite QT to participate in Structure Planning project to ensure corridor is appropriately reflected in Structure Plan and to address issues potentially impacting project.

36) NRW advises that any future development applications that involve State Land may require resource entitlement from this Department. The need for resource entitlement would depend on who will become lessee or trustee of the land. Schedule 10 at section 12(1) of the Integrated Planning Regulation 1998 identifies the Department administering the resource and also specifies the required evidence.

37) The State reserve land that falls within the proposed rail corridor will need to be excised, then added to the rail corridor - this land then generally forms part of a perpetual lease.

38) Referring to SPP 1/92, QT must address this state interest in justifying the SFRC:

a) Why is the proposed alignment passing through well established high grade agricultural land?

b) Vol. 1, Chapter 11, Land Use Planning:

- Section 11.2 - Description of Environmental Values, pp. 92 – There is no mention of climate change and planning needing to consider more extreme events, including flooding. Include reference to policy 2.3.4 of the SEQRP and its implications for the SFRC.
- Subsection 11.2.8 - Planning Provisions, pp. 93 – This section correctly relates that the project will be exempt from assessment against the Regulatory Provisions of the SEQRP. However, the project is not exempt from contribution to the desired regional outcomes specified in that plan or compliance with policies of that plan.
- Subsection 11.2.8 – Planning Provisions, pp. 93 – This sub-section correctly identifies that there will be responsibilities under the *Environmental Protection Act 1994* (EP Act). However it refers to 'environmental duty of care for all development' while, under s319, the EP Act identifies / refers to 'general environmental duty' where in (s319(1)) "A person must not carry out **any activity** that causes, or is likely to cause, environmental harm unless the person takes all reasonable and practicable measures to prevent or minimise harm". Change reference in report to 'general environmental duty'.
- Section 11.3 - Potential Impacts and Mitigation Measures, Table 2 2, pp. 95-96 – Removal of some residential houses, as a mitigation measure relative to this impact and consequence of increased noise and vibration, is mentioned elsewhere in the document. This measure should also be mentioned in Table 2 2.
- Section 11.3 - Potential Impacts and Mitigation Measures, Table 2 2, pp. 96 – Impact on biodiversity is likely to have local and regional effects. Amend table 2 2's cell that identifies mitigation measures relative to impacts on biodiversity to include: 'Offsets will be negotiated with relevant local and state government agencies to moderate environmental impacts and seek benefits for local and regional biota. This could result in dedication of land for conservation purposes and/or investment in SEQ Catchment or natural resource management activities enhancing biodiversity values and ecosystem services within the locality, catchment or region'.

39) Proper planning must establish 'need' before any further steps are taken.

40) 51CH31185 Realigned Dwyer's Road will impact on 2 major silage pits (Vol 1 summary document, pg. 241).
41) Removal of valuable shade areas and take high ground suitable for cow loafing (Dwyer's Road realignment on 51CH31185 & 50CH31185).
42) Ebenezer is identified by State and Local government policy. SFRC should facilitate the outcomes of local and state policies.
43) New Hope owns two coal mines east of Ipswich; New Oakleigh and Jeebropilly. Jeebropilly accounts for one-third of the Ebenezer Industrial Development Area. Land use options have been developed for the Jeebropilly site post mining operations.
44) Investigations suggest that a rail alignment through the middle of the Jeebropilly site would deliver the most beneficial land use outcome.
45) It is envisaged that the Willowbank/Ebenezer Major Development Area will require at least one new additional north south road. As a result, planning of the corridor must accommodate this future crossing.
46) Some land in the study area is zoned as "Rural A" – prime farming land (Blueprint for Rural and expansion plans). Why can the government override this and destroy prime agricultural land?
47) Concerns from landowners over the loss of the most fertile and productive paddocks.
48) In purchasing property, landowners followed solicitors advice that the area was deemed "good quality agricultural land" and would never be developed.
49) Deeply concerned by the SFRC, as all appropriate due diligence searches had been undertaken prior to purchase of land, and these showed no indication that future development would take place in the area.
50) Concerns from landowners who purchased property in 2004 but were not informed of proposed SFRC upon purchase.
51) Submitters were granted approval to build a dwelling in August 2006 and completed construction in December 2008. They were not informed of any future rail corridor when the building permit was approved.
52) It is unlikely that the Concept Plan developed for Cunningham Industry Precinct (2/11/07 two days before notification of SFRC investigation) was accurate.
53) How can the concept plan detail a master-plan allowing almost exact passage of the C3 preferred alignment, which was not released until late 2008? The only variation is that the preferred alignment follows the existing gazetted road.
54) The preferred alignment passes through fertile land, seemingly against the Government's Rural Futures plan - why is this plan being ignored?
55) There seems to be a lack of understanding of farming processes. Fragmenting a farm's best land makes it unviable.
56) Agricultural land is more valuable than the report states, and the impact of the loss of this land is not addressed in the report.
57) Will adjacent landowners need public liability insurance? If so who will pay?
58) DA lodged to subdivide 40ha.
59) The SFRC is against future planning intent for study area – majority of area is rural or RLRPA (not meant for industrial/ freight hubs/ freight trains) (Vol 1, land use and planning pp. 3).
60) The Government's report on future freight terminals states that Purga will not be considered as a likely freight terminal. This contradicts the SFRC report (vol. 1 land use and planning, pp. 3).
61) Likely deferment/cancellation of local government infrastructure.
62) Likely to result in reduced level of telecommunication infrastructure (development constraints).
63) p97 vol 1, 11.4 - states that other land uses are avoided. Why are these land uses avoided and not cattle grazing, whilst the target is no reduction in rural production (p159, vol 1)?
64) Fragmenting agricultural land will make it unviable.
65) Concerns over the validity of information in Map 5.8 GQAL.
66) Concerns over some impacted properties being in an unsurveyed area. Assumes this is because land was already being used for agriculture production. Many landowners claim they would not be able to farm on their land if it wasn't GQAL (official or not).

67) Map 1.3, Chapter 7, Topography, Geology, Soils and Groundwater – Property has same type of soil as the land in Map 5.8 GQAL so why are they not given the same consideration as other businesses in the area?
68) Development applications for the Pacific Exchange Holdings property are to be lodged imminently.
69) Doyle Group and adjoining owners have been master planning this area over the last 2-3 years.
70) Santos is statutorily obliged to operate in accordance with Aus. Standard for Pipelines – Gas and Liquid Petroleum (AS2885).
71) AS2885 requires careful consideration of development within 273m of pipeline to ensure impacts (pipeline, property damage, injury to public, landholders, and the environment) are minimised.
72) All planning, design and construction should comply with Santos requirements.
73) The SFRC must not hinder the ability to operate and maintain the pipeline in compliance with AS2885.
74) No structures of any kind are permitted over the pipeline, or within or encroaching upon the easement.
75) Drawings of underground services crossing or within 15m of pipeline/easement are to be submitted for written approval by Santos.
76) No removal of pipeline markers, above ground markers and test points is allowed.
77) Pipeline Activity Report (Consent to Work) is required for all work on or within 15m of the pipeline/easement.
78) Excavation work around pipeline is to be carried out under explicit direction of a supervising Santos Pipeline Officer.
79) No equipment/traffic is permitted to travel along, across or to stand over the pipeline/easement.
80) Vibrating rollers not permitted over/within a distance equal to four times the depth of the pipeline.
81) What is the significance of using a 300m buffer for map 5.11, and what does the buffer represent?

Submissions: 3, 4, 19, 20, 22, 23, 25, 54, 86, 94, 96, 99, 100, 101, 107, 109(b), 111, 112, 123, 124, 126, 128, 129, 134.

Response:

1. Section 11.2.1 of the Volume 1 report listed observations made by individual landowners throughout the community engagement process. These observations were acknowledged and have been taken into consideration throughout the study.

2. The presence of the Santrev Fertilised Egg (Poultry) Farm and the Gibb Bros. farming operations were important considerations in the determination of the preferred alignment. The SFRC is not expected to affect the operations of the Santrev Fertilised Egg (Poultry) Farm. A separation distance of over 600m has been achieved between this facility and the preferred alignment. Additionally, the preferred alignment has been designed to avoid the production areas associated with the Gibb Bros. farming enterprise. Concern regarding potential contamination of this farm's production areas is an issue that has been clearly communicated by these stakeholders. The likelihood of any such contamination is considered by the study team to be extremely low. With respect to the potential for contaminated runoff, the SFRC will incorporate standard measures to prevent the transfer of gross pollutants and hydrocarbons to adjoining properties. With respect to particulate matter from diesel locomotives, this impact is not expected to be any more significant than that which currently exists from the traffic using Ipswich-Boonah Road. Indeed, the study team recognises the importance of ensuring that the farming operations are able to continue as normal, and unaffected by the presence of the SFRC. This will require involvement with these stakeholders during detailed design to ensure that all necessary mitigation measures are explored in order to avoid any potential contamination of the lands of this farming enterprise.

3. The selection of the preferred alignment between the Western Railway line and the Interstate Railway line took into consideration the presence of good quality agricultural land (GQAL) throughout the study area. It is noted that there are some areas of GQAL which are traversed by the preferred alignment, and these areas are generally at the northern tie-in with the Western Railway line, either side of the Bremer River, either side of Warrill Creek, the eastern side of Ipswich Boonah Road, and along Woollaman Creek. There is also a significant area of GQAL which has been avoided by the preferred alignment in and around the township of Peak Crossing (and coinciding with the Gibb Bros. farming operations). The potential impacts upon GQAL are acknowledged, and the development of the SFRC will be in accordance with State Planning Policy 1/92 –

Development and the Conservation of Good Quality Agricultural Land. That is, any development upon GQAL must be in the context of an overriding need for the development in terms of public benefit, and no other site is suitable for the particular purpose. If the Inland Rail project and the Gowrie to Grandchester upgrade take place, the connection between the Western and Interstate railways is an essential piece of infrastructure.

4. Information gathered from stakeholders during the community engagement and public submission stages of the SFRC Study has enabled the report to be updated to include more information about the current and future land uses within the SFRC study area.

5, 68. Undullah Station, located towards the eastern end of the alignment, is a large area of land proposed by the owners for residential development in the future. There has been preliminary work undertaken by the landowner to master plan the property, and it is acknowledged that some of this land has the potential for future residential use in the long-term. However, the location of the SFRC preferred alignment through this area is determined to a large extent by the existing topography (i.e. much of the study area in this location is of rugged topography). The SFRC passes through the southern parts of the Undullah Station property, with noise impacts and maintenance of direct road access being key concerns of the stakeholder. It is anticipated that the presence of the SFRC preferred alignment in the southern parts of the Undullah Station property will still enable the master planning of the site to include future residential areas – with appropriate design measures in place to minimise any amenity impacts from the SFRC.

Pacific Exchange Holdings Inc. owns a significant amount of land in the Undullah area, including the Undullah Station homestead. The study team is aware of their intent for the future development of their land, and the fact that development applications are to be lodged imminently for this land is noted. It is important to note that development of this land is not consistent with the current provisions of either the SEQRP or former Beaudesert Planning Scheme.

6-8, 11, 12, 17-20, 30. The Ivory's Rock Conference Centre (IRCC) is a major land use in the study area, and there are concerns from stakeholders that the importance of the facility has been underestimated in the SFRC Draft Assessment Report. The SFRC preferred alignment around the Peak Crossing/Mt Flinders Road area has been located to avoid the GQAL of the Gibb Bros. farming operations, and also to maximise separation distance between the SFRC and the existing, permanent residential community of Peak Crossing. It is acknowledged that the IRCC should be recognised as a major convention and tourism facility, with the potential for future tourism, ecotourism and outdoor recreation activities. However, to state that the IRCC should be considered equivalent to a small tourism township of temporary guests would be overstating the significance of the site.

The preferred alignment *has* been designed to avoid land use impacts as much as possible, and through avoidance of Peak Crossing and GQAL, minimises impacts upon these sensitive land uses. It is noted that stakeholders such as the IRCC promote a thorough review of alternatives to an alignment passing through the Peak Crossing area. However, based on the amount of work and the number of studies that have preceded this SFRC Study, there is enough evidence to show that there has been adequate rigour in the process leading to the preferred alignment.

Other alternatives have been investigated and considered unfeasible from an engineering or land use planning perspective. Accordingly, there is a need to place the preferred alignment somewhere between the township of Peak Crossing and the IRCC property. It should be recognised that any movement of the preferred alignment further from the IRCC property would have increasing consequences upon the Peak Crossing township. Considering this, it is believed that an acceptable compromise has been made with the present location of the preferred alignment between these two land uses in this area.

9. The study team has not overlooked the regional significance of the Flinders Peak/Ivory's Rock area, as listed on the National Estate. The inclusion of these locations on the National Estate is discussed in Technical Paper 10 of the Revised Assessment Report (Volume 2).

10, 13, 15, 22, 25, 29. The Revised Assessment Report has been updated to recognise the existing and proposed land uses on the IRCC site. This has also been amended in a number of Land Use and Planning maps. The identification of the IRCC property now also extends to the southern side of Mt Flinders Road. Further, the distances quoted with respect to the location of the SFRC preferred alignment from the IRCC have been revised in the Revised Draft Assessment Report.

14. It is acknowledged that the IRCC has existing approval for the expansion of their facilities, however this approval from Ipswich City Council is a preliminary approval for the future development of this site, and does not relate to official development application approvals for any particular type of development…

It is acknowledged that the IRCC has existing approvals for future expansion of their facilities allowing a maximum residential population of 5000. The nature of the approvals provided by Ipswich City Council for building work are preliminary and would require the IRCC to submit official development applications with Council prior to further expansion of facilities on the site.

The study team acknowledges that the planned expansions may involve the construction of temporary accommodation facilities which are closer to the SFRC than the existing IRCC facilities.

16, 21, 24. It is acknowledged that mitigation measures to reduce amenity impacts in the Peak Crossing location will be required, especially considering the location of the township and the IRCC to the preferred alignment. However, it seems that the concern surrounding the location of the SFRC in this area is exaggerating the potential impacts of the SFRC upon the IRCC. Even taking into consideration the height of the railway line in this area (i.e. up to 6m above ground), it is expected that any amenity impacts can be minimised through effective use of mitigation measures. This would include design aspects specifically incorporated to ameliorate potential adverse amenity effects upon sensitive receptors such as the IRCC and the Peak Crossing township.

23. The level of tourism and conference industry activity in the region, and the level of outdoor nature-based recreation are acknowledged and are identified in Section 11.4.1 of Volume 1, and also in Technical Paper 5 (Volume 2).

26. The glossary definitions of "sensitive land use" in Volume 1, and in Technical Paper 5 (Volume 2), have been amended to include tourism and ecotourism.

27. Section 4.0 of Technical Paper 5 (Volume 2) has been amended to recognise the IRCC as a land use constraint.

28. The SFRC is considered to be complementary to the future planning intent for locations such as Ebenezer, Purga and Bromelton. With respect to the Peak Crossing/Flinders Peak/Washpool area, and remaining areas along the corridor, it is acknowledged that the SFRC is not directly compatible with the local governments' future planning intent for these areas.

31. The preferred alignment has been designed to avoid the existing sand mining operations in the Undullah/Kagaru area. The report does not state that the sand deposits along the alluvial plain of the area should be preserved, but rather that the SFRC should avoid the mining operations to minimise disruption to the industries dependant upon the sand from these areas.

32. It is recognised that future residential development is also an important consideration in the land use and planning component of the SFRC study. As such, Section 2.7.12 of Technical Paper 5 (Volume 2) has been amended to reflect the future potential of allotments in the Undullah/Kagaru area to contain residences. It is important to note that development of this land is not consistent with the current provisions of either the SEQRP or former Beaudesert Planning Scheme.

33. It is acknowledged that there is potential for the environmental corridor along the Woollaman and Undullah Creeks to be used for recreational activities in the future. The presence of the SFRC preferred alignment in these areas is not expected to interfere with this future potential use. The confirmation of the location of the SFRC will provide a level of certainty with respect to master planning of this land for future recreational uses.

34-35. The study team is acutely aware of the structure planning process for the Bromelton State Development Area, recognised in the SEQRP. TMR is willing to participate in the structure planning process to assist Scenic Rim Regional Council in dealing with issues potentially affecting the SFRC.

36. The study team acknowledges that any future development applications involving State Land may require resource entitlement from DNRW, and that the need for resource entitlement would depend on who will become lessee or trustee of the land. TMR will liaise with DNRW if the SFRC involves the need for resource entitlement in the future.

37. The study team acknowledges that the State reserve land that falls within the SFRC preferred alignment will need to be excised, then added to the rail corridor, and that this land then generally forms part of a perpetual lease.

38a), 46-47, 54-56, 59, 64-67. With respect to SPP 1/92 – Development and the Conservation of Agricultural Land, the study team is aware that a state interest exists in conserving GQAL. The preceding studies to the SFRC Study have demonstrated that there is no viable alternative alignment to one passing through areas of GQAL. Indeed, any alignment connecting the Western Railway with the Interstate Railway will necessarily cross areas classed as GQAL in local government planning schemes, according to the conditions set out in SPP 1/92. It is important to note that minimising impacts upon GQAL throughout the study corridor was an important consideration in the determination of a preferred alignment within the study area.

It is understandable that some landowners in the study area are concerned about some of their fertile and productive land being within the preferred alignment. At the time that compulsory acquisition of the land takes place (i.e. when there is a firm commitment to construct the SFRC), TMR must operate in accordance with the *Acquisition of Land Act 1967*, which states in Section 20 (1):

In assessing the compensation to be paid, regard shall in every case be had not only to the value of land taken but also –

a) to the damage, if any, caused by any of the following –

i) the severing of the land taken from other land of the claimant;

ii) the exercise of any statutory powers by the constructing authority otherwise injuriously affecting the claimant's other land mentioned in (i); and

b) to the claimant's costs attributable to disturbance.

This Act requires compensation to be paid to any landowner for land acquired in addition to compensation for any decrease in value to balance land of the properties with land requirements. This is worked out at market value by independent valuers, and is designed so that the landowner is theoretically left in the same financial position after the project is constructed as before the project was initiated.

The impact of fragmenting farming land is recognised and indeed in the study area there is likely to be an overall decrease in total rural production as a result of the SFRC. Efforts have been made to reduce fragmentation of properties by co-locating the preferred alignment with property boundaries and road corridors where appropriate. DIP's Draft Rural Futures Strategy for South East Queensland highlights the importance of strengthening the rural and peri-urban areas of SEQ, including conserving the best quality agricultural land. This agricultural land is identified in the SEQRP as Regional Landscape and Rural Production Area, with regulatory provisions governing any development in these areas. However, projects granted Community Infrastructure Designation under the SP Act (such as that sought by the SFRC), are recognised for their importance to the wellbeing of the wider region, and are exempt from these regulatory provisions. Essentially, the legislation governing development in SEQ attempts to find a suitable trade-off between seemingly competing interests (in this case, GQAL on one hand, and strategic freight transport corridors on the other).

Information for the identification of GQAL in this study has been gathered through appropriate sources such as local governments (planning schemes designed in accordance with SPP 1/92) and state agencies.

38.b) The need for planning to consider climate change and associated higher frequency in extreme events (including flooding) is noted. Policy 2.3.4 of the SEQRP states a need to assess the impact of potential climate change in preparing planning schemes and land use strategies. The implications of this policy for the SFRC include increasing potential for flooding events, as the corridor is located in the Bremer River catchment, and catchments for a number of creeks including those passing through steep valleys in the Undullah and Kagaru areas. Indeed, the SFRC preferred alignment crosses the Bremer River and a number of creeks, and as such, detailed design of the SFRC will be required to make allowance for the increased potential for flooding events in the study area due to climate change.

The study team is aware that the SFRC is exempt from the regulatory provisions contained within the SEQRP, however is still required to comply with all desired regional outcomes (DROs) and policies to support these DROs.

The reference to the EP Act in Section 11.2.8 of the Revised Assessment Report (Volume 1) has been changed from an "environmental duty of care" to a "general environmental duty".

Table 2 3 in the Revised Assessment Report has been amended to include "removal of some residential houses" as a mitigation measure for the impact and consequence of increased noise and vibration, as it is acknowledged that there will be some residences located too close to the SFRC for design measures to appropriately reduce noise and vibration impacts.

Table 2 3 in the Revised Assessment Report has been amended to discuss the negotiation of offsets to moderate environmental impacts and seek benefits for local and regional biota.

39. It is noted that there are concerns about the SFRC Study being undertaken on the basis of limited needs analysis. The decision to commission the SFRC study was essentially a policy decision made by TMR after the Southern Infrastructure Corridor Study (2005). This decision was made for a number of reasons, including the Inland Rail project, predicted growth in freight rail traffic in SEQ, the recognisable constraints upon the existing rail network, the extent of future development planned for a number of locations within the study area, the potential need for an intermodal freight terminal in the Purga/Ebenezer area, and the need for connections to existing and planned intermodal terminals at Bromelton, Acacia Ridge and the Port of Brisbane.

40-41. The impacts of the SFRC upon an existing dairy farming operation on Dwyer's Road are recognised by the study team after meetings with landowners, and from a submission made by the landowners. TMR Property Services representatives have spoken to the landowners and explained there is likely to be at least 10-15 years before construction is likely to begin for the SFRC. With this understanding, there is ample time for TMR to assist the landowner in preparing for the future by investigating the locations where existing and future infrastructure for the dairy farm can be situated on the land outside the CID area, whilst ensuring that operations on the farm can continue despite the construction and operation of the SFRC. Due to the land requirement on their properties, TMR are obliged to cover the cost for any relocation expenses. In this process, the knowledge and the aspirations of the landowners in such a situation are paramount. As such, they initiate this process and their participation is vital to achieving outcomes that all parties are happy with. Aspects such as impact upon silage pits, removal of shade areas and high ground for cow loafing will be taken into consideration.

42, 69. The study team is acutely aware of the State and Local government policy as it relates to the industrial investigation area of Ebenezer. The Department of Infrastructure and Planning and Ipswich City Council have the responsibility for industrial land planning within the Ebenezer Urban Growth Area (recognised in the SEQRP), and Ipswich City Council has this land zoned as Regional Business and Industry Investigation. Both of these parties (DIP and ICC) have been included in the SFRC Study and have formed part of the Agency Reference Group since the inception of the study. The Agency Reference Group has been involved in all the major stages of the project, including options confirmation, determination of the Corridor of Interest, and agreement on the location of the preferred alignment.

Further, it is noted that the Doyle Group has been undertaking master planning of parts of the Ebenezer Urban Growth Area in the last 2-3 years (the Cunningham Industrial Precinct). The outcomes of this master planning have been provided to the study team, and have been taken into consideration in the determination of the SFRC revised alignment.

43-44. The study team is aware that New Hope Coal owns Jeebropilly Coal Mine, which makes up approximately one-third of the Ebenezer Industrial Development Area. While land use options for the site have been developed by New Hope Coal which suggests a rail alignment through the middle of the Jeebropilly site would deliver the most beneficial land use outcome for that site, the broader context of the Ebenezer Urban Growth Area must be considered in the determination of the preferred alignment. There are numerous reasons why the decision was made to locate the SFRC south of Jeebropilly Coal Mine and Ipswich Motorsport Precinct. These reasons are identified in Section 4.2 of the Revised Assessment Report (Volume 1).

45. It is acknowledged that the structure planning for the Ebenezer Urban Growth Area is yet to take place. As such, there are specific characteristics, such as north-south roads, that will be drawn up at some stage in the future. The detailed design of the SFRC will need to take these characteristics into account. A positive result of planning for the SFRC now is that it provides certainty to the structure planning process about the location of the alignment, and the location of any future intermodal freight terminal in the area.

48-51, 58. The SFRC Study is the current stage of a 4-year process which began with the identification of a need for a connection between the Western Railway and the Interstate Railway. The need for the project was identified in the SEQRP, which referred to this connection as a "Southern Infrastructure Corridor", illustrated by a broad dotted line connecting the two existing rail lines. The Southern Infrastructure Corridor Study was commissioned by QT in 2005 to examine a number of route options providing this connection between the two rail lines. As identified in Section 4.1 of the Revised Assessment Report (Volume 1), the C3 route option was considered to best represent the optimum route for further investigation. The C3 option was then used as the basis for the SFRC Study. This alignment underwent various modifications (all detailed in Section 4.2 of the Revised Assessment Report – Volume 1) before the Corridor of Interest was arrived at in October 2007. Essentially, until the Corridor of Interest was identified and released to the public, it would have been impossible for any due diligence search or development approval to uncover the existence of the SFRC in this area. Until this time, there was no knowledge of where the SFRC would be located. It is accepted that land purchases, subdivisions and housing construction would have occurred in the study area over the last few years, but until such time as the Corridor of Interest was identified, there was no certainty regarding the future location of the SFRC. It should also be noted that due to extensive constraints (mostly with respect to koala habitat) in the Ebenezer area, the revised alignment has been located north of the original Corridor of Interest in this location.

52-53. As part of stakeholder consultation, the Doyle Group presented their concept plans for a portion of the Ebenezer Urban Growth Area, referred to by them as the Cunningham Industry Precinct Concept Plan and master plan. This concept plan was developed completely separately to the SFRC and preferred alignment. It should be noted that a number of factors originally influenced the location of the SFRC preferred alignment in this area, including the location of a potential intermodal freight terminal, avoiding impacts to *M. irbyana* communities, flooding east of the Cunningham Highway, and the grade separation of the SFRC and the Cunningham Highway. It is likely that these issues were also considered by the Doyle Group through their concept planning. Further, it should be noted that there were considerable differences between the SFRC alignment (as shown in the Draft Assessment Report) and the possible rail alignment shown on the Doyle Group's concept plans. Further, the rail alignment shown in the Doyle Group's concept plans did not guide the study team in the identification of the preferred alignment for the SFRC. The revised SFRC alignment is now significantly different to the alignment presented in the Draft Assessment Report in this location.

57. Owners of land with a property requirement for the project will not be required to have public liability insurance, because any land designated for Community Infrastructure will be purchased under the *Acquisition of Land Act 1967* by TMR when and if there is a firm commitment to construct the SFRC. As such, this land would become owned by TMR and any need for the previous landowner to obtain public liability insurance for the future activities on the land is removed. Similarly, there will be no requirement for adjoining landowners to obtain public liability insurance.

60. Purga was originally identified by DIP as a potential future location for an intermodal freight terminal (IFT). However, if the SFRC is designated in the Ebenezer area, there is not likely to be any requirement for an IFT in the Purga area. An IFT in Purga would likely be restricted by height restrictions for Amberley Air Base, with respect to gantry heights and other engineering requirements. At this time it is felt that Purga may still be a viable location for freight oriented industries given its relative proximity to Ebenezer, however further detailed planning is required. While this cannot be stated categorically, it is reasonable to expect that any future IFT in this general area would be located at Ebenezer (utilising the SFRC) rather than at Purga (located away from the SFRC.

61-62. The SFRC is not expected to cause local government infrastructure to be deferred or cancelled. Similarly, the SFRC is not expected to have the effect of reducing the level of telecommunication infrastructure in the study area.

63. The land use and planning section of the Revised Assessment Report explains that, where possible, major land uses have been avoided by the SFRC preferred alignment. The importance of GQAL is also noted and was incorporated into the methodology for identifying a preferred alignment. However, GQAL is located throughout the study area, as opposed to other important land uses which are situated in discrete locations within the study area. Thus, the goal adopted for locating the preferred alignment necessarily became minimising impacts on GQAL wherever possible. The target outlined in the EMP relating to potential reductions in rural production in the local area was for no reduction in rural production. The methods to achieve this are identified as:

- Prevention (Design) – Avoid areas of GQAL and other cropland where possible;
- Prevention (Construction) – CEMP should ensure that impacts upon QGAL, other cropland, and farming practices are avoided; and
- Contingency Measures (Design and Construction) – Where impacts upon rural production are likely, discuss with implicated landowners to identify opportunities to minimise these impacts.

As part of the community engagement process for the SFRC study, discussions have been held with the majority of landowners with a potential land requirement on their property as a result of the SFRC. These discussions have enabled the study team to gain an appreciation of the practices on the land, and any rural production that takes place. Further, the landowners have been made aware that during the detailed design stage of the project, an opportunity will exist for them to discuss with the proponent any feasible methods to minimise impacts upon existing operations and production.

70-80. Properly managing the interface between the SFRC preferred alignment and the Santos Moonie-Brisbane Oil Pipeline is considered by the study team to be of high importance. The study team acknowledges the information provided by Santos at this stage of the project, and it will be necessary for the detailed design of the SFRC to comply with the requirements listed in points 70-80, and outlined in the submission made by Santos.

81. The 300m buffer was used in Map 5.11 of the Draft Assessment Report to demonstrate the proximity of notable land uses to the preferred alignment. The 300m distance was chosen simply because the noise models could accurately predict noise levels 300m from the preferred alignment. To avoid confusion about terminology, this "buffer" has been removed from the equivalent map (Map 5.5) in the Revised Assessment Report.

2.3.9 Air quality

Comments and concerns relating to air quality include the following:

1) Will air pollution create health issues in the future?
2) Concerns that air pollution could drastically affect residents who are asthmatic and/or have sinus problems requiring fresh air.
3) Technical Paper 6 Air Quality Section 3.1.1 outlines that potential impacts will include dust emissions, dusty freight, exhaust emissions and greenhouse gases from construction vehicles. The report states that these emissions will not exceed guidelines. There are concerns that an obvious air quality deterioration will occur.

4) Concerns from residents who solely rely on tank water.
5) Concerns about emissions and reduction in air quality during construction and operation.
6) Concerns that tank water will be polluted from diesel and dust off train cargo (coal will contaminate water).
7) Freight trains will create air pollution.
8) The report states there will be an increase in CO, no/x, so/x, voc/sand, om/x (12.3.1, pp. 101). These emissions are non-existent in area now.
9) Concerns about coal dust and its impacts on air quality.
10) Many residences were originally built away from the road to avoid dust and other air pollution from contaminating drinking water supply.
11) Impacts cannot be truly known until the line is operational.
12) Potential Air Quality impacts caused by SFRC – Vol. 1, Chapter 12 Air Quality and Related Matters: 12.2.1 Ambient Air Quality & 12.3.3 Mitigation, pp. 100-101:
    a) The EPP Air expires on 31 August 2009. The EPA intends to remake this policy to provide for the ongoing protection of Queensland's air environment. The EPP Air is currently being drafted and is expected to commence on 1 January 2009.
    b) A more detailed air assessment must be undertaken to determine the extent of environmental harm, including nuisance, at nearby sensitive places, and identify mitigation measures to prevent or minimise any impacts.
13) How will the impact of diesel smell and smoke pollution on waterways, water tanks, agricultural land, creeks, livestock, wildlife and native plants be mitigated?
14) How will air quality impacts be mitigated to prevent illness among nearby residents?
15) Section 12.4 of the report cites impacts for recipients adjacent to alignment. What are these mitigation measures?
16) If CID occurs, it should be conditional upon mitigation measures to avoid impacts of IRCC air quality and to native fauna around IRCC.
17) How will air quality be monitored?
18) Section 12.1 states that a desktop study was undertaken. How can a desktop study be considered to be sufficient?
19) A detailed pollution study has not been conducted. When will this study be undertaken and results released?
20) Under the EPA Guidelines IRCC is a sensitive receptor. However, it is not identified as such in the report.
21) The report fails to mention the IRCC as an existing potential receptor that has the potential to be affected by the SFRC.
22) The IRCC would be defined as a sensitive receptor by the EPA, and is possibly the most sensitive receptor in close proximity to the SFRC. The conclusion and Map 6.2 fail to include the IRCC as a receptor.

Submissions: 11, 22, 23, 27, 42, 43, 46, 50, 54, 81, 88, 97, 102, 103, 104, 105, 106, 109(a), 109(b), 112

Response:

1-9. Any air pollution likely to result from the construction and operation of the SFRC is expected to be minimal, and is not expected to create or exacerbate health problems for local residents, either through respiration, or through contamination of tank water. It is considered that the level and nature of air pollution resulting from the SFRC will not differ from that currently experienced along the Cunningham Highway and other major roads in the study area such as Ipswich Boonah Road. Any emissions from the SFRC are expected to be within the levels regulated by legislation – which are well below known health risk levels.

10, 11. It is acknowledged that some residences in the study area were constructed away from existing roads so that any air quality impacts were minimised. While these places may experience an increase in air pollution, all emissions will be within regulated levels. Further, mitigation measures will be developed to minimise any localised impact of the SFRC upon air quality. In addition, any complaints regarding air pollution will be investigated by the proponent, air quality monitoring will occur in these locations, and specific mitigation measures will be identified and adopted if required.

12a). It is noted that the *Environmental Protection (Air) Policy 2007* was replaced by the *Environmental Protection (Air) Policy 2008.* All references to the former policy have been updated in the Revised Assessment Report to reflect the content of the new policy.

12b). The detailed design stage of the SFRC project will include a more rigorous assessment of air quality impacts. This future study will be based on more accurate information relating to the SFRC, including the exact design of structures, and the types of locomotives expected to use the railway. Therefore, at the detailed design stage it will be possible to accurately determine the extent of environmental harm, including nuisance, at nearby sensitive places. Mitigation measures will be developed from this study to prevent or minimise any impacts upon air quality identified during the detailed design phase.

13-16. The mitigation measures identified to prevent or reduce air quality impacts associated with the SFRC are listed in Section 6 of the EMP (Chapter 19 of Volume 1), and in Section 3.2.2 of Technical Paper 6 (Volume 2). These mitigation measures include:

- Well-maintained and regularly serviced vehicles during construction;
- A Greenhouse Gas Emissions Management Plan to be prepared as a section of a Construction Environmental Management Plan (CEMP);
- A Dust Management Plan to be prepared as a section of the CEMP;
- Investigations into the potential for carbon-offset measures, such as revegetation;
- During detailed design, promote locomotive efficiency by considering acceleration and deceleration requirements, as well as vertical grade;
- During detailed design, considering the choice of materials, design standards and location of infrastructure, along with alternative technologies;
- Cobbles or coarse gravel placed along the edge of the railway line to reduce the disturbance of soils;
- Revegetation of the preferred alignment beyond the gravel verge, using appropriate native species (including grasses);
- Preparation of potentially dust-producing loads in accordance with current best practice dust control measures; and
- Investigate the source of air quality complaints and address the issue accordingly (including SOx, NOx, VOC and PM_{10} sampling in the event of air quality and dust complaints).

The detailed design stage of the project will be better informed to list more extensive air quality mitigation measures, as the potential impact of the SFRC upon air quality will be known to a greater extent at this stage.

17. Should an air quality complaint be received, the air quality at that location will be monitored using accepted methods for the types of air pollutants targeted during a specific monitoring exercise. These monitoring activities will be undertaken in locations subject to air quality complaints. Monitoring typically is designed to sample air quality over a number of days, and during different climatic events, so that temporal and environmental variables are controlled to the greatest possible extent. Broad temporal air quality trends are studied by the EPA with their existing monitoring program throughout SEQ. The nearest locations of these monitors are at Flinders View and Mutdapilly.

18-19. It is acknowledged that some stakeholders do not consider the air quality study undertaken for the SFRC Revised Assessment Report to be detailed enough to provide certainty about potential air quality impacts resulting from the SFRC. The study team is aware that the desktop air quality study undertaken is of a broad and general nature. However, it is considered that at this planning stage of the SFRC, such a desktop assessment is adequate for the needs of the project. During the detailed design phase, there will be a full air quality assessment undertaken for the project. This future study will be based on more accurate information relating to the SFRC, including the exact design of structures, the types of locomotives expected to use the railway, and anticipated freight consist. Therefore, at the detailed design stage it will be possible to accurately determine the characteristics of any expected changes in air quality as a result of the SFRC. Mitigation measures will be

designed from this study to prevent or minimise any impacts upon air quality identified during the detailed design phase.

20-22. It is acknowledged that the IRCC could potentially be classified as a sensitive receptor to air pollution by the Environmental Protection Agency, under the definition listed in Section 2.2.1 of Technical Paper 6 (Volume 2). The Revised Assessment Report (including Map 6.2) has been updated to include the IRCC as a sensitive receptor to air pollution. The IRCC is, however, considered unlikely to be affected by air pollution as a result of the SFRC.

2.3.10 Climate and climatic trends

Comments and concerns relating to climate and climatic trends include the following:

1) Due to potential climate change it may be prudent to examine the overall natural and constructed stormwater network performance in an extreme weather event.
2) Refer 18.4.3 p135 - decreased truck emissions – the IFT will concentrate truck emissions in a built up area.
3) Refer p 9, Technical Paper 6 - potential climate change impacts on project – the costs of maintaining the railway would be better spent upgrading and maintaining the road network.

Submissions: 25, 124

Response:

1. The hydraulic analysis undertaken for the SFRC study was designed to accord with a 100 year ARI event. This is an accepted practice, and there are no guidelines stipulating requirements to incorporate climate change into such analyses. Indeed, given the variations in predictions about climate change, it would be almost impossible to undertake an informed and adequate climate change hydraulic assessment.

2-3. It is acknowledged that an intermodal freight terminal (IFT) in the Ebenezer area would essentially concentrate truck emissions in this localised area. This is due to the expected volume of freight traffic using future interchanges at the Cunningham Highway to access the future industrial precinct at Ebenezer. While this would likely contribute to localised increased greenhouse gas emissions around Ebenezer, this will be in an environment that is likely to be characterised by heavy, difficult to locate industrial uses. From a broader perspective and coupled with the Inland Rail, the SFRC is expected to contribute significantly to a reduction in greenhouse gases, based on the number of trucks that the rail freight is likely to substitute in transporting freight between Melbourne and Brisbane.

2.3.11 Visual amenity

Comments and concerns relating to visual amenity include the following:

1) Visual impacts outlined in Draft Assessment Report could detract from key selling features and negatively affect the commercial viability of the IRCC.
2) Concerns for views from Flinders Peak and Ivory's Rock – when departing/arriving by Mt Flinders Rd.
3) Concerns over impact upon future accommodation views on higher elevation areas at IRCC.
4) Concerns over visual impact upon bushwalking tracks on IRCC.
5) The report fails to identify:
   - The importance of visual amenity to tourism and the IRCC
   - Mt Flinders Rd as a major entrance to IRCC
   - Flinders-Goolman Conservation Estate
   - The importance of the future Ipswich-Boonah Recreational Trail.
6) Volume 1, Chapter 13.0 and Technical Paper 7:
   a) The factors listed of particular relevance do not include the fact that the rail alignment is proposed to be raised above ground level for considerable distances.

b) At Mt Flinders Road, the alignment is proposed to be built over the road with a separation of 8 metres, and the rail alignment will be approximately 6 metres above ground level for considerable distances north and south of Mt Flinders Road. This will significantly increase the visual impact.

c) It is understood the rail alignment would also be above ground level at other locations – these are not referenced in the report.

d) Section 13.2.2 fails to include reference to the likely increase in tourism, ecotourism and recreational activities in the area. This is underpinned by strategies such as the Draft Rural Futures Strategy and the SEQ Country Tourism Strategy.

e) The SEQRP specifically controls and restricts types of development in the Rural Production and Landscape areas, which cover most of the area surrounding the SFRC. Therefore the majority of the study area is likely to remain relatively unchanged.

f) The Flinders-Goolman Conservation Estate is already a significant destination for recreational use.

g) The Boonah to Ipswich recreation trail is due to commence operation in the near future and to be fully operational within the next few years.

h) The stakeholder input and observations section of the report appears to refer to input gathered from residents in the SFRC area. An aspect that does not appear to have been considered is that the Ipswich-Boonah Road and rural roads in the vicinity such as Mt Flinders Road and Washpool Road have significant use by visitors from outside the immediate area, travelling for tourism and recreational purposes. Visual and scenic amenity is likely to be a very high factor of consideration.

i) It is unclear whether the study included any representatives from tourism organisations or outdoor recreation in the stakeholder input.

j) Scenic and visual amenity is a very high issue for the IRCC and its visitors.

k) Referring to potential impacts and mitigation measures – given that the Ipswich-Boonah Road is a major entrance to the Scenic Rim Region for tourists (local, interstate and international), it is hard to comprehend that the report considers the sensitivity of these viewpoints to be “fairly low”.

l) The junction of Mt Flinders Road and Ipswich-Boonah Road should be given at least Regional, if not State, Sensitivity classification. If given regional classification, the likely magnitude of impact would increase to “high adverse” and if given state sensitivity, the likely magnitude would become “major adverse”.

m) Mt Flinders Road is the only entrance to the IRCC and the only entrance to the Flinders Peak section of the Flinders-Goolman Conservation Estate. It will also be one of the access points to the new Ipswich-Boonah Recreational Trail. This clearly means it is an area of high scenic landscape amenity and therefore a major tourist road.

n) Mt Flinders Road provides a picturesque entrance to the Flinders Peak area, with panoramic views of Ivory’s Rock, Flinders Peak and surrounding peaks. The area is registered on the National Estate as Place ID 17696.

o) It is not clear how a significance of “minor adverse” was reached for such a popular and well-known road and location. The SFRC 8 metres above the road would have a considerable reduction in visual modification. If “considerable reduction” were combined with “regional sensitivity”, a “high adverse” visual impact would apply.

p) If the area on the National Estate (as part of the Australian Heritage Places inventory), then it should be considered that Mt Flinders Road has national sensitivity – thus leading to a “major adverse” visual impact.

q) Table 24 does not include any viewpoints taken from the IRCC. Such viewpoints could include the existing and proposed bushwalking and recreational trail locations and proposed locations for future approved accommodations. Further investigation in this area is required.

r) In the Mt Flinders Road/Peak Crossing area, a high quality of noise mitigation will be required to minimise impacts to the IRCC and the Peak Crossing area. As the rail is proposed to be elevated for long sections, this will make it difficult to mitigate the noise without increasing visual impact. Therefore, the location of the SFRC through this area would be likely to have high visual impacts.

s) Peak Crossing, Mt Flinders Road, Ivory’s Rock and Flinders Peak require special attention with respect to visual impacts, as the IRCC has conventions attracting up to 4,000 delegates from over 60 countries, and various smaller conferences and events.

t) Views from private lands are not assessed in the report. Given the significance of the IRCC, views from the higher points of this area (including the Ivory's Rock ridgeline) should be considered.

u) Table 7 2 fails to identify the IRCC as a significant environmental conference centre within this landscape zone.

v) Section 2.2.2 fails to identify the IRCC as a significant land use in the area and therefore fails to identify the current and future potential for high numbers of visitors to the area from activity at the IRCC.

w) The report fails to identify the IRCC as a significant land use in the Peak Crossing area and a potential resource to the Ipswich-Boonah Recreational Trail.

x) Figure Six has placed the Flinders Plum Picnic Area incorrectly – it is located at the end of Mt Flinders Road. The figure also contains an outdated version of the Boonah-Ipswich multi-user recreational trail.

y) Viewpoint 7 is located near the intersection of Mt Flinders Road and Ipswich-Boonah Road. Therefore it does not clearly demonstrate the impact of the SFRC upon travellers on Mt Flinders Road. A viewpoint some distance down Mt Flinders Road, closer to the preferred alignment, would be expected to have moderate to high adverse significance (rather than minor adverse as suggested by the report).

z) Viewpoint 8 is representative of the view from Mt Flinders road where the preferred alignment will cross, but no viewpoint was located that indicates the quality of view and potential impact of the SFRC on the users of Mt Flinders Road. It also overlooks the high tourist potential for roads such as Truloff and Allens Roads.

aa) It is proposed that a review of the significance of impact of Viewpoints 6 and 7 should be reconsidered to account for high numbers of present and future users.

bb) An additional viewpoint should be included on Mt Flinders Road, near to where the preferred alignment crosses over Mt Flinders Road.

cc) The report identifies only future users of the Recreational Trail as of potential state sensitivity. The IRCC is a convention and tourism facility that is regularly visited by people from throughout Australia and over 60 countries. The sensitive environmental nature of this facility is a key factor in the selection of the IRCC as the venue for their activity or event. Thus, the Mt Flinders Road, Ivory's Rock, Flinders Peak area should be considered of regional significance.

7) Concerns that the SFRC will destroy amenity of the Mt Forbes area.

8) Concerns that the peaceful and pleasing rural character and landscape will be lost.

9) Concerns that a 6 metre-high bridge on Middle Road will destroy the rural character in this area.

10) Concerns that the very private, quiet and picturesque environment in the study area will be diminished permanently.

11) Concerns over impact to the small, rural town amenity and scenic values of township and environs at Peak Crossing.

12) Concerns that those outside the corridor will also be visually impacted.

13) Many residents in the area have added trees to their properties to improve the visual amenity.

14) What will be the visual impact of noise buffers for the SFRC?

15) Concerns over the raising of Ipswich-Boonah Road, and that elevations of 9m and cuttings of 16m will decrease visual amenity.

16) Refer to Chapter 11, Land use and Planning, items 11.3, including Table 22 on page 95, and chapter 13, sections 13.2.1, 13.2.2 & 13.2.3 on pages 105 and 106 of the SFRC draft report. The report states the level of change from Viewpoint 5 on Middle Road will be noticeable, but that as Middle Road is not a key viewpoint, the visual impact will be of negligible significance, is already intruded by 110kV powerlines and will only be viewed by a small number of residents. Concerns that statements in the report are incorrect. The area has significantly more traffic than indicated including gatherings for cycling races. The 110kV powerlines are silent and do not detract significantly from the view.

17) Concerns about the adequacy of the visual impact assessment.

18) Concerns that underestimates of visual impact at Mt Flinders Road brings the remainder of the assessment into question.

19) Concerns about the inability to identify any practical, effective method of mitigation for severe visual impact of the SFRC.
20) The land use and planning section of the report mentions opportunities to address adverse visual impacts. What are these?
21) Concerns that private enterprise (i.e. a future proponent for the SFRC) will not ensure the railway line blend in with the landscape as suggested.
22) Many people moved to this area for the scenery.
23) Concerns that the Scenic Rim will not be scenic with the SFRC.
24) Concerns that there will not be many tourists with a 6m high rail line with a trains in the Mt Flinders area.
25) Concerns that large fences adjacent to tracks will be unattractive.
26) What will happen to the balance of properties that are resumed for the SFRC? Will they be developed and result in an eyesore?
27) Viewpoint 16 is often used by artists, looking westward from Kilmoylar Rd towards Flinders Peak.
28) Viewpoint 8 in Table 2 4 indicates noticeable yet negligible impacts. This is questionable, as the visual damage will decrease property values.
29) The assessment is currently under the assumption that visual pollution is not regulated.
30) The IRCC is one of the few pristine spots close to Brisbane that offers a complete sense of isolation. One of these very few areas is Mt Flinders and its adjacent hills, including Ivory's Rock. The Brisbane area (and its surrounds) needs environments like this to maintain their natural beauty, both visually and aurally. Area like this are also needed close to Brisbane as SEQ is second fastest growing region in the Western world.

Submissions: 22, 27, 29, 31, 32, 42, 45, 50, 54, 77, 78, 81, 87, 88, 92, 94, 107, 108, 109(a), 109(b), 111, 112, 125, 127, 128, 129

Response:

1-5, 6j), s), 19-21, 24-25, 30. It is acknowledged that a key factor in the use of the IRCC is the surrounding amenity (i.e. the pleasant views and quiet rural setting). It is also acknowledged that the SFRC may impact upon the visual amenity for patrons of the IRCC. A number of mitigation measures are identified in Technical Paper 7 (Volume 2) to minimise or prevent any degradation to visual amenity from the IRCC area, and all other areas along the SFRC. These mitigation measures include the preparation of a Landscape Integration Strategy and detailed Landscape, Revegetation and Urban Design Guidelines at the detailed design stage of the project. The sensitivity of IRCC (due to its levels of tourism and recreation activities) and in particular the views from Mt Flinders Rd have been incorporated into Technical Paper 7 (Volume 2). The sensitivity of views from the Mt Flinders Road area have been upgraded using the precautionary principle to 'Regional' and accordingly the significance of assessment of viewpoint 7 has been raised to Moderate. Additionally, the Revised Assessment Report states that strategic buffer planting would take place where the greatest visual impact is likely – particularly where sensitive views have been identified (including from established residential properties and from the future Boonah to Ipswich Recreation Trail). The detailed design stage of the project will investigate the visual impacts of the SFRC in greater detail, and appropriate mitigation measures (including the above) will be designed to prevent or minimise these visual impacts. Any commitment to undertaking specific work at later stages of the project (such as preparing a Landscape Integration Strategy) can be made conditions of designation of the land as community infrastructure by the Minister.

6a)-c). The elevation of the SFRC preferred alignment was incorporated into the visual amenity assessment. Table 7.3 of Technical Paper 7 (Volume 2) describes the visual changes associated with the preferred alignment. These changes were factored into the Zone of Visual Influence analysis which highlights worst-case impact (assuming no vegetation present).

6d), f). The levels of current tourism and recreation, and the likely increase in tourism, ecotourism and recreational activities in the area is an important consideration for the project. This is recognised in Technical Paper 12 – Social Impact Assessment (Volume 2), Section 1.3.3. The report provides a discussion of strategy documents that are of importance to the study, including the Boonah Rural Futures Action Plan, which identifies tourism and recreational activities as important to the future of the area.

6e). The statement that the majority of the study area is likely to remain relatively unchanged is noted. However, it is important to consider that there are strategic areas within the study area which are of high importance for the future growth of SEQ. These areas include the Ebenezer/Willowbank Urban Growth Area, Purga Investigation Area, Bromelton State Development Area, Amberley Airbase and Aerospace Park, Ripley Valley and the Swanbank Enterprise Park.

6g). The Boonah – Ipswich Recreational Trail is identified by the study team as an important future development in the study area. Section 2.3 of Technical Paper 7 (Volume 2) identifies the trail, and Section 3.7 lists mitigation measures to prevent or minimise any impacts of the SFRC upon the future trail.

6h) The information about the significant use of roads in the vicinity of Mount Flinders by visitors from outside the immediate area has been added to the Revised Assessment Report. All major roads traversed by the SFRC will receive grade separation, and visual and landscaping treatments.

6i). The study did not involve specific targeting of tourism or outdoor recreation organisations in the stakeholder input. However, these parties had the opportunity to provide input into the project during the 50-day submission period to the Draft Assessment Report. They will also have the opportunity to comment on this Revised Assessment Report.

6k-m), o-p), r), aa-cc). The information provided by IRCC with respect to the classification and assessment of viewpoints 6 and 7 in the Draft Assessment Report is appreciated and acknowledged. It is not considered that these viewpoints are of state significance, and it is unlikely that they are of regional significance. However due to the concerns raised and its identification as part of a future recreational trail, a precautionary principle has been applied which raises the sensitivity of views from the Mt Flinders Road area to 'Regional' despite falling short of the criteria for this category. Accordingly the significance of assessment of Viewpoint 7 has been raised to Moderate. Whilst these locations do exhibit a high level of visual amenity, with views towards Flinders Peak, Ivory's Rock and the Flinders-Goolman Conservation Estate, it must be acknowledged that these viewpoints are set in locations that are not pristine in nature. It should also be recognised that the visual impact of the SFRC is not expected to be significant, particularly with the incorporation of a Landscape Integration Strategy and Landscape, Revegetation and Urban Design Guidelines. In this respect, the visual intrusion of the SFRC will be minimal in the context of the expansive views of the Flinders-Goolman Conservation Estate in this area. It is important to note that the registration of the Ivory's Rock –Flinders Peak area on the national estate is based upon its scientific and natural sensitivity rather than scenic values.

Nevertheless, the scenic significance of the viewpoints from Mt Flinders Road east towards the IRCC and the mountain range is recognised. The study identifies regionally significant viewpoints and the potential for future views from the recreational trail to be of state significance. The future stages of the SFRC project will involve more detailed investigation of these viewsheds. This will also incorporate the use of any specific noise mitigation measures adopted at key areas along the preferred alignment to reduce noise effects of the SFRC. It is important to note that noise barriers are unlikely to be required along much of the SFRC alignment. The Landscape Integration Strategy and the Landscape, Revegetation and Urban Design Guidelines will be fundamental in ensuring that no significant detraction of the visual amenity in the area will be experienced as a result of the SFRC. The study team recognises the importance in maintaining these expansive and significant views of the natural environment in this area.

6n). The natural and visual values of the Flinders Peak area are noted throughout the Revised Assessment Report. It is acknowledged that Mt Flinders Road provides views to many parts of this area.

6q), t), y), z). The detailed design stage of the SFRC project will involve further investigation of the visual impact of the SFRC. This is likely to include investigation of viewpoints from the IRCC and future trail locations.

Viewpoint 6 already accounts for the relatively high number of people travelling along the road and consequently has recorded a 'considerable' level of impact. The location of Viewpoint 7 was chosen as it captures the greatest number of vehicles using the Ipswich-Boonah Road as well as vehicles turning down Mt Flinders Road. The impact rating for Viewpoint 7 has been amended to account for the high number of users. It

is acknowledged that Viewpoint 8 is representative of the worst views that would be obtained from Mt Flinders Road. The purpose of the visual assessment was not to identify every impact but rather to provide representative assessment across the whole area. It is also important to note that Landscape and Visual Impact Assessments do not generally include private views or consider potential future private development.

6u-x). The information provided about the significance of the IRCC is noted. The Revised Assessment Report has been amended to include this information.

7-12, 22-23. The visual amenity values of the study area are recognised and described in Technical Paper 7 (Volume 2). It is also acknowledged that the scenery was a major factor in moving to the area for many landowners. The Revised Assessment Report lists a number of mitigation measures to prevent or minimise the disruption to visual amenity as a result of the SFRC. These include the preparation of a Landscape Integration Strategy and detailed Landscape, Revegetation and Urban Design Guidelines at the detailed design stage of the project. Additionally, the Revised Assessment Report states that strategic buffer planting would take place where the greatest visual impact is likely – particularly where sensitive views have been identified (including from established residential properties and from the future Boonah to Ipswich Recreational Trail). The detailed design stage of the project will investigate the visual impacts of the SFRC in greater detail, and appropriate mitigation measures (including the above) will be included to prevent or minimise these visual impacts.

13. It is noted that some residents in the area have planted trees on their properties in order to improve the visual amenity. The Landscape, Revegetation and Urban Design Guidelines are likely to complement any planting that has already taken place on these properties.

14. Noise barriers are unlikely to be used in most areas along the SFRC. However, during detailed design appropriate noise mitigation measures may be adopted to reduce the transmission of noise in certain areas. The potential visual impact of such measures will be included in the visual assessment study undertaken during detailed design, and any mitigation measures (including the Landscape Integration Strategy) will include these noise mitigation measures.

15. It is noted that there are some proposed grade separated crossings of the SFRC which will involve high elevations of either road or rail, and have the potential to decrease visual amenity in these locations. These grade separations will be included in the visual assessment study undertaken during detailed design, and appropriate mitigation measures (including the Landscape Integration Strategy) will be developed.

16. The concerns about the assessment of Viewpoint 5 (Middle Road) are noted, including the area having large gatherings at times (for cycling races) and an increase in traffic. Despite this, it is considered that the Middle Road viewpoint remains of minimal sensitivity, and any potential impact upon the visual values of the area is likely to remain negligible. The point that the existing Powerlink transmission lines are silent is not considered relevant, and it should be recognised that the SFRC (with the development of a Landscape Integration Strategy and Landscape, Revegetation and Urban Design Guidelines) will be considerably less visually intrusive than the existing transmission lines. In addition, the sporadic use of the SFRC by locomotives means for the majority of the time any visual effect of the SFRC will simply relate to the physical infrastructure associated with the track, which will be effectively integrated into the surrounding environment.

17-18. The concerns about the adequacy of the visual impact assessment for the SFRC study are noted. However, considering that this is a planning study for the identification and preservation of a future freight rail corridor, the level of visual impact assessment undertaken for this stage of the project is deemed to be adequate. Indeed, the assessment meets and exceeds the requirements of the CID Guidelines. The detailed design stage of the project will include a more comprehensive visual impact assessment, and will also include more detailed information about specific mitigation measures to reduce or remove any visual impacts resulting from the SFRC.

19-21. A number of mitigation measures are identified in Technical Paper 7 (Volume 2) to minimise or prevent any degradation to visual amenity from the IRCC area, and all other areas along the SFRC. These mitigation measures include the preparation of a Landscape Integration Strategy and detailed Landscape, Revegetation and

Urban Design Guidelines at the detailed design stage of the project. Additionally, the Revised Assessment Report states that strategic buffer planting would take place where the greatest visual impact is likely – particularly where sensitive views have been identified (including from established residential properties and from the future Boonah to Ipswich Recreational Trail). The detailed design stage of the project will investigate the visual impacts of the SFRC in greater detail, and appropriate mitigation measures (including the above) will be designed to prevent or minimise these visual impacts.

26. Property resumed for the SFRC will be acquired on a case-by-case basis. The future of such land will be dependant upon a number of factors, including the ability of the owner to continue using the balance land, the owner's wishes (i.e. if they want to remain on the balance land), neighbours (i.e. if they want to purchase balance land and add to their existing properties), and the proponent. Any future development of balance land would need to be undertaken in accordance with all relevant planning documents (including the SEQRP and the local government planning scheme).

27. The tendency for artists to use Viewpoint 16 (looking west from Kilmoylar Road towards Flinders Peak) is noted, and has been included in the Revised Assessment Report.

28. Generally speaking, any decreases in property values relating to scenic amenity in the long term as a result of the SFRC, are likely to be minimal (if evident at all), particularly with the preparation and implementation of the Landscape Integration Strategy and detailed Landscape, Revegetation and Urban Design Guidelines during the detailed design of the SFRC.

29. Visual "pollution" currently is not regulated by the Government. The visual impact assessment for the SFRC has therefore been based around the provisions in the CID Guidelines, as well as benchmark visual assessment guidelines from around the world. These are listed in Section 1.2 of Technical Paper 7 (Volume 2).

2.3.12 Noise and vibration

Comments and concerns relating to Noise and Vibration include the following:

1) Operational noise will affect lifestyle.
2) Additional noise will be generated by earthworks during construction.
3) Cutting and an elevated Ipswich-Boonah Rd (up to 9m) will increase noise levels.
4) Vibration from train movements will affect houses, compounding existing house movement problems as a result of natural processes.
5) Why is map 8.3 (vol 2) left out?
6) Map 8.2 is unrealistic.
7) A new noise assessment should be undertaken and residents should be notified of the results.
8) A 2005 report states that 5km will require concrete casing. Why doesn't the rest of the corridor receive this?
9) Map 8.3 is incorrect as a gunshot can be heard throughout the valley.
10) Mechanical noise mitigation wouldn't work as most residents rely on solar power in this area.
11) No noise mitigation is proposed for elevated sections of rail.
12) Fails to consider specific noise mitigation measures in:
    - SFRC design
    - Construction adjacent to SFRC
    - Discounts use of noise barriers
    - Noise impact upon the well-being of wildlife
13) Technical Paper 7 Noise and Vibration suggests mechanical ventilation and Stage 1 treatment - 'common non-acoustical construction material and methods required'. What does this mean? And who will have to outlay for these treatments?
14) Who pays for mitigation measures?

- There is the understanding that some compensation measures will include air conditioning and other vibration reducing features. Will compensation extend to the ongoing running costs of air conditioning?
- Assessment for mitigation was based on QR historical levels. Assessment did not take into account relativity of current noise levels (which are low). Which standards are to be used for double carriages (which are not current part of QR fleet)?
- Why were some houses removed from mitigation areas for housing adjacent to alignment?
- How will impacts be mitigated for particular properties?
- Maunsell advised there would be no practical or cost effective method of mitigating noise impacts
- Noise mitigation strategies need to be reconsidered
- Acoustic treatments for the house alone are not acceptable, as amenity will be affected for the entire property due to much time spent outdoors
- How will noise and vibration impacts for houses within 200m be mitigated?
- How will vibration damage for houses within 200m be rectified?
- What noise and vibration mitigation measures will be implemented to decrease livestock and wildlife stress?

15) Noise impacts outlined in Draft Assessment Report could detract from key selling features and negatively affect the commercial viability of the venue.
16) The consultants undertaking noise and vibration assessment:
    - Had no knowledge of IRCC
    - Gave no consideration to IRCC's unique characteristics
    - Failed to consider noise impacts on IRCC
17) Existing and future IRCC facilities within 800m-2500m from SFRC and within/adjacent to Stage 1 and 2 noise contours.
18) The report fails to consider outdoor noise impacts and IRCC accommodation styles (e.g. tents);
19) Elevated rail (6m above Mt Flinders Rd) will lead to greater noise impacts on IRCC.
20) The information about impacts from noise and vibration is not adequate as it is one of the most critical impacts on residents and the environment.
21) There is no assessment of impact upon the visitor population at IRCC.
22) It is not known if the consultants undertaking the report were aware of the location and existence of IRCC.
23) Report does not take into account:
    - The IRCC is an 800ha outdoor conference and tourism facility based on a quiet rural setting.
    - The existence of IRCC is dependent upon maintaining a quiet rural and natural bushland setting.
    - Residential guests are mainly accommodated in tents and in eco-style cabins/villas.
    - Guest numbers can vary from very small numbers to several thousand.
    - Future accommodations planned to be constructed will be of a variety of styles, but designed according to sustainability principles minimising the use of air conditioning.
    - Much of the activities conducted at the IRCC are outdoor.
    - Approximately 50% of the IRCC properties on the southern side of Mt Flinders Road are seriously affected by noise at a Treatment Level 2, according to Map 8.3. This includes the main reception area for large conventions, campgrounds for several hundred people, areas with town planning approval for the construction of guest accommodation, and areas planned for recreational bushwalking trails.
    - Nearly all of the remaining IRCC property of the southern side of Mt Flinders Road is within Treatment Level 1. This includes existing campgrounds for over 2000 people, large areas with town planning approval for the construction of guest accommodation, and areas for outdoor recreation.
    - A large part of the IRCC property of the northern side of Mt Flinders Road is within Treatment Level 2, including the caretaker's/manager's house, workshops, main entrance to the IRCC, and areas with town planning approval for construction of staff accommodation.
    - A large part of the IRCC property on the northern side of Mt Flinders Road is within Treatment Level 1, including the main central pavilion, the main conference hall, campgrounds and dining facilities for

several hundred people, areas with town planning approval for the construction of guest accommodation, and outdoor recreation and bushwalking areas.

- The impact of noise on the main outdoor amphitheatre (seating 4800 people) and the remainder of the property including existing and planned guest accommodation, function centre and outdoor recreational areas and bushwalking is not known.
- It is expected that some level of noise from passing trains will impact all areas of the IRCC.
- The normal QT noise criteria standards applied in the report do not apply to the unique nature of the IRCC.
- Noise impact on the IRCC will be very significant due to the outdoor nature of the accommodation and activity, proximity to the preferred alignment and topography.
- The report provides false indication of the real impact of the SFRC by not referring to the IRCC.
- The executive summary appears to only address the noise impact on residences and not on outdoor activities – the main activity in a rural area.
- Modelling is done only on single-stack trains of a maximum of 1800m long, therefore not representing a realistic assessment of impact.
- Given that the IRCC is a major meeting and tourism facility, it warrants specific attention by QT with regard to assessment of noise impact. It appears that the consultants were not briefed on the existence of the IRCC and did not consider the impact of the IRCC in the report or undertake any specific measurements and assessments in the IRCC location.
- As the IRCC is an outdoor-based convention centre, daytime noise impact is a very significant factor. No measurement is provided in the report on daytime noise impacts.
- With regard to night-time noise impact, the majority of accommodation at the IRCC is provided in tents. Therefore the night-time noise criteria measurements will be different from those used in the report and noise impact (particularly with respect to sleep disturbance) will be significantly greater.
- The report should include an indication of the noise impact on areas outside of the limit lines.
- Tables 8.6 and 8.9 fail to include any reference to the campgrounds, conference facilities, and approved future guest and staff accommodation that fall within the Treatment Areas 1 and 2.
- These tables also do not include community buildings and facilities within the Treatment Areas, such as Peak Crossing State School, Peak Crossing Community Hall, and local churches.
- Has the raised level of the rail line in some areas been considered when determining the noise contours?
- No information is provided on what level of noise reduction can be achieved with noise barriers or earth berms.
- The use of earth berms is not possible in locations where the alignment is raised above ground level.
    - Minimal attention is given in the report to efforts to reduce noise impact at the source. These would be critical to protection of the IRCC environment. More information is required about this, particularly in the IRCC and Peak Crossing area.
    - Due to the nature of the IRCC and its facilities, installation of ventilation or air-conditioning is inappropriate. Only natural background noise and minimal noise intrusion from other sources is experienced, including:
        i. Dining during the day and evening mostly outdoors or on verandas
        ii. Sitting around campfires at night is an integral part of the activities
        iii. Conferences utilise natural light and ventilation as much as possible and minimise use of air-conditioning (typically relied upon in urban settings)
        iv. The main amphitheatre is a completely outdoors environment
        v. The majority of guest accommodation is in tents which cannot be treated for noise impacts at the receptor point
        vi. Guest accommodation in eco-cabins and villas are designed for minimal use of air conditioning and are designed to be receptive to the sounds of the surrounding environment
        vii. Future accommodation is planned to be built to best sustainability practices minimising the use of air conditioning

- Table 8.17 implies that buffer distances ranging from 600m to 2800m are required to prevent construction noise impact. Almost all of the IRCC accommodation and facilities are within 2800m of the preferred alignment, and therefore it is expected that the IRCC will be significantly affected by construction noise for a long period of time. Noise mitigation would need specific attention to ensure minimum impact on the IRCC's operations during construction.
- The mitigation measures proposed are not suitable for the unique nature of the IRCC facility.

24) Concerns that some houses close to the preferred alignment are made of timber and won't block out noise.
25) There are no hills in the area to block out noise, topography will amplify noise, and noise will reverberate through bushland.
26) Peak crossing is currently peaceful which will be destroyed by the project.
27) Noise travels further at night (Willowbank can be heard).
28) Vol 2 map 8.2 is misleading to show that only 20m either side of the alignment will be affected by noise. There are concerns that extreme noise and vibration will be experienced up to 4kms away.
29) Noise is likely to startle new arrivals and young stock posing significant risk for both stock and handlers.
30) The SFRC study makes no sincere attempt to differentiate between noise levels as affected by topography, bridges or climbing track.
31) No noise containment measures are suggested in many areas.
32) Noise will impact lifestyle and health.
33) Study is contradicting as 'social impacts' section states that noise will be one of the greatest concerns.
34) Noise and vibration during construction and following rail use.
35) Purga Quarry provides 4 hours warning of any blasts. Will there be notification prior to every freight train?
36) Construction of Ipswich-Boonah Road Bridge will also create additional noise and air quality issues.
37) Generally want to know what the extent of compensation will be as well as its timing.
38) When will the acoustic team be undertaking sound and vibration checks?
39) When will a determination be made about what is considered an acceptable distance to live from the proposed alignment in order to maintain quality of life?
40) Will noise and vibration be unbearable for a residence within 60m of the preferred alignment and 30m of a realigned road?
41) Concerns that in the Washpool area, the rail line is proposed to be constructed approximately 12m above the natural landform.
42) There is no real evidence of where acceptable noise levels were collected from (14.3, pp. 111).
43) Noise from the SFRC will disrupt enjoyment and tourism.
44) The reference to residents adapting to Amberley RAAF Base and Willowbank Raceway is irrelevant.
45) 14.6, pp. 112 – no evidence to back up the mitigation measures.
46) What is 'short term' as referenced in the report?
47) Noise impacts of a freight terminal are not addressed in the report.
48) How will the noise generated by the SFRC affect residents, pets and wildlife?
49) Meeting with Maunsell and QT indicates that actual noise impacts will not be known until detailed studies undertaken at detailed design phase. Concerns that by the time these results are known, the line will be operational.
50) Table 2.9 and section 3.2 of Operation indicate that noise impacts on fauna are unknown and will not be known until operation when it is too late.
51) The report states that only nearby residences will be affected. This is not the case and trains will be heard throughout the valley, as currently cars driving through the valley can be heard. It is not correct to say that only those residences in the marked areas will be affected.
52) The EPP (Noise) 1997 will be replaced with the EPP (Noise) 2008 in early 2009. The acoustic descriptors, environmental values and quality objectives in the EPP (Noise) 2008 may be different to those specified in the EPP (Noise) 1997.

53) When construction methods are finalised, a more detailed construction noise and vibration assessment must be undertaken to determine the extent of environmental harm, including nuisance, at nearby noise sensitive places, and identify mitigation measures to prevent or minimise any impacts.

54) Concerns that the study does not include full noise and vibration study.

55) One landowner recently stayed at a farm that borders a heightened freight rail system – they experienced constant noise and vibration and wildlife was absent in the area.

56) Noise Impacts Review Conducted by ERM on behalf of IRCC:

a) ERM reviewed the DAR and met with Maunsell AECOM Staff and QT regarding information in the report.

b) DAR states that ambient noise in the vicinity is between 25-40dB during the day and 22-31dB at night. Submission generally suggests that these ambient levels are likely to be less than those which were reported.

c) ERM undertook future noise modelling utilising *Nordic Rail Prediction Method (Kilde Report 130)* and CONCAWE.

d) Assessment uses DAR table 8.9 treatment stages 1 and 2 and Map 8.3 to calculate predicted noise levels for IRCC site.

e) Treatments discussed in table 8.8 will not be applicable for the camping grounds and eco-friendly buildings with natural ventilation.

f) Construction noise is also expected to impact on the operation of the IRCC. Table 8.17 indicates that the noise criteria would be met 600-2300m from the construction activity. The report does not provide detailed information on the construction activities.

a) Conclusions

Based on information provided in the Draft Assessment Noise Report, it is concluded that the proposed SFRC will cause significant noise impacts on the rural ambient noise climate of the IRCC site during construction and operation. Due to the outdoor nature of the site including tent accommodation and buildings that are designed to be naturally ventilated to allow people to hear the natural sounds, treatment of buildings is not a practical solution for the IRCC site.

b) Recommendations

In order to address the noise impacts it is recommended that:

1) The line be moved further away from IRCC so that the levels from trains are acceptable (e.g. locate rail on other side of Peak Crossing or other side of line of hills).

2) Further modelling be undertaken (noting the points raised in section 4 – p87-88 of this submission) to clarify noise levels at IRCC, taking into account the elevated track, worst case met conditions, and the effectiveness of rail noise control measures (e.g. rail line on the ground with noise barriers).

3) The track alignment be re-engineered so that he track can be at grade or in a cutting as it passes IRCC and Peak Crossing (i.e. not 6m above the ground).

4) Allowance to be made for noise barriers to be installed along the length of the track to further reduce rail levels at IRCC to minimise noise impacts.

Submissions: 10, 11, 22, 23, 27, 29, 32, 41, 42, 43, 46, 47, 50, 54, 77, 78, 81, 88, 92, 94, 97, 100, 102, 103, 104, 105, 106, 108, 109(b), 110, 123, 127, 128, 129, 134.

Response:

1, 14, 20, 24-27, 29-34, 37-43, 48-51, 54. It is noted that there are concerns the SFRC will generate noise which will affect the current lifestyle of many residents in the study area. The study area is characterised by a typically very low level of noise, and this contributes to concerns that the affect of the SFRC will be all the more significant. The Noise and Vibration assessment undertaken for this project is preliminary in nature, and is considered to be adequate for the purposes of the SFRC study at this stage. The detailed design of the SFRC will use accepted criteria at the time of the assessment to comprehensively assess the noise and vibration likely to be

generated by the construction and operation of the railway line. The criteria adopted will be based on current accepted policies of various bodies such as the World Health Organisation and the Commonwealth and Queensland Governments. Mitigation measures will be identified and incorporated into the detailed design of the SFRC so that any noise effects upon sensitive noise receptors will be prevented or minimised to the greatest extent feasible.

2, 56. Concerns about noise generated by earthworks during construction of the SFRC are noted. A Construction Environmental Management Plan (CEMP) will be developed during the detailed design of the SFRC. This CEMP will outline all potential environmental impacts of the construction phase of the project, and will identify mitigation measures to prevent or minimise these impacts, including noise generated by earthworks.

3, 36. It is acknowledged that an elevated Ipswich-Boonah Road will change the noise environment in the Purga area. The detailed design stage of the SFRC will assess all aspects of the project (including changes to existing roads) with respect to noise generation. Mitigation measures will be identified and incorporated into the detailed design of the SFRC so that any noise effects upon sensitive noise receptors will be prevented or minimised to the greatest extent feasible.

4, 14. The concerns about vibration from train movements are noted. However, any properties affected by vibration from SFRC train movements are likely to be in areas considered to be close to the preferred alignment and require resumption. This will be investigated in comprehensive detail during the detailed design stage of the project.

5. It is noted that Map 8.3 was left out of the Volume 1 summary document of the Draft Assessment Report. It has been included in the Volume 1 summary document of the Revised Assessment Report.

6, 7, 28. Map 8.2 in the Revised Assessment Report illustrates the areas in the study area that have been modelled to be in exceedance of the current QR criteria (external noise level at façade). Technical Paper 8 (Volume 2) notes that these external noise criteria are generally applied in urban and suburban environments where rail noise and louder background noises are already a feature of the acoustic environment. The report also states that all the criteria used in the noise and vibration assessment are proposed for review and there is no determination regarding which of these criteria will be appropriate at the time of construction. It is expected that the noise criteria applicable to the project will be confirmed during the detailed design phase.

8. The SIC Study (2005) stated that one of the northern options investigated would require approximately 5km of concrete casing, where it passed the Springfield Town Centre. This was a key factor in this particular option not being pursued for further investigation. The only areas along the C3 option identified as being totally encased were the sections of tunnel through the Mt Flinders Range required to overcome terrain.

9. The information relating to a gunshot being clearly heard throughout the valley in the Woolooman and Kagaru areas is noted. The information in Map 8.3 is based on complex noise modelling of the SFRC preferred alignment, and is not meant to demonstrate where a gunshot is likely to be heard in the study area.

10-14, 19, 24, 31, 41, 45, 54-56. The concerns relating to the effectiveness of suggested noise mitigation measures are noted. It is important to consider that the detailed design stage of the project will involve a more comprehensive noise and vibration assessment, where exact details of mitigation measures to prevent or minimise any effects will be identified. These will take into consideration certain factors such as reliance upon solar power in some areas along the alignment. Mitigation measures for sensitive receptors will be developed on a case-by-case basis during detailed design. It will be at this stage that details such as compensation for running costs of air conditioning etc. may be considered.

Elevated sections of the rail alignment will be factored into the noise and vibration assessment. In areas where numerous sensitive receptors are present, design options will be considered to reduce noise spill in these elevated

sections of rail. One such option to be explored will involve the use of noise mitigation mounds to reflect and contain noise generated by the SFRC, as per Figure 2. Material required for installing noise mitigation mounds in strategic locations is likely to be obtainable from the excess of material extracted from the study area due to earthworks (particularly in the areas where the preferred alignment passes through the Mt Flinders Range).

The mechanical ventilation suggested in the Revised Assessment Report is installed on the most affected façade of a building (i.e. facing the rail line) and allows air to flow through a partition with the windows closed, thus increasing noise attenuation.

The common non-acoustical construction material and methods refers to any standard construction of an external house wall, for example simply using some sort of cladding for an external wall, or single layers of plaster board, etc. In summary, this refers to any construction that does not specifically consider acoustics.

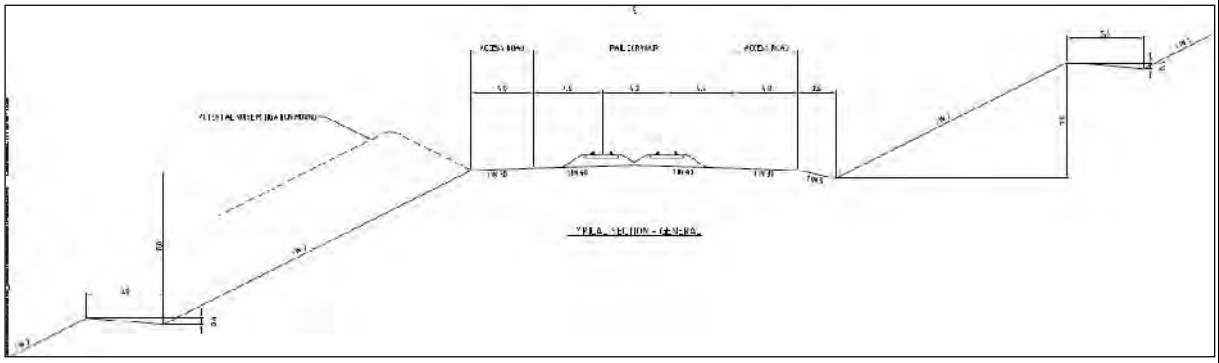

Figure 2: Typical cross-section of SFRC showing potential noise mitigation mound for elevated sections.

15, 18, 21, 23, 56. The study team acknowledges that the IRCC is a unique land use within the study area. Considering that the IRCC is largely an outdoor conference centre and is dependent upon a quiet rural amenity, the IRCC is characterised by a noise sensitivity that is different to many of the other land uses in the area. Concerns from the IRCC that the SFRC will adversely affect the commercial viability of the IRCC are noted. The noise assessment undertaken by ERM for the IRCC is noted, and the conclusions and recommendations from this assessment are acknowledged.

Camping on-site during major conventions as well as daytime conference activities are likely to be particularly sensitive to noise impacts. It is recognised that the treatment measures outlined in the draft assessment report are not appropriate for the mitigation of noise impacts on these uses, and are only suited to standard residential buildings. Accordingly, it is recommended that further detailed investigation be undertaken during later project stages to develop appropriate at-source noise mitigation measures for this section of the alignment. Such measures would also assist with mitigating noise impacts on the Peak Crossing township.

Review of the alignment in the vicinity of the IRCC shows that the alignment exits cutting at Ch 24250 and re-enters cutting at Ch 27750. Implementation of at-source mitigation measures for this section of the alignment between these two cuttings would likely assist with mitigation of impacts upon IRCC and the Peak Crossing township. Mitigation measures to be explored for this area include earth mounding (as indicated in Figure 2), as well as acoustic barriers.

Due to the nature of the project, total mitigation of noise impact upon IRCC is not likely to be possible, with further detailed modelling to confirm the extent of residual impact during detailed design based on the appropriate criteria at the time of assessment. During detailed design, appropriate effort should be made to reduce the noise impacts of the SFRC on the IRCC and other sensitive uses as far as practical, to the extent that any residual impacts are manageable.

Construction noise may have an impact on IRCC where the construction works occur in vicinity of the site. It is recommended that the proponent liaises with IRCC representatives during detailed design to discuss the timing of construction activities such that noise impacts upon large conferences and conventions at the site are avoided.

23. The noise emission characteristics of single and double-stack wagons are comparable. Once specific rollingstock for the SFRC have been selected, noise modelling will be undertaken during detailed design to further refine noise modelling for the project, and to gain a more relevant assessment of the likely noise impacts of the project.

16, 17, 22. It is incorrect to state that the noise and vibration assessment was undertaken with no knowledge of the IRCC. The facility was recognised in the Draft Assessment Report; however the extent of its facilities was not communicated clearly. Input provided by IRCC into the SFRC study is greatly appreciated by the study team, is of considerable use at this stage, and will also prove to be useful during the detailed design stage of the project.

35. It would not be practical to notify residents prior to every freight train using the SFRC. It is noted that the Purga quarry provides a 4-hour warning for any blasts on their site; however railways do not operate under this requirement at present.

44. Reference to the noise levels generated by Amberley Air Base and the Ipswich Motorsport Precinct was included to highlight that there are presently noise-generating land uses in the study area. It is in no way inferred that this reduces the potential noise effects as a result of the SFRC.

46, 53. The short term impacts referred to in Technical Paper 8 (Volume 2) refer to the potential impacts of construction on the surrounding noise environment. These potential impacts will be managed through a Construction Environmental Management Plan (CEMP), developed at the detailed design stage of the project.

47. It is acknowledged that the potential noise effects of an intermodal freight terminal in Ebenezer are not discussed in the Revised Assessment Report. However, this is because the development of a freight terminal in this location is outside the scope of the SFRC study. Any development of an intermodal freight terminal in this location would be subject to a separate environmental/development assessment at that point in time.

52. It is noted that the EPP (Noise) 1997 has been replaced by the EPP (Noise) 2008. The Revised Assessment Report has been amended to incorporate any changes between the two policies.

2.3.13 Aboriginal cultural heritage

Comments and concerns relating to Aboriginal cultural heritage include the following :

1) Concerns that the SFRC will remove/destroy places of high value to Aboriginal culture from the landscape.
2) Although some artefacts can be relocated, the overall impact of the SFRC on the landscape cannot be mitigated – therefore the overall location of the SFRC should be reviewed.
3) Aboriginal cultural heritage is respected by many delegates to the IRCC, and degradation of Aboriginal cultural value in the area will impact upon delegates' enjoyment of the area.
4) Aboriginal cultural heritage is protected whether or not it has been identified and listed by DNRW.
5) The onus lies with the proponent to adhere to the Aboriginal Cultural Heritage Duty of Care Guidelines and other requirements to undertake a cultural heritage survey or develop an Aboriginal Cultural Heritage Management Plan.
6) What mitigation will be in place for 4 sites crossed by the preferred alignment (shown in map 9.2)?
7) Concerns that 25 Aboriginal sites will be violated.

Submissions: 32, 54, 94

Response:

1, 4, 6, 7. Concerns relating to the SFRC affecting places of high value to Aboriginal culture are noted. The Revised Assessment Report, including Technical Paper 9 (Volume 2) identifies all potential effects upon areas of Aboriginal Cultural Heritage (ACH) and proposes mitigation measures to minimise or prevent these impacts. The report notes that impacts are expected for four particular areas of heritage value throughout the study area (see Map 9.2). It is important to ensure that all mitigation measures identified in the report are appropriately incorporated into, and built upon, during future stages of the SFRC project. These areas were identified by the traditional owners of the land – the Jagera Daran during targeted field searches for the SFRC study, and do not simply relate to areas identified and listed by DNRW. During detailed design a more comprehensive and targeted ACH study will be undertaken to more accurately determine the potential extent of impacts upon ACH within the study area, and to more accurately describe mitigation measures to minimise or prevent these impacts. These measures will be outlined in an Aboriginal Cultural Heritage Management Plan (ACHMP), to be prepared during the detailed design stage.

2, 3. The study team acknowledges that a critical aspect of ACH is the overall amenity and character of the landscape. It is also noted that these values are appreciated by delegates to the IRCC, and contribute to their enjoyment of the area. The *Aboriginal Cultural Heritage Act 2003* Duty of Care Guidelines dictate how aspects of cultural heritage are to be handled by the SFRC study. The SFRC study will ensure that this duty of care obligation underpins the design, construction and operation of the SFRC alignment.

5. It is recognised that the proponent is required to adhere to the Aboriginal Cultural Heritage Duty of Care Guidelines and also is required to undertake a cultural heritage survey and/or develop an ACHMP. During the detailed design stage of the project, the proponent will adhere to the requirements of the ACH Duty of Care Guidelines. A further, more comprehensive cultural heritage survey will be undertaken for the preferred alignment, and an ACHMP will be developed for the project.

2.3.14 European cultural heritage

Comments and concerns relating to European cultural heritage include the following:

1) Concerns that some properties which have been in family hands for generations will be lost, and that the current owners will be left with the burden of being considered by family members as the ones who 'lost' the property.
2) Concerns that the historical significance of Mt Flinders Road has been overlooked by the report, as it was the access road to the original Rockton township and the road used by bullock teams (timber-cutting);
3) It is expected that other roads in the vicinity would also have historical significance.
4) Cultural heritage is dependent upon an overall sense of place. The area, particularly from Peak Crossing to Kagaru, with the backdrops of the Flinders Ranges and the small rural townships and homesteads, has an overall heritage that will be dramatically and irreversibly impacted by the SFRC.
5) Concerns that the relocation of individual buildings does not mitigate this overall impact.
6) Concerns that the surrounding mountain ranges are listed in the National Estate, and will be adversely impacted.
7) Why will such an ugly infrastructure project be placed in an area of such natural beauty with national interest?
8) Concerns that a particular 100-year-old timber slab hut will be destroyed according to Map 4.9, Inset A.
9) The Historic Undullah Station Homestead is recommended to form part of the future Undullah Station residential community. It is proposed that the preferred alignment be modified to maintain this homestead.

Submissions: 3, 54, 94, 100, 102, 103, 104, 105, 106, 112

Response:

1. It is acknowledged that there are properties within the study area which have been handed down through generations. Indeed, a characteristic of the study area is that many families have lived in the area for generations. The difficulty facing those currently owning such land is noted.

2, 3. Information about the historical significance of Mt Flinders Road is noted, and has been included in the Revised Assessment Report. It is also noted that there may be roads in the vicinity of Mt Flinders Road with a similar historical significance.

4, 6, 7. The study team acknowledges that an overall sense of place is crucial to the preservation of cultural heritage. The overall sense of place provides context for all aspects of cultural heritage. Considering this, it is important to ensure that the rural amenity of the study area is not changed by the SFRC. Section 4.0 of Technical Paper 10 (Volume 2) discusses the implications of this, and also states that any expected impact of the SFRC upon the rural amenity of the study area is expected to be manageable.

The Flinders Peak-Ivory's Rock area is identified in the Revised Assessment Report as being listed on the Register of the National Estate. The significance of the area is based on its cultural, aesthetic and scientific significance for its geology and vegetation. The contribution that the area makes to the landscape of the region is not expected to be compromised by the SFRC, and therefore it is not expected that the SFRC will have any significant effect upon the significance of the Flinders Peak-Ivory's Rock area. Technical Paper 7 (Volume 2) states that a Landscape Integration Strategy will be prepared for the SFRC during the detailed design stage, to ensure that the SFRC is effectively integrated into the surrounding landscape.

5. It is accepted that relocation of items of European Cultural Heritage (ECH) significance is not the most ideal mitigation measure to minimise impacts of the SFRC. However, the ECH study for the SFRC identified that the Undullah Station Homestead will be required to be relocated, as the preferred alignment is located in close proximity to the homestead. Given that there are no feasible alternative locations for the alignment in this area, it is prudent to ensure that the relocation of the Undullah Station Homestead is undertaken with minimal disruption to the homestead, and that its original location is photographed, documented and made publicly available. During the detailed design stage , a more extensive ECH study will be undertaken, and a Conservation Management Plan will be prepared for the Undullah Station Homestead.

8. The information about the timber slab hut is noted, and has been incorporated into Section 16.3.1 of the Revised Assessment Report (Volume 1).

9. Undullah Station, located towards the eastern end of the alignment, is a large area of land, proposed by the owners for residential development in the future. There has been preliminary work undertaken by the landowner to master plan the property, and it is acknowledged that some of this land has the potential for future residential use in the long-term, and that the landowner requests the location of the preferred alignment to be away from these properties. However, the location of the SFRC alignment through this area is determined to a large extent by the existing topography (i.e. much of the study area in this location is of rugged topography). The SFRC passes through the southern parts of the Undullah Station property, and noise impacts and maintenance of direct road access are key concerns of the stakeholder. It is anticipated that the presence of the SFRC in the southern parts of the Undullah Station property will still enable the master planning of the site to include future residential areas – with appropriate design measures in place to minimise any amenity impacts from the SFRC.

It is understood that the Undullah Station Homestead is planned to form part of the future residential community in this area (if it is developed in the future). During detailed design, discussions will take place between the proponent and the landowner in order to identify mutually beneficial outcomes for this site. One possibility that should be investigated is the relocation of Undullah Station Homestead to another part of the site, in a location that would still enable its integration with any future residential community in the area. This issue will be further investigated during the detailed design stage, and the Conservation Management Plan prepared for the Undullah Station Homestead should include any results of the discussions between the SFRC proponent, the landowner and local governments. It is important to note that development of this land for such residential purposes is not consistent with the provisions of either the SEQRP or the former Beaudesert Shire planning scheme.

2.3.15 Social impact

Comments and concerns relating to Social Impact include the following:

1) Proposed SFRC would make farming unviable in this location.
2) SFRC has already negatively impacted property values.
3) Lack of timeframes leaves the community in limbo, stagnating property values all with a 1 in 7 chance of the project proceeding.
4) Property value will stagnate, and financial security will be lost.
5) Many landowners will find it difficult to relocate to a similar local property.
6) Some landowners have had their families living in the area for up to 5 generations. The SFRC will take this heritage away from them.
7) The project is not in the best interests of anyone in the state.
8) Due to the uncertain nature of the project, some landowners are concerned that they will be unable to provide an accurate description of the property to clients if their property is put up for sale.
9) No community benefits are evident from the SFRC, except for a possible reduction in truck volumes – which has not been investigated further.
10) Report fails to address the fragmentation of the community and social networks.
11) Report fails to mention how the construction workforce will be managed.
12) How will resident safety during construction be addressed?
13) The mitigation measure suggested for monitoring social and community impacts does not help land owners.
14) What are the 'community improvement projects' referred to in the report?
15) The report admits a change of character in the area.
16) The N1 option was dismissed yet it passed through uninhabited land where future residents could choose to live near a train. The residents in the SFRC study area have no such choice.
17) Given the 1 in 7 chance of the project being required, why place uncertainty on the community?
18) Concerns that stress and anxiety will increase, disrupting sleep patterns in a currently quiet area.
19) Proposal has put their life on hold.

20) Respondents found it difficult to make a submission with potential loss of property, home and superannuation hanging over their heads.
21) It is far too difficult to read the entire report knowing that their properties will be taken from them.
22) Families and the entire community will be devastated by the project.
23) Air quality impacts causes concern over potential respiratory irritation or asthma for residents and their children.
24) Concern over health impacts of transported materials - radioactive material and coal dust.
25) Raising of Ipswich Boonah Rd will cause more light reflection from cars, disrupting sleep patterns.
26) Impacts on lives and livelihoods are not fair given the 15% chance of the project proceeding.
27) Waiting for outcome causes uncertainty as the properties are to be passed on to children in the near future. Properties have been in the family for over 100 years and have much sentimental and increasing monetary value.
28) Uncertainty causes much stress and unease.
29) Noise will be unreasonable to live with.
30) In many cases, resumption of the family home would be preferable over occupation close to the SFRC.
31) In many cases, the preferred alignment causes the maximum possible impact by passing over important land, water courses and facilities.
32) Why is the Moggill Koala Hospital Association's Gumtips Nature Refuge being protected whilst their own clinic is not? The facility is unable to relocate due to its close proximity to the Koala hospital and habitat.
33) Noise, diesel fumes, coal dust and chemical freight would make building a house unwise and any future owners would face similar concerns.
34) Some landowners wished to build house and live properties within the study corridor, and have since been informed that building applications would be unlikely to be approved if the SFRC is designated as Community Infrastructure.
35) As a result of the wait until a decision is made, many landowners will be cautious of making any infrastructure improvements to property during this time.
36) Construction, operation and maintenance of the SFRC will cause immense disruption to residents' lives.
37) People outside of the buffer zone will have no compensation for the disruption and inconvenience caused in addition to the decreased property values.
38) Compensation such as air-conditioning is not a solution - leads to increased power requirements and does not suit lifestyle.
39) It is completely erroneous to state "impacts on local landholders…will be compensated at a future time when land is purchased for the corridor", as social impacts will not be compensated.
40) Acceptable compensation is sought for closure of Teves Rd.
41) If proposal proceeds, some landowners will seek compensation to relocate to a property of similar or greater value with equal access to services.
42) Relocation should be at no expense to the landowners.
43) The report admits compensation may not be adequate.
44) Will full compensation be provided for houses, offices and other infrastructure?
45) How will the valuation of properties be calculated?
46) Will compensation extend to the splitting of a family social network as other relatives live nearby?
47) There will be no compensation for degraded amenities.
48) Interim compensation measures should be made for doubt and disruption to the lives of landowners and residents.
49) The Reduced Rural Character Section of Technical Paper 5 states that current compensation/resumption mechanisms may not be sufficient. This resumption/compensation process should be made more realistic.
50) In one case, new house plans have been drawn up at the owner's expense and will be directly in the path of the alignment.
51) In the event that some of the larger operations in the study area are able to relocate, it is unlikely that the local workers will also be able to relocate.

52) Many land owners have invested their lives into their land in order to retire comfortably.
53) Many land owners have indicated that they would not have purchased their property if they had known the SFRC was going to be constructed.
54) The term 'localised negative impact' is demeaning.
55) The report suggests that the impacts on local landowners are likely to be small. Many landowners strongly disagree with this statement.
56) The Wild Pig Creek Road area has a distinct character and rhythm which will be destroyed.
57) The report states that the "loss of residential amenity and rural character in the study area is unfortunate yet necessary". Landowners disagree with this statement.
58) The construction of a bridge on Teves Rd South will reduce the privacy currently enjoyed by landowners in this area.
59) The SFRC will hinder children's play opportunities and will be potentially dangerous.
60) Concerns about retirement planning, and succession planning (family based enterprises).
61) Concerns that the subdivision potential of some land will be lost.
62) Washpool Rd contains dangerous blind corners. Concerns that the proposed road works would create more blind corners (Purga Creek Rd).
63) Landowners are concerned they will not be able to continue living the lifestyle they selected to live when they moved to the area.
64) The SFRC will result in significant fragmentation of existing owned property.
65) The preferred alignment is not the most suited route when considering community and environment.
66) Technical Paper 11 was not included in Volume 2.
67) Given the scale of the project and significance of potential impacts, the limited amount of consultation with the "broader community" cannot be accepted as a true indication of community perception with regard to the SFRC.
68) The report fails to identify tourism, eco-tourism and recreational activities as significant social activities in a large part of the study area, and that the SFRC will impact no these activities and their potential future, thus reducing future economic and social benefits.
69) Concerns that the value of the IRCC will be reduced.
70) Concerns about the social disruption the loss of the Gibb Brothers packing plant may bring.
71) Their operations are socially responsible - fundraise and contribute to local school.
72) No assessment has been made of community values from the wider area of Ipswich, Brisbane and South-East Queensland.
73) Why was Map 11.3 in Volume 1 different to Map 11.3 in Volume 2?

Submissions: 10, 11, 13, 19, 22, 28, 31, 34, 41, 42, 43, 44, 45, 46, 48, 50, 51, 77, 78, 81, 86, 87, 88, 92, 94, 96, 97, 98, 100, 101, 102, 103, 104, 105, 106, 109(a), 109(b), 110, 111, 112, 123, 125, 127, 128, 129, 130, 134.

Response:

1. Concern about the future of farming operations in the study area is noted. The impacts of the SFRC upon existing farming operations within the study area are recognised by the study team after meetings with landowners, and from submissions made by the landowners. The TMR study team and Property Services representatives have spoken to the landowners and explained to them that it is likely to be at least 10-15 years before construction of the SFRC commences. With this understanding, there is ample time for TMR to assist the landowners in preparing for the future by investigating the locations where existing and future infrastructure for the properties can be situated on the land outside the CID area, whilst ensuring that operations on these properties can continue despite the construction and operation of the SFRC.

2, 4. Concern about property prices in the study area being affected by the SFRC is acknowledged. However, experience with similar projects elsewhere has shown that there is very little (if any) impact upon property values (apart from those which are directly traversed) by railway lines such as the SFRC. Some properties adjacent to the alignment may experience very slight decreases in value, however this is not expected to be significant in the overall context of prevailing market conditions.

3, 8, 19-21, 27, 28, 35, 36, 47, 52, 56, 57. The lack of definite timeframes is acknowledged to be a frustrating aspect of the SFRC study for the community. The SFRC study is a planning study to identify and preserve a corridor for the future construction of a freight railway line to ensure the required land is available when construction of the project commences. It is not possible to be definitive about timeframes regarding construction of the project , however there is a need to identify and preserve the corridor as soon as practical in the face of future development in the area.

The concerns that land owners have relating to the ongoing management of their property are noted. Many potential impacts of the SFRC upon existing farming operations and access arrangements within the study area have been recognised by the study team after meetings with landowners, and from various submissions made in relation to the project. All land owners with a land requirement for the SFRC on their property have had the opportunity to take part in a briefing with members of the study team and TMR Property Services to discuss their concerns and to talk about specific aspects of their property and how the SFRC is likely to affect them. Given the expected minimum 10-15 year timeframe prior to construction of the SFRC, it is not likely that the management of these properties will be affected in the short term.

So long as improvements to properties increase their market value, landowners of properties with a land requirement for the SFRC will be appropriately compensated for any improvements they make to their properties in the intervening time between now and when the SFRC is constructed. This compensation would be in the form of increased market value of the property when it is acquired for the SFRC project. In terms of powerlines, water supply, dams, access, stock movement and other farming infrastructure, the only way to deal with these concerns adequately is to work through solutions with the implicated land owners. Each of the land owners is in a unique circumstance, and therefore their property management requirements are also likely to be unique. Therefore, during the detailed design stage of the project, each land owner with a land requirement on their property will be consulted, in order to sort through property management issues relating to the construction and operation of the SFRC.

It is noted that many land owners in the area have invested their lives into their land in order to retire comfortably. Where there is a land requirement for the SFRC, landowners will be compensated at fair market value, or beforehand if they can demonstrate that waiting until formal resumption would cause hardship.

5. Rather than remaining on their properties and continuing their farming operations, some landowners who have a land requirement on their property, and who can demonstrate that waiting until formal resumption would cause them hardship, may wish to apply for hardship acquisition in order to relocate their farming operations. It is acknowledged that many of the farming operations in the study area have specific locational requirements. The cost for any relocation expenses will be considered in discussions with the landowner and TMR, and the knowledge and the aspirations of the landowners are taken into consideration.

6, 27, 60. It is acknowledged that there are properties within the study area which have been handed down through generations. Indeed, a characteristic of the study area is that many families have lived in the area for many years. The difficulty facing those currently owning such land is acknowledged. It is recognised that many landowners had the intention of handing down their property and/or businesses to their children in the future. It is also acknowledged that there will be instances where these properties cannot be handed down to future generations of the same family, as they are within the CID area of the SFRC preferred alignment. This is an unfortunate consequence of the growth of the SEQ region. The land acquisition and hardship purchase processes are designed such that landowners are placed in the same financial position as they were in before the project was announced. Although this does not continue the family heritage in these houses handed down from generation to generation, it does allow families to move on and continue their heritage in another location. There have been situations in the past where it has been possible for the family home to be relocated.

7, 9. The SFRC is proposed as a freight only railway and would form a key link from the proposed Melbourne to Brisbane Inland Railway to the standard gauge rail line north of Beaudesert, providing an alternative route to existing freight centres at Acacia Ridge and the Brisbane Multimodal Terminal (Port of Brisbane). The SFRC will also provide dual gauge rail access to proposed logistics hubs and industrial developments in the Ebenezer and Bromelton areas.

10, 22, 56, 57, 63. The Revised Assessment Report recognises the potential effects of the SFRC upon the community through fragmentation of social networks. This is outlined in Section 3.2 of Technical Paper 11 (Volume 2). Many people in the study area moved there in order to appreciate the natural values of the area (including the peace and quiet, and distance from infrastructure similar to the SFRC). It is therefore vital that the SFRC is incorporated into the surrounding environment as effectively as possible, so that this quality of life can still be enjoyed by those living in the area.

11, 12. All aspects of the construction of the SFRC will be addressed during the detailed design stage. This will include the preparation of a Construction Environment Management Plan (CEMP), which will outline how the construction workforce is to be managed, and how resident safety will be addressed during construction.

13, 14. It is noted that the mitigation measures for monitoring social and community impacts do not directly help landowners with property traversed by the preferred alignment. However, it is important that monitoring, such as that suggested in Section 3.2 of Technical Paper 11 (Volume 2) takes place in order for the Government to gain an appreciation of the level of change within the community, and the potential need to address fragmentation issues. Ongoing community engagement should be used as part of the monitoring process. This may include monitoring of impacts through surveys or interviews, and implementing community events designed to foster community connectedness and inclusion.

15. A change of character in the study area is a potential impact of the SFRC. It will be important for the detailed design stage of the project to ensure that aspects such as nature conservation, visual amenity and the noise environment are all appropriately considered and dealt with. If this is done effectively, it is expected that the SFRC can successfully integrate with its surroundings, and it is not expected that the SFRC will significantly affect the existing character of the study area. This is a vital consideration for the project, as maintenance of the existing character of the study area is considered to be an essential outcome for the project. The character of the area has greater resilience to impacts of development than has been suggested by many stakeholders and it would be incorrect to think that these values would be totally eroded should the SFRC proceed.

16. Concern regarding the N1 option being dismissed because it passed through an area of future residents (as opposed to current residents with the C3 option) is noted. However, the key difference between the Ripley Valley future development and the existing development in areas such as Peak Crossing and throughout the study area is the density of these residences. The Ripley Valley is to be a master-planned community of over 120,000 residents, and will be characterised by a considerably higher population density than any location within the SFRC study area.

17, 26. The Draft Assessment Report did not state there was a 1-in-7 chance of the SFRC proceeding. Section 18.6 (Volume 1) of the Revised Assessment Report states that there is a benefit in reserving the SFRC now if the prospect of the project proceeding is higher than 1-in-7. Given the need for new freight rail infrastructure in SEQ in the future, there is a pressing need for the SFRC to be identified and preserved to enable construction at some time in the future. The prospect of the SFRC project proceeding to construction is very high, and therefore there is a clear benefit in reserving the SFRC now.

18, 29, 33. Concerns about the potential health impacts of sleep disturbance as a result of the SFRC are acknowledged. Technical Paper 8 (Volume 2) recognises that there may be health consequences related to sleep disturbance. The detailed design stage of the SFRC will include a more comprehensive noise and vibration assessment, and aspects such as sleep disturbance and related health impacts will be investigated in greater detail.

23, 33. The concerns about potential health impacts of changes in air quality within the study area are noted. However, it is not expected that the SFRC will contribute to any significant decrease in the quality of the airshed throughout the study area. Comprehensive air quality investigations will take place as part of the detailed design stage of the project.

24, 33. Due to the long-term nature of the project the nature of materials to be transported on the SFRC is unclear. However, it is likely that the majority of the freight will be containerised. Any freight will be contained according to current regulated practices (such as those under the *Dangerous Goods Safety Management Act 2001*) to prevent any contamination of areas along the SFRC, as is the case for freight currently carried through the highly urbanised areas of SEQ.

25. The concern about raising Ipswich Boonah Road with respect to light reflection from cars and disruption to sleeping patterns is acknowledged. This will be investigated further during the detailed design stage of the project, at which stage impacts such as nuisance from light reflection will be assessed based on a greater level of detail.

30. It is noted that in some circumstances, the resumption of a residence would be preferable for the landowner over close occupation to the SFRC. If landowners have a land requirement on their property, they may apply for a hardship acquisition if they believe they meet the criteria outlined in the hardship policy. Should a landowner wait until detailed design and compulsory acquisition, their ability to continue living on the property will be addressed at this later stage. If a landowner does not have a land requirement on their property, but is in close proximity to the SFRC, the detailed design stage of the project will further determine potential impacts and mitigation strategies in consultation with landowners.

31, 64. Impacts to existing land uses throughout the study area are recognised by the study team. Direct impacts on residences, facilities and operations of landowners have been clearly communicated through one-on-one briefings and through the submission process. For landowners with a land requirement on their property, these impacts will be investigated at the detailed design stage to determine the best course of action. This will be undertaken on a case-by-case basis.

32. Potential impacts of the original SFRC alignment upon the koala clinic facility located on Brass Road, Mount Forbes are recognised. Discussions were held with the Ipswich Koala Protection Society, Moggill Koala Hospital Association, DERM and TMR in order to investigate options for this particular area of the SFRC. Based on new information about the significance of vegetation within Ebenezer for koala habitat, alternative alignment options were investigated in this area (see Section 4.3, Volume 1). The revised alignment is now situated some distance north of this koala clinic facility on Brass Road, Mount Forbes. As such, impacts from the SFRC upon this facility are not anticipated.

37, 39, 40, 43-46, 49. Concerns about those people not entitled to compensation for disruption and inconvenience caused by the SFRC are noted. However, the proponent is required to adhere to legislation when dealing with compensation issues. At the time of compulsory acquisition, TMR must operate in accordance with the *Acquisition of Land Act 1967*. This Act requires compensation to be paid to any landowner for land required for the alignment. Compensation is determined at market value by independent valuers, and is designed so that the landowner is left in the same financial position after the project is constructed as before the project was initiated. Case-by-case considerations, such as the ongoing operation of existing rural farming practices are also considered in these calculations. The Act does not provide compensation for landowners unless there is a specific land requirement on their property.

38. Concerns about the use of air conditioning for noise mitigation are noted. In some situations, this will not be a suitable mitigation measure, and alternative measures will be investigated during the detailed design stage, in consultation with the landowners.

41, 42, 51, 64, 70, 71. Rather than remaining on their properties and continuing their farming operations, some landowners who have a land requirement on their property, and who can demonstrate that waiting until formal resumption would cause them hardship, may wish to apply for hardship acquisition in order to relocate their farming operations. It is noted that some of these farming operations employ local workers, and that any relocation of the business would impact these employees. This consideration will be included in any discussions about potential options for relocation.

48. The request for interim compensation measures is noted. The hardship policy is designed to assist those landowners with a land requirement on their property who can demonstrate genuine hardship. The policy allows those people whose properties will be required to relocate before the formal land acquisition process begins.

50, 53. The case where new house plans were drawn up (at the owner's expense), for a property affected by the preferred alignment is noted. The SFRC study commenced in 2007, at which time an announcement was made to the public about the possibility of the preferred alignment being located within the Corridor of Interest. Had plans been drawn up after the Corridor of Interest was announced in 2007, the landowner would have been made aware of the possibility of a future land requirement for their property.

Further, it is noted that some landowners have purchased property in the study area since the announcement of the SFRC study in 2007. Following the announcement, the Corridor of Interest was included in RP searches for prospective purchasers of real estate. The SFRC alignment has been located within the Corridor of Interest where possible. The previous alignment was within the Corridor of Interest in the Ebenezer area, however due to new information about koala habitat values of this area, alternatives outside of the Corridor of Interest were explored in this area. The resultant revised alignment is north of the Corridor of Interest in this location. Landowners implicated by the revised alignment should already be aware of the SFRC project through the newsletters and study updates distributed throughout the study.

54, 55, 57. The phrase "localised negative impact" was not intended to be demeaning for those landowners in the study area. The intent of the phrase was to effectively make the distinction between potential effects to the immediate community and the likely benefits to the wider region and state resulting from the SFRC. It is recognised that the potential impacts of on local landowners are significant for these individuals and families.

58, 62. The effect of the suggested bridge on Teves Road South on the privacy of landowners in this area is noted. It is also noted that blind corners exist on some roads currently (such as Washpool road). The detailed design stage of the project will further investigate all future changes to roads (including bridges and potential blind corners). It should also be noted that existing road reserves could be constructed at anytime throughout the study area, regardless of the SFRC. With respect to Teves Road, the revised alignment is now located north of this area.

59. Concerns regarding the impact of the SFRC on the safety of residents (including children) are recognised. Safety (particularly in relation to corridor access) will be a paramount concern in the detailed design of the SFRC.

61. It is recognised that the current or future subdivision potential of some land within the study area may be altered as a result of the SFRC, though most land within the alignment is not appropriately zoned for subdivision.

65. As stated throughout the Revised Assessment Report, the preferred alignment has been qualitatively determined to be the most suitable route considering all aspects relating to environmental, economic and social spheres. The differences between the previous alignment and the revised alignment were influenced by the introduction of new koala habitat information.

66. All copies of the SFRC CD should have included the Volume 1 report and 12 Technical Papers within the Volume 2 report.

67, 72. Community perception of the SFRC study is noted. A range of community engagement activities were undertaken for the study (including two rounds of one-on-one landowners briefings), and these activities were above and beyond CID requirements. Activities included one-on-one briefings with potentially affected landowners, community information days, newsletters, newspaper advertisements, a study hotline and a website page. Through this community engagement process, the study team gained an understanding of community perceptions about the project. Focus groups comprising members of the wider community were used in the social impact assessment for the study. Generally, these focus groups were supportive of the need for infrastructure and the proactive measures being taken to ensure the future growth of the SEQ region.

68, 69. The importance of the IRCC, tourism, ecotourism and recreational activities in the study area is recognised. As stated elsewhere in the report, the potential effects upon this facility and these activities are expected to be manageable, and these activities are not expected to be significantly affected by the SFRC.

73. It is acknowledged that there were slight differences between Map 11.3 in Volume 1 and Map 11.3 in Volume 2. The map in Technical Paper 1 was the correct map at the time of the Draft Assessment Report. This was a technical error which has been rectified in the Revised Assessment Report. Maps 11.3 in volumes 1 and 2 of the Revised Assessment Report reflect the properties subject to a potential land requirement as a result of the revised alignment.

2.3.16 Economic impact

Comments and concerns relating to economic impact include the following:

1) Concerns over the likely deferment/cancellation of business expansion in local communities.
2) Concerns that future ecotourism projects would be impacted severely.
3) Concerns over impact upon primary activities – growing and fattening of high quality beef cattle.
4) The preferred alignment removes significant sections of cultivation paddocks.
5) Concerns that graziers will be forced to reduce the number of cattle significantly as SFRC encompasses large tract of land through grazing properties. In many cases, the balance land would not be enough to sustain the current amount of cattle.
6) Some landowners have constraints in cattle movement – economic constraints associated with the need to employ a cattle carrier or to purchase a cattle truck.
7) Concerns that additional cattle yards would be required for some landowners.
8) SFRC will make some businesses operationally untenable and unviable – would need to find alternate land because of reduced land area, disruptions and costs.

9) Concerns that relocating agricultural business is difficult – it is hard to find similar facilities (water supply, etc.) locally on alternate land.
10) Relocation would pose a considerable disruption and cost. Increase operating costs due to increased distances from home farm.
11) Bores that are essential to the viability of businesses throughout the corridor will be removed.
12) One landowner has stated that the following business/farming activities are currently conducted on their property and would be made impossible with the construction and operation of the SFRC:
    - Beef breeding - EDENGLASSIE RED BRAHMANS
    - Embryo transfers and artificial insemination utilising an on-site laboratory
    - Quiet environment required otherwise cattle may abort their calf
    - Dealing with 100 head of cattle
13) A covered railway line through Peak Crossing would allow for improved stock movement.
14) A dairy farming business (with an approximate annual revenue of $500,000) will be impacted.
15) Concerns about the loss of farming infrastructure (dairy, calf rearing facilities, hay shed, effluent disposal system and silage pits directly impacted), and topography constraints prevent the relocation of farming infrastructure. The preferred alignment takes higher ground suitable for infrastructure placement along almost 2km of property's eastern road frontage.
16) Smaller paddock areas will hinder growth and may threaten present scale of operation.
17) Potential decrease in business (horse training) viability as clients may not want to send yearlings to be trained with noise from nearby freight trains.
18) Cattle breeding and hay making operation business on property that supports two other properties. The impacted property is the heart of the business and produces all breeding stock and with irrigation, produces hay for fodder. A 100m-wide section of the paddock will be lost to the SFRC, and the preferred alignment takes out approximately one-third of cultivation and grazing land. The SFRC has the potential to put landowners out of business, making what is left unviable (including other property owned/leased).
19) Concerns that restrictions will remove the ability to further develop properties, and in some cases it would be difficult to recover value from any further development.
20) Santos is legally obliged to protect pipeline to ensure safe and continued operation – incl. managing risks from third party interference.
21) -Must be satisfied risk management issues are resolved (associated with Material Change of Use in use of land surrounding pipeline).
22) -Requests recognition of restraints on Santos's commercial freedoms as it risks having pipeline licence revoked and penalties imposed if statutory obligations aren't complied with.
23) Future planned tourism opportunities (farm stay and eco-tourism dwellings) will be diminished.
24) Future opportunities for sustainable eco-estate or vineyard/relaxation retreat diminished due to loss of visual amenity.
25) One landowner has invested a significant amount of money in establishing a vegetable packing facility and has key contracts in place that may be impacted by the SFRC.
26) They employee approximately 40 permanent/casual staff who may be impacted.
27) Concerns for other growers in the region who's produce they pack.
28) Current location has allowed them to achieve significant transport savings that has enhanced their business.
29) Concerns about potential impacts of air quality on the business.
30) Concerns that the preferred alignment passes through an area containing extractive industry.
31) Concerns that operational impacts, loss of productive land and disruption of watering points will make businesses unviable.
32) Many people throughout the study area were attracted to the area for business opportunities.
33) Concerns that the main source of income for many landowners is commercial crops that are grown near the preferred alignment.
34) Concerns about the improvements to the land and infrastructure on farms that landowners have made over time.

35) Concerns about reduced capital appreciation and that they can not be compensated for this.
36) The SFRC has had, and will continue to have, financial costs.
37) Who would be responsible for the maintenance of fences along the railway line?
38) Concerns about the potential impacts on Peak Crossing's burgeoning eco-tourism structure.
39) Business has injected a few hundred thousand dollars into local economy.
40) Concerns that the SFRC will essentially be 'terminal' for business (no future).
41) Any business which loses the ability to grow will ultimately die.
42) The state government's budget will be blown out for the SFRC, as most residents will seek full compensation. Further, there are concerns that:
    - Promises about property purchases may not be kept
    - There has been no proper costing of the SFRC
    - There is no business plan for the SFRC
    - There is no definitive time frame for construction and operation of the SFRC
43) How will the government reimburse or estimate the loss of residents' potential future plans and opportunities?
44) Many landowners reserve the right to seek full compensation should the need arise.
45) Why commit to the SFRC if the viability of the project is unknown?
46) There has been no money allowed for property acquisitions.
47) It is misleading to state that the SFRC is part of the Queensland infrastructure program when no money has actually been allocated to the project.
48) When will construction costs make it unviable?
49) Will a full costing be undertaken?
50) Will a business plan be undertaken?
51) Vol 1, Ch 18, p135 makes admission that there is a 1 in 7 chance of needing the proposal.
52) Given the 1 in 7 chance of proceeding, is the SFRC a wise us of government funds?
53) When will costs make the SFRC unviable to build?
54) QT does not know who will use the rail and what freight will be on it. Where is the business case to support and justify SFRC?
55) Choosing the C3 route was based on cost. The original report compared to SFRC study shows huge differences in the amount of engineering work required.
56) Is the N1 option now a better option due to cost?
57) Landowners' opportunity to start farm stay/tourist based businesses has now been denied.
58) An area of property designated as a Campdraft Arena is affected by the preferred alignment.
59) Concerns that properties affected by the SFRC will not experience continuing growth in value like other unaffected properties in the area.
60) Refer Technical paper 12 p18-19 - Various local organisations and businesses indicated that they could make use of the connectability of the rail link.
61) Given the long timeframes of the project, there would be value in awaiting a federal government decision regarding the 'Great Southern Rail' (Warwick to Beaudesert) as it is an alternative to the SFRC project.
62) IRCC generates significant direct and ripple effect benefits for the economy.
63) Tourism injects $100 million into the local economy annually. Ipswich tourism is opposed to infrastructure development which will be negatively impact intrinsic qualities of any members' business environments.
64) IRCC was established in 1992. Since then, over $20m has been spent on development costs.
65) The IRCC has approved development applications for upgrades – now there is uncertainty about future development.
66) The IRCC is the only facility of its kind in SEQ.
67) The IRCC holds outdoor events and international conventions that will be affected by SFRC:
    - International $3-5m into local economy

- $50m into SEQ economy since 1992
- Projected to generate over $109m to SEQ economy 2008-2022 – future economic benefit at risk

68) Concerns that the potential impacts of the SFRC upon tourism have been overlooked:
- Potential for tourism and eco-tourism
- Ipswich-Boonah Rd to Scenic Rim
- Reduced visitors
- Reduced conferences and visitors
- Reduced IRCC employment and opportunities

69) The IRCC is not mentioned in the report as a convention and tourism operation, which provides significant economic benefits to the region through employment, the use of contractors and service providers and flow-on benefits to accommodations, restaurants and other local services, and is dependent upon the pristine natural environment.

70) The report fails to address the potential for negative economic impacts on the local community and businesses, which may be considerable given the impacts of the SFRC on notable and sensitive land uses and the potential impact on the future of tourism, eco-tourism and recreation in the vicinity of the SFRC.

71) Concerns over the decrease in property values.

72) Concerns that landowners will be left in an impossible situation for financial planning, estate planning and business succession.

73) QT does not know who will use the rail and what freight will be on it.

Submissions: 9, 10, 22, 26, 29, 34, 48, 54, 77, 92, 94, 97, 98, 99, 107, 108, 109(A), 109(B), 111, 123, 124, 126, 127, 128, 129

Response:

1, 3-7, 11-19, 25, 26, 31-35, 39-41, 44, 58, 72. Impacts of the SFRC upon existing farming operations and other physical infrastructure within the study area are recognised following meetings with landowners, and from submissions. TMR Property Services representatives have spoken to the landowners and explained that it is likely to be at least 10-15 years before the SFRC proceeds to construction. With this understanding, there is ample time for TMR to assist landowners in preparing for the future by investigating the locations where existing and future infrastructure for the properties can be situated on land outside the CID area, whilst ensuring that operations on these properties can continue despite the construction and operation of the SFRC. This will be undertaken at the detailed design stage of the project, and in consultation with landowners.

At the time of compulsory acquisition (i.e. when there is a firm commitment to construct the SFRC), TMR must operate in accordance with the *Acquisition of Land Act 1967*. Fair market value is determined by independent valuers, and is designed so that the landowner is left in the same financial position after the project is constructed as before the project was initiated.

2, 38, 70. Concerns about the effect of the SFRC upon ecotourism operations in the study area are noted. However, it is not expected that the SFRC will have a significant detrimental effect on these operations. By integrating the SFRC into the surrounding landscape, it is likely that the area will retain its rural amenity, and ecotourism ventures can continue to operate.

8-10, 12, 44. Rather than remaining on their properties and continuing their farming operations, some landowners who have a land requirement on their property, and who can demonstrate that waiting until formal resumption would cause them hardship, may wish to apply for hardship acquisition in order to relocate their farming operations. It is acknowledged that many of the farming operations in the study area have specific locational requirements. The cost for any relocation expenses will be considered in discussions with the landowner and TMR, and the knowledge and the aspirations of the landowners are taken into consideration.

20-22. The requirements outlined by Santos are noted. Further discussions with Santos will be undertaken during the detailed design phase in order to resolve any potential issues regarding the high-pressure oil pipeline.

23, 24, 57. It is acknowledged that the SFRC may affect future plans for landowners – especially plans involving the development of property for farm stays and ecotourism dwellings, bed and breakfasts and relaxation retreats. However, it is not expected that the SFRC will have a significant detrimental effect on these operations. By integrating the SFRC into the surrounding landscape, it is likely that the area will retain its rural amenity, and ecotourism ventures can continue to operate.

25. With respect to key contracts in place for larger businesses in the study area, if these contracts are affected by the SFRC, these issues will be further discussed during the detailed design phase of the project, prior to formal resumption.

27, 28. The concerns from the Gibb Bros farm about other growers in the region whose produce they pack are noted. These concerns are essentially based on potential indirect effects of the SFRC. The Gibb Bros farm is a significant operation in the study area, and it is important to ensure that it continues to operate.

29, 33. Some businesses throughout the study area are concerned about impacts due to changes in air quality. As stated in other sections of the report, the SFRC is not expected to adversely effect air quality within the study area. Crops cultivated near the alignment are not expected to be affected by the SFRC.

30. Some areas of extractive industry are located in proximity to the preferred alignment. This includes areas such as the Purga Quarry in Peak Crossing, Jeebropilly and Ebenezer Coal Mines, and the sand mines in the Kagaru area.

36, 59, 71. It is noted that some landowners in the study area have indicated they are experiencing a negative financial impact due to the SFRC. With respect to concerns about reduced growth in property values as a result of the SFRC (and in comparison with other areas away from the SFRC), experience has shown that this is not a significant market trend (i.e. if this does occur, it generally does not occur on a pronounced scale). Some properties adjacent to the preferred alignment may experience very slight decreases in value, however this is not expected to be significant in the overall context of prevailing market conditions.

37. The detailed design stage of the project will include a discussion of issues such as the parties responsible for maintaining fencing along the SFRC. At this stage, it is likely that the future railway operator will be responsible for ensuring the fencing of the railway line is maintained to a suitable standard.

42, 45-50, 53, 54, 73. It is not correct to state that promises about property purchases may not be kept. There is a specific process that the State Government is required to follow when purchasing property from a landowner (either through hardship acquisitions or through compulsory acquisitions) and this process is outlined in legislation.

The statements that there has been no proper costing, no business plan and that there is no definitive timeframe for construction of the SFRC are all correct. It must be recognised that this is a planning study to identify and reserve a corridor for a future freight railway. As such, comprehensive project costings and business plans cannot be accurately undertaken until a time closer to the construction of the SFRC, during detailed design. A business plan will be at the discretion of the State Government, and according to Queensland Treasury requirements.

It is not misleading to state that the SFRC is part of the Queensland infrastructure program if no money has been allocated to the project. The SFRC Study is identified in the *South East Queensland Infrastructure Plan and Program 2009-2026* (SEQIPP). The SEQIPP shows that funds have been allocated to the current SFRC planning study. As the SFRC is a long term project, construction funding has not been allocated at this stage.

It is true that TMR does not currently know which operators will use the SFRC and what types of freight will be transported on the SFRC. However, as this is a planning study and the construction of the SFRC is likely to be at least 10-15 years in the future, these specific details cannot be currently known. Section 4.4 of the Revised Assessment Report (Volume 1) outlines the freight types likely to be transported on the SFRC.

43. With respect to the State Government reimbursing or estimating the loss of residents' potential future plans and opportunities, the current legislation does not require the State Government to undertake this. These issues would be discussed with landowners who have a land requirement on their property, who approach TMR for a hardship acquisition ,and who have demonstrated that waiting until formal resumption would cause them hardship.

51, 52. Page 135 of the Draft Assessment Report (Chapter 18, Volume 1) did not state there is a 1-in-7 chance of the SFRC being needed. Rather, the report stated:

"It can be concluded that there are net benefits of reserving the SFRC now provided that there is a better than 1-in-7 prospect of needing a dual gauge rail link between the Ipswich to Toowoomba line (west of Rosewood) and the Brisbane-Sydney standard gauge Interstate rail line / Acacia Ridge intermodal terminal. ***If the prospect of needing the line is less than 1-in-7, then the cost of reserving the SFRC now may be greater than expected benefits***." (emphasis added).

Given the need for new freight rail infrastructure in SEQ in the future, there is a pressing need for the SFRC to be identified and preserved to enable construction at some time in the future. The prospect of the SFRC project proceeding to construction is very high, and therefore there is a clear benefit in reserving the SFRC now.

55. The original C3 option was selected as the most desirable to investigate further for reasons additional to cost. Other issues considered included proximity of N1 to existing and planned urban areas and potential conflicts with the passenger rail network.

56. The N1 route option is less desirable than the C3 option due to a number of factors including cost, proximity to existing and planned urban areas, and potential conflicts with the passenger rail network.

60. The fact that local organisations and businesses have indicated that they could make use of the SFRC rail link is noted.

61. There are concerns that the SFRC study should not be undertaken prior to a Federal government decision regarding the Great Southern Rail link between Warwick and Beaudesert, as it is effectively an alternative to the SFRC project. However, indications are that the Inland Rail project will extend to Toowoomba, as there has been a corridor identified between Moree and Toowoomba. Given that current thinking suggests that the Inland Rail will extend to Toowoomba (making the SFRC necessary), this study has been initiated for the forward planning for future network requirements. The Stage 1 findings of the Inland Rail study (ARTC, 2009) stated that the railway should include "new construction from North Star to Brisbane via Toowoomba" (see Section 4.1.2, Volume 1).

Further, the need for the SFRC study to be undertaken is a consequence of the amount of development proposed for the study area. If the SFRC study was not undertaken, the task of identifying and reserving a corridor in the study area for a freight railway would be made significantly more difficult with the development of some key locations in the future (such as Ebenezer, Purga, Willowbank and Bromelton). Indeed, identifying the location of the alignment in the Ebenezer area will provide important information to the master planning that is required to be undertaken for future industry in the area.

62-68. The significant influence of the IRCC with respect to direct and indirect benefits for the economy is noted. Further, it is acknowledged that a considerable amount of investment into the IRCC has occurred since it was established in 1992. It is not considered likely that the IRCC will be significantly adversely affected by the SFRC, and there will still remain every opportunity for the IRCC to be developed according to current plans. A key for this facility will be to ensure that mitigation measures are designed and implemented in the vicinity of the IRCC so that the current and future development of this site (including quantity and style – i.e. eco-tents) is considered in the detailed design of the SFRC, so that impact to current and future development at IRCC are minimised.

69. The IRCC has been recognised in the Revised Assessment Report as a convention and tourism operation that provides significant economic benefits to the region through employment, the use of contractors and service providers and flow-on benefits to accommodations, restaurants and other local services.

2.3.17 Environmental management plan

Comments and concerns relating to the Environmental Management Plan include the following:

1) The EMP indicates that complaints will be investigated and addressed, however it is not clear whether a formalised complaint system will be developed and implemented. A complaint recording, investigation and report system must be implemented during the construction and operation of the project.
2) The Construction EMP must address at least the following issues:
   - noise
   - vibration
   - dust and other air emissions
   - groundwater
   - stormwater
   - surface water
   - erosion and sediment control
   - waste
   - contaminated land
   - complaints
   - emergencies and incidents
3) The term "contingency measures" is insufficient to relate that there will be mitigation measures to implement and does not imply commitment to the measures needed to ameliorate effects of the SFRC on the environment. Change the sub-heading of "Management Objectives" to "Contingency and Mitigation Measures" or provide separate entries for each of these measures.
4) The Targets on pages 142-146 neglect to acknowledge the SEQRP. Amend the first dot point to, "Compliance with the EPBC Act, NCA, VMA and EPA, and consistency with the relevant policies of the SEQRP."
5) Refer to the Contingency measures on page 142 – maintaining the extent of *M. irbyana* does not necessarily equate to maintaining the condition and extent of *M. irbyana.* There is also no mention of possible environmental offsetting in relation to the impacts that will be incurred by *M. irbyana* vegetation communities and populations. Under the "construction" column to "management objective", add two more dot points as follows:
   - "Implement the *M. irbyana* management and rehabilitation plan
   - Implement any offsets required in relation to *M. irbyana* impacts"
6) Monitoring (Page 142/143) – where possible and appropriate, offset(s) implementation may be worth stating during the constructions as well as post-construction period so that the period of delay to rehabilitation is minimised for the species and ecosystem services it provides as a living community. Under the "construction" and "operation" columns, include the following dot point:
   - "Monitor the successfulness of any offsetting"
7) Contingency Measures (Page 143) – There is no mention of possible offsetting. Add two more dot points to the "construction" column of "management objectives" as follows:
   - "Implement the management and rehabilitation plan
   - Implement any offsets required in relation to loss of or damage to stands of regional ecosystem *Eucalyptus crebra, Corymbia citriodora* and *Lophostemon confertus*."
8) Prevention (Page 143), Contingency Measures (Page 144) – Given that koalas generate a lot of public interest and a "Habitat Management Plan" is mentioned in the "construction" column, it would be reasonable to ensure that a "Koala Management Plan" and "Habitat Management Plan" be developed to address both prevention and contingency measures.

9) The contingency measures listed do not address mitigation, and there is no mention of implementing possible offsets. Under the "Construction" column to "Management Objectives", add one more dot point – "Implement the management and rehabilitation plan".

10) Under the "Construction" column to "Management Objectives", amend dot point three to:

- "Suitably qualified spotter catcher, with the necessary permits, to be present at all vegetation clearing to ensure minimal disturbance to onsite fauna and recover and rescue any injured or orphaned fauna during construction".

11) Monitoring (page 144) – Under the "Construction" and "Operation" columns, include the following dot point – "Monitor the successfulness of any offsetting".

12) Contingency Measures (Page 144) – The N/A entry in this cell is not appropriate. Under the "Construction" and "Operation" columns, add the following dot point: - "Implement the Offsetting Management Plan".

13) Contingency Measures (Page 145) – Action learning and adaptive management should be applied to investigations of the cause of any fauna injury or death. Within the "Construction" column, add the following – "Information gained through investigations to be applied in adaptive management to prevent or minimise further losses or injuries where possible and practical, and/or implement compensatory actions".

14) Monitoring (Page 145) – Add "Prepare a flora and fauna monitoring program that includes assessment of mortality of native fauna and adaptive management processes to prevent or minimise further losses or injuries, and/or identifies measures to be implemented as compensatory actions".

15) Prevention (Page 146) – Amend the first sentence of dot point two to – "Fauna-friendly underpasses and culverts to be constructed at each creek/drainage line crossing where practicable".

16) Contingency Measures (Page 146) – Within the "Construction" and "Operation" columns of "Management Objectives" add the following – "Implement offsets where applicable".

17) Monitoring (Page 146) – Under the "Construction" and "Operation" columns include the following – "Monitor the successfulness of any offsetting".

18) Who will monitor water quality during construction and operation?

19) Concerns about the potential impacts on the "food bowl" of the SEQ region.

20) How will the potential environmental impacts be managed?

21) There are concerns that not enough monitoring will occur and that there are too many N/A's in the monitoring sections of the EMP.

22) Concerns the report does not mention fire ants, despite areas of Purga and Peak Crossing being classed as fire ant red zones. How will this affect the removal of soil and rock for the SFRC?

Submissions: 23, 77, 109(A), 109(B)

Response:

1. The need for a formal complaints handling procedure is acknowledged.

2. The requirements for the CEMP are noted.

3. In the EMP table, both the Prevention and Contingency Measures rows relate to mitigation measures. It is considered unnecessary to alter the Contingency Measures title.

4-7. The suggestion is noted, and the Revised Assessment Report has been updated to include reference to the SEQRP, developing and implementing the *Melaleuca irbyana* management and rehabilitation plan, and monitoring the successfulness of any offsetting.

8. This point is noted, and Section 19.4 of the Revised Assessment Report (Volume 1) contains recommendations for a Koala Management Plan under contingency measures for construction.

9-17. These suggestions are acknowledged.

18. During construction, the construction contractor will monitor water quality in the area. During operation of the SFRC, the water quality in the area will continue to be monitored by the DERM, as part of the EHMP.

19. Concerns about impacts on the rural production throughout the study area are noted. With respect to SPP 1/92 – Development and the Conservation of Agricultural Land, the study team is aware that a state interest exists in conserving GQAL. The preceding studies to the SFRC Study have demonstrated that there is no viable alternative alignment to one passing through some areas of GQAL. Any alignment connecting the Western Railway with the Interstate Railway will necessarily cross areas classed as GQAL in local government planning schemes, according to the conditions set out in SPP 1/92. It is important to note that minimising impacts upon GQAL was an important consideration in the determination of a preferred alignment within the study area. Further, discussions will be held with landowners during the detailed design of the SFRC to investigate options for maintaining access to any balance land of properties with a land requirement for the SFRC such that existing rural practices can continue.

20. The EMP, Section 19 of the Volume 1 report, describes how the potential environmental impacts of the SFRC will be managed during design, construction and operation of the SFRC.

21. The concern is noted, however the monitoring outlined in the EMP is consistent with TMR operational policies and are considered to be adequate for this planning study.

22. The location of the SFRC study area within fire ant red zones is acknowledged. The Volume 1 report identifies this in Sections 8.3 and 19.4. Technical Paper 2 (Volume 2) also outlines this Section 2.2.3 and Table 2.5. The implications of this for construction of the SFRC are outlined in the EMP (Volume 1), and in Table 2.5 of Technical Paper 2.

2.3.18 Key project considerations

Comments and concerns relating to the key project considerations include the following:

1) Concerns that the report states there is a less than 15% chance that the economy needs the SFRC.
2) The Great South West project seems to have greater support from the Federal Government.
3) Great South West rail line – supports linking of Warwick to Bromelton and Acacia ridge – not SFRC route.
4) Concerns that the major proponents for Inland Railway have stated they have no interest in SFRC – it is their intention for goods to be railed to Port of Gladstone. This negates the requirement for Toowoomba-Acacia Ridge – Port of Brisbane rail link.
5) Should wait for ARTC study results prior to decision-making and the alignment of the corridor should be re-evaluated due to severe community and environmental impacts.
6) Concerns about the lack of integration between the SFRC study and the AIRE studies.
7) Why not wait for the Great South West and for the economy to need the SFRC, especially since there are no construction plans for approximately 20 years?
8) Will QT undertake thorough, unbiased and public analysis of Great South West proposal prior to SFRC CID?
9) What research indicates the likely replacement of future road based freight should the SFRC proceed?
10) Designation should not take place until the proposed southern line is confirmed.
11) Government has admitted rail line may or may not be needed.
12) Designation should be delayed until it is clear that it is necessary.
13) What road freight users in SEQ have expressed intention to move to rail if SFRC proceeds?
14) Prior to CID full investigation with needs analysis and financial modelling should be undertaken for all proposed freight terminal locations.
15) The report indicates that the detailed design, construction and operation phases of the project will occur some time in the future and that further detailed investigations into various environmental elements will be

required at a later time. Further detailed reports will be required to assess the potential environmental impacts as the project progresses through each stage. In addition, assessments of environmental impacts should be based on the worst case scenario (i.e. double track with double-stacking of freight).

16) Must the business case assessment be completed before the CID to fit in with QLD Treasury requirements?
17) If the preferred alignment remains the same – protect IRCC and more appropriately place rail line in an environment with compatible land uses and mitigation measures.
18) If SFRC remains in current proposed location – world's best practice in design and noise mitigation at source (where IRCC would be affected) must be a condition of Minister's CID decision.
19) Must be acknowledged that IRCC is not a normal rural environment, and requires special treatment, including noise mitigation design of a level greater than what is applied in greenfield urban residential locations.
20) Reconsider the project and revisit the necessity of the rail corridor overall.

Submissions: 19CMC398, 23, 54. 101, 111, 112, 125, 128, 129

Response:

1. Some submissions appear to interpret the Draft Assessment Report to indicate a less than 15% chance of the economy needing the SFRC. Section 18.6 of the summary document (Volume 1) estimates the net benefit of reserving the corridor now as opposed to some time in the future. The estimates are based upon scenarios for the level of need for a dual gauge link between the Ipswich-Toowoomba Line and the Brisbane-Sydney Standard Gauge Line/Acacia Ridge Intermodal Terminal. (Chapter 18, Volume 1) does not state there is a 1-in-7 chance of the SFRC being needed. Rather, the report states:

"It can be concluded that there are net benefits of reserving the SFRC now provided that there is a better than 1-in-7 prospect of needing a dual gauge rail link between the Ipswich to Toowoomba line (west of Rosewood) and the Brisbane-Sydney standard gauge Interstate rail line / Acacia Ridge intermodal terminal. ***If the prospect of needing the line is less than 1-in-7, then the cost of reserving the SFRC now may be greater than expected benefits***." (emphasis added).

Should the Inland Rail Project proceed via Toowoomba, which currently seems likely, the SFRC will be required. Further, given the need for new freight rail infrastructure in SEQ in the future, there is a pressing need for the SFRC to be identified and preserved to enable construction at some time in the future. The prospect of the SFRC project proceeding to construction is very high, and therefore there is a clear benefit in reserving the SFRC now.

2-3. The suggestion that the Warwick to Bromelton option is a viable alternative to the SFRC and should be investigated further is noted. The "Great South West" option has been put forward by many submitters as an alternative alignment to the SFRC. The consideration of the Great South West corridor is beyond the scope of this SFRC study, and the current State Government policy is to investigate the SFRC preferred alignment for the purposes of CID.

4. Comments from some stakeholders suggest that the proponents for Inland Rail have indicated that they do not intend on utilising the SFRC. The North-South Rail Corridor Study undertaken in 2005 outlined that connection of a future inland railway with connection by road to Brisbane is unlikely to meet the expectations and requirements of potential users. Connection by rail from Toowoomba to Brisbane and specifically Acacia Ridge and the Port of Brisbane consists of two main sections – upgrade of the existing narrow gauge rail alignment from Gowrie (west of Toowoomba) to Grandchester (west of Rosewood), and provision of a new linkage from Grandchester to the existing interstate standard gauge route.

Stage 1 Working Paper 5 – *Financial and Economic Assessment and Identification of the Route for Further Analysis* prepared by PriceWaterhouseCoopers for the Inland Rail Study specifically identifies the Toowoomba alignment option as "optimal" when compared with the Warwick alternative. Differentiating factors include:

- Increased level of detailed design work on the Toowoomba alignment;

- The route via Toowoomba has been preferred in separate analyses undertaken by two potential private proponents of the Inland Rail;

- The Warwick route is characterised by substantial cost issues (requiring 24km long viaducts in three separate spirals); and

- The Warwick route is characterised by significant environmental impacts and uncertainties. (ARTC 2009).

Further details on this study are included in Section 4.1.2 of Volume 1.

5-7, 10-12, 20. A number of submissions have suggested that the designation of the SFRC be postponed pending completion of other projects and studies, including the Inland Rail study. It is recognised that the outcomes of other projects/studies may be relevant to the SFRC project. In May 2009 the ARTC noted the SFRC as a core component of the route under investigation. TMR considers the designation of the SFRC as imperative to provide a level of certainty that the project can proceed in the future should it be required.

8. TMR has no plan to undertake an assessment for the Great South West proposal prior to seeking designation of the SFRC.

9. Freight operators generally utilise the most cost effective and efficient form of transport. The SFRC, coupled with the Inland Rail project, will help to increase the efficiency of rail freight between Melbourne and Brisbane, thus making it a competitive alternative to long-haul road freight.

13. TMR has indicated it is likely to be at least 10-15 years before construction commences for the SFRC. Therefore it is not possible at this stage to accurately state which road freight users would transition to rail freight through the increased efficiency provided by the Inland Rail and the SFRC.

14. The comment regarding the need for financial modelling and needs analysis for potential IFT locations is noted. Whilst the SFRC was required to include passive allowance for an IFT in the Ebenezer area, the construction of this potential IFT is beyond the scope of the SFRC study. Timelines for undertaking such analysis and modelling will be at the discretion of the relevant government department at a future time when further investigation is undertaken.

15. As indicated in the Revised Assessment Report, more comprehensive investigations will be undertaken prior to detailed design to assess the construction and operational impacts of the project on the surrounding environment. This assessment will include appropriate mitigation measures to prevent or minimise potential negative impacts.

16. A business case assessment of the project, in accordance with Queensland Treasury requirements, will be undertaken at a later stage in the project, once a decision to proceed to construction is made. This business case will be required to identify funding arrangements.

17-19. The concerns relating to mitigation measures proposed for the Ivory's Rock Conference Centre (IRCC) are noted. Further investigations prior to detailed design will be undertaken to determine appropriate mitigation measures to allow IRCC to continue its current operations. It is important to note that the potential issues associated with the IRCC are not considered to be showstoppers for the SFRC. Detailed investigations will consider the specific nature of activities which are undertaken at the site, and appropriate mitigation measures will be developed.

2.3.19 Community infrastructure designation

Comments and concerns relating to Community infrastructure designation include the following:

1) Why would the Minister seek CID on a project if there is uncertainty about when or if it will go ahead.
2) There is no funding for the construction of the SFRC.
3) QT does not know who will be using it or what freight it will move.
4) The proposal meets none of the CID criteria outlined in Section 2.6.2 of IPA.
    a) QT and Maunsell morally fails people and future generations, destroys areas of habitat
    b) There is no business plan and no budget for resumptions
    c) SFRC has no funds allocated in SEQIPP and has no business case
    d) It is not efficient to continue with the project whilst waiting on the outcome of the ARTC study. It is not fair to keep the community in limbo based on this
5) How can a community designation be given if the proposal meets none of the criteria?
6) How long can the government continue to reserve land?
7) What are the timelines for the commencement of the project? On what basis are these predictions made?
8) Would the Minister consider the report suitable of "adequate environmental assessment" as required under the CID process?
9) Why is the Minister encouraging hardship acquisitions?
10) What compensation will be paid to landholders in industrial areas?
11) Is this project compliant with the IPA?
12) How can the Minister consider CID and construction with the number of likely social impacts and only 2 potential benefits?
13) The Minister should cancel the project. How does the Minister feel about it supporting wealthy people at either end of the corridor at the expense of those within and loss of wildlife and natural habitat?
14) The premise for undertaking study is extremely flawed.
15) Designating without undertaking extensive business/economic modelling is unjustifiable and an abrogation of the Queensland Government.
16) It is extremely irresponsible and premature to designate land based on current economic/needs analysis when the project is likely to be built in over a decade's time.
17) At a state or regional level there is insufficient justification to support designation of the SFRC.
18) Even Maunsell has questioned the accuracy of the report.
19) The term "community infrastructure' is laughable.

Submissions: 22, 88, 94, 100, 102, 103, 104, 105, 106, 107, 108, 109(b), 111, 112, 128, 129.

Response;

1, 14. Inbound and outbound road and rail freight traffic for SEQ is projected to increase significantly over the next 10-20 years, with rail expected to capture the larger share. If rail is likely to capture projected increases in freight task share over the next two decades there is a need for significant investment in infrastructure to ensure that existing and likely capacity constraints are removed. Refer to Section 4.6 (Volume 1) for more detail.

2, 4 (a) & (c). Concerns regarding funding for the project are noted. Community engagement activities have reinforced the fact that this is a planning study to ensure future availability of appropriate land, and does not represent a future commitment to construct the corridor. No funding has been allocated for construction at this stage. Detailed design will be conducted once there is a firm commitment to proceed with the project.

3. TMR has indicated it is likely to be at least 10-15 years before there is a firm commitment to construct the SFRC. At this planning stage it is not possible to accurately state who the users of the railway will be. Section 4.4 of the Revised Assessment Report (Volume 1) states the SFRC may become an alternative route for the following services:

- Standard gauge intermodal freight traffic (potentially double-stacked), travelling from Melbourne and potentially Perth and Adelaide via the proposed Inland Railway to Acacia Ridge, the BMT and possible future terminals at Ebenezer and Bromelton;

- Standard gauge freight traffic from Sydney to a possible future terminal at Ebenezer;

- General purpose narrow gauge freight from south-western Queensland to Brisbane;

- Narrow gauge bulk grain, containerised cotton and agricultural products from south-western Queensland to the Port of Brisbane;

- Narrow gauge bulk petroleum products from Brisbane to the south-west; and

- Narrow gauge coal freight from western Queensland and Rosewood/Jeebropilly to the Port of Brisbane.

4-6, 11. Section 201 of the *Sustainable Planning Act 2009* (formerly the *Integrated Planning Act 1997*) ensures that land is only designated for community infrastructure if it can be demonstrated that there has been compliance with environmental protection policies and legislation whilst also satisfying community expectations and statutory requirements for the efficient and timely supply of infrastructure. The SFRC project represents a commitment to the efficient provision of infrastructure in accordance with all relevant environmental protection policies and legislation. A CID ceases after six years if it has not been acted upon (i.e. if construction of the community infrastructure has not commenced). However, the Minister may renew a CID after this period.

7. Currently there are no firm timeframes to construct the SFRC. TMR indicates it is likely to be at least 10-15 years before there is a firm commitment to construct the SFRC. Timeframes will also be influenced by outcomes of the Inland Rail Project and timing for its construction.

8, 18 The Revised Assessment Report is more extensive than reports for other CID projects. The purpose of the Revised Assessment Report is to satisfy requirements for CID. It is likely that a more detailed investigation (an EIS or similar) will be undertaken once a decision is made to proceed closer to construction and referral to the relevant Federal Government Agencies is made. The Minister will consider whether the Revised Assessment Report fulfils the requirements of the CID Guidelines when making a decision to designate the corridor.

9. Hardship applications have not been actively encouraged by the study team or TMR. Landowners have been advised of their right to lodge an application for hardship should they wish to do so, and where they can demonstrate that waiting until formal resumption would cause hardship. The hardship acquisition process is purely voluntary.

10. Landowners of properties with a direct land requirement for the project will receive compensation. This will be at the time of compulsory acquisition (i.e. when there is a firm commitment to construct the SFRC) or at an earlier point in time if TMR purchases the properties under the hardship acquisition policy. TMR must operate in accordance with the *Acquisition of Land Act 1967.* Fair market value is arrived at by independent valuers, and is designed so the landowner is left in the same financial position after the project is constructed as before the project was initiated. Aspects such as land use zoning are considered in these calculations.

12-13. It is acknowledged that there will be a number of localised effects however these effects will be mitigated effectively through measures identified at the detailed design stage. These may include maintaining access to important community facilities and destinations in the local area, minimising amenity impacts, minimising impacts upon existing businesses throughout the corridor, and community building initiatives once the SFRC is constructed.

15. The current process being undertaken is a planning study to identify and preserve the SFRC. A business case assessment in accordance with Queensland Treasury requirements will be undertaken closer to construction to identify funding arrangements.

16-17. The designation of the SFRC is a proactive step by the State Government to respond to predicted future demand as well as future developments at Ebenezer, Bromelton and the Ripley Valley. Designation of the corridor at this stage will provide a level of certainty for the project and will result in fewer conflicts than if designation occurred at a later stage.

19. Scepticism regarding the term 'community infrastructure' is noted. Community Infrastructure is defined in Schedule 2 of the *Sustainable Planning Regulation 2009* to include railway lines, stations and associated facilities.

2.3.20 Relationship to government policy

Comments and concerns regardingthe SFRC's relationship to government policy include the following:

1) Table 6 contradicts with government koala preservation aims.
2) There is no mention of the SFRC in the original SEQRP. Many people would not have purchased and renovated their properties if this was known at that time.
3) The report should state that while all Community Infrastructure development under the IPA is exempt from assessment against regulatory provisions of the SEQRP, such development still has responsibility to contribute to the desired regional outcomes and comply with relevant principles and policies of the SEQRP.
4) Corridor does not currently achieve the best outcome for the Ebenezer Industrial Development Area (EIDA). The EIDA is identified in the SEQRP and the SFRC should be treated as a driver for achieving the vision for Ebenezer and an important component of SEQ's economic development.
5) It is hypocritical for the Queensland Government to propose infrastructure that significantly conflicts with the ideals and objections of Regional Plans and LGAs.
6) Some land has previously been investigated by the Coordinator General as a potential replacement for the rail terminal at Acacia Ridge. Given this information, owner would be willing to enter into an agreement with the State Government to maintain ownership over the land and the land would be designated for the purpose. This occurred prior to any talks of a "State Development Area".
7) Why has a cost analysis not been done?
8) All future reports will need to reflect any changes made to current legislation.
9) Confirmation is sought over what environmentally relevant activities (ERAs) will be carried out under Schedule 2 of the EP Regulation 2008. In particular, whether the following ERAs will be carried out:
   - ERA 8 – Chemical storage
   - ERA 16 – Extractive and screening activities
   - ERA 21 – Motor vehicle workshop operation
   - ERA 43 – Concrete batching
   - ERA 47 – Timber milling or wood chipping
   - ERA 63 – Sewage treatment
10) How does the project fit within the Rural Futures Strategy?
11) There should be more coordination across government agencies
12) The Great South West option would:
   - protect endangered flora and fauna
   - maintain the amenity of Scenic Rim
   - not blow out the QLD budget
13) The Great South West Link has greater federal support and would be a smarter option.
14) How has the SFRC been integrated with the AIRE?

Submissions: 20, 23, 50, 77, 95, 100, 109(b), 112, 124, 128, 129.

Response:

1. The *Nature Conservation (Koala) Conservation Plan 2006 and Management Program 2006-2016* (Koala Plan) states that uncommitted community infrastructure such as the SFRC can only be located in Koala

Conservation Areas (KCAs) when there is an overriding need in the public interest for the location of that infrastructure within a KCA. To determine an overriding need in the public interest, it must be determined that:

- There is no suitable alternative location outside of a KCA;
- The overall social, economic and environmental benefits of the development outweigh any detrimental impact upon the natural values of the site, conflicts with the desired outcomes of the SEQRP, and conflicts with the Koala Plan; and
- Whether the community would experience significant adverse economic, social or environmental impacts if the development proposal were not to proceed.

Further, the following do not establish an overriding need in the public interest:

- Activities or uses with relatively few locational requirements;
- Interests in or options over the site; or
- The site's ownership or availability.

The studies preceding the SFRC study have demonstrated that there is no suitable alternative location for a connection between the Western and Interstate railways to that which is currently being investigated. Rail infrastructure such as the SFRC has specific locational requirements, described in Section 4.3 of the Revised Assessment Report (Volume 1). The location of the KCA is recognised in the report, and was a constraint with respect to the location of the preferred alignment in this area. However, there were a variety of factors which influenced the location of the preferred alignment within a portion of the KCA near Peak Crossing, including the location of major facilities (Purga Quarry, Ivory's Rock Conference Centre), the location of Good Quality Agricultural Land (GQAL), and the township of Peak Crossing itself.

Table 4 within Volume 1 contains an appraisal of the SFRC alignment through the KCA near Peak Crossing, and demonstrates the reasons why the original alignment has not been modified in this area. The main reason for this is that there are no feasible alternatives, as shifting the alignment further west would create undesirable impacts on the township of Peak Crossing. It is important to recognise that the location where the SFRC traverses this KCA is sparsely vegetated, and is considered to provide minimal habitat for koalas, however it may facilitate movement of koalas between core habitat areas.

Section 4.6.1 of the Revised Assessment Report (Volume 1) outlines the need for the project, and demonstrates that there is an overriding need for the SFRC in the context of the future growth of SEQ and Queensland. The expected wide-ranging social and economic benefits to accrue as a result of the SFRC are considered to outweigh any potential localised impacts upon the natural values of the local area – particularly considering that these potential localised impacts are expected to be capable of being effectively mitigated through the detailed design stage of the project.

Should the Inland Rail project proceed in the absence of the SFRC, there are likely to be significant economic and social impacts resulting from the absence of an efficient rail link to existing and future intermodal freight terminals in locations such as Bromelton, Acacia Ridge and the Port of Brisbane.

Whilst the project must demonstrate an overriding need in the public interest under the Koala Plan if it is to traverse KCA, it must also be recognised that the Koala Plan is an interim koala conservation policy instrument which is likely to be superseded by the South East Queensland Koala Conservation State Planning Policy and Regulatory Provisions (currently in draft form). The SFRC will be required to comply with the koala conservation policies that are in statutory effect at the time of detailed design and construction, which is likely to be at least 10-15 years away.

2. The SFRC (formerly known as the Southern Infrastructure Corridor) was included in Map 14, p113 of the original *South East Queensland Regional Plan 2005-2026.* This map indicated a broad connection between the Western and Interstate railway lines. The SFRC revised alignment represents the evolution of this broad connection.

3. The requirement for community infrastructure to meet the desired regional outcomes and principles and policies of the SEQRP is noted. This is specifically recognised in the Section 3.1.2 of the Revised Assessment Report (Volume 1).

4. The Ebenezer Industrial Development Area (EIDA) or Cunningham Industrial Precinct, has been considered in determining the preferred alignment. The EIDA is likely to undergo significant development, regardless of the location of the SFRC preferred alignment. One beneficial outcome of the designation of the SFRC will be the level of certainty it provides for any future industrial structure planning to take place within the EIDA. It is anticipated that the SFRC will also act as a significant catalyst for development at Ebenezer potentially including rail dependant industry. The revised SFRC alignment passes through the north of this precinct. Its location directly abutting the Ipswich Motorsport Precinct may improve the layout for the EIDA when compared to the previous alignment in this area.

5. The SFRC reflects the aims of the *South East Queensland Regional Plan 2009-2031* (SEQRP), which specifically includes the SFRC project in Map 20, p149. The SEQRP is a statutory, overarching document which should be reflected in all local government planning instruments.

6. These comments are noted. Discussions have been held with this landowner regarding the potential future use of the site as part of the Bromelton SDA.

7. The statements that there has been no proper costing, no business plan and that there is no definitive timeframe for construction of the SFRC are all acknowledged. It must be recognised that this is a planning study to identify and reserve a corridor for a future freight railway. As such, things such as comprehensive project costing and business plans cannot be accurately undertaken until a time closer to the construction of the SFRC, during detailed design. Whether a business plan is undertaken for the SFRC will be at the discretion of the State Government.

8. Any future reporting for the SFRC will reflect relevant changes to current legislation.

9. It is acknowledged that a number of Environmentally Relevant Activities (ERAs) are likely to be carried out as part of the SFRC. The specific nature of these ERAs will be determined at the detailed design stage, and the appropriate approvals w for these ERAs will be sought at this later stage.

10. DIP's Rural Futures Strategy for South East Queensland highlights the importance of strengthening the rural and peri-urban areas of SEQ, including conserving the best quality agricultural land. This agricultural land is classed as Regional Landscape and Rural Production Area in the SEQRP, with regulatory provisions governing any development in these areas. Projects granted Community Infrastructure Designation under the SP Act (such as that sought by the SFRC), are recognised for their importance to the wellbeing of the wider region, and are exempt from these regulatory provisions. Essentially, the legislation governing development in SEQ attempts to find a suitable trade-off between seemingly competing interests (in this case, GQAL on one hand, and strategic freight transport corridors on the other). The study team is aware that the SFRC is exempt from the regulatory provisions contained within the SEQRP, however is still required to comply with all desired regional outcomes (DROs) and policies to support these DROs.

11. A number of State Government agencies have been involved in the SFRC study, including participation in the Agency Reference Group – which met at key points throughout the study and provided input into the assessment of alignment options, the determination of the Corridor of Interest, the original preferred alignment, the revised alignment, and the content of the Draft Assessment Report and Revised Assessment Report.

12-14. The suggestion that the Warwick to Bromelton option is a viable alternative to the SFRC and should be investigated further is noted. The "Great South West" option has been put forward by many submitters as an alternative alignment to the SFRC. The consideration of the Great South West corridor is beyond the scope of this SFRC study, and the current State Government policy is to seek CID over the SFRC alignment.

2.3.21 Project background

Comments and concerns relating to the project background include the following:

1) Who came up with the concept of the SFRC and what are their qualifications?
2) What is the evidence supporting the need for the SFRC?
3) How many studies were done?
4) Why wasn't a business plan done beforehand?
5) What are the final economic costs?
6) Who will be using the railway?
7) Why are acquisitions taking place when viability of the project hasn't been studied?
8) The results of the inland rail alignment study have not been completed, so why has CID been recommended?
9) Has funding been provided in the Draft SEQRP 2009-2031?
10) How did the project come into existence - documentation, studies, organisations involved etc.?
11) How do you know that the SFRC is a "key part" of the Toowoomba to Brisbane link of the Inland Railway project?
12) Why is it assumed the line would go to Toowoomba only and not somewhere else?
13) Comments by key public officials:
    a) Ian Rickuss (State member for Lockyer) - any rail line under 400km cannot recoup costs from benefits it will deliver
    b) John Brent (Scenic Rim Council Mayor) - SFRC proposal was released with insufficient planning and success of Bromelton rail line isn't dependant on construction of SFRC
14) The statement in the report stating that State freight movement will double by year 2020 is misleading and lacking in correct context – no detailed supporting data/info.
15) QT freight analysis studies – majority increased freight over next 20 years will be short, haul, truck based within Greater Brisbane area.
16) Maunsell admitted political decision was made to move route from N1 to C3 due to large population-based sensitivities.
17) Change from N1 to C3 was also due to a pseudo cost analysis which completely underestimated tunnel lengths and C3 costs.
18) What where the methods and assumptions used to arrive at expenditure construction cost of $750m?
19) An FOI request – Published comparisons with estimated costs of alternative routes as contained in Southern Infrastructure Corridor Final Report (Maunsell Sep 2008).
20) Intermodal Freight Terminals currently proposed for Charlton, Ebenezer, Bromelton and possible Greenbank. It is unrealistic to expect they will be required for full freight terminal capacity within next 20-50 years.
21) No explanation of methodology used to arrive at Table 20 Costs and Benefits of Rail Line figures.
22) Vague assumptions and unsupported values for costs and future benefits– misleading information.
23) There is no supporting information from industry/proposed clients.
24) Port of Brisbane CEO stated to a federal senate committee that it is not destined to be a preferred future exporter of coal – contradictory to the report.
25) The study team did not identify IRCC before location decision was made (confirmed by QT Project Manager 14/11/08 and Maunsell 7/11/07).

Submissions: 31, 43, 54, 77, 88, 94, 97, 107, 108, 111, 125, 128, 129.

Response:

1-3, 10. The idea of the SFRC (formerly known as the SIC) cannot be attributed to any individual. Rather, the concept of the SFRC originated in the SEQRP 2005, and has evolved to the alignment proposed in the Revised Assessment Report. A thorough explanation of the development of the SFRC, and the justification and need for the project are provided in Sections 4.1-4.2 and 4.6 respectively of the Revised Assessment Report (Volume 1).

4, *5, 18.* It is not possible to accurately quantify or model the economic impacts of the SFRC at this preliminary stage as construction is not likely to receive a firm commitment for at least 10-15 years. Accurate quantifiable economic modelling will be possible once detailed design has been undertaken. A business plan for the SFRC is likely to be undertaken prior to the detailed design for the project.

6, 23. TMR has indicated it is likely to be at least 10-15 years before the SFRC will proceed to construction. As a result, it is not possible at this stage to accurately state which road freight users would transition to rail freight through the increased efficiency provided by the Inland Rail and the SFRC. Section 4.4 of the Revised Assessment Report (Volume 1) states that the SFRC may become an alternative route for the following services:

- Standard gauge intermodal freight traffic (potentially double-stacked), travelling from Melbourne and potentially Perth and Adelaide via the proposed Inland Railway to Acacia Ridge, the BMT and possible future terminals at Ebenezer and Bromelton;
- Standard gauge freight traffic from Sydney to a possible future terminal at Ebenezer;
- General purpose narrow gauge freight from south-western Queensland to Brisbane;
- Narrow gauge bulk grain, containerised cotton and agricultural products from south-western Queensland to the Port of Brisbane;
- Narrow gauge bulk petroleum products from Brisbane to the south-west; and
- Narrow gauge coal freight from western Queensland and Rosewood/Jeebropilly to the Port of Brisbane.

7. Rather than remaining on their properties and continuing their farming operations, some landowners who have a land requirement on their property, and who can demonstrate that waiting until formal resumption would cause them hardship, may wish to apply for hardship acquisition in order to relocate their farming operations. It is acknowledged that many of the farming operations in the study area have specific locational requirements. The cost for any relocation expenses will be considered in discussions with the landowner and TMR, and the knowledge and the aspirations of the landowners are taken into consideration.

8. A number of submissions have suggested that the designation of the SFRC be postponed pending completion of other projects and studies, including the Inland Rail study. It is recognised that the outcomes of other projects/studies may be relevant to the SFRC project. TMR considers seeking CID for the SFRC as imperative in order to provide a level of certainty that the project is able to proceed in the future when a firm commitment to construct the SFRC is made.

9. The SEQRP does not outline funding for projects. The regional document which outlines funding for infrastructure projects in SEQ is the South East Queensland Infrastructure Plan and Program 2009-2026 (SEQIPP).

11. Should the Inland Rail project proceed in the absence of the SFRC, there are likely to be significant economic and social impacts resulting from the absence of an efficient rail link to existing and future intermodal freight terminals in locations such as Bromelton, Acacia Ridge and the Port of Brisbane.

12. It has never been assumed that the Inland Railway would only go as far as Toowoomba. It is understood that the Inland Railway will potentially reach as far north as Gladstone, and possibly even Darwin.

13a). Ian Rickuss's comment is noted, however the SFRC must be considered in the context of the broader rail network. It is not an isolated 55km long railway line, but has connections to existing and future major interstate freight railway lines. In this sense, the SFRC will form part of a railway system significantly longer than 400km.

13b). It is noted that the future success of the Bromelton IFT is not solely dependent on the SFRC. However, it must be recognised that the SFRC is likely to improve the effectiveness of the Bromelton IFT and wider State Development Area.

14, 15. Inbound and outbound road and rail freight traffic for SEQ is projected to increase significantly in the next 10-20 years, with rail expected to capture the larger share by 2026. If rail is likely to capture projected increases in freight task share over the next two decades there is a need for significant investment in infrastructure to ensure that existing and likely capacity constraints are removed. Refer to Section 4.6 (Volume 1) for more detail.

16, 17, 19. The concern about the N1 option being dismissed because it passed through an area of future residents (as opposed to current residents with the C3 option) is noted. However, the key difference between the Ripley Valley future development and the existing development in areas such as Peak Crossing and throughout the study area is the density of these residences. The Ripley Valley is to be a master-planned community of over 120,000 residents, and will be characterised by a considerably higher population density than any location within the SFRC study area. The C3 option was considered to be the most desirable, based on a number of criteria including cost, potential impacts to existing and planned residential areas, and potential conflicts with the passenger rail network.

20. The point about potential future IFT locations in SEQ is noted. The SFRC study has not investigated the economic viability of an IFT at Ebenezer. However, passive allowance has been made for an IFT at Ebenezer by way of alignment design to ensure this opportunity exists if required (see Section 4.1.3 of the summary document (Volume 1)).

21, 22. Table 30 (Volume 1) describes a preliminary analysis of costs and benefits of the SFRC. The preceding discussion provided in Section 18.4 outlines the key assumptions that have been used to arrive at the figures contained in Table 30. It is noted that these figures are preliminary at this stage, and should be used as a guide only. A more detailed economic analysis of the SFRC will be possible at the detailed design stage of the project.

24. The suggestion that the Port of Brisbane is not a preferred exporter of coal is noted. However, the export of coal is not the only reason why the SFRC would provide benefits to the Port of Brisbane by providing a connection to the Interstate Railway line.

25. The presence of the IRCC was noted and considered in the determination of the preferred alignment. Members of the study team visited the site and met with representatives of the IRCC on two occasions. The location of the preferred alignment is considered to be optimal in the Peak Crossing area, as it avoids significant land uses such as the Purga Quarry, the Peak Crossing township, the IRCC and GQAL (associated with farming operations including the Gibb Bros). It is expected that mitigation measures for any potential impacts upon the amenity of this area (to be further identified during detailed design) will ensure the IRCC can continue to operate as planned, and the delegates of the IRCC will be able to enjoy the facilities and surrounding natural areas as much as they do presently.

2.3.22 Alignment development

Comments and concerns relating to the alignment development include the following:

1) Assume that Maunsell and QT have disregarded previous advice regarding this property.
2) The proposed alignment conflicts with the proposed road access location for the whole precinct. This affects the ability to develop the area to its full capacity.
3) SFRC will need to consider future road network use in the area before closing any roads.
4) Is the line indicated on the latest map the final alignment of the corridor?
5) How much land will be resumed on this property?
6) The proposed alignment does not affect the Powerlink properties however the northern corridor option would affect this site. Powerlink would be opposed to a rail alignment within any of these properties.
7) Ref - Earlier report by Phil Ainsworth, King and Co Property Consultants, dated 17/11/05 and 6/4/06. A proposal to enhance the South East Queensland Rail Freight Network, Parts 1 & 2:
   - Proposal suggests that the route through this area was chosen due to political and not technical/environmental reasons
   - Submission sees that this conclusion is why the analysis of impacts relating to noise, surface and ground water, flora and fauna and social impact was poor
8) Current alignment passes through fragmented southern portion of Ebenezer Industrial Development Area. Fragmented shape of these parcels doesn't suit an intermodal facility due to number of owners and shape of parcels.
9) Route decision – limited information on this and influence of consultation.
10) Rail impacts can be mitigated in new development at design stage more feasibly than in/near already established developments.
11) Alignment traversing adjacent council paddock with 80 000 trees planted for environmental habitat.
12) The 19km section from Purga to Woolooman and past Peak Crossing was never investigated. Why not?
13) Not supportive of the C3 corridor as an alternative solution can be demonstrated through N1.
14) Surely existing rail link (Rosewood to Grandchester) could be improved to sustain additional freight infrastructure without destroying habitats, animals and peoples lifestyle. Why can't the existing rail line in the already degraded area be upgraded?
15) The preferred alignment passes through the most productive areas.
16) Views to Flinders Mountain Range will be blocked.
17) Refer 4.2.1 p32 - location of IFT at Ebenezer instead of Purga:
   - Purga would be a better location as SEQRP has earmarked it for development
   - Report states that rail access would be a catalyst for development at Ebenezer
18) Was the corridor development the result of a line being drawn through Peak Crossing and a quick fix?

Submissions: 1, 13, 20, 21, 41, 44, 45, 48, 50, 54, 88, 99, 100, 107, 109(b), 110, 112, 124, 125.

Response:

1-5, 8. The study team has not disregarded advice relating to the property managed by the Doyle Group in Ebenezer. In developing the original alignment in this location, there were a number of considerations, including some significant constraints to the SFRC. The submission from the Doyle Group regarding the suggested

alterations to the alignment in the Ebenezer area is noted. It is important to acknowledge that the SFRC alignment has been revised in this area as a result of new koala habitat mapping (DERM 2009) and no longer has a land requirement on property owned by the Doyle Group. Due to reasons outlined in Section 4.3 of Volume 1, the revised alignment traverses the northern section of the Cunningham Industry Precinct.

6. The revised SFRC alignment now traverses the Powerlink properties in the Ebenezer area. Powerlink were involved in workshops aimed at identifying a revised alignment in Ebenezer, and had significant input into this process. The SFRC study team and Powerlink worked together to ensure that Powerlink's interests were adequately reflected in the determination of the revised alignment.

7, 10, 13, 18. The concern that the N1 alignment option through the Ripley Valley was dismissed because it passed through an area of future residents (as opposed to current residents with the C3 option) is noted. However, the key difference between the Ripley Valley future development and the existing development in areas such as Peak Crossing and throughout the study area is the density of these residences. The Ripley Valley is to be a master-planned community of over 120,000 residents, and will be characterised by a considerably higher population density than any location within the SFRC study area. The C3 option is considered to be the most optimal route based on a number of criteria including cost, potential impacts upon existing and future residential areas, and potential conflicts with the passenger rail network. The assessment undertaken for the SFRC study is considered to be adequate for this planning stage of the project, as it meets and exceeds the requirements of the CID Guidelines.

9. The community engagement process has been an integral part of the SFRC study, as it has enabled the study team to develop a thorough understanding of constraints and opportunities (physical and otherwise) throughout the study area. Information from the local community has played a significant role in helping to inform the location of the preferred alignment.

11, 12. The diverse range of flora and fauna (some endemic to the region) throughout the study area is noted, and recognised in the Revised Assessment Report. The environmental characteristics of the study area were a significant factor in determining the preferred alignment. All efforts were made to avoid any potential major adverse impacts upon the nature conservation values of the study area. The alignment has been realigned in the Ebenezer area to minimise potential impacts on koala habitat.

The Revised Assessment Report identifies the potential nature conservation impacts of the SFRC, and also lists numerous mitigation measures to prevent or minimise these impacts. Further, the detailed design stage of the project will require the application of additional mitigation measures (largely through design considerations) to address the potential nature conservation impacts. This will include design measures to promote wildlife movement below or over the SFRC, so that ecosystems and ecological corridors can continue to perform their important roles within the region. It is noted that habitat values such as hollow-bearing trees and logs are important aspects in the maintenance of quality habitat. Spotter/catchers will be used during construction of the SFRC to minimise direct impact to animals inhabiting trees within the area of the preferred alignment. Measures to ensure that microhabitats are maintained (such as small temporary ponds for native frogs during rain) will also be investigated.

The nature conservation assessment within the SFRC study included flora and fauna surveys in a number of locations throughout the study area. With respect to flora, the Regional Ecosystem (RE) mapping data throughout the study area was verified during site inspection through ground truthing. With respect to fauna, six locations within the study area were selected for fauna surveys. These areas were selected as they were considered representative of the study area, and were considered to demonstrate the greatest ecological value. "Representativeness" was determined by the site's commonality, and "high ecological value" was assessed through a combination of ecological factors including (but not limited to) legislative protection, rarity, condition, connectivity, patch size and habitat value. These aspects are outlined in Section 1.2, and Appendix B of Technical Paper 2 (Volume 2). For the purposes of this planning study, the adopted field survey methodology (in combination with the desktop assessment) is considered to be an adequate assessment of the nature conservation values of the study area.

14. In order for freight trains to connect to the SFRC from Toowoomba, the Gowrie to Grandchester section of the Western Railway line will need to be upgraded. The SFRC will then provide an as yet undeveloped connection between the Western and Interstate Railway lines.

15. The selection of the preferred alignment between the Western Railway line and the Interstate Railway line took into consideration the presence of Good Quality Agricultural Land (GQAL) throughout the study area. It is noted that there are some areas of GQAL which are traversed by the preferred alignment, and these areas are generally at the northern tie-in with the Western Railway line, either side of the Bremer River, either side of Warrill Creek, the eastern side of Ipswich Boonah Road, and along Woollaman Creek. There is also a significant area of GQAL which has been avoided by the alignment in and around the township of Peak Crossing (and coinciding with the Gibb Bros. farming operations). It should be noted that linear infrastructure projects such as the SFRC will inevitably affect some GQAL along the alignment. The potential impacts upon GQAL are acknowledged, and the development of the SFRC will be in accordance with State Planning Policy 1/92 – Development and the Conservation of Good Quality Agricultural Land. That is, any development upon GQAL must be in the context of an overriding need for the development in terms of public benefit, and no other site is suitable for the particular purpose.

16. The scenic significance of the viewpoints from Mt Flinders Road east towards the IRCC and the mountain range is recognised. The future stages of the SFRC project will involve more comprehensive investigation of these viewsheds. This will also incorporate the use of any specific noise mitigation measures adopted at key areas along the alignment to reduce noise effects of the SFRC. The Landscape Integration Strategy and the Landscape, Revegetation and Urban Design Guidelines will be fundamental in ensuring that no significant detraction of the visual amenity in the area will be experienced as a result of the SFRC. The study team recognises the importance in maintaining these expansive and significant views of the natural environment in this area.

17. It is recognised that an intermodal freight terminal (IFT) could be located in places other than Ebenezer. Prior to Ebenezer being proposed as an IFT location, Purga was considered a possible IFT location. However, with the location of the SFRC south of the Purga area, Ebenezer became a preferred alternative location for a potential IFT. This does not mean that an IFT will be developed in Ebenezer, but rather that the Ebenezer Urban Growth Area (as recognised in the SEQRP) may also include an IFT at some point in the future. The SFRC alignment has been designed to incorporate passive allowance an IFT at this location.

2.3.23 Alignment engineering

Comments and concerns relating to the alignment engineering include the following:

1) No significant issue with the general alignment propose subject to the following considerations:
   - The impact of, and compliance with, future rolling stock standards
   - The impact of, and compliance with, future infrastructure standards
   - Provision for electrification infrastructure
   - There are locations where QR's minimum standards for vertical and horizontal curve radii are exceeded; we would expect this to be addressed at the detailed design stage
   - Passing loop locations in single line areas
2) The corridor is parallel and in close proximity to current 330kV and future 500kV lines in this location creating the potential for induced voltages. Powerlink will provide data to the railway design team to address this issue.
3) The proposed alignment may not provide sufficient clearances for a potential future upgrade from 330kV to 500kV transmission lines. Powerlink will need to approve and 'sign off' any proposed development which may affect the easement. Changes and augmentations to existing lines will take up to 2 years lead time and as a result it is suggested that the railway is designed to achieve required clearances (see Schedule 4, Part 3 of the Electricity Safety Regulation, 2002) and accommodate potential future electrification of the line.
4) Purga Creek Rd underpass – 5.0 in clear height under proposed rail:
   - Will be only road access to properties past this point
   - Is this sufficient height for passage of double deck cattle trucks, removal houses, transport of large agricultural equipment, or other non-standard height loads?
   - Why is the new Purga Creek Rd “dog leg” and not straight?
5) Temporary and permanent in stream structures may impede fish passage and may require DPI&F approval. DPI&F recommends all watercourse crossings for the project are designed using the principles contained in the DPI&F Guide: Fish Passage in streams: Fisheries guidelines for design of stream crossings (FHG 001).
6) Notes that engineering solutions will be needed to address habitat loss, visual amenity, water tables, and ecological impacts.
7) Alignment should not rely on current topography as it will be altered significantly in the future:
   - Industrial roads and service roads will need to cross the alignment
   - The alignment will need to cater for a detention basin in the south east corner of the site
8) The alignment should provide a grade separate facility for major road crossings (Cunningham Highway and Ipswich-Boonah Rd).

Submissions: 1, 4, 5, 25, 34, 43, 99, 112, 128, 129.

Response:

1. The input from QR is noted. All the listed considerations will be incorporated into future stages of the SFRC project, including the detailed design of the corridor.

2, 3. The input provided by Powerlink is acknowledged, and the offer for data provision is appreciated by the study team. Issues such as sufficient clearances for future 500kV transmission lines will be discussed with Powerlink at the time of detailed design. Determining a revised alignment in the Ebenezer area involved numerous discussions between Powerlink and the study team. Given the strategic importance of the Powerlink property in Ebenezer, it was necessary to ensure the revised alignment would not impede Powerlink in developing the site to its desired future capacity. These discussions led to agreement on the location of the revised alignment, which is not expected to affect the future development of the Powerlink site to a significant extent. The location of the revised alignment may necessitate a new location for Powerlink's proposed training facilities. Discussions are being held between TMR and Powerlink to identify a mutually beneficial outcome.

4. The impacts of the SFRC upon existing farming operations and access arrangements within the study area are recognised by the study team after meetings with landowners, and from submissions received. As it is likely to be at least 10-15 years before there is a firm commitment to construct the SFRC, there is ample time for TMR to assist the landowner in preparing for the future by investigating future access arrangements and the locations where existing and future infrastructure for the properties can be situated on the land outside the CID area, whilst ensuring that operations on these properties can continue despite the construction and operation of the SFRC. These discussions are likely to occur at the detailed design stage, where the specific requirements of each and every landowner with a land requirement on their property will be taken on board and incorporated into the final design of the SFRC. All proposed changes to the local road network as part of the SFRC study are at this stage only indicative. These aspects will be investigated comprehensively, including consultation with the local government and local landowners, such that the most appropriate local road networks can be developed for the study area, in areas traversed by the SFRC alignment.

5. The potential for the SFRC project to require DPIF approval for temporary and permanent structures in streams is noted. This will be further investigated during the detailed design stage of the SFRC project.

6. The abundant amount of flora and fauna (some endemic to the region) throughout the study area is noted, and recognised in the Revised Assessment Report. The environmental characteristics of the study area were a significant factor in the determination of the alignment. All efforts were made to avoid any potential major adverse impacts upon the nature conservation values of the study area. An example of this is the identification of the revised alignment, which has been designed to avoid core areas of high value bushland which provide significant koala habitat in the Ebenezer area. The Revised Assessment Report identifies potential nature conservation effects of the SFRC, and also lists numerous mitigation measures to prevent or minimise these effects. Further, the detailed design stage of the project will require additional mitigation measures (largely through design considerations) to address the potential nature conservation effects. This will include design measures to promote wildlife movement below or over the SFRC, so that ecosystems and ecological corridors can continue to perform their important roles within the region. It is noted that habitat values such as hollow-bearing trees and logs are important aspects to maintaining current levels of quality habitat. Measures to ensure that microhabitats are maintained (such as small temporary ponds for native frogs during rain) will also be investigated.

7. The information provided by the Doyle Group with respect to the land in Ebenezer is noted, including the suggested alteration to the alignment. The determination of the original alignment in this location, involved the consideration of a number of significant constraints to the SFRC. These constraints included the location of a potential IFT, stands of *Melaleuca irbyana*, and flood-prone areas. As noted in Section 4.3 of Volume 1, the information about the significance of koala habitat in this area has prompted the study team to investigate

alternative alignments in the area of Ebenezer. The subsequent revised alignment is located to the north of both the previous alignment, and the suggested alignment proposed by the Doyle Group.

8. The SFRC preferred alignment has provided for grade separations at locations where the alignment crosses major roads. The locations of these proposed grade separations are listed in Table 8 of the Revised Assessment Report summary document (Volume 1).

2.3.24 Access to property

Comments and concerns relating to access to property include the following:

1) Alignment will divide property, with shed and cattle yards on southern side of alignment requiring new access to northern side of property which has no other road access.
2) Alignment will cut across Moonie Oil Pipeline which runs east-west on this property.
3) Alignment will cut bore water supply to shed, cattle yards and water storage tank. Will also cut gravity fed water lines to troughs and disrupt natural water courses supplying the small irrigation. Existing dam will have its catchment area significantly reduced. Construction of a new dam would cost up to $30 000.
4) Machinery movement on the property would be difficult with no other access across the proposed line.
5) New set of cattle yards on southern and northern side of proposed line would be required to load and move livestock to either side of the property.
6) The client undertakes rural business and also has permits for extractive activities (sand mining) within Woollaman Creek. The proposed alignment will affect 30RP133190 and 20SP133191 which are used for access to Woollaman Creek for extractive activities.
7) These properties are accessible via Nixon Road travelling from the Undullah Road end. The proposal does not provide access to these properties. The southern end of Nixon Road is in the inundation area of the Wyaralong Dam.
8) The proposals for the rail have not allowed for access across via Nixon Road. Access to these properties for heavy vehicles (semi-trailers, bulldozers, low loaders, cattle trucks and excavators) is required.
9) Access is required:
    - to water for stock and wildlife (where some blocks are split)
    - for fencing maintenance
    - for pest control
    - for mustering
    - for bush fire control
    - for timber jinkers
10) 280W312013 which currently provides access to 273W31203 and 292W312183 will be fragmented. Access to these two lots will be required.
11) Tunnels under the alignment will be required for movement of livestock and machinery between paddocks.
12) Current property access will be severed. From which road will new access be gained from?
13) Electricity services and access to 2 dams will need to be replaced as the proposal will cut off electricity services and prevent access to 2 dams which provide water for the houses, crops and livestock.
14) What type and size of fencing will be erected and who will be responsible for its maintenance?
15) Property access – corridor will take entire access to Eastern side of property (length approx 2km).
16) Access provides permanent access above flood line. Where will this be provided?
17) Will be bridge constructed on Dwyers Road be suitable for heavy machinery (B doubles, quad dog milk tankers, etc.)?
18) Access currently from northeast (off Lairhopes Rd, near junction with Mt Forbes Rd). The SFRC will divide property, removing this access. New access will be from Mt Forbes Rd as Teves Rd will be closed off.
19) Significant running costs in taking alternate transport routes via Mt Forbes Rd to cross rail line.

20) Maunsell and QT – stated would not be responsible for fencing along rail corridor. Landowners are concerned for having to relocate fences and fence both sides of rail line ($11.00/m).
21) How will changes to Ipswich-Boonah Road affect driveway access?
22) The CID process impacts on road reserve, and through the resumption and fencing of road reserves on properties throughout the corridor.

Submissions: 3, 8, 11, 22, 28, 34, 43, 123, 127.

Response:

1-22. It is acknowledged that future access arrangements are highly important to landowners with a land requirement on their property. Impacts of the SFRC on existing farming operations and access arrangements within the study area are recognised following meetings with landowners, and from submissions received. As there is likely to be at least 10-15 years before there is a firm commitment to construct the SFRC, there is ample time for TMR to assist the landowner in preparing for the future by investigating future access arrangements and the locations where existing and future infrastructure for the properties can be situated on the land outside the CID area, whilst ensuring that operations on these properties can continue despite the construction and operation of the SFRC. These discussions are likely to occur at the detailed design stage, where the specific requirements of each and every landowner with a land requirement on their property will be taken on board and incorporated into the final design of the SFRC. All efforts were taken to avoid significant impacts upon local access arrangements as a result of the alignment. As such, grade separations are incorporated into the design of the preferred alignment for all major roads that are traversed by the corridor. Additionally, the design of the preferred alignment includes suggested alterations to local road networks in light of the SFRC. These are indicative only, and can be further developed during discussions with local governments and local landowners at the detailed design stage.

2.3.25 Management of property

Comments and concerns relating to the management of property include the following:

1) Powerlines feeding the property are directly in line with the alignment.
2) These lots contain two houses in close proximity to the alignment which have not been flagged for resumption. These are rental properties and it would be impossible to continue this business as the alignment would cut off the water supply and electricity and access from Castle Hill Lane.
3) States that only “preliminary consideration” has been given to access and stock movement for individual properties.
4) Will affected dams and other infrastructure be replaced?

Submissions: 13, 34, 41, 109(b).

Response:

1-4. Landowner concerns relating to the ongoing management of property are noted. Potential impacts of the SFRC upon existing farming operations and access arrangements within the study area are recognised following meetings with landowners, and from submissions received. Land owners with a land requirement on their property have had the opportunity to take part in a briefing with members of the study team and TMR Property Services to discuss their concerns and to talk about specific aspects of their property and how the SFRC is likely to affect them. Given the expected minimum 10-15 year timeframe prior to construction of the SFRC, the management of these properties will be affected in the short term. So long as improvements to properties increase their market value, landowners of properties with a land requirement for the SFRC will be appropriately compensated for any improvements they make to their properties in the intervening time between now and when the SFRC is constructed. This compensation would be in the form of increased market value of the property when it is acquired for the SFRC project. In terms of powerlines, water supply, dams, access, stock movement and other farming infrastructure, the only way to deal with these concerns adequately is to work through solutions with the landowners. Each of the land owners is in a unique circumstance, and therefore their property management requirements are also likely to be unique. During the detailed design stage of the project each land

owner with a land requirement on their property will be consulted, and discussions will be held in order to sort through property management issues relating to the construction and operation of the SFRC.

2.3.26 Community engagement process

Comments and concerns relating to the community engagement process include the following:

1) What measures are being taken to ensure that all who will be affected by noise are informed and have an opportunity to comment?
2) Maunsell has not attended any public meetings when asked; have relied on one-on-one briefings.
3) Happy with community information days. There was a lack of public meetings which was part of local culture.
4) Failure of Maunsell to take part in group meeting.
5) Not enough people were contacted about the proposed SFRC. All of the residents along Wild Pig Road should have been contacted. True impacts of the corridor were not conveyed to residents.
6) Failure to advise people outside of the corridor of interest about the project.
7) Why were directly affected people not included in the focus groups?
8) The focus group information does not advise when the focus groups were held, or what information was provided to the participants on the identified major impacts of the SFRC.
9) It is unlikely that the focus groups can be accepted as a thorough and accurate representation of the views of the broader community, given the limited nature of the focus group activity.
10) The limited consultation is unlikely to represent views of the broader community.
11) Focus groups may not have been comprised of people who were affected and thus did not care.
12) Supportive of community engagement as it appears in the report.
13) Lack of "clear and transparent communication" during the consultation period.
14) Ryan Huelin did not attend a meeting with the Fair Go committee.
15) Fair go committee still waiting for answers to questions put to project team on 13 October. When will response to questions raised in meeting be answered?
16) Questions D.S raised prior to an individual briefing were not answered.
17) Yet to receive reply to request about how much land will be required for the corridor.
18) Answers to questions have been evasive and condescending.
19) Information has not been given freely, and answers given have varied.
20) Poor responses to questions have not allowed for an informed submission to be made.
21) Lack of consultation to understand the needs and concerns of the community.
22) Meeting with Maunsell and QT on October 13 2008 had incomplete minutes and questions were not answered by 12 December 2008 as promised.
23) Specific information of property was provided to Maunsell on 3 occasions – not recorded in minutes. Why has this been allowed?
24) Inaccurate minute-taking during meetings with Fair Go committee and Maunsell and QT.
25) Minutes of meeting with Gary Fenlon MP have not been provided.
26) The report is far too large to read and not all residents have a computer to access the CD copy.
27) CD is a poor way of distributing information as not all residents have computers or even received a CD.
28) People affected by noise should be contacted and sent a CD.
29) Not all residents received a copy of the report.
30) Maunsell do not act in line with their company values - Maunsell described as a parasite.
31) The community consultation process had inconsistencies in the form and content of information distributed to the community.
32) The consultation period was insufficient to allow in-depth review of the documentation.
33) The documentation did not consider the impact of increased rail traffic on the Grandchester to Rosewood section of the western rail line.

34) The consultation has not been adequate to satisfy CID requirements.
35) Questions about future mediation should the compensation package or negotiation regarding property management not be agreeable.
36) Recommends that more consultation should take place to address a wide range of issues that affect the community and landholders.
37) Request follow up meeting with QT/Maunsell.
38) No representative has visited property (or adjacent) to observe the impacts.
39) Local knowledge has not been sought.
40) The IKPS was never asked to provide information or data on koalas or wildlife in the area. IKPS has a database which can be made available.
41) Described by Cr David Palkhe as the worst case of consultation he had ever seen.
42) Maunsell have been incompetent - response to this submission or a CMC enquiry will prove this.
43) One on One meetings were a waste of time with no real information.
44) Making an informed submission was difficult given the size of the report and timeframes/deadlines;
45) Second round submission period should last 12 months.
46) It is unrealistic to expect residents to make an informed submission causing them to put their lives on hold. Submitters are in a stressed state as the project will affect their future livelihoods and assets.
47) Told by Maunsell that noise study was incorrect.
48) Public meeting was conducted in October 2007 which then sent 5 questions to QT - not mentioned in the report. Why were the questions from this meeting of 400 landholders omitted when the focus group was included?
49) Asked questions about the origin of SFRC to Maunsell and was unhappy with the responses.
50) Project will proceed regardless of what public says.
51) Full impact will only be realised upon completion of the study.
52) Advertisements should have been placed in weekend papers as well as weekdays.
53) The key issues listed in the report are sufficient to prevent project from proceeding. - particularly points from 5.4.4 of Volume 1.
54) Owner, Queensland Transport, Maunsell and potentially a representative of the Coordinator General are to meet on the site in the new year. This would allow another road issue to be addressed namely a direct main road link to/through the middle of the Bromelton industrial area.
55) Submission made Jan 08 was ignored – due to Maunsell staff changes.
56) No consultation was undertaken with tourism groups.
57) Although the Scenic Rim region is identified in Government strategies as an area of high tourism and outdoor recreational potential, the stakeholder groups targeted do not appear to include tourism and eco-tourism, outdoor recreational organisations and businesses, nature conservation and environmental groups and associations in SEQ. These parties may not have been aware of the SFRC through the normal advertising of the project.
58) It does not appear that any government tourism stakeholders such as Queensland Tourism were included in the process. Therefore the SEQ Country Tourism Strategy is not reflected in the consultation.
59) Focus groups should have involved people from interest and activity groups associated with the Flinders-Goolman Conservation Estate, the Ipswich-Boonah Recreational Trail, convention and tourism facilities such as the IRCC.
60) There is no evidence that QT has created positive legacy for local communities – 'lip service is paid'.
61) Newsletters are misleading.
62) The SIC Final Report 2005 could only be attained through FOI.
63) Will additional investigations take place after the objections period has passed?
64) One landowner requested letters (3 times) about property impacts from Maunsell signed by Director, and received no response. The above and other issues were omitted from minutes.
65) Initial letter advising of study was sent to other joint property owners (2RP215267) and not 45CH3168 – suggesting other oversights in effective notification of affected properties.

66) QT and Maunsell have an agenda and landowners concerns are of no real interest.

67) Concerns that the response period for stakeholders was too short as the document was a substantial one.

68) Community consultation has been inadequate.

Submissions: 3, 22, 25, 27, 31, 32, 51, 54, 77, 88, 94, 95, 97, 99, 100, 102, 103, 104, 105, 106, 107, 108, 109(b), 111, 112, 123, 124, 128, 129, 134.

Response:

1, 28, 47. Criteria used in acoustic assessment have been selected as examples of the types of criteria that are likely to be applied to future studies (once there is a firm commitment to construct and impacts of the SFRC can be more accurately predicted). The acoustic assessment provided in the Noise and Vibration Technical Paper of the Revised Assessment Report should be not viewed as a commitment by any future proponent to follow a particular criterion, or as recommending the adoption of any specific mitigation strategies for any residences in the study area. There will be a more rigorous and detailed study of the SFRC at the detailed design stage of the project, when all engineering characteristics are known. At this later stage, every land owner deemed to be within areas affected by noise impacts from the SFRC will be invited to participate fully in the process.

2-13, 21, 26-29, 30-32, 34, 36, 38-39, 41-44, 52-56, 60-61, 65, 67-68. A range of concerns were raised about the community engagement process for the SFRC. There were concerns over who was (or was not) consulted, the distribution of information and the ability of the engagement process to satisfy CID requirements. Discussions took place regarding attendance at a public meeting, however in the interests of safety (due to threats of physical violence) the study team exercised a duty of care and a decision was made for the study team not to attend. Individual briefings and community information days proved invaluable to the study team and provided an opportunity to hear individual concerns and issues.

Focus groups used in the social impact assessment for the study were intentionally made up of participants from outside the study area. This provided the study team with a broader perspective and a comparison against those within the study area (who the study team had consulted with extensively).

CD copies of the Draft Assessment Report were sent to landowners with a land requirement on their property, adjacent landowners, and any other stakeholders who requested a copy. It is acknowledged that in a small number of cases stakeholders may not have had access to a home computer. Copies of the report were provided for viewing at four locations throughout the study area, including Ipswich Library and Boonah Library.

All efforts were made to ensure that people in the study area were informed about the SFRC study. The *Guidelines about Environmental Assessment and Public Consultation Procedures for Designating Land for Community Infrastructure* (the CID Guidelines) require specific processes be undertaken with respect to identifying and notifying stakeholders about the study. These procedures were followed by the study team.

The community engagement process conducted for the SFRC Project has to date satisfied and exceeded the requirements stated in the CID Guidelines. Specific details of the engagement process are outlined in Volume 1, Chapter 5 of the Revised Assessment Report. The community engagement process included one-on-one briefings with landowners within the Corridor of Interest (prior to the CID process) and those who had land requirements on their property (as part of Stage 2 of the CID process), as well as community information days and factsheets/newsletters for the wider community. The submission period for the Draft Assessment Report was extended from 20 business days to 50 business days to allow stakeholders to prepare an informed submission.

14. Mr Huelin's absence from a meeting with the Fair Go Committee was due to an unforseen personal circumstance. This was conveyed to all present at the meeting. Several other members of the Department were present. Mr Huelin subsequently met with the chairman of the Fair Go Committee at his property.

22-25 A number of submissions included concerns about minute taking. Minutes were never intended as verbatim records but are used to capture key discussion points for the study team. This was explained on several occasions to members of the Fair Go Committee. It was also explained that stakeholders could provide appropriate amendments to minutes if they wished to.

15-20, 48-49, 64. A number of concerns were raised regarding responses to questions about the project. Given the long-term nature of the SFRC study, it is not always possible to provide appropriately detailed responses. Some issues were addressed in the draft assessment report, some were outside the scope of the study, while some sought a level of detail that would not be available until detailed design is conducted, and construction and operational arrangements are developed. The study team appreciates this can be frustrating for stakeholders.

The questions raised at the meeting in October 2007 were sent to the Minister in standard letter form, but approximately 50 individual landholders. A response was sent to each of these individuals.

33. The SFRC study was specific to identifying and preserving an alignment between the western line and interstate line, and as such downstream impacts that may occur along the existing rail network were beyond the scope of this stage of the project. As the SFRC will effectively facilitate the movement of freight trains from one location to another it may be expected that improved efficiencies will lead to an increased use of rail freight, and an increased use of the rail infrastructure along parts of the Western railway line and the Interstate railway line.

When considering Indirect and downstream impacts, the project should be considered as part of the "bigger picture". The SFRC is related to the Commonwealth Government's Inland Rail project, the Gowrie to Grandchester upgrade, the State Development Area at Bromelton, and the Urban Growth Area at Ebenezer. These projects are fundamentally linked (i.e. the Inland Rail would require the Gowrie to Grandchester upgrade and the SFRC to be able to service the Port of Brisbane, Acacia Ridge, and the emerging and future industrial/intermodal areas of Bromelton and Ebenezer).

It is reasonable to expect that the cumulative effect of the projects and initiatives identified above will lead to an increased volume of rail freight traffic using the Western railway line between Grandchester and the tie-in with the SFRC just south of Rosewood. The exact nature of these impacts would depend on a number of factors which cannot be accurately predicted at this stage, and which are not solely due to the SFRC. These impacts would be influenced by the construction of the Inland Rail, the volume of rail freight using this new inland railway, the growth of the industrial areas at Bromelton and Ebenezer, and the demand for rail freight to service these areas and the existing intermodal hubs at Acacia Ridge and the Port of Brisbane. The future stages of the Gowrie to Grandchester project will need to consider the increase of rail traffic between Grandchester and Rosewood.

35. There may be incidences where negotiations about compensation and property management issues do not reach mutual agreement. TMR encourages mediation and tends to accommodate reasonable requests in these circumstances.

37. The study team is prepared to meet with the Doyle Group upon release of the Revised Assessment Report.

40. Discussions have been held with the Ipswich Koala Protection Society (IKPS), and the Moggill Koala Hospital Society (MKHS). These organisations were represented on the Koala, Habitat and Threatened Species Working Group which was set up to address some key concerns relating to koalas, threatened species and their habitat in the study area. This working group benefited from the knowledge and experience of these organisations. As noted in Section 4.3 of Volume 1, information about the significance of koala habitat in Ebenezer has prompted the study team to investigate alternative alignments in this area. The subsequent revised alignment is located to reduce potential impacts upon koala habitat in this area.

45. The request for an extended submission period for the Revised Assessment Report is noted. A 15 day submission period is required under the CID Guidelines. A 12 month submission period will not be provided. Sufficient time will be provided for stakeholders to consider changes to the Assessment Report (including the revised alignment) and prepare submissions.

46, 53. Community concerns about the project are acknowledged. It is recognised that the SFRC study is an emotive issue for some stakeholders. It is recommended that all stakeholders take the opportunity to raise issues and concerns in a submission so they can be addressed. The submission process helps to provide the study team with local knowledge and makes the study more robust.

50, 66. The SFRC will not proceed "regardless of what the public says". Local knowledge and an appreciation of potential effects upon landowners are essential elements of the environmental assessment process. The Minister must be convinced that an adequate environmental assessment has been undertaken, and that adequate account has been taken of all community concerns prior to designating the SFRC.

51, 63. The SFRC study is a planning study, aimed at identifying and preserving a corridor for a future freight railway line. Construction is not expected to occur for at least 10-15 years. As such, the detailed design of the railway line has not yet been undertaken – this will be undertaken once there is a firm commitment to construct the railway (approximately 2 years prior to construction). Further environmental assessment will take place at the detailed design stage. This will be based on further information on the engineering characteristics of the SFRC, as well as the current environmental conditions.

55. The main points contained within IRCC's submission in January 2008 were considered and formed a part of the alignment identification process. This submission also helped to inform the preparation of the draft assessment report in 2008. The presence of the IRCC was noted and considered in the determination of the preferred alignment. Members of the study team visited the site and met with representatives of the IRCC on two occasions.

56-59. A number of government, business and community stakeholder groups were consulted. Whilst tourism groups/organisations were not specifically targeted for consultation, public notices, advertisements and newsletters encouraged all interested parties to make a submission.

62. It is acknowledged that the Southern Infrastructure Corridor report (2005) was requested under the Freedom of Information Act. The study team was unable to release this report as it was the intellectual property of the Department of Infrastructure and Planning (Office of Urban Management).

2.3.27 Suggested alterations to the preferred alignment

Submissions contained a number of suggested alterations to the preferred alignment, including:

1) Noise impacts from surrounding intense land uses can be managed by noise attenuation and distance buffering.
2) Ground stability - 120m corridor free of constraints exists, backfill mine voids will have undergone majority of settling. New Hope has commissioned a geotechnical study of surcharging timeframes on the Jeebropilly holdings which will be made available on completion.
3) Flood Risk - the proposed alignment does not use the Jeebropilly spur as a primary connection eliminating flood issues/risk.
4) Conflict with passenger network is not a constraint as the proposed alignment connects in a similar location to the preferred option.
5) Noise impacts are not considered to be a constraint as the alternative alignment connects in a similar location as the preferred alignment.
6) New route similar to rejected C3 alignment is proposed which addresses problems of C3 alignment. Suggest the corridor passes through Ebenezer in close proximity to Jeebropilly Rail Spur.
7) A review of this section of the route is recommended until Ipswich City Council creates a structure plan for Ebenezer.
8) An alternative alignment was supplied passing through the Ebenezer Area.

9) Summary of the preferred option as outlined in the Draft Report:
   - limited catchment
   - fragmented property owners
   - no opportunity to connect freight line to rail loop
   - good access to Cunningham Hwy and reduced access to Western Ipswich Bypass and Warrego Hwy
10) Summary of suggested new alignment:
   - enhanced catchment area
   - consolidated land ownership
   - connect to rail loop
   - frontage for rail development industries
11) Suggest connection to Toowoomba Rail line as outlined in report.
12) An alternative to this alignment is to align through Purga then across to Ebenezer.
13) The Warwick to Bromelton option is a viable alternative, and emphasis should be placed on developing this option.
14) The corridor should be placed somewhere the environment is already scarred.
15) The 2km corridor of interest creates the opportunity to also consider a road alignment. Any road alignment in the corridor of interest would be an expensive option which would compound road network impacts by drawing freight from rail onto road.
16) Why is the Western Line not being upgraded instead?
17) Why was Ripley given consideration over current affected residents?
18) A freight terminal could be located in areas other than Ebenezer.
19) Suggestions to move 100m or so to preserve certain properties.
20) Further north would not need such a high causeway and would not risk of flooding and would be a ‘firmer base’.
21) Moving the freight line a few miles to the west would ensure that the area retains its peace and quiet.
22) Advantages of relocating alignment to elevated areas include; reduced need for fill, reduced rail noise (in cuttings) ameliorating rail noise impacts for existing and future residents of 'Undullah Station'.
23) Discussions have been undertaken with Logan City Council with regard to the future possibility of 'Undullah Station' becoming a master planned community (see copy of proposed structure plan - Dwg. No. 3605-ALL-P999 dated 7th July 2008, attachment 2). Relocation of the proposed corridor further south would minimise the impacts on the future community of Undullah Station. Alternative alignment (Dwg no. 3607-ALL-P100 dated 15th October - Attachment 3) would provide for developable land on the Brennan site between the alternative rail alignment and Undullah Creek/Undullah Road.
24) Request that the proposed rail infrastructure assists Council and the client in ensuring that this critical land bank is maintained for the future and does not compromise the master planning of "Undullah Station".
25) Would prefer an alignment along southern boundary of this site with a 90m corridor to cater for intermodal activities. OR Alternative 2 (attached) - between southern border of the site and current alignment.
   - Request that alignment be changed in this area as failure to do so would inhibit development in this area
26) Advise that location of the rail corridor should not be as to prejudice the ultimate construction of a future grade separated interchange located at position marked C on Figure 2 - SEE ATTACHMENT.
27) Submitter understands the need for the corridor and submits a conceptual alignment from their master plan. This conceptual alignment is located south of the proposed alignment (see attached map 2). The proposed SFRC enters the site at the same point of that the future grade separated interchange is proposed. The SFRC conflicts with the main distribution road for the precinct.
28) Fragmentation of grazing and cropping lands can be avoided by placing the alignment along the perimeter of properties or provide access over or under the alignment for stock and machinery.
29) IRCC understands need for freight rail and supports it, but wants to ensure appropriate location away from IRCC:
   - reconsider Ripley Valley alternative

- recommend QT undertakes a complete review of SFRC location and identify potential alternatives/variations
- relocate to a location at or below ground level to reduce noise travelling to IRCC's noise sensitive areas
- underground/above ground tunnels or substantial earth bunds
- other expert engineering measures
- review crossing at Mt Flinders Rd and to the north and south of Mt Flinders Road to avoid visual impact

30) If the Corridor of Interest had been 2km further north it would have been solely on industrial zoned land, avoiding environmental conservation areas.

31) Concerns that mapping has intentionally hidden an existing power easement. Placing the alignment within this easement would reduce environmental impact by 80% and would prevent destruction of Mount Forbes Road houses and save money from not needing to relocate Tea Tree Avenue, powerlines and phone lines. The easement would create a shorter route which disturbs less habitat.

32) Alignment should avoid watering points and cattle handling facilities.

33) Moving the rail connection north would allow Undullah Road to be straightened as originally surveyed which would remove a dangerous S-bend.

34) The connection with the interstate line should be moved north of the original Undullah Road creating making the entire rail frontage to 7RP47886 available for a rail terminal. The combination of 7RP47886, 1RP47886 and 1RP47887 should not be overlooked.

35) Fair Go Committee submitted an alternative alignment.

36) There should be a thorough, unbiased and public analysis/comparison of:
- suitable alternatives outside koala conservation areas, which have not currently been adequately considered or investigated
- more appropriate routes which have been dismissed without adequate explanation

37) Slight changes to the alignment could avoid certain houses and cattle yards throughout the corridor.

38) Concerns that the engineering team may not have been aware that buildings existed in some of these locations.

39) A shorter alternative route should be used.

40) Residents in the Wild Pig Creek section are subject to all negative impacts. Therefore, the preferred alignment should be moved to the northern side of Woollaman Creek. The following are benefits of the altered alignment:
- starting deviation at 268W311940 (supported by owner) would maintain stock access to water
- eliminate need to deviate current alignment of Wild Pig Creek Rd in 268W311940 and 4SP163227
- will not bisect koala corridor in 3SP163227 and large fig tree
- elimination of need to create underpass for Wild Pig Creek Rd at chainage 44200
- noise will no longer be an issue in the valley
- preserves house on 1SP163227 and 500 year old spotted gum
- doesn't need to cross Wild Pig Creek on 22RP908750 and 262W311930 maintaining stock water access
- only requires 1 road crossing for residents in Wild Pig Creek and 2 Rail crossings in Woollaman
- currently no residences adjacent to deviated alignment
- current alignment passes over boggy soils
- less pollutants in tank water
- years of maintenance of properties wouldn't be lost

41) The alignment may be better located west of Peak Crossing. A western alignment would improve the horizontal alignment, reduce the number of creek crossings and lessen noise and physical intrusion into the Mt Flinders National Park regional ambience. A study of the corridor map indicates the possibility of moving the line further to the west into an area which is less thickly vegetated and reasonably flat.

Submissions: 2, 3, 4, 20, 21, 45, 46, 48, 54, 87, 94, 95, 99, 100, 109(b), 112, 124, 128, 129, 134.

Response:

1-12, 30. The suggestions provided by New Hope Coal are acknowledged and appreciated. There is merit in the proposed alternative alignment in the north-western section of the study area, however it is not considered to be the most optimal alignment option in this section. The suggestion to use the existing Jeebropilly rail spur is noted. The SFRC study originally investigated the use of the rail spur for the western tie-in location with the Western Railway line. There are a number of reasons why the alignment has been located south of the Jeebropilly rail spur. These include potential ground stability issues (due to past mining activities), flood risk (necessitating the complete reconstruction of the rail spur) and noise impact on residents of Rosewood and Willowbank. It is noted that the alignment suggested by New Hope Coal avoids conflicts with the existing passenger network, however it is not considered likely that the suggested alignment avoids adverse noise impacts for the township of Rosewood, as it is still located in close proximity to the township and any increased freight would still need to travel through the township.

The primary factors influencing the previous Ebenezer alignment were rail design and rail engineering. Other factors included stands of *M. irbyana*, flooding east of the Cunningham Highway, and the location of a potential future intermodal freight terminal. Although the land use interface in this area was a secondary concern for the location of the SFRC preferred alignment, it was expected that appropriate land use synergies would be achieved between the SFRC and any future industrial planning in the Ebenezer area. A number of constraints were identified as being critical considerations in determining the revised alignment in the Ebenezer area. Whilst the overall goal was minimising potential impacts on koala habitat, a number of other factors influenced the location of the alignment in this area. These included a rural-residential community off Mount Forbes Road, the residential area of Willowbank, previously disturbed and unstable land associated with Ebenezer and Jeebropilly Coal Mines, the existing Powerlink 330kV transmission lines, the future Powerlink substation site, the Ipswich Motorsport Precinct, Ebenezer future industrial area, the Cunningham Highway, *M. irbyana*, an ephemeral wetland to the east of the Cunningham Highway, and requirements for an intermodal freight terminal.

Upon reviewing the proposed alternative alignment in this area, as submitted by New Hope Coal, the study team is comfortable that the revised alignment represents a more optimal route for the SFRC in the Purga/Ebenezer/Rosewood area.

13. The suggestion that the Warwick to Bromelton option is a viable alternative to the SFRC and should be investigated further is noted. The "Great South West" option has been put forward by many submitters as an alternative alignment to the SFRC. The consideration of the Great South West corridor is beyond the scope of this SFRC study, and the current State Government policy is to seek designation of the SFRC. Additionally the Commonwealth Government inland rail study has identified the SFRC as part of the alignment under investigation.

14, 39. Suggestions that the SFRC should be placed somewhere that the environment is already scarred, and that the alignment should be a shorter alternative route are noted. The proposed alignment represents the preferred connection between the Western and Interstate Railway lines. The revised alignment was identified as the most optimum location, factoring in environmental, social, cultural and economic values.

15. Concern expressed by the former Department of Main Roads regarding the potential for a road alignment along the SFRC is noted. A road alignment is not being investigated as part of the SFRC. The only roads to be designed as part of the SFRC study will be service roads for the railway and changes to existing roads which are affected by the alignment. This will be undertaken in the detailed design stage of the project.

16. The option regarding the upgrade of the Western Railway line into the Brisbane urban network is noted, however it is severely constrained. The existing passenger network is undergoing triplication in order to cater for increasing passenger requirements. There would be serious technical issues associated with mixing additional freight traffic with the passenger network, as well as significant issues regarding unacceptable separation distances in some highly urbanised areas.

17. Concern about the N1 option being dismissed because it passed through an area of future residents (as opposed to current residents with the C3 option) is noted. However, the key difference between the Ripley Valley future development and the existing development in areas such as Peak Crossing and throughout the study area is the density of these residences. The Ripley Valley is to be a master-planned community of over 120,000 residents, and will be characterised by a considerably higher population density than any location within the SFRC study area. The C3 option was considered to be the most optimal route based on a number of criteria including cost, potential impacts to existing and future residential areas, and potential conflicts with the passenger rail network.

18. It is recognised that an intermodal freight terminal (IFT) could be located in places other than Ebenezer. Prior to Ebenezer being proposed as an IFT location, Purga was considered a possible IFT location. However, with the location of the SFRC south of the Purga area, Ebenezer became a viable location for a potential IFT. This does not mean that an IFT will be developed in Ebenezer, but rather that the Ebenezer Urban Growth Area (as recognised in the SEQRP) may also include an IFT at some point in the future. The SFRC alignment has been designed to incorporate the potential development of an IFT in this location to ensure this option could be accommodated if required. The location of any future IFTs is essentially the responsibility of the Department of Infrastructure and Planning.

19, 20, 32, 37, 38. A number of submissions contain requests to move the preferred alignment slightly (by about 100m) in certain areas to avoid particular properties or infrastructure on properties such as watering points and cattle handling facilities. However, with a 55km long corridor, it is important to ensure that the alignment is not shifted in a number of areas without compelling reasons to do so. If a number of these slight changes to the alignment were taken on board in the final design, the optimisation of the SFRC from an operational perspective would be compromised. Infrastructure such as watering points and cattle handling facilities affected by the alignment will be reinstated to at least an equivalent standard for the landowners once the SFRC is constructed.

21, 41. An option for moving the SFRC west of Peak Crossing was investigated during an early part of the study. This option was rejected for a number of reasons, including increased impacts upon the Peak Crossing township and impacts upon GQAL.

22-24. The proposal put forward by Mortons Urban Solutions for the Undullah Station and surrounding properties is noted. However, the suggested alteration to the alignment would likely require a tunnel as it passes through some steep topography. It is not logical for the SFRC to pass through a hill when other options exist. In this sense, the preferred alignment represents a viable option through this area, and one which would require far less engineering effort and fewer environmental impacts. Potential impacts on the Undullah Station property and the future development of this area are noted, and have been discussed in the Land Use and Planning section of this report as well as Technical Paper 5. The SFRC is expected to create only minimal disruption to the master planning of the Undullah Station land, and the future development potential of this area is not considered to be compromised by the SFRC. It is important to note that development of this land for residential purposes is not consistent with the provisions of either the SEQRP or the former Beaudesert Shire planning scheme.

25-27. The Doyle Group's submission regarding suggested alterations to the previous alignment in the Ebenezer area is noted. A number of factors influenced the location of the previous alignment in this area, including the potential IFT, stands of *Melaleuca irbyana*, and flood-prone land.

A number of constraints were identified as being critical in determining the revised alignment in the Ebenezer area. Whilst the overall goal was to minimise potential impacts on koala habitat, a number of other factors influenced the location of the realigned SFRC in this area. These included a rural-residential community off Mount Forbes Road, the residential area of Willowbank, previously disturbed and unstable land associated with Ebenezer and Jeebropilly Coal mines, the existing Powerlink 330kV transmission lines, a future Powerlink substation site, the Ipswich Motorsport Precinct, the Ebenezer future industrial area, the Cunningham Highway, stands of *Melaleuca irbyana*, an ephemeral wetland to the east of the Cunningham Highway, and requirements for an intermodal freight terminal.

28. The submission from the DPIF about avoiding grazing and cropping lands is noted. The detailed design stage will involve discussions with landowners about their requirements and will investigate opportunities to provide operational access under or over the SFRC.. Where possible the alignment has been located along property boundaries to reduce fragmentation.

29. The IRCC submission requesting the reconsideration of the Ripley Valley alternative and other alternatives is acknowledged. However, the identification of the Corridor of Interest, the previous alignment and the revised alignment within the study area were based on a rigorous options development process dating as far back as 2005. It is not considered necessary to undertake this process again, as it is believed that the current alignment is the most optimum location for the SFRC. Concerns from IRCC regarding the potential effect of the SFRC on the noise environment in the Peak Crossing area are also noted. The detailed design of the SFRC will include more comprehensive noise and vibration studies, and specific mitigation measures will be identified for all sensitive receptors (including the IRCC) throughout the study area.

31. The potential benefits associated with locating the SFRC alongside the existing Powerlink easement are recognised. The SFRC study attempted to achieve this, however the degree of change in horizontal alignment of the transmission line easement was not conducive to a smooth horizontal alignment for the SFRC, and co-location would have contravened the design criteria adopted for the project. Co-location with the Powerlink easement has been achieved in the vicinity of Middle Road, Purga.

33, 34. The preferred alignment was chosen as it crosses Teviot Brook in a location which avoids the major floodplain and runs parallel to Undullah Road (minimising land acquisition and property fragmentation). The suggested alternative alignment crosses Teviot Brook on a skewed angle, adjacent to where a tributary joins Teviot Brook – this will involve a significant structure the over waterways in this location. Any attempts to alleviate this through altering the horizontal alignment would result in undesirable rail geometry. The properties north of Undullah Road in this area are more affected by the alternative proposal, as it crosses these properties on an angle, as opposed to the preferred alignment which the study team has attempted to keep close to the property edges.

Vertically, the alternative proposal will be on more fill embankment near the large farm dam as the existing terrain is about 10m lower than the preferred alignment. As a result, the proposal will also reduce the storage capacity of this dam. The existing Undullah Road alignment (across the Interstate Rail corridor) appears to have been located to take advantage of the topography so that the road crosses over a rail cutting. If Undullah Road is relocated to the south into the "original" road reserve, the terrain advantage would be lost, and there would be a need to build the road up on embankment to pass over the rail. The Undullah Road realignment as proposed would need to be discussed with council and the landowner on the eastern side of the existing rail corridor.

35. The Fair Go Committee's alternative alignment has previously been received by TMR. TMR has responded to the committee and provided feedback on this alternative alignment suggestion. This alternative alignment would be more costly to construct, would require 4 tunnels and would have greater impacts to koala habitat areas.

36. The *Nature Conservation (Koala) Conservation Plan 2006 and Management Program 2006-2016* (Koala Plan) states that uncommitted community infrastructure such as the SFRC can only be located in Koala Conservation Areas (KCAs) when there is an overriding need in the public interest for the location of that infrastructure within a KCA. To determine an overriding need in the public interest, it must be determined that:

- There is no suitable alternative location outside of a KCA;
- The overall social, economic and environmental benefits of the development outweigh any detrimental impact upon the natural values of the site, conflicts with the desired outcomes of the SEQRP, and conflicts with the Koala Plan; and
- Whether the community would experience significant adverse economic, social or environmental impacts if the development proposal were not to proceed.

Further, the following do not establish an overriding need in the public interest:

- Activities or uses with relatively few locational requirements;
- Interests in or options over the site; or
- The site's ownership or availability.

The studies preceding the SFRC study have demonstrated that there is no suitable alternative location for a connection between the Western and Interstate railways to that which is currently being investigated. Rail infrastructure such as the SFRC has specific locational requirements, described in Section 4.3 of the Revised Assessment Report (Volume 1). The location of the KCA is recognised in the report, and was a constraint with respect to the location of the preferred alignment in this area. However, there were a variety of factors which influenced the location of the preferred alignment within a portion of the KCA near Peak Crossing, including the location of major facilities (Purga Quarry, Ivory's Rock Conference Centre), the location of Good Quality Agricultural Land (GQAL), and the township of Peak Crossing itself.

Table 4 within Volume 1 contains an appraisal of the SFRC alignment through the KCA near Peak Crossing, and demonstrates the reasons why the original alignment has not been modified in this area. The main reason for this is that there are no feasible alternatives, as shifting the alignment further west would create undesirable impacts on the township of Peak Crossing. It is important to recognise that the location where the SFRC traverses this KCA is sparsely vegetated, and is considered to provide minimal habitat for koalas, however it may facilitate movement of koalas between core habitat areas.

Section 4.6.1 of the Revised Assessment Report (Volume 1) outlines the need for the project, and demonstrates that there is an overriding need for the SFRC in the context of the future growth of SEQ and Queensland. The expected wide-reaching social and economic benefits to accrue as a result of the SFRC are considered to outweigh any potential localised impacts upon the natural values of the local area – particularly considering that these potential localised impacts are expected to be capable of being effectively mitigated through the detailed design stage of the project.

Should the Inland Rail project proceed in the absence of the SFRC, there are likely to be significant economic and social impacts resulting from the absence of an efficient rail link to existing and future intermodal freight terminals in locations such as Bromelton, Acacia Ridge and the Port of Brisbane.

Whilst the project must demonstrate an overriding need in the public interest under the Koala Plan if it is to traverse KCA, it must also be recognised that the Koala Plan is an interim koala conservation policy instrument which is likely to be superseded by the South East Queensland Koala Conservation State Planning Policy and Regulatory Provisions (currently in draft form). The SFRC will be required to comply with the koala conservation policies that are in statutory effect at the time of detailed design and construction, which is likely to be at least 10-15 years away.

40. Concerns relating to the Wild Pig Creek section of the preferred alignment are noted. In order to minimise the number of creek crossings required, efforts were made to ensure that the preferred alignment was kept to one side of Wild Pig Creek through this location. The terrain is considerably gentler on the southern side of the creek, and therefore the optimal location for the preferred alignment is to the southern side of Wild Pig Creek.

2.3.28 Sustainability

Comments and concerns relating to Sustainability include the following:

1) Use of the line for coal haulage is a waste of money as we are trying to reduce carbon emissions and phase out coal power stations.
2) Initiative will provide economic benefits, however it will not also have equal social and environmental benefits - not in line with Triple Bottom Line.
3) How can this proposed freight corridor meet the international principles of sustainability?
4) UN Millennium Ecosystem Assessment Project recommended 'better governance, including better integration between environmental, economic and social policy and greater involvement of the people most concerned'. There is a need to learn from the past for the good of future generations.

Submissions: 7, 47.

Response:

1-4. The study team acknowledges concerns regarding sustainability. At this stage the specific nature of material to be transported is unknown, however it is expected that future freight will predominantly comprise containerised freight. Section 4.4 of the Revised Assessment Report (Volume 1) states that the SFRC may become an alternative route for the following services:

- Standard gauge intermodal freight traffic (potentially double-stacked), travelling from Melbourne and potentially Perth and Adelaide via the proposed Inland Railway to Acacia Ridge, the BMT and possible future terminals at Ebenezer and Bromelton;
- Standard gauge freight traffic from Sydney to a possible future terminal at Ebenezer;
- General purpose narrow gauge freight from south-western Queensland to Brisbane;
- Narrow gauge bulk grain, containerised cotton and agricultural products from south-western Queensland to the Port of Brisbane;
- Narrow gauge bulk petroleum products from Brisbane to the south-west; and
- Narrow gauge coal freight from western Queensland and Rosewood/Jeebropilly to the Port of Brisbane.

In the future, more detailed investigations will be required to determine the specific nature of material to be transported along the SFRC. This will be undertaken during the detailed design phase of the project.

Whilst it is recognised that the project may result in a number of localised effects, mitigation measures will be developed to prevent or minimise the potential negative effects. As such, when assessing the project in terms of sustainability it is necessary to consider the project from the context of regional and state-level effects. From this perspective, the SFRC is likely to contribute to increasing the competitiveness of long-haul rail freight, and is likely to have a significant positive effect on the proportion of long-haul freight trips undertaken by road. This is likely to have downstream effects such as the strengthening of the regional economy through providing an efficient and effective connection to existing and future IFTs. Additionally, increasing the share of freight that is transported by rail has major environmental benefits and will improve safety on regional road and highway networks.

2.3.29 Miscellaneous

In addition to the above, the following comments and concerns were received:

1) Designation would be a ‘complete anathema’ (abomination):
   - Maunsell and QT indicated negative impacts would only be mitigated to the extent required by current legislation
   - “pie in the sky” figures and scenarios in reports to justify locking up corridors and land parcels in anticipation of ‘all being revealed’ at some point in the far future
2) Private funding of $25,000 was spent to upgrade the road adjacent to a landowner’s property and adjoining properties. This road is directly affected by the SFRC line.

3) Road over rail design would allow access for larger vehicles (as opposed to rail over road in one section of the corridor).
4) The study has been inadequately and ineffectively carried out by Maunsell and QT at the cost of $4m to State Govt. and QLD taxpayers – which has been used to destroy the amenity of the area.
5) Power lines that supply electricity to properties are affected, as they follow the same path as the rail corridor and within areas of cutting.
6) Many believe it necessary to submit a Hardship Application to cover potential loss in value by selling and reasonable relocation costs.
7) Powerlink is required to recover the cost of any engineering analysis or requests for information, preparation of information and data, internal meetings to discuss issues arising, design calculations and advice, cost estimates, handling correspondence and administration.
8) Concerns that gates may be left open, and trees may fall over fences during storms or bushfires causing livestock to stray. Who will be liable for damages incurred should an accident occur?
9) Concerns about fires and chemical spills as a result of accidents and disasters which will contaminate water supplies and agricultural land.
10) Maunsell and QT have failed to answer most questions.
11) Complaints and recommendations are limited to ground and surface water, loss of fauna, noise pollution and loss of neighbours and community. Some respondents do not feel that these areas of concern have been addressed adequately by the study.
12) The Queensland Government has rushed into the proposed rail line and has displayed arrogance typical of governments too long in power.
13) When will trees suggested as part of visual and noise mitigation be planted?
14) If the project is to proceed to the next stage, will be able to direct study team to appropriate contact in a regional office.
15) The handout at the Agency Reference Group meeting of 7 October indicated that the proposal would not generate additional traffic. Main Roads considers that the proposal would generate additional traffic, particularly freight based traffic. State controlled road impacts would be limited to the Cunningham Highway and Ipswich Boonah Road.
16) There were some requests to update records of property details and ownership.
17) Concern that the project is based on possible needs and not definite facts.
18) The corridor referred to in the report between the IKPS clinic and the Moggill Koala Hospital is actually the Moggill Koala Hospital Associations Gumtips Nature Refuge.
19) There should be a public road along rail corridor to provide heavy transport from Toowoomba – Ipswich Rd through to the future industrial estate at Bromelton and then to the South Coast Motorway at Burleigh/Yatala.
20) There is a need for a high quality transport road to west of the interstate line to the west of Cedar Grove Weir to Jimboomba to Chambers Flat Rd and to the Kuraby bypass, then on to the Ipswich – Mt Gravatt Motorway.
21) Provision will need to be made for high railway crossing in the Teviot Brook area to allow traffic to pass underneath.
22) Provision should be made for rail yards up the Teviot as Wyaralong dam will prevent/reduce flooding on plain.
23) The Bromelton SDA area should have a heavy duty road that goes down the Nixon Rd to Brennan Rd to Kilmoylar Rd or Teviot Rd to Jimboomba.
24) The country roads around Viewpoint 16 get quite heavy at times.
25) Concerns that the government is not utilising existing manuals such as the Department of Main Roads wildlife friendly manuals.
26) The SFRC project presents an ideal opportunity to utilise best practise through an extensive network of tunnels and elevated trestles.
27) Concerns that if a derailment was to occur there would be irreversible damage to the environment.
28) Cutting and elevation of Ipswich Boonah Road will cause significant disruption to traffic movement.

29) The newsletters for the project contained selective facts about the SFRC.
30) How could there be certainty that people received their mail?
31) Is the corridor intended to ensure that Queensland continues to lose money?
32) Increase in localised traffic volumes (trucks).
33) How would the line cross Middle Road? Will it be with boom gates? (sic).

Submissions: 1, 2, 7, 9, 27, 28, 29, 45, 51, 54, 77, 78, 81, 86, 94, 101, 109(a), 109(b), 110, 111, 112, 125, 127, 128, 129, 130, 136.

Response:

1. The potential adverse impacts of the SFRC will be investigated more comprehensively during the detailed design stage of the project. The Revised Assessment Report includes mitigation measures to minimise or prevent the identified potential adverse impacts, and these will be further developed at the detailed design stage of the project. It is important to ensure the alignment is identified and protected early in the planning so that the land is available when needed. Identification of the alignment also provides important input into other initiatives such as the master planning process for the Ebenezer industrial area.

2. It is noted that some landowners in the study area have funded the construction of certain roads in order for them to have appropriate access to their properties. All alternative access arrangements (including local roads) for the SFRC will be set out in detail during the detailed design stage of the project. This will be done through discussions with landowners about the most appropriate alternative access arrangements for all areas along the preferred alignment. As an underlying principle of the design process, access to all properties will be maintained in the detailed design of the SFRC.

3, 21, 28, 33. The grade separated road crossings set out in Table 8 of the summary document (Volume 1) are dependent upon the grade of the railway line in certain areas. Consequently, in some places along the preferred alignment, it is not feasible to have the rail pass under the road. The details such as clearance heights for grade-separated road crossings (with the road passing under the rail) will be further developed during the detailed design stage of the project. In addition, any potential impacts to traffic movement will be investigated at the detailed design stage and minimised or prevented through appropriate design.

With respect to the crossing of Middle Road, Table 8 in the summary document (Volume 1) proposes a grade separation, with Middle Road passing over the railway line. TMR presently has a policy to avoid at-grade, level crossings on public roads. The only possible level crossings of the SFRC will be occupational crossings – the location of which will be determined during the detailed design of the SFRC, through discussions with individual landowners.

4, 10, 29, 30. The SFRC study has been undertaken by the study team in good faith and in a professional manner. Activities undertaken for the SFRC study have met, and exceeded, the requirements of the CID Guidelines, with respect to both environmental assessment and community engagement. All efforts have been made to contact 'land required' and 'adjacent' landowners to ensure they are aware of the project, including letters, phone calls and briefings. Chapter 5, Volume 1 of the Revised Assessment Report has further details on this process.

Any questions from stakeholders that have not been fully answered by the study team are those that cannot be accurately answered at this stage of the project, and this has been conveyed to submitters.

5. It is recognised that the SFRC preferred alignment traverses areas where powerlines currently exist, servicing the residences of the local area. Any residents affected by the loss of existing powerlines to their properties will be provided with alternative electricity arrangements (e.g. through new powerlines) during the detailed design stage of the project. Landowners will be consulted with respect to this issue at the detailed design stage.

6. Some landowners who have a potential land requirement on their property may wish to apply for hardship and seek relocation. The proponent is prepared to assist any landowner in this situation who can demonstrate that by waiting until formal resumption occurs they will suffer genuine hardship, and the proponent is also obliged to cover the cost for any relocation expenses. In the relocation process, the knowledge and the aspirations of the landowners in such a situation are always considered and discussed. Hardship acquisition is a voluntary process.

7. The study team recognises that Powerlink is required to recover the cost of any engineering analysis or requests for information, preparation of information and data, internal meetings, design calculations and advice, cost estimates, and handling of correspondence and administration.

8, 9, 27. Concerns about accidents occurring due to straying livestock and trees falling over fences are noted. It should be recognised that any occupational stock crossings will be either under or over the railway line (i.e. not at the same grade), and this will be determined to a large extent by the grade of the railway line in each of these locations. With respect to the risk of trees falling over the railway line during a storm or bushfire event, the railway operator will have to ensure that bushfire and weed risks are managed through maintaining a vegetation-free area either side of the railway line. This will be investigated during the detailed design stage of the project.

During the detailed design stage, a hazard and risk assessment of the SFRC will be undertaken. This will include an analysis of the risk of accidents, and all potential associated consequences – including fires and chemical spills and their potential effects upon the existing farming operations and water supplies in the study area.

11, 12. It is noted that some stakeholders consider the Draft Assessment Report to be too vague, and that aspects such as ground and surface water, nature conservation, noise and vibration and social impacts require more investigation prior to seeking Community Infrastructure Designation (CID) under the *Sustainable Planning Act 2009* (SP Act). However, the SFRC study is a planning study, aimed at identifying a future corridor for a freight railway line – and does not represent a commitment to construct the railway line at this stage. Given that there is likely to be at least 10-15 years before the SFRC is constructed, it should be noted that the characteristics of the study area (and areas therein) are likely to change between now and the date of construction. Comprehensive investigations will be required at this later detailed design stage (i.e. about two years prior to construction of the SFRC). For the purposes of this SFRC study, the Draft Assessment Report and Revised Assessment Report are deemed to be adequate to satisfy the objectives of the study at this stage – to identify constraints throughout the study area, to consider these in the determination of the preferred alignment within the study area, and to highlight potential effects upon these factors as a result of the preferred alignment. At this stage, some aspects of the Revised Assessment Report are necessarily broad in nature, and it is expected that a more comprehensive assessment will take place during detailed design, based on final engineering characteristics of the SFRC.

13. The Landscape Integration Strategy and the Landscape, Revegetation and Urban Design Guidelines will be prepared at the detailed design stage of the project – approximately 2 years prior to construction of the SFRC. It will be at this stage that the details of tree planting and landscaping will be determined.

15, 32. It is acknowledged that some increases in freight-based traffic would be likely on the Cunningham Highway (and potentially Ipswich-Boonah Road) if the proposed IFT site at Ebenezer was developed.

16. Requests to update records of property details and ownership have been acknowledged by the study team, and databases have been amended to reflect these changes.

17, 31. Section 4.6.1 of the Revised Assessment Report (Volume 1) outlines the need for the project, and demonstrates that there is an overriding need for this SFRC in the context of the future growth of SEQ and Queensland. The expected wide-ranging social and economic benefits to accrue as a result of the SFRC are considered to outweigh any potential localised impacts upon the local area – particularly considering that these potential localised impacts are expected to be effectively managed through the application of suitable mitigation measures.

18. It is noted that the corridor referred to in the report between the IKPS clinic and the Moggill Koala Hospital is the Moggill Koala Hospital Association's Gumtips Nature Refuge.

19, 20. The study team acknowledges the submission that suggests a need for a public road along the SFRC to facilitate the movement of heavy transport from Toowoomba-Ipswich Road to the Bromelton SDA and to the Pacific Motorway at Burleigh/Yatala, as well as a high quality road to west of the Interstate Railway line and west of Cedar Grove Weir. However, besides service roads, a road along the SFRC is not being pursued at this stage, and it is understood that the State Government has no intention of pursuing such a road option. These road suggestions are beyond the scope of the SFRC study, and it is recommended that any stakeholders promoting these road links should contact the relevant government departments..

22, 23. The suggestions for rail yards to be considered along Teviot Brook, and for a new road passing through the Bromelton SDA are noted. However, these issues are beyond the scope of the SFRC study, and should be investigated as part of the Bromelton State Development Area planning process.

24. The point relating to the traffic experienced on roads around Viewpoint 16 in the Visual Impact Assessment is acknowledged.

25. During the development of specific mitigation solutions of the project, resources such as the Department of Main Roads wildlife-friendly manual are likely to be drawn upon and referenced.

26. The detailed design stage of the SFRC project will further explore the exact design for the preferred alignment, including any tunnels, trestles, cuttings and embankments.