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Kenmore Bypass

Environmental Approvals Report

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D R A F T

Environmental Approvals Report

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Prepared for

Department of Transport and Main Roads, Metropolitan Region

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In association with

ENSR, EDAW and the Department of Transport and Main Roads Environment & Cultural Heritage Team

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Revision History

Revision	Revision Date	Details	Authorised	
			Name/Position	Signature
0	03/06/2009	Draft	Mark Fairweather Project Director	

Environmental Certification

As per the Department of Main Roads Road Project Environmental Processes Manual and in accordance with our general environmental duty, the environmental implications of the proposal have been assessed and are set out in this document.

Based on the information presented within this document, it is my opinion that the proposal can be constructed and operated in accordance with relevant statutory goals and environmental objectives identified under relevant State and/or Commonwealth Legislation.

Authorised			
Name	Position	Signature	Date
Tony Gordon-Brown	Project Manager		

Table of Contents

List of Acronyms and Abbreviations

ABS	Australian Bureau of Statistics
ADR	Australian Design Rule
AHD	Australian Height Datum
AMTD	Adopted Middle Thread Distance
ANZECC	Australian and New Zealand Environment Conservation Council
ARI	Average Recurrence Interval
ARMP	Approved Risk Management Plan
ASS	Acid Sulfate Soils
BCC	Brisbane City Council
BoM	Australian Bureau of Meteotology
Bonn Convention	Convention on the Conservation of Migratory Species of Wild Animals
BPA	Biodiversity Planning Assessment
BTEX	Benzene, Toluene, Ethylbenzene and Xylene
CAMBA	*China - Australia Migratory Bird Agreement*
CASA	Civil Aviation Safety Authority
CBRC	Cabinet Budget review Committee
CCD	Census Collection District
CCIS	Climate Change Impact Statement
Cd	Conservation dependent
CG	Coordinator-General
CHMP	Cultural Heritage Management Plan
CID	Community Infrastructure Designation
City Plan	BCC Planning Scheme – Brisbane City Plan 2000
Cityshape Implementation Strategy	Draft BCC 'Urban Open Space Strategy', for inclusion in a Local Growth Management Strategy
CLR	Contaminated Land Register
COP 2008	DMR "Road Traffic Noise Management Code of Practice", 2008
CoRTN	Calculation of Road Traffic Noise
CPM Act	*Coastal Protection and Management Act 1995*
CPTED	Crime Prevention Through Environmental Design
dbh	diameter at breast height
DCDB	Digital Cadastral Database
DECC	New South Wales Department of Environment and Climate Change
DEM	Digital Elevation Map
DEWHA	Department of the Environment, Water, Heritage and the Arts
DIP	Department of Infrastructure and Planning
DMR	Department of Main Roads
DNRW	Department of Natural Resources and Water
DoD	Department of Defence
DPIF	Department of Primary Industries and Fisheries
Draft Guidelines	Draft Guidelines for the Assessment and Management of Contaminated Land in Queensland
DRO	Desired Regional Outcome
DTM	Digital Terrain Model
E	Endangered
EAR	Environmental Approvals Report
Ec	Critically Endangered
ECA	Emerging Community Area
EDR	Environmental Design Report
EDS	Erosion, Drainage and Sediment

EHMP	Ecosystem Health Monitoring Program
EMP (C)	Environment Management Plan (Construction)
EMP Planning	Environmental Management Plan (Planning)
EMR	Environmental Management Register
EP Act	*Environmental Protection Act 1994*
EPA	Environmental Protection Agency
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cth)
EPP	Environment Protection Policy
EPP (Water)	Environmental Protection (Water) Policy 1997
EPP (Air)	Environmental Protection (air) Policy 2008
ERA	Environmentally Relevant Activity
ESC	Erosion and Sedimentation Controls
ESCP	Erosion and Sediment Control Plan
ESS	Environmental Scoping Study
EV	Environmental Values
FAD	Fire Ant Declaration
GHG	Greenhouse Gases
GIS	Geographic Information Systems
GLVIA	Guidelines for Landscape and Visual Impact Assessment
GPT	Gross Pollutant Traps
GQAL	Good Quality Agricultural Land
HERBRECS	Queensland Herbarium Records
ICOMOS	International Council of Monuments and Sites
IDAS	Integrated Development Assessment System
ILE	Institution of Lighting Engineers
IPA	*Integrated Planning Act 1997* (Qld)
JAMBA	Japan - Australia Migratory Bird Agreement
KBP	Kenmore Bypass Project
LAVA	Landscape Amenity Values and Attributes
LGA	Local Government Area
LGMS	Local Growth Management Strategy
MBGL	Metres Below Ground Level
MCCG	Moggill Creek Catchment Group
MDBI	Murray Darling Basin Initiative
MHWS	Mean High Water Spring
Moreton WRP	Water Resource (Moreton Plan 2007)
NC Act	*Nature Conservation Act 1992*
NEPM(air)	National Environment Protection (Ambient Air Quality) Measure
NFB	Neranleigh-Fernvale Beds
OGA	Open Graded Asphalt
PAH	Polycyclic Aromatic Hydrocarbons
PASS	Potential Acid Sulfate Soils
PEA	Project Environmental Assessment
PIARC	Permanent International Association of Road Congress
QUDM	Queensland Urban Drainage Manual
QWC	Queensland Water Commission
R	Rare
RCMP	Regional Coastal Management Plan
RDDM	*Road Drainage Design Manual*
RE	Regional Ecosystem
REDD	RE Description Database
RIFA	Red Imported Fire Ant
ROKAMBA	Republic of Korea - Australia Migratory Bird Agreement
RPEPM	Department of Main Roads Road Project Environmental Processes Manual, 2004

RTA	Road Traffic Authority
SCMP	State Coastal Management Plan
SEQ	South East Queensland
SEQHWS	South East Queensland Healthy Waterways Strategy 2007-2012
SEQIPP	South East Queensland Infrastructure Plan and Program 2008-2026
SEQRCMP	South East Queensland Regional Coastal Management Plan
SEQROC	South East Queensland Regional Organisations of Councils
SEQRP	South East Queensland Regional Plan 2005-2026
SLA	Statistical Local Area
SMS	Scenic Management System
SPP	State Planning Policies
SPP 2.02	State Planning Policy 2.02 Planning and Managing Development involving Acid Sulfate Soils
State Act	*State Development and Public Works Organisation Act 1971* (Qld)
the Koala Plan	Nature Conservation (Koala) Conservation Plan 2006 and Management Program 2006 – 2016
TN	Total Nitrogen
TP	Total Phosphorus
TPH	Total Petroleum Hydrocarbons
UQASU	University of Queensland Archaeological Services Unit
UXO	Unexploded Ordnance
V	Vulnerable
VKT	Vehicle Kilometres Travelled
VOC	Volatile Organic Compounds
WBTNI	Western Brisbane Transport Network Investigation
WQO	Water Quality Objectives
WSUD	Water Sensitive Urban Design
WWTP	Waste Water Treatment Plant
X	Extinct
Xw	Extinct in the Wild
ZVI	Zone of Visual Influence

Following the 2009 Queensland general election, the Premier announced the creation of 13 new departments to streamline Queensland Government information and services. The names of government departments used throughout this EAR refer to the departmental names prior to the election. The table below notes the new departmental names relevant to this document.

Previous Name		New Name	
DMR	Department of Main Roads	DTMR	Department of Transport and Main Roads
DNRW	Department of Natural Resources and Water	DERM	Department of Environment and Resource Management
DPIF	Department of Primary Industries and Fisheries	DEEDI	Department of Employment, Economic Development and Innovation
EPA	Environmental Protection Agency	DERM	Department of Environment and Resource Management

Executive Summary

The Kenmore Bypass Project (KBP) is a proposed 3km road connection between Moggill Road at Pinjarra Hills and the Centenary Motorway at Fig Tree Pocket located within an existing preserved corridor. The corridor has been preserved by the Queensland Department of Main Roads (DMR) since the late 1970s. Previous studies have identified the KBP as a feasible solution to the long-term transport needs for the local Kenmore area.

The State Government has made no commitment to, and has no timeframe in place for, the potential construction of the KBP.

This Environmental Approvals Report (EAR) has been prepared as part of Stage 2 of the KBP Planning Study and considers the environmental factors and optimisation of environmental outcomes for the KBP. The purpose of this EAR is to:

- describe the values of each environmental element;
- identify any adverse environmental impacts associated with the construction of the KBP;
- propose mitigation strategies to remove (where possible) or minimise these impacts;
- put in place the basis for Environmental Management Plans (EMP) to carry forward to the detailed design stage of the KBP; and
- initiate the Environmental Certification process.

Consistent with DMR's *Road Project Environmental Processes Manual* (RPEPM, DMR 2004), a minimum of fourteen environmental elements were assessed. These include:

1) Legislative Framework;
2) Surface Water Quality;
3) Groundwater;
4) Hydrology and Hydraulics;
5) Fauna;
6) Flora;
7) Topography, Geology and Soils;
8) Noise;
9) Climate and Air Quality;
10) Land Use and Planning;
11) Socio-economic;
12) Landscape and Visual Amenity;
13) Aboriginal and Historical Cultural Heritage; and
14) Climate Change Impact.

The assessment was based on the planning options developed as part of Stage 2 of the KBP planning study. Key findings of the EAR are summarised below:

- **Legislative Framework**

  A referral of the KBP to the Department of Environmental, Water, Heritage and the Arts (DEWHA) is not considered necessary under the *Environment Protection and Biodiversity Conservation Act 1999* (*EPBC Act*) as the environmental studies have indicated the KBP is unlikely to have a significant impact on a Matter of National Environmental Significance.

  The KBP will need to follow the DMR processes, which meets the requirements of Queensland legislation. Under Queensland legislation, the KBP will require some overall project approvals and various environmental approvals for specific activities. Many of the environmental approvals for specific activities are linked to Schedule 8 of the *Integrated Planning Act 1997* (*IPA*). There are also a range of general environmental obligations that are not subject to specific approval requirements. Notwithstanding the *Natural Assets Local Law 2003* (*NALL)* and the Brisbane City Council Planning Scheme, the removal of vegetation for the KBP will be exempt from the BCC approvals process for vegetation clearance.

- **Surface Water Quality**

  The KBP is located within the catchments of Cubberla Creek, the Brisbane River Intercatchment Area and Moggill Creek. Historical reports, monitoring and a site inspection of waters within the

Cubberla and Moggill Creek Catchments suggest that existing water quality generally meets the Water Quality Objectives (WQO) specified under the *EPP (Water)*. However, the Brisbane River, immediately downstream of these creeks, is poorer and generally fails to meet WQO.

The assessment of surface water quality impacts from the KBP indicate that the potential impacts from the design, construction and operation of the KBP with respect to water quality are likely to be similar to those of other roadways within SEQ.

- **Groundwater**

  The groundwater within the preserved road corridor area has been determined by DNRW as having low-moderate vulnerability to groundwater contamination using the DRASTIC mapping technique. Further, mapping of Declared Sub-artesian Areas within Queensland, provided by DNRW, indicates that the study area does not extend into any Declared Sub-Artesian Area.

  Consistent with any road project, the risk posed to groundwater flow, quality and quantity is generally greatest during the construction phase of such a project, as this is when the most concentrated impacts generally occur. No impacts unique to the KBP have been identified. Consequently, all potential impacts identified are similar to any other road project and generally relate to disturbance and ground clearing, significant compaction and significant cut and fill; dewatering; disturbance of unidentified existing contaminated soils and fuel and other chemical spills. However, all potential groundwater impacts can be mitigated through design.

- **Hydrology and Hydraulics**

  The proposed alignment crosses the Moggill Creek floodplain; hence a hydraulic assessment was conducted to assess flood immunity and the hydraulic regime of Moggill Creek. The hydraulic assessment indicates that the preferred bridge length opening for the KBP crossing of Moggill Creek is 325 metres with Moggill Road Option B alignment. This option ensures that the existing flood immunity is retained and closely replicates the existing hydraulic regime of Moggill Creek. No direct impacts to the hydraulic regime of the Brisbane River have been identified.

  A review of the existing drainage network in the corridor indicates that the KBP construction will modify the existing naturally occurring drainage regime. This is primarily due to the increased imperviousness area in the corridor due to the KBP road surface and will lead to increased runoff rates which may necessitate some upgrade of the existing drainage infrastructure.

  Further investigation of mitigation measures and optimisation of the Moggill Creek bridge opening, impacts on Cubberla Creek and surface water drainage is recommended during detailed design with respect to minimising afflux and construction costs. The potential impacts from the KBP on adjacent waterways are expected to be minimal if the recommended mitigation measures are included in both design and construction.

- **Fauna**

  The *EPBC Act*, *Nature Conservation Act 1992* (*NC Act*) and BCC's Natural Assets Planning Scheme Policy list several species as likely to occur in the study area and several habitat types were identified through the area.

  The fauna study identified ten (10) threatened species and four (4) migratory species that may be impacted by the construction and operation of the KBP. Two *NC Act* threatened species, *Adelotus brevis* (tusked frog) and *Rallus pectoralis* (Lewin's rail), will suffer direct adverse impacts and will therefore require species-specific mitigation measures. In addition to these threatened species, several locally significant species will be subject to these impacts. Where practicable, further disturbance of the known habitat of the *A. brevis* and *R. pectoralis* should be avoided or compensatory habitat should be provided.

  The presence of koalas in the study area was raised by the public as an issue of concern. A targeted survey covering 2,587ha and centred on the corridor was conducted. Significant tree scratchings were observed; however no koalas and/or koala scats were seen or identified. There

are communities of koalas to the west of the corridor and fauna spotters should be employed during construction to ensure the safety of individuals that may wander through the study area from time to time.

- **Flora**

  The KBP will not directly impact any listed Regional Ecosystems (RE), although an area of state significance along Moggill Creek will be impacted. There are 14 threatened flora species listed as possibly being presented in the project area or surrounds. *Gossia gonoclade* (angle stemmed myrtle) and *Lilaeopsis brisbanica* were assessed to have a high likelihood of occurring in the corridor. Two small populations of *L. brisbanica* were observed during the field survey. *G. gonoclade* was not observed in the field survey. *Abrus precatorius* (crab's eye), which is listed under the BCC Council Natural Assets Planning Scheme Policy as locally significant, was also observed in the eastern section of the corridor. Seven Class 2 and 12 Class 3 pests were identified in the corridor.

  The current alignment will directly impact *L. brisbanica* either by excavation, fill or shading of their current locations. In addition, several marine plant species are likely to be impacted by the Moggill Creek crossing. Mitigation measures for loss of marine fish habitat are covered under Department of Primary Industry and Fisheries (DPIF) policy. *A. precatorius* will also be directly impacted by the KBP.

  The design of the KBP should consider options to minimise disturbance of existing *L. brisbanica* populations. Transplanting trials should also be conducted to help ensure survival of this species. Seed of *A. precatorius* should be collected to enable propagation for revegetation works. Rehabilitation and revegetation should be conducted with locally occurring native species, which would also assist in combating weeds in the area.

- **Topography, Geology & Soils**

  The corridor is primarily Neranleigh-Fernvale beds and tenosols with alluvial deposits; dermosols and Acid Sulphate Soils (ASS) are associated with Moggill Creek. There are no contaminated sites listed on the EPA Environmental Management Register (EMR) or Contaminated Land Register (CLR), no sites of known Unexploded Ordnance (UXO) listed by the Department of Defence (DoD), and no operational service stations in the corridor.

  Construction of the KBP risks disturbing ASS or Potential ASS (PASS), creating erosion issues, causing slope instability and contaminating soils through spills of fuels or chemicals.

  A thorough geotechnical investigation of the corridor should be undertaken to inform the detailed design of the KBP. ASS should be avoided during construction, or managed according to legislation. An Erosion and Sediment Control Plan (ESCP) should also be developed and implemented during construction. Slope stability should be maintained through run off containment, minimising disturbance and revegetation of exposed surfaces as quickly as practicable. Spills and other contamination risks should be addressed within the EMP (C).

- **Noise**

  Noise modelling has been conducted to assess the potential noise impacts of the road corridor to the local area. Noise sensitive places within 200m of the road corridor have been assessed using the Department of Main Roads: Road Traffic Noise Management: Code of Practice, January 2008. This assessment indicates that without mitigation measures in place, traffic noise levels at 79 receptor points in the study site are forecast to exceed the nominated external noise criterion of 60 dB(A) and 68 dB(A) along the KBP and Centenary Motorway corridors respectively in 2026.

  The modelling shows that the number of dwellings and magnitude of exceedence of the nominated noise criteria at those dwellings can be controlled through the implementation of noise barriers. It is expected that locations further away from the KBP are less likely to have road traffic noise levels in excess of the nominated criteria.

- **Air Quality**

  Background levels of air pollution were derived from EPA air quality monitoring sites at Rocklea and South Brisbane. From the dispersion modelling results for the concentrations of the criteria pollutants:

  - there are no exceedances of the relevant EPP (Air) goals predicted at any of the sensitive receptors modelled including background for CO, NO_2, PM_{10} or $PM_{2.5}$; and
  - there are no concentrations above the EPP (Air) goals predicted by the modelling for the six air toxics modelled (i.e. 1, 3 butadiene, benxo (a) pyrene, benzene, toluene, xylenes, and formaldehyde) at the sensitive receptors.

  Potential air quality impacts during construction include airborne dust and exhaust fumes from the construction plant.

- **Land Use and Planning**

  The construction of the KBP is anticipated to have a range of transport benefits locally to the western suburbs; however impacts are not likely to be experienced at this level from a land use and planning perspective. Land use and planning impacts are likely to be localised to the adjacent areas and relate to a possibility of reduced access, reduced amenity and a discontinuation of the current open space that exists in the KBP corridor. At a local level, the zoning arrangements for the study area for the most part will remain the same with the exception of the land on which the KBP will be developed where zoning will no longer apply.

  Native title is not likely to present a significant issue as the KBP consists entirely of Freehold land which extinguishes the potential for any claims.

- **Socio-economic**

  Approximately 2,700 dwellings lie within 500m of the corridor. The area is predominantly single dwelling residences, and most services and sources of employment are located outside the study area in the surrounding suburbs and greater Brisbane area.

  Local road access to the KBP will not be provided to adjacent residents. This is to minimise 'rat-running' through suburban streets. Existing access provisions to the area via Moggill Road and the Centenary Motorway are retained. The current design for the roadway will physically split the study area community, particularly Gem Road, which will be divided into two discontinuous sections connected by a pedestrian and cycle overpass. There is expected to be a sense of loss of open space, currently provided by the preserved corridor. Residents will however have access to a new pedestrian and cycle path along the KBP and potentially benefit from reduced congestion on Moggill Road. The intersection with Moggill Road should be designed to enhance traffic safety for residents and visitors to Rafting Ground Reserve, the Brisbane Independent School, and nearby residences.

  The public should be regularly informed as changes occur in the study area, including changes to bus routes and accessibility of particular areas and sites. The design of the KBP should aim to minimise the nuisance factor of the roadway (eg impacts from noise and light spillage and loss of visual amenity) during construction and operation. Pedestrian and cycle linkages around the Gem Road divide will help ensure continuity of access to residents, and design of the Moggill Road intersection should ensure the safety of local residents and visitors to the area.

- **Landscape and Visual Amenity**

  There are no regionally important lookouts or viewing locations in the study area. The magnitude of visual impact or change is; however in most cases, rated as considerable. The greatest impact is between Kenmore and Gem Roads.

  The viewers are generally very close to the KBP, which means the proportion of change viewed is generally high. A lower impact is identified for viewers in the Kersley Gully and Moggill Flood Plain areas. The change near the Gem Road spur is anticipated to be barely noticeable.

Where there is sufficient space, the implementation of the landscape and urban design or mitigation measures could lower the magnitude of change and thus the overall significance of the impact. However, for the majority of cases, the magnitude cannot be lowered by the implementation of landscape and urban design intervention. This is primarily because the engineering infrastructure is too close to sensitive viewer groups for the measures to be effective e.g. there is no space for screen planting. In such locations the emphasis would be on enhancing the character and appearance of the KBP so that the impact (which has limited scope to be lessened quantitatively) has at least a more positive (qualitative) visual effect.

Construction works and sites should aim to limit disturbance to visual amenity as much as practicable. Landscape, Revegetation and Urban Design guidelines should be developed to ensure the visual impact of the KBP is minimised.

- **Cultural Heritage**

  During the field survey two items of Aboriginal cultural heritage in the form of stone artefacts were located adjacent to the Kenmore Road. It was recommended that these artefacts be collected by representatives of the Turrbal People. DMR located several other sites containing historical artefacts remains; however it is considered they hold little historical heritage significance.

  The Turrbal People highlighted the continuing cultural heritage significance of the project area.

- **Climate Change Impact**

  Climate change may impact on the design life of the KBP. Although it is not possible to predict exactly how the climate will change and how these changes will affect the KBP, it is anticipated that hotter temperatures and more intense rainfall events may impact the useability and durability of the KBP.

  A high level climate change impact assessment has indicated that the KBP will contribute to climate change through the release of a moderate amount of greenhouse gas (GHG) emissions during construction and operation. Consistent with any road project, GHG will be released throughout the life of the KBP, primarily through the burning of fossil fuels to power vehicles and generate electricity (for lighting and cooling). However, at this stage of the project, there is not adequate data to accurately quantify GHG emissions or detail site specific management options.

This EAR has assessed the key environmental elements associated with the proposed KBP in accordance with the ToR. The analysis of each environmental element involved the definition of the environmental concern (usually via the legislative requirements for that element); a description of the existing environment in the KBP corridor and associated study area for that element; an assessment of the possible impacts of the construction of the KBP and strategies to mitigate those impacts.

This assessment identified that the preserved KBP corridor is generally ecologically disturbed. Although potential impacts have been identified associated with the construction of the proposed KBP, all identified impacts are assessed as able to be managed through the implementation of the recommended measures outlined in this EAR. The potential impacts identified relate predominately to flora and fauna, visual and community amenity and noise. It is important to note that no impacts have been identified that will obstruct the KBP planning study advancing to subsequent phases.

Chapter 16.0 – Planning for Environmental Management collates the identified environmental issues and potential mitigation measures by their environmental element with reference to the project phase to which they and their mitigation strategies apply. This chapter can form the basis of the Environmental Management Plan (EMP) for future stages of the project.