APPENDIX 2: MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE (MNES) REPORT

MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE REPORT

Citiswich - Stage 7
Warrego Highway, Bundamba

Feburary 2023

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1 INTRODUCTION

The following Matters of National Environmental Significance Report (MNES Report) has been prepared by Litoria Consulting on behalf of Walker Bremer Park Proprietary Limited for land described as Lot 13 on SP238272, Lot 34 on SP326668 and Lot 2 on RP104683; namely the Citiswich Stage 7 development. Figure 1 shows a current aerial photograph of the site.

The purpose of this report is to:

- Identify Matters of National Environmental Significance (MNES) that are within or surrounding the development area; and,
- Assess the potential impacts on identified MNES, to determine if the proposed action will result in a significant impact on a MNES.

The assessment is based on strong quantitative evidence to build a clear picture of possible direct and indirect impacts of the proposed action.

In preparing this assessment, we have:

- Identified the MNES that are within or surrounding the development area by:
    - Conducting desktop searches of relevant databases and mapping;
    - Undertaking contemporaneous on-ground ecological surveys of the development area (2019-2021) in accordance with Commonwealth-approved survey guidelines; and,
    - Assessing the presence or likely presence of MNES within or surrounding the development area (likelihood assessment).
- Assessed if the direct and/or indirect impacts associated with the proposed development are likely to result in a *significant impact* on the MNES identified as *known*, *likely* or having the *potential* to occur within or surrounding the development area by:
    - Reviewing the scope and activities (construction and operation) associated with the proposed action;
    - Identifying potential direct and indirect impacts associated with the proposed action;
    - Reviewing measures to avoid or reduce potential impacts;
    - Assessing potential impacts against relevant Significant Impact Guidelines for matters impacted by the proposed action.
- Assessed whether a referral under the EPBC Act is required for the proposed action, based on self-assessment against the relevant Significant Impact Guidelines.

The assessment is supported by scaled maps and plans which clearly show the extent of the proposed action in relation to matters of national environmental significance.

The report is divided into the following sections:

- An overview of the EPBC Act;
- Development background;
- A description on the proposed action (development);
- Impact identification via a combination of:

    - Desktop assessment;
    - Field investigations; and,
    - Overall assessment;
- Impact assessment;
- Measures to avoid and reduce impacts; and,
- Summary.

2 EPBC ACT

Environmental regulation at the federal government level is driven by the EPBC Act. The EPBC Act deals mainly with MNES (protected matters) including:

- World heritage properties;
- National heritage places;
- Wetlands of international importance (listed under the Ramsar Convention);
- Listed threatened species and ecological communities;
- Migratory species protected under international agreements;
- Commonwealth marine areas;
- Great Barrier Reef Marine Park;
- Nuclear actions; and,
- A water resource in relation to coal seam gas development and large coal mining development.

Actions that have, or are likely to have, a *significant impact* on an MNES, require approval from the Federal Minister for the Environment.

The *Matters of National Environmental Significance Significant Impact Guidelines 1.1* (Department of the Environment 2013) (Significant Impact Guidelines) provides guidance on determining whether an action is likely to have a *significant impact* on an MNES, and as such, whether the action requires referral to the Minister.

A *significant impact* is defined as an impact which is *important, notable, or of consequence, having regard to its context or intensity. Whether or not an action is likely to have a significant impact depends upon the sensitivity, value, and quality of the environment which is impacted, and upon the intensity, duration, magnitude and geographic extent of the impacts* (Department of the Environment 2013).

3 SITE DESCRIPTION

The Citiswich Estate (former Bremer Business Park) is a 350ha master-planned estate with industrial / business, residential, commercial and retail uses. It is located in the South West Industrial corridor, 8km northwest of the Ipswich CBD & 40km from Brisbane CBD (Refer to Figure 2).

The southern boundary of the estate is bound by Brisbane Road & the Brisbane to Ipswich Rail Line. The Bremer River establishes the northern border of the estate. The Estate is bisected (west-east) by the Warrego Highway. The locality is within the suburbs of Bundamba & Riverview, which are mixed-use areas with predominantly industrial and farm uses and pockets of residential.

The Citiswich estate is divided into seven (7) stages as illustrated in Figure 3. The subject site is Stage 7. Stage 7 of the Citiswich development covers land located to the north of the Warrego Highway and is comprised of land described as:

- Lot 13 on SP238272;
- Lot 34 on SP326668; and,
- Lot 2 on RP104683.

The subject site includes areas which have been historically cleared of remnant vegetation and developed for other purposes including:

- Infrastructure including sewer, water, gas and electricity grid transmission lines (HVP),
- Mining and quarrying, including areas of mining heritage and residual undermined areas[1],
- Grazing[2].

The areas of historical mining and quarrying is indicated in Figure 4.

In addition to existing sewer, water, gas and electricity infrastructure, the Queensland Department of Transport and Main Roads has recently approved planning (long-term) for the Warrego Highway between Dinmore and Helidon which indicates the full extent of future upgrade requirements. The subject site includes a corridor of land on the northern side of the Warrego Highway which is potentially impacted and is intended to be protected from encroachment to enable future expansion of the highway. Figure 5 shows the location of existing infrastructure easements on the subject site, together with the proposed highway expansion.

The land is located within the Ipswich City Council local government area and is subject to the Ipswich Planning Scheme, whereby it is zoned:

- Regional Business and Industry (Low Impact);
- Regional Business and Industry (Medium Impact);
- Regional Business and Industry Buffer.

[1] It is understood that DTMR have since filled some of the undermining voids.
[2] Current land use.

Figure 6 shows the current zoning of the land.

4 DEVELOPMENT HISTORY

In 2002 a development application was lodged with Ipswich City Council to subdivide and develop the site for mix of commercial / industrial, residential and open space purposes of across 7 stages. On 30 June 2004, Ipswich City Council issued a preliminary approval for making a material change of use of premises and preliminary approval for reconfiguring a lot for the development of the Citiswich Estate (formerly known as the Bremer Business Park). The approval was assessed and approved under the *Integrated Planning Act 1997* (IPA) (Qld).

On 11 July 2018, Ipswich City Council issued Approval No. 3356/2002/MAMC/A being a change application to the preliminary approval to provide consistency across all major approvals over the Citiswich Estate.

The preliminary approval includes the 'Bremer Business Park Preliminary Approval' (BBP) document, with current approved document dated 11 July 2018. The BBP varies the effect of the planning scheme for subsequent development on the land and provides the overall vision and specific outcomes for the entire site and individual sub-areas. The BPP identifies seven (7) sub-areas and each has a corresponding zone with the Ipswich Planning Scheme (IPS) (c.f. Figure 6 and Figure 7). The BPP is supported by an *Overall Landscape Masterplan* which was approved by Ipswich City Council as part of the preliminary approval changes approved in 2018. Figure 8 shows a copy of the *Overall Landscape Masterplan (Version Q)*.

Stage 7 is the subject of a number of development approvals. A summary of the development approvals is contained in Appendix 1.

5 PROPOSED ACTION

The proposed action involves the development of Stage 7 of Citiswich (Figure 9). The total area of Stage 7 (subject site) is approximately 116 ha, including:

- 59 ha of mixed development; and,
- 57 ha to be dedicated as parkland.

Spatial analysis indicates that although 59 ha of land is proposed as mixed development, only 15.9 ha requires clearing of native vegetation to facilitate the development (Figure 10). The 15.9 ha is comprised of:

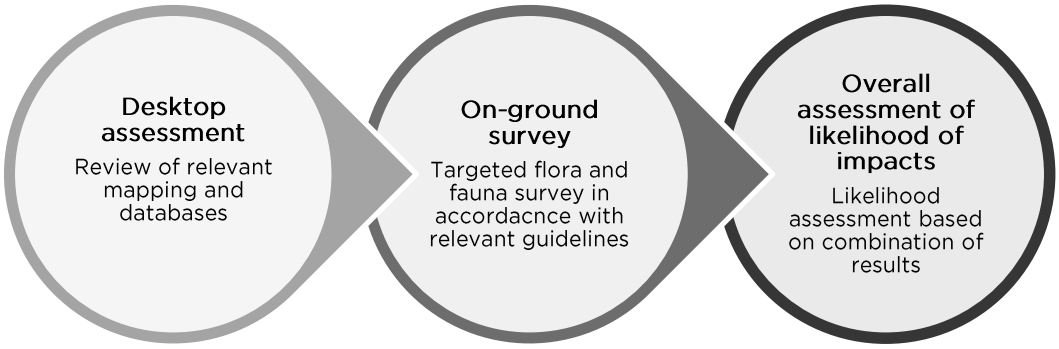
- 12.9 ha of native forest or woodland; and,
- Approximately 3 ha of land that contains scattered trees[3].

The development includes 57 ha to be dedicated as parkland, including the Bremer River Riparian Park. No clearing of native vegetation is to occur within the proposed parkland and all areas of disturbance are to be rehabilitated. The open space parkland areas are to be dedicated to Council.

[3] These areas are highly disturbed and may not be conducive to Koala movement. Refer to Section 6.2 and Appendix 6 for results of the on-ground surveys.

6 IMPACT IDENTIFICATION

The identification of potential impacts was supported by baseline data collection using evidence-based methods. Potential direct and indirect impacts on MNES were identified via a combination of desktop assessment and on ground survey methods.



The following sections describe the methods used to undertake the identification of MNES which could occur on the subject site, including:

- Desktop assessment;
- On-ground surveys; and,
- Overall assessment based on a combination of each of the above.

The desktop assessment included a review of the Commonwealth Government's *Environment Protection and Biodiversity Conservation Act 1999* Protected Matters Search Tool (PMST) to identify possible MNES on the subject site. The results of the database search were used to guide the detailed desktop and field assessments, which determined the presence and/or potential presence of the relevant MNES. The results of both the desktop assessment and field investigations were then used in combination as part of an overall assessment of likelihood of impacts to determine which MNES required assessment against the Significant Impact Guidelines (Section 7). The comprehensive approach to impact identification reduces the likelihood of Type II error.

6.1 DESKTOP ASSESSMENT

Desktop assessment or desktop research was used to identify potential MNES which occurred, were likely to occur or could potentially occur within the locality of the subject site.

6.1.1 METHODS

Desktop research was conducted by reviewing relevant State and Commonwealth mapping and databases and supplemented by air photo and spatial analysis using GIS.

The Commonwealth Government's *Environment Protection and Biodiversity Conservation Act 1999* Protected Matters Search Tool (PMST) (Department of the Environment and Energy 2021)[4] identifies MNES that may occur within a specific area. A PMST database search was undertaken to identify MNES that may occur within 3km of the subject site.

Based on the outcomes of the EPBC PMST search, MNES were further assessed and refined via review of relevant mapping and databases, including:

- Nearmap for location details and proximity measurements (Nearmap 2021);
- *Regulated vegetation management map* (Department of Natural Resources Mines and Energy 2020); and,
- Wildlife Online (WO) database search (Department of Science Information Technology Innovation and the Arts 2021).

6.1.2 RESULTS

The results based on the 3km search radius are summarised in Table 1. The full PMST database search is located within Appendix 2.

Table 1: EPBC Act Protected Matters Search Tool results within 3km radius of the site (Department of the Environment and Energy 2021).

Attribute	Relevance / Implications
World Heritage Properties	None
National Heritage Places	None
Wetlands of International Importance	One (1) Wetland of National Importance was identified within the PMST database search. The subject site is located approximately 72 km upstream of Moreton Bay.

[4] An initial search was conducted in 2020 prior to detailed assessment; however, this was performed again in 2021 to ensure that all current species had been considered.

Attribute	Relevance / Implications
	Refer to Section 6.1.2.1 for further details on wetlands of international importance.
Great Barrier Reef Marine Park	None
Commonwealth Marine Area	None
Listed Threatened Ecological Communities	Four (4) threatened ecological communities may occur, or are likely to occur, within a 3km radius of the subject site. Of these: • Coastal Swamp Oak (*Casuarina glauca*) Forest of NSW and SEQ ecological community, listed as *endangered*; • Lowland Rainforest of Subtropical Australia, listed as *critically endangered*; • Poplar Box Grassy Woodland on Alluvial Plains, listed as *endangered; and,* • White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland, listed as *critically endangered*. In terms of presence, 4 communities *may occur* within the area. Refer to Section 0 for further desktop search results for threatened ecological communities.
Listed Threatened Flora Species	Sixteen (16) threatened flora species may occur, or are likely to occur, within a 3km radius of the subject site. Of these: • 3 are listed as *critically endangered;* • 2 are listed as *endangered*; and, • 11 are listed as *vulnerable*. In terms of presence: • 11 species or species habitat *may occur* within the area; and, • 4 species or species habitat *likely* to occur within the area; and, • 1 species or species habitat *known* to occur within area. Refer to Section 6.1.2.3 for further details on listed threatened flora species.
Listed Threatened Fauna Species	At least 25 threatened fauna species may occur, or are known to occur, within a 3km radius of the subject site. Of these: • 5 are listed as *critically endangered*; • 5 are listed as *endangered*; and, • 15 are listed as *vulnerable*. In terms of presence: • 10 species or species habitat *may* occur within the area; • 8 species or species habitat *likely* to occur within the area; • 5 species or species habitat *known* to occur within area; and, • 2 foraging, feeding or related behaviour occur within area.

Attribute	Relevance / Implications
	Refer to Section 6.1.2.4 for further details on listed threatened fauna species.
Listed Migratory Species	At least 16 migratory species may occur, are likely to occur, or are known to occur, within a 3km radius of the subject site. Of these: • 1 is a migratory marine bird; • 7 are migratory terrestrial species; and, • 8 are migratory wetland species, 2 are listed as *critically endangered*. In terms of presence: • 3 species or species habitat *may* occur within the area; • 3 species or species habitat *likely* to occur within the area; and, • 10 species or species habitat *known* to occur within area.
Listed Marine Species	At least 22 marine species may occur, are likely to occur, or are known to occur, within a 3km radius of the subject site. Of these: • 3 are listed as *critically endangered*; • 1 is listed as *endangered*; and, • 1 is listed as *vulnerable.*
Introduced Species	At least 41 invasive species (threatening processes of national significance) *may* occur, are *likely* to occur, or are *known* to occur, within a 3km radius of the subject site. This is for information purposes only as introduced species are a threatening process.
Nuclear Actions	Not applicable
A water resource in relation to coal seam gas development and large coal mining development	Not applicable

6.1.2.1 WETLANDS OF INTERNATIONAL IMPORTANCE

The subject site is located on the Bremer River and is approximately 72 km upstream from Moreton Bay, a Wetland of International Importance and MNES as identified in the PMST database search results. The subject site, at its nearest point, is approximately 38 km (straight line) from Moreton Bay (Figure 11), with water draining off the subject site into the Bremer River which flows into the Brisbane River, then into Moreton Bay.

6.1.2.2 LISTED THREATENED ECOLOGICAL COMMUNITIES

The PMST database search indicated that four (4) TECs may or are likely to occur within the vicinity of the subject site (project boundary with a 3km buffer). These TECs were:

- Coastal Swamp Oak (*Casuarina glauca*) Forest of NSW and SEQ ecological community;
- Lowland Rainforest of Subtropical Australia;
- Poplar Box Grassy Woodland on Alluvial Plains; and,
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland.

A review of the State Government *Regulated vegetation management map* (Department of Natural Resources Mines and Energy 2020) was completed for the subject site to determine the presence of Regional Ecosystems (RE) consistent with these TECs. The State Government Regulated vegetation management map (Appendix 4) indicated that the subject site did not contain remnant or regulated regrowth vegetation consistent with the TECs identified as potentially occurring on the site.

6.1.2.3 LISTED THREATENED FLORA SPECIES

The results of the PMST database search indicated that 16 flora species have been classified as likely to or may occur within the vicinity of the subject site. These included:

- *Arthraxon hispidus;*
- *Bosistoa transversa;*
- *Corchorus cunninghamii;*
- *Cupaniopsis shirleyana;*
- *Dichanthium setosum;*
- *Fontainea venosa;*
- *Macadamia integrifolia;*
- *Macadamia ternifolia;*
- *Macadamia tetraphylla;*
- *Notelaea ipsviciensis;*
- *Notelaea lloydii;*
- *Phaius australis;*
- *Rhodamnia rubescens;*
- *Rhodomyrtus psidioides;*
- *Samadera bidwillii, and,*
- *Thesium australe.*

Two (2) of the listed species (*Notelaea ipsviciensis* and *N. lloydii*) were recorded as occurring within 3 km of the site based on the results of the Wildlife Online (WO) database search (Department of Science Information Technology Innovation and the Arts 2021).

6.1.2.4 LISTED THREATENED, MIGRATORY AND MARINE FAUNA SPECIES

The results of the EPBC PMST search indicated that:

- At least 25 threatened fauna species may occur, or are known to occur, within a 3km radius of the subject site.
- At least 16 migratory species may occur, are likely to occur, or are known to occur, within a 3km radius of the subject site.
- At least 22 marine species and whales and other cetaceans may occur, are likely to occur, or are known to occur, within a 3km radius of the subject site.

A review of the Wildlife Online (WO) database search (Department of Science Information Technology Innovation and the Arts 2021) indicated that three (3) EPBC Act listed species have been recorded from within 3km of the site since 1980: Koala, Greater Glider, Grey-headed Flying-fox.

The results of the desktop assessment were used to identify species which required further targeted survey. The results indicated that:

- One (1) species was likely to be encountered utilising or occupying the site (Grey-headed Flying-fox);
- Five (5) species could possibly utilise or occupy the site at some time (Koala, Rufous Fantail, Greater Glider, White-throated Needletail and Dunmall's Snake).

It was determined that targeted survey should be undertaken for the Grey-headed Flying-fox, Koala and Rufous Fantail.

Of the remaining fauna species that could possibly or likely utilise the site, only the Greater Glider (*Petauroides volans*) has been confirmed in the Wildlife Online database as occurring within the locality of the site; however, records of the species are more than 25 years old (1992) and from habitat which is physically separated from the site by urban areas and two (2) highways. As such, significant impacts on the Greater Glider are considered unlikely.

The remaining two (2) species (White-throated Needletail and Dunmall's Snake) that could possibly or likely utilise the site, have not been observed or confirmed in the past 40 years within 3 km of the site (Department of Science Information Technology Innovation and the Arts 2021). Therefore, it is our opinion that a referral is not recommended for these species, as the proposed impacts from the development are unlikely to have a significant impact on the species.

6.2 ON-GROUND SURVEYS

To ensure that the assessment was supported by best-available baseline data, both existing on-ground survey information and supplementary on-ground surveys were undertaken. Where possible[5], baseline data was collected in accordance with Commonwealth-approved survey guidelines.

6.2.1 METHODS

Targeted field surveys were carried out by Litoria Consulting in in April-July 2019, December 2020 and January-March 2021 by up to three (3) tertiary-qualified Ecologists, as well as OWAD Environment in May 2021.

Survey methods included, *inter alia:*

- Koala targeted surveys undertaken by OWAD Environment with the assistance of two (2) purpose-bread detection dogs over two (2) days in May 2021;
- Nocturnal spotlighting searches undertaken by Litoria Consulting over 12 evenings between December 2020 and March 2021;
- Unattended acoustic recordings in December 2020 and January 2021;
- Targeted bird surveys undertaken by Litoria Consulting over six (6) days in December 2020 and January-March 2021;
- Flora and vegetation assessments undertaken by Litoria Consulting between April-July 2019;
- Opportunistic and incidental observations undertaken by Litoria Consulting; and,
- Habitat assessments undertaken by Litoria Consulting in April-July 2019, December 2020 and January-March 2021.

Overall, the field investigations included:

- Allowance for inter-seasonal variability (summer, autumn and winter);
- Over 12 km of targeted survey by detection dogs;
- Over 50 hours of targeted botanical survey and vegetation assessment;
- Over 45 hours of targeted fauna survey;
- Over 90 hours of unattended acoustic recordings; and,
- Over 90 hours of incidental fauna observations and habitat assessment throughout the survey period.

For a full description of methods refer to Appendix 5 and Appendix 8 for the methods applied by Litoria Consulting and OWAD Environment.

[5] In circumstances where Commonwealth-approved survey guidelines were not available, State (Qld) guidelines were used.

6.2.2 RESULTS

6.2.2.1 LISTED THREATENED ECOLOGICAL COMMUNITIES

The results of the botanical survey confirmed that no TECs were present on site. Refer to Appendix 6 and Appendix 7 for full survey results.

6.2.2.2 LISTED THREATENED FLORA SPECIES

The results of the botanical survey did not identify any threatened flora species on site. Refer to Appendix 6 and Appendix 7 for full survey results

6.2.2.3 LISTED THREATENED, MIGRATORY AND MARINE FAUNA SPECIES

Fauna surveys identified a total of 82 species on site during the field surveys. Nine (9) species that were identified during field surveys and have an EPBC listing status of vulnerable, migratory or marine, shown in Table 2.

Table 2: EPBC Act listed threatened, migratory and marine fauna species identified on site during field surveys.

Common Name	Scientific Name	Listing Status
Black-faced Cuckoo-shrike	*Coracina novaehollandiae*	Marine
Dollarbird	*Eurystomus orientalis*	Marine
Magpie-lark	*Grallina cyanoleuca*	Marine
Rainbow Bee-eater	*Merops ornatus*	Marine
Purple Swamphen	*Porphyrio porphyrio*	Marine
Channel-billed Cuckoo	*Scythrops novaehollandiae*	Marine
Sacred Kingfisher	*Todiramphus sanctus*	Marine
Silvereye	*Zosterops lateralis*	Marine
Grey-headed Flying-fox	*Pteropus poliocephalus*	Vulnerable

6.3 OVERALL ASSESSMENT

6.3.1 METHODS

Based on the results of the desktop assessment (Section 6.1) and field investigations (Section 6.2), an overall assessment of potential impacts on MNES was undertaken, based on the following methodologies.

Wetlands of International Importance

An assessment of potential direct or indirect impacts on Wetlands of International Importance was undertaken based on the proximity of the proposed development to the identified MNES.

TECs, Threatened Flora & Threatened, Migratory and/or Marine Fauna Species

For each of the MNES identified in the desktop assessment, an assessment of the likelihood (Appendix 10) of the species utilising or occupying the site was undertaken based on a heuristic decision-based approach (Appendix 9) incorporating known habitat associations and preferences of species according to expert knowledge by Litoria ecologists and published accounts of each species. Likelihood categories into which each species was divided included:

1. **Confirmed:** Species observed or recorded from the site based on systematic survey or opportunistic observations by Litoria ecologists, or based on credible anecdotal observations by other sources ($p(x) = 100\%$[6]);
2. **Likely:** The site contains known or potential habitats for the species and species recorded from similar habitats in locality of the site ($p(x) > 50\%$);
3. **Possible:** The site contains known or potential habitats for the species; however, species not recorded from locality of the site, or vice versa ($p(x) \cong 50\%$); and
4. **Unlikely:** The site does not contain known or potential habitats for the species and/or species not recorded from locality of the site ($p(x) < 50\%$).

Where the results of the field investigations (Section 6.2.2) confirmed the presence, or otherwise, of the MNES, these results were used to determine potential impacts.

Those MNES potentially significantly impacted are assessed in Section 7.

[6] $p(x)$ – represents the probability (p) that a given species (x) could occupy or utilise the site.

6.3.2 RESULTS

6.3.2.1 WETLANDS OF INTERNATIONAL IMPORTANCE

The subject site, at its nearest point, is approximately 38 km (straight line) from the Moreton Bay Ramsar wetland (Figure 11), with water draining off the subject site into the Bremer River which flows into the Brisbane River, then into Moreton Bay.

The proposed development does not result in direct impacts on Moreton Bay; however, untreated stormwater runoff and erosion from activities during construction, has the potential to cause indirect impacts on receiving water quality. As such, likelihood of *significant impacts* on this MNES have been considered further in Section 7.1.

6.3.2.2 LISTED THREATENED ECOLOGICAL COMMUNITIES

The results of the botanical survey confirmed that no TECs were present on site (Appendix 6 and Appendix 7).

Given field surveys indicated that the listed TECs did not occur on the subject site, the proposed action will not result in direct or indirect *significant impacts* on TECs. As such, impacts on TECs have not been considered further.

6.3.2.3 LISTED THREATENED FLORA SPECIES

Two (2) EPBC-listed threatened flora species (*Notolaea ipsviciensis* and *Notolaea lloydii*) are likely to occur, based on suitable habitat potentially being present, nearby records and the subject site occurring within the species likely distribution, using the heuristic approach (Appendix 9).

Despite the likelihood of *Notolaea* spp. occurring, field surveys found no evidence of either species or other threatened flora species (Appendix 6 and Appendix 7). Consequently, the proposed action will not result in direct or indirect *significant impacts* on threatened flora species. As such, impacts on threatened flora species have not been considered further.

6.3.2.4 LISTED THREATENED, MIGRATORY AND MARINE FAUNA SPECIES

The results of the PMST database search indicated that 38 EPBC-listed threatened and migratory fauna species (or species habitat) may occur, or are likely to occur, within a 3 km radius of the subject site. The likelihood assessment identified:

- One (1) species (Grey-headed Flying Fox) observed flying over the site (confirmed); and,
- Five (5) species (White-throated Needletail, Rufous Fantail, Greater Glider, Koala and Dunmall's Snake) identified as possibly using the site.

A pre-referral meeting held with the Department of Agriculture, Water and the Environment (AWE) on 1 September 2021 indicated that consideration should also be given to the Adorned Delma (*Delma torquata*) and the Australian Lungfish (*Neoceratodus forsteri*).

The Adorned Delma was determined to be unlikely to utilise the site as part of the likelihood assessment due to being outside of the known distributions listed on the SPRAT species profile (Department of the Environment 2021), as well as that the closest known record according to the ALA database search (National Research Infrastructure for Australia 2021) is approximately 3km away and located across two river crossings (Bremer River and Brisbane River). Further, the record is from 1993 (i.e. 28 years ago).

The Australian Lungfish was also considered unlikely to be utilising the site as the adjacent stretch of the Bremer River is tidal and this species is a freshwater fish (Department of the Environment 2021).

EPBC-listed threatened species recorded on site or identified as confirmed, likely or possible to occupy or utilise the site were assessed against the Significant Impact Guidelines in Section 7.2.

Marine species were not assessed as the subject site is not within a Commonwealth Marine Area.

The species deemed unlikely to occupy or utilise the site, is largely based on inappropriate habitat present within the vicinity of the site (e.g. absence of wetland environments preclude wetland species).

7 IMPACT ASSESSMENT

The following section provides an assessment of the likely significance of impacts on MNES and the associated regulatory requirements. The assessment is based on the Preliminary Approval DA (3356/2002) and considers the mitigation and environmental management measures conditioned as part of Council and State approvals (Appendix 1). Relevant conditions are outlined in Table 10.

The assessment has been completed in accordance with the Significant Impact Guidelines (Department of the Environment 2013) and/or species specific guidelines where relevant. An assessment of the significance of potential impacts on each relevant MNES is presented below.

7.1 WETLANDS OF INTERNATIONAL IMPORTANCE

The Significant Impact Guidelines (Department of the Environment 2013) identifies that approval is required for an action occurring within or outside a declared Ramsar wetland if the action has, will have, or is likely to have a *significant impact* on the ecological character of the Ramsar wetland.

Significant impacts on a declared Ramsar wetland are described in the Significant Impact Guidelines as impacts that have a real chance or possibility of resulting in the following:

- areas of the wetland being destroyed or substantially modified
- a substantial and measurable change in the hydrological regime of the wetland, for example, a substantial change to the volume, timing, duration and frequency of ground and surface water flows to and within the wetland
- the habitat or lifecycle of native species, including invertebrate fauna and fish species, dependent upon the wetland being seriously affected
- a substantial and measurable change in the water quality of the wetland – for example, a substantial change in the level of salinity, pollutants, or nutrients in the wetland, or water temperature which may adversely impact on biodiversity, ecological integrity, social amenity or human health, or
- an invasive species that is harmful to the ecological character of the wetland being established (or an existing invasive species being spread) in the wetland.

Given that the proposed development is, at its closest point, approximately 38 km (straight line from the Moreton Bay Ramsar wetland) (Figure 11), the development avoids direct impacts on the Moreton Bay Ramsar wetland.

With respect to indirect impacts on downstream water quality, the local and State development permits (Section 8.2.1 and Appendix 1) associated with the proposed action contain relevant conditions relating to the environment and water quality.

As such, no *significant impacts* on Moreton Bay are expected as future development must comply with approval conditions.

7.2 LISTED THREATENED AND MIGRATORY FAUNA SPECIES

The Significant Impact Guidelines (Department of the Environment 2013) identify that approval is required if an action has, will have, or is likely to have a *significant impact* on a species listed as extinct in the wild, critically endangered, endangered or vulnerable or on a listed migratory species. Assessment of threatened species impacts should consider both the species and habitats which are critical to the survival of the species.

For *vulnerable* species the Significant Impact Guidelines identify that an action is considered likely to have a *significant impact* on a listed species if there is a real chance or possibility that the action will:

- lead to a long-term decrease in the size of a population;
- reduce the area of occupancy of the species;
- fragment an existing population into two or more populations;
- adversely affect habitat critical to the survival of a species;
- disrupt the breeding cycle of a population;
- modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline;
- result in invasive species that are harmful to a critically endangered or endangered species becoming;
- be established in the endangered or critically endangered species' habitat;
- introduce disease that may cause the species to decline; or,
- interfere with the recovery of the species.

For migratory species, the guidelines identify that an action is considered likely to have a *significant impact* on a migratory species if there is a real chance or possibility that the action will:

- Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species;
- Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species; or,
- Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.

Fauna with a threatened species listing status assessed as *known, likely* or having the *potential* to occur as part of the likelihood assessment and those identified as migratory have been assessed in the following sections.

7.2.1 GREY-HEADED FLYING-FOX

The Grey-headed Flying-fox (*Pteropus poliocephalus*) is the largest of the Australian fruit bats and is found along the east coast of Australia (Department of the Environment and Heritage 2003). The species requires both foraging resources and roosting sites and is considered a canopy-feeding frugivore and nectarivore. It occupies a variety of habitats from rainforest to woodland to wetland, foraging on nectar and pollen of native trees

including *Eucalyptus*, *Melaleuca*, *Banksia*, fruits of rainforest trees and vines, as well as fruit crops and on introduced tree species in urban areas (Department of Agriculture Water and the Environment 2021). Due to the wide range of foraging tree species and their flowering times, the Grey-headed Flying-fox can be found at different locations throughout the year. Roost sites are typically located near water and can be located in undisturbed patches of native vegetation or highly modified environments in urban areas (Department of Agriculture Water and the Environment 2021).

A wide range of threats have led to the decline in this species, including habitat loss and fragmentation, unregulated culling, competition and hybridisation with other flying-fox species, pollutants / pathogens from urban environments and domestic pets and electrocution on powerlines (Department of the Environment and Heritage 2003, Department of Agriculture Water and the Environment 2021).

A single Grey-headed Flying-fox was observed flying over the site during the targeted surveys. Although the individual was not observed feeding on site, given the large number of native trees throughout the site, and the large number of Grey-headed Flying-fox recorded throughout much of the greater Brisbane region, it is highly likely that this species could utilise the site for foraging when preferred species are in flower. Utilisation of the site by the Grey-headed Flying-fox is likely to be for foraging purposes only with no roosting / camp sites observed during the field surveys. There have been two (2) records in the past 40 years within 3 km of the site (Department of Science Information Technology Innovation and the Arts 2021, National Research Infrastructure for Australia 2021).

As the subject site contains potential suitable habitat (up to 15.9 ha of native vegetation) associated with for the Grey-headed Flying-fox, an assessment was carried out against the significant impact criteria for vulnerable species listed in the Significant Impact Guidelines (Department of the Environment 2013), with consideration given to the *EPBC Act Administrative Guidelines on Significance - Supplement for the Grey-headed Flying-fox* (Department of the Environment and Heritage 2003). The results of the assessment are shown in Table 3.

Table 3: Significant impact assessment – Grey-headed Flying-fox (Department of the Environment 2013).

Criteria	Assessment
Lead to a long-term decrease in the size of an important population of a species	Not applicable. Although the site contains habitat suitable for the species, the site does not support an important population.
Reduce the area of occupancy of an important population	Not applicable. Although the site contains habitat suitable for the species, the site does not support an important population.
Fragment an existing important population into two or more populations	Not applicable. Although the site contains habitat suitable for the species, the site does not support an important population.
Adversely affect habitat critical to the survival of a species	The proposed action is unlikely to adversely affect habitat critical to the survival of this species as:

Criteria	Assessment
	• No evidence of roosting / camp sites was observed as part of the surveys; • The species is known to feed and roost in a wide range of habitats; • The habitat on site is not considered necessary: o for breeding or roosting; o to maintain genetic diversity or long-term evolutionary development; o for the reintroduction or recovery of the species; • The site is not listed on the Register of Critical Habitat (Department of the Environment and Energy); and, • The development includes 57 ha of land to be dedicated as parkland, including the Bremer River Riparian Park.
Disrupt the breeding cycle of an important population	Not applicable. Although the site contains habitat suitable for the species, the site does not support an important population.
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	Although the proposed action includes clearing of potential suitable habitat, it is unlikely that the proposed action will lead to species decline due to the generalist nature of the species and its ability to forage and roost in a wide range of habitats. Further, the development includes 57 ha to be dedicated as parkland, including the Bremer River Riparian Park. The dedicated parkland is to be rehabilitated and will include native vegetation species used by the Grey-headed Flying-fox for foraging.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	Domestic pets are listed as threats to the Grey-headed Flying-fox (Department of Agriculture Water and the Environment 2021) and it is possible that the development could result in domestic pets accessing the habitat areas; however, given that the site is surrounded by urban areas, it is unlikely that the development of this site alone will cause the species to decline.
Introduce disease that may cause the species to decline	Pollutants / pathogens exist in urban environments and it is possible that the development could introduce disease to the species; however, given that the site is surrounded by urban areas, it is unlikely that the development of this site alone will cause the species to decline.
Interfere substantially with the recovery of the species	Given the lack of roosting sites and the generalist nature of the species in terms of foraging, it is unlikely that the site would contribute significantly to the recovery of the species. As such, the proposed action is unlikely to interfere substantially with the recovery of the species.

Results of the assessment indicated the proposed action will not lead to a *significant impact* on the Grey-headed Flying-fox as:

- The proposed development does not impact directly on roosting habitats;
- The species is known to feed and roost in a wide range of habitats;
- The site does not support an important population of the species; and,

- Whilst 15.9 ha of potential habitat is to be removed, the development includes 57 ha of land to be dedicated as parkland, including the Bremer River Riparian Park, which is to be rehabilitated and will include native vegetation species used by the Grey-headed Flying-fox for foraging.

7.2.2 WHITE-THROATED NEEDLETAIL

The White-throated Needletail (*Hirundapus caudacutus*) is a large swift which migrates to Australia during the non-breeding season. The White-throated Needletail mainly enters Australia during September / October via the Torres Strait, and moves south along both sides of the Great Dividing Range in Queensland and New South Wales in October and November. This species departs from Australia in February / March as northward movements begin (Department of the Environment 2019, Threatened Species Scientific Committee 2019).

This species is almost exclusively aerial, occurring at heights up to 1000 m above ground. This species is known to occur over most habitat types; however, is most often recorded above woodland and heathland. This species forages at heights up to 'cloud level' above a wide range of habitat types. The White-throated Needletail has been known to roost in trees in forest and woodlands, among dense foliage in the canopy or in hollows. The species may also roost aerially (Department of the Environment 2019, Threatened Species Scientific Committee 2019).

The known threats associated with this species in Australia include overhead wires, collision with wind turbines, windows and light houses (Threatened Species Scientific Committee 2019).

The White-throated Needletail was not observed during the field surveys, nor has it been recorded in the past 40 years within 3 km of the site (Department of Science Information Technology Innovation and the Arts 2021, National Research Infrastructure for Australia 2021). The closet known record according to the ALA database search (National Research Infrastructure for Australia 2021) is from 2018 and 2019 approximately 4 km away from the subject site. Suitable habitat may be present throughout the subject site given the generalist nature of the species. As such, an assessment was carried out against the significant impact criteria for vulnerable species and migratory species listed in the Significant Impact Guidelines (Department of the Environment 2013). The results of the assessment are shown in Table 4.

Table 4: Significant impact assessment – White-throated Needletail (Source: Department of the Environment (2013).

Criteria	Assessment
Vulnerable Species: Significant Impact Criteria	
Lead to a long-term decrease in the size of an important population of a species	Not applicable. Although the site contains habitat suitable for the species, the site does not support an important population.

Criteria	Assessment
Reduce the area of occupancy of an important population	Not applicable. Although the site contains habitat suitable for the species, the site does not support an important population.
Fragment an existing important population into two or more populations	Not applicable. Although the site contains habitat suitable for the species, the site does not support an important population.
Adversely affect habitat critical to the survival of a species	The proposed action is unlikely to adversely affect habitat critical to the survival of this species as: • This species is a migrant and mainly aerial; • The habitat on site is not considered necessary: o for foraging breeding, roosting or dispersal; o to maintain genetic diversity or long-term evolutionary development; o for the reintroduction or recovery of the species; • The habitat on site is not identified in a recovery plan for the species; and, • The site is not listed on the Register of Critical Habitat (Department of the Environment and Energy).
Disrupt the breeding cycle of an important population	Not applicable. Although the site contains habitat suitable for the species, the site does not support an important population. Further, this species migrates to Australia during the non-breeding season only (Department of the Environment 2019).
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The proposed action is unlikely to lead to the modification, destruction, removal, isolation or reduction of availability or quality of habitat leading to species decline as this species is a migrant and mainly aerial.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	Not applicable. No invasive species are listed as threats to the White-throated Needletail (Threatened Species Scientific Committee 2019).
Introduce disease that may cause the species to decline	It is unlikely that the proposed action will lead to the introduction of disease, causing a decline to this species as this species is mostly aerial.
Interfere substantially with the recovery of the species	The proposed action is unlikely to interfere with the recovery of this species as this species is a migrant and mainly aerial and would only potentially use this site intermittently. Furthermore, the key threats associated with the decline of this species in Australia include collision with wind turbines, overhead wires and lighthouses (Threatened Species Scientific Committee 2019), which do not form part of the proposed action.
Migratory Species: Significant Impact Criteria	
Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering	Not applicable. The site does not contain an area of important habitat for the species as: • The site does not support an ecologically significant proportion of the population;

Criteria	Assessment
hydrological cycles), destroy or isolate an area of important habitat for a migratory species	• The habitat is not of critical importance given the generalist nature of the species; • The site is not at the limit of the species range.
Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species	Not applicable. The site does not contain an area of important habitat for the species. Further, no invasive species are listed as threats to the White-throated Needletail (Threatened Species Scientific Committee 2019).
Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species	Not applicable. The species was not recorded as part of the surveys. The site does not support an ecologically significant proportion of the population.

Results of the assessment indicate the proposed action will not lead to a *significant impact* on the White-throated Needletail as:

- The species is an intermittent visitor to Australia in the non-breeding season and is mainly aerial;
- The site does not support an important population of the species or an ecologically significant proportion of the population;
- The proposed action is unlikely to adversely affect habitat critical to the survival of this species; and,
- The site does not contain an area of important habitat for the species.

7.2.3 RUFOUS FANTAIL

The Rufous Fantail (*Rhipidura rufifrons*) is a medium sized bird, with populations in east Australia known to be migratory (Department of Agriculture Water and the Environment 2021). It is known to occur in coastal and near coastal habitats of eastern Australia (Department of Agriculture Water and the Environment 2021). *Rhipidura rufifrons rufifrons* has breeding populations occurring north to about the NSW-Queensland border; and *Rhipidura rufifrons intermedia* has breeding populations occurring on and east of the Great Dividing Range, from about the NSW-Queensland border, north to the Cairns-Atherton region (Department of Agriculture Water and the Environment 2021).

In east Australia, the species mainly inhabits wet sclerophyll forests, often in gullies dominated by eucalypts such as Tallowwood (*Eucalyptus microcorys*), Mountain Grey Gum (*E. cypellocarpa*), Narrow-leaved Peppermint (*E. radiata*), Mountain Ash (*E. regnans*), Alpine Ash (*E. delegatensis*), Blackbutt (*E. pilularis*) or Red Mahogany (*E. resinifera*); usually with a dense shrubby understorey. When on passage, they are sometimes recorded in drier sclerophyll forests and woodlands, including Spotted Gum (*Eucalyptus*

maculata), Yellow Box (*E. melliodora*), ironbarks or stringybarks, often with a shrubby or heath understorey (Department of Agriculture Water and the Environment 2021).

The Rufous Fantail forages mainly in the low to middle strata of forests; mostly aerially, but, are also known to feed on foliage and fallen debris (Department of Agriculture Water and the Environment 2021).

The main threat to the Rufous Fantail is fragmentation and loss of breeding habitat, especially along the species' migration routes (Department of Agriculture Water and the Environment 2021).

The Rufous Fantail was not observed during the field surveys. There has been a single record in the past 40 years within 3 km of the site (Department of Science Information Technology Innovation and the Arts 2021, National Research Infrastructure for Australia 2021). The closet known record according to the ALA database search (National Research Infrastructure for Australia 2021) is approximately 4 km away from the subject site. Suitable habitat may be present throughout the subject site given the generalist nature of the species. As such, an assessment was carried out against the significant impact criteria for migratory species listed in the Significant Impact Guidelines (Department of the Environment 2013). The results of the assessment are shown in Table 5.

Table 5: Significant impact assessment – Rufous Fantail (Source: Department of the Environment (2013).

Criteria	Assessment
Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species	Not applicable. The site does not contain an area of important habitat for the species as: • The site does not support an ecologically significant proportion of the population; • The habitat is not of critical importance given the generalist nature of the species; • The site is not at the limit of the species range.
Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species	Not applicable. The site does not contain an area of important habitat for the species. Further, no invasive species are listed as threats to the Rufous Fantail (Department of Agriculture Water and the Environment 2021).
Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species	Not applicable. The species was not recorded as part of the surveys. The site does not support an ecologically significant proportion of the population.

Results of the assessment indicate the proposed action will not lead to a *significant impact* on the Rufous Fantail as:

- There was no direct or indirect evidence of the Rufous Fantail during the surveys;
- The site does not support an important population of the species or an ecologically significant proportion of the population;
- The proposed action is unlikely to adversely affect habitat critical to the survival of this species; and,
- The site does not contain an area of important habitat for the species.

7.2.4 GREATER GLIDER

The Greater Glider (*Petauroides volans)* is a nocturnal, arboreal mammal, largely restricted to eucalypt woodland and forests throughout eastern Australia (Threatened Species Scientific Committee 2016). The known distribution of this species extends from the Windsor Tableland in north Queensland to the Wombat State Forest in central Victoria, at altitudes ranging from sea level to 1200m above sea level.

The Greater Glider is considered folivorous (leaf eating), with a diet mainly consisting of eucalypt leaves, and flowers on occasion. Within its distribution, this species is usually found in tall, moist, montane areas containing relatively old trees with abundant hollows (Threatened Species Scientific Committee 2016, Department of the Environment 2019). Although the site contains areas of eucalypt, it is not a montane environment. Further, although the subject site contains a number of hollow bearing trees; these are not considered suitable habitat for the Greater Glider, as the size of these hollows are relatively small, and would not be classified as 'den' trees, which are described as large (DBH>50cm) old, living trees with abundant hollows (Smith, Mathieson et al. 2006, Threatened Species Scientific Committee 2016).

According to the Conservation Advice for this species (Threatened Species Scientific Committee 2016), the main threats leading to the decline of this species include habitat loss through clearing, fire and fragmentation, timber production, intense and frequent fires, climate change, entanglement in barbed wire fencing, hyper-predation by the Powerful Owl, *Phytophthora* root fungus impacting feed trees and competition from Sulphur-crested Cockatoos.

The Greater Glider was not observed during the targeted surveys. There were also no indirect signs of Greater Glider presence, such as scats, scratches or other traces within the subject site during both survey periods. There has been a single record in the past 40 years within 3 km of the site (Department of Science Information Technology Innovation and the Arts 2021, National Research Infrastructure for Australia 2021). The closet known record according to the ALA database search (National Research Infrastructure for Australia 2021) is from 1930 approximately 5 km away from the subject site.

As the subject site contains potential suitable habitat associated with the Greater Glider, an assessment was carried out against the significant impact criteria for vulnerable species listed in the Significant Impact Guidelines (Department of the Environment 2013). The results of the assessment are shown in Table 6.

Table 6: Significant impact assessment – Greater Glider (Department of the Environment 2013).

Criteria	Assessment
Lead to a long-term decrease in the size of an important population of a species	Not applicable. Although the site contains habitat suitable for the species, the site does not support an important population.
Reduce the area of occupancy of an important population	Not applicable. Although the site contains habitat suitable for the species, the site does not support an important population.
Fragment an existing important population into two or more populations	Not applicable. Although the site contains habitat suitable for the species, the site does not support an important population.
Adversely affect habitat critical to the survival of a species	The proposed action is unlikely to adversely affect habitat critical to the survival of this species as: • There was no direct or indirect evidence of the Greater Glider during the surveys; • The site is not a montane environment and does not contain suitable 'den' habitat trees; • The habitat on site is not necessary: o for foraging breeding, roosting or dispersal; o to maintain genetic diversity or long-term evolutionary development; o for the reintroduction or recovery of the species; • The habitat on site is not identified in a recovery plan for the species; and, • The site is not listed on the Register of Critical Habitat (Department of the Environment and Energy).
Disrupt the breeding cycle of an important population	Not applicable. Although the site contains habitat suitable for the species, the site does not support an important population.
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	Although the proposed action includes clearing of potential suitable habitat, it is unlikely that the proposed action will lead to species decline, as preferred habitat features are not present within the subject site.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	Not applicable. No invasive species are listed as threats to the Greater Glider (Threatened Species Scientific Committee 2016).
Introduce disease that may cause the species to decline	Given the lack of direct and indirect evidence of the species, it is unlikely that the proposed action would lead to an introduction of disease leading to species decline.

Criteria	Assessment
Interfere substantially with the recovery of the species	Given the lack of key habitat features, it is unlikely that the site would contribute significantly to the recovery of the species. As such, the proposed action is unlikely to interfere substantially with the recovery of the species.

Results of the assessment indicated the proposed action will not lead to a *significant impact* on the Greater Glider as:

- There was no direct or indirect evidence of the Greater Glider during the targeted surveys;
- The site is not a montane environment and does not contain suitable 'den' habitat trees;
- The site does not support an important population of the species; and,
- The proposed action is unlikely to adversely affect habitat critical to the survival of this species.

7.2.5 KOALA

The Koala is endemic to Australia and is known to occur from north-eastern Queensland to the south-east corner of South Australia. This species can occur at altitudes up to 800m above sea level (Department of the Environment 2014, The IUCN Red List of Threatened Species 2018).

The Koala (*Phascolarctos cinereus)* is a mainly arboreal marsupial. The Koala has a specialist diet mainly consisting of eucalyptus foliage, in areas with high soil fertility (Department of the Environment 2014, The IUCN Red List of Threatened Species 2018). This species can be found in forest, woodlands and riparian woodlands typically dominated by eucalypt species. As the site contain forested areas, including a range of eucalypt species, the site contains suitable habitat for the Koala. During the field surveys a number of myrtaceous species were identified such as *Corymbia citriodora*, *C. intermedia*, *Angophora leiocarpa*, *Eucalyptus tereticornis*, *E. tessellaris*, *E. melanophloia*, *E. crebra*, *E. siderophloia* and *Lophostemon suaveolens*. It has been noted that the *preferred* Koala food trees within South East Queensland include *E. tereticornis, E. microcorys, E. propinqua, E. robusta* and *E. resinifera* (Queensland Parks and Wildlife Service 2011, Department of Environment and Heritage Protection 2014, Gold Coast City Council -) one of which was identified within the subject site (*E. tereticornis*).

The main threats associated with the decline of this species are ongoing habitat loss and fragmentation, predation by dogs (feral and domestic), chlamydiosis and vehicle strike (Department of the Environment 2014).

The Koala was not observed during the targeted surveys. Further, it was considered unlikely that the Koala would currently not be able to access or utilise the subject site due to poor habitat connectivity (Warrego Highway bounding the south of the site, Bremer River bounding the western and northern boundaries and intensive development to the east of the site) and obstructive groundcover conditions on site (OWAD Environment, May 2021; Appendix 8). There were no indirect signs of Koala presence, such as scats,

scratches or other traces within the subject site. Although there are confirmed records within 3 km of the subject site, the ALA database (National Research Infrastructure for Australia 2021) indicates that these are either north of the river or south of the Warrego Highway (i.e. in habitat disconnected from the site).

As the subject site contains suitable habitat for the Koala, an assessment was carried out in accordance with the *EPBC Act referral guidelines for the vulnerable koala* (Department of the Environment 2014). The results of the are shown in Table 7.

Table 7: Significant impact assessment – Koala (Department of the Environment 2014).

Criteria	Assessment
Does the action occur within the modelling distribution of Koalas?	Yes. The subject site is located in an area nominated as species *known / likely to occur* on the modelled distribution habitat map.
Is location of the action within coastal / inland areas?	Bundamba is located within the *coastal* area according to Map 2 of the Guidelines.
Does the impact area contain Koala habitat[7]?	Yes. The subject site contains areas of native vegetation, including a mixture of Koala feed tree species.
Define your study area and undertake desktop and on the ground surveys for the Koala	Desktop and field assessments were undertaken in May 2021. The Koala was not observed during the field assessments and there was no indirect evidence of Koala presence within the subject site (scats, scratches and other traces).
Does the impact area contain koala habitat[8] which is critical to the survival of the species?	Yes. The site was assessed using the Koala Habitat Assessment Tool. The total score for the subject site is 5 based on the criteria and results outlined in Table 8. A score of 5 or more is classified as habitat critical to the survival of the Koala.
Is the action likely to adversely impact on koala habitat which is critical to the survival of Koalas?	Yes. The habitat is classified as habitat *critical to the survival of the Koala* based on the Koala Habitat Assessment Tool in Table 8.
Could the action interfere substantially with the recovery of the Koala in areas of habitat which is critical to the survival of the species?	Although the habitat within the subject site is classified as habitat *critical to the survival of the Koala*, the results from the field assessments suggest that the habitat is not being utilised by this species. As such, it is unlikely that the site is important for recovery of the species.

[7] Koala habitat is defined as any forest or woodland containing species that are known koala food trees, or shrubland with emergent food trees. This can include remnant and non- remnant vegetation in natural, agricultural, urban and peri urban environments. Koala habitat is defined by the vegetation community present and the vegetation structure; the koala does not necessarily have to be present.
[8] The Koala habitat assessment tool in Table 4 of the guidelines will assist in determining the sensitivity, value and quality of the impact area and whether it contains habitat critical to the survival of the Koala. Table 5 in this report contains this assessment against this tool.

The Habitat Assessment Tool categorises five (5) primary koala habitat attributes consisting of Koala occurrence, vegetation composition, habitat connectivity, existing threats and recovery value. Each habitat is scored between zero (0) and two (2). Scores are accumulated with each question. Impact areas that score five (5) or more using the habitat assessment tool for the Koala, contain habitat classified as *habitat critical to the survival of the Koala*.

Table 8: Habitat assessment – Koala (Department of the Environment 2014).

Attribute	Score	Assessment
Koala occurrence	1	According to the Wildlife Online (WO) database search (Department of Science Information Technology Innovation and the Arts 2021), there are five (5) records within a 2km buffer of the subject site within the last five years (Appendix 3).
Vegetation composition	2	The subject site has forest or woodland with 2 or more known koala food trees[9].
Habitat connectivity	0	Area is not part of a contiguous landscape ≥ 300 ha.
Key existing threats	2	Areas which score 0 for koala occurrence and have no dog or vehicle threat present.
Recovery value	0	Habitat is unlikely to be important for achieving the interim recovery objectives for the relevant context.
Total	5	

The Koala was not observed during the targeted surveys and is unlikely to occur; however, the subject site contains *habitat critical to the survival of the koala* based on the results in Table 8. Habitat loss and fragmentation, vehicle strike and predation by dogs are key threats associated with the decline of this species, which may occur as a result of the proposed action. As such, referral should be considered.

Although there are confirmed records within 2 km of the subject site, the ALA database (National Research Infrastructure for Australia 2021) indicates that these are either north of the river or south of the Warrego Highway (i.e. in habitat disconnected from the site). Further, it is considered unlikely that the Koala would be able to access or utilise the subject site due to poor habitat connectivity and restrictive groundcover conditions on site (OWAD Environment, May 2021; Appendix 8).

Overall, it is unlikely that the development of the subject site will lead to actions leading to a *significant impact* on the Koala as the species was not recorded on the site despite extensive field-based searches, suggesting that the potential habitat is not being utilised by this species.

[9] Koala food trees can generally be considered to be those of the following genus: Angophora, Corymbia, Eucalyptus, Lophostemon and Melaleuca (Source: Department of the Environment (2014). EPBC Act referral guidelines for the vulnerable koala. Canberra, Department of the Environment.)

7.2.6 DUNMALL'S SNAKE

The Dunmall's Snake (*Furina dunmalli*) has a known distribution extending from Mackay in Queensland to Ashford in New South Wales. In Queensland this species primarily occurs in the Brigalow belt region in the south-eastern interior of Queensland at elevations between 200-500m above sea level, and is associated with the *Brigalow (Acacia harpophylla dominant and co-dominant)* EPBC Act-listed threatened ecological community (Department of Sustainability 2015).

This species has been found in a broad range of habitats, including forests and woodlands on black alluvial cracking clay and clay loams dominated by Brigalow (*Acacia harpophylla*), other Wattles (*A. burowii*, *A. deanii*, *A. leiocalyx*), native Cypress (*Callitris* spp.) or Bull-oak (*Allocasuarina luehmannii*); and various Blue Spotted Gum (*Corymbia citriodora*), Ironbark (*Eucalyptus crebra* and *E. melanophloia*), White Cypress Pine (*Callitris glaucophylla*) and Bulloak open forest and woodland associations on sandstone derived soils (Department of the Environment, 2017). Little is known about the ecological requirements of Dunmall's Snake; however, the species has been found sheltering under fallen timber and ground litter and may use cracks in alluvial clay soils (Department of the Environment, 2017). Although the site contains forested areas containing a range of eucalypt and acacia species and has areas of sandstone soils, the site does not contain black cracking clay or the *Brigalow (Acacia harpophylla dominant and co-dominant)* EPBC Act-listed threatened ecological community.

The main threats associated with this species are land clearing and habitat modification and predation by feral animals. Modification of the land from activities such as urban development, crop production and agriculture has resulted in the prefered habitat for this species been extensively modified and continues to be threatened (Department of Sustainability 2015).

The Dunmall's Snake was not observed during the field surveys, nor has it been recorded in the past 40 years within 3 km of the site (Department of Science Information Technology Innovation and the Arts 2021, National Research Infrastructure for Australia 2021). The closet known record according to the ALA database search (National Research Infrastructure for Australia 2021) is located over 100 km away from the subject site.

As the subject site may contain potential suitable habitat for the Dunmall's Snake, an assessment was carried out against the significant impact criteria for vulnerable species listed in the Significant Impact Guidelines (Department of the Environment 2013). The results of the assessment are shown in Table 9.

Table 9: Significant impact assessment – Dunmall's Snake (Department of the Environment 2013).

Criteria	Assessment
Lead to a long-term decrease in the size of an important population of a species	Not applicable. Although the site contains habitat suitable for the species, the site does not support an important population.

Criteria	Assessment
Reduce the area of occupancy of an important population	Not applicable. Although the site contains habitat suitable for the species, the site does not support an important population.
Fragment an existing important population into two or more populations	Not applicable. Although the site contains habitat suitable for the species, the site does not support an important population.
Adversely affect habitat critical to the survival of a species	The proposed action is unlikely to adversely affect habitat critical to the survival of this species as: • There was no direct or indirect evidence of the species during the surveys; • The site does not contain the *Brigalow (Acacia harpophylla dominant and co-dominant)* EPBC Act-listed threatened ecological community; • The habitat on site is not necessary: o for foraging breeding, roosting or dispersal; o to maintain genetic diversity or long-term evolutionary development; o for the reintroduction or recovery of the species; • The habitat on site is not identified in a recovery plan for the species; and, • The site is not listed on the Register of Critical Habitat (Department of the Environment and Energy).
Disrupt the breeding cycle of an important population	Not applicable. Although the site contains habitat suitable for the species, the site does not support an important population.
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	Although the proposed action includes clearing of potential suitable habitat, it is unlikely that the proposed action will lead to species decline, as preferred habitat features are not present within the subject site.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	Predation by feral animals has been identified as a potential threat within the listing advice for this species (Department of Sustainability 2015). Due to the increase in urban development the proposed development may result in increases in invasive species which are known threats to the species; however, this is unlikely to impact on the species as there is no direct or indirect evidence to suggest that the species is utilising the site.
Introduce disease that may cause the species to decline	Given the lack of direct and indirect evidence of the species, it is unlikely that the proposed action would lead to an introduction of disease leading to species decline.
Interfere substantially with the recovery of the species	Given the lack of key habitat features, it is unlikely that the site would contribute significantly to the recovery of the species. As such, the proposed action is unlikely to interfere substantially with the recovery of the species.

Results of the assessment indicate the proposed action will not lead to a *significant impact* on the Dunmall's Snake as:

- There was no direct or indirect evidence of the Dunmall's Snake during the surveys;
- The site does not contain the *Brigalow (Acacia harpophylla dominant and co-dominant)* EPBC Act-listed threatened ecological community;
- The site does not support an important population of the species; and,
- The proposed action is unlikely to adversely affect habitat critical to the survival of this species.

7.3 SUMMARY

Results of the impact assessment for Stage 7 of the Citiswich development indicated that:

- Although 59 ha of land is proposed as mixed development, only 12.9 ha of native vegetation and 3ha of scattered native trees is proposed to be cleared to facilitate this.
- The proposed development conserves an area of 57 ha as open space, which equates to approximately 49% of the Stage 7 land.
- The development avoids impacts on the Moreton Bay Ramsar wetland.
- With respect to indirect impacts on downstream water quality, the local and State development permits (Section 8.2.1 and Appendix 1) associated with the proposed action contain relevant conditions relating to the environment and water quality.
- The development avoids direct impacts on threatened and migratory fauna; however, does result in impacts on potential habitat for threatened and migratory species (Grey-headed Flying-fox, White-throated Needletail, Rufous Fantail, Greater Glider, Koala, Dunmall's Snake).
- Despite the impacts on potential habitat for threatened and migratory fauna, the impacts are not considered to be significant for a range of reasons, including:
    - There was no direct or indirect evidence of these species (except for the Grey-headed Flying-fox);
    - The site does not support an important population of these species or an ecologically significant proportion of the population;
    - The site does not contain an area of important habitat for these species, nor areas essential for reproduction and breeding;
    - The proposed action is unlikely to adversely affect habitat critical to the survival of this species; and,
    - The development includes 57 ha of land to be dedicated as parkland, including the Bremer River Riparian Park.

8 MEASURES TO AVOID AND REDUCE IMPACTS

This section of the report describes environmental management measures which are to be implemented to avoid, mitigate and/or mange environmental impacts of the proposed action.

The measures described in this section include conditions imposed by the local government and also the State Government. These conditions are mandatory and must be complied with in order to develop the land. Supplementary management measures are also proposed by the proponent to further mitigate or minimise potential development impacts.

The following subsections describe the mandatory and proposed measures, including:

- Impact avoidance;
- Impact reduction and management, including
    - Permit conditions; and,
    - Supplementary management measures.

8.1 IMPACT AVOIDANCE

Spatial analysis indicates that although 59 ha of land is proposed as mixed development, only 12.9 ha of native vegetation and 3ha of scattered native trees is proposed to be cleared to facilitate this. The proposed development further avoids impacts on environmental values by conserving an area of 57 ha as open space (Figure 9), which equates to approximately 49% of the Stage 7 land. Approximately 23.2 ha of existing native vegetation will be retained within the open space (Figure 10). The balance land proposed as open space will be restored or landscaped as parklands. The area to be conserved includes areas of:

- Woodland to open forest containing *Corymbia citriodora*, *C. intermedia* and *Angophora leiocarpa* (VSU 2, Appendix 7).
- Eucalypt forest dominated by *Eucalyptus tereticornis*, *E. siderophloia* and *Corymbia intermedia* (VSU 3, Appendix 7).
- Open woodland of eucalypt species, including *Eucalyptus tereticornis* and *E. tessellaris* along the Bremer River (VSU 4, Appendix 7).
- Patches of vegetation with a canopy dominated by *Casuarina cunninghamiana* and scattered *Eucalyptus tereticornis* and *Lophostemon suaveolens* associated with river and creek banks (VSU 5, Appendix 7).
- Eucalypt woodland of *Eucalyptus tereticornis*, *E. tessellaris* and *Casuarina cunninghamiana* grading to various ironbarks (*E. melanophloia, E. crebra, E. siderophloia*) away from Bremer River (VSU 6, Appendix 7).

The vegetation is protected by the conditions of local and State government approvals, which are outlined in the following section.

The open space area is to be dedicated to Ipswich City Council for conservation purposes, and as such, will be protected from any future direct impacts.

8.2 IMPACT REDUCTION

8.2.1 PERMIT CONDITIONS

A number of conditions have been included in the Council and State approvals. The relevant conditions are outlined in Table 10.

All conditions are mandatory. As such, the applicant must carry out the development strictly in accordance with the specified conditions.

The measures outlined in the conditions are expected to be effective through:

- The preparation of management plans which identify the site-specific measures required to achieve compliance with the permit conditions, relevant Australian Standards and current best practice guidelines;
- The implementation of design measures and construction methodologies, which aim to avoid and reduce impacts on environmental values;
- Outlining operational requirements that must be in place for the life of the development;
- Remediation of contaminated land; and,
- Rehabilitation and dedication of the Bremer River Riparian Park area.

Table 10: Relevant permit conditions.

Condition Number	Condition requirement	Timeframe
PERMIT: Ipswich City Council – 3356/2002/MAMC/A – Preliminary Approval for Material Change of Use of Premises – Bremer Business Park Preliminary Approval		
18	<u>Stormwater</u> (a) The developer shall provide all necessary stormwater drainage (both internal and external to the development) and such drainage works (except for roofwater systems) shall be designed and constructed in accordance with QUDM such that the overall drainage system caters for a storm event with an ARI of 100 years. Overland flow paths shall be suitably designed to cater for the water from a storm event with an ARI of 100 years. In the case where the piped system is carrying part of the flow, the overland flow paths shall be designed to cater for that volume which is represented by the difference between the predicted volume from the storm event with an ARI of 100 years and the capacity of the pipe system, noting the requirements of QUDM. (b) All stormwater flows within and adjacent to the Bremer Business Park Area, other than inter-allotment drainage, shall be confined to dedicated roads, drainage reserves, registered drainage easements or within parkland. The registered drainage easements, if related to piped drainage, shall be centrally located over such underground pipe system and shall be not less than 4.0 m wide, except for drainage easements required for side boundaries which may be 3.0 m wide where approved by the Senior Development Engineer. In addition, the easements shall be of suitable width to contain the predicted overland flow from the storm event with an ARI of 100 years in that location. (c) No ponding or redirection of stormwater shall occur onto adjoining land unless specifically approved by Council in consultation with the owner of the adjoining land. (d) Due consideration shall be given in these and future designs and construction of the development in relation to the effect of the developed catchment flows on the downstream discharge receival areas. Suitable stormwater control devices are to be provided to ensure that there is no increase in flows in watercourses. Such control devices are to be designed so as to integrate the landscaping, recreational, infrastructural and drainage roles of watercourses. (e) Each proposed residential, commercial and/or industrial allotment shall be designed to comply with QUDM, Council's standards and the New Ipswich City Planning Scheme, including unimpeded access to a road system which is also above the design flood level. (f) There shall be no filling or removal of material in the flood area below the flood level associated with an ARI of 100 years without the approval of the Senior Development Engineer. There shall be minimal disturbance to vegetation in the flood area, unless prior written approval is obtained from Council.	The control measures are required to be implemented by the developer and/or their contractors prior to and throughout relevant works.

Condition Number	Condition requirement	Timeframe
	(g) Filling in proposed Lots, which are adjacent to the watercourse shown on the proposal plan, shall not be undertaken without the written approval of Council.	
19	Health and Environmental Protection Requirements Conditions 20 – 21, unless otherwise stated, shall be completed to the satisfaction of the Chief Environmental Health Officer.	The control measures are required to be implemented by the developer and/or their contractors prior to and throughout relevant works.
20	Contaminated Land The developer shall ensure all land to be dedicated to Council is not listed on either the Contaminated Land Register or the Environmental Management Register prior to dedication. In this regard the developer shall be responsible for all works associated with the removal of any land to be dedicated to Council from these registers. The developer shall provide details to Council demonstrating that the requirements of this condition have been met prior to the issuing of a Development Permit for Building Works and/or prior to the issuing of a Development Permit for Reconfiguring a Lot and/or Development Permit for a Material Change of Use (Code or Impact or Self-Assessable (if applicable)).	The developer must ensure that contaminated land is managed / remediated prior to dedication of land to Council.
21	Stormwater Quality The developer shall submit to and receive approval from the Health and Environmental Protection Manager for a Master Stormwater Quality Management Plan for the Bremer Business Park Area (the Master SQMP) prior to the issuing of a Development Permit for Building Works and/or prior to the issuing of a Development Permit for Reconfiguring a Lot and/or Development Permit for a Material Change of Use (Code or Impact or Self-Assessable (if applicable)). A suitably qualified and experienced professional must prepare the Master SQMP. The Master SQMP must: (i) Provide a management approach that ensures: – Stormwater quality management measures for the Bremer Business Park Area consist of physical treatment measures to ensure that the stormwater discharged from a land use type complies with the pollutant levels identified in Table 1 below; – Stormwater quality management measures for residential areas and roads consist of physical treatment measures to ensure that the stormwater discharged from these areas comply with the pollutant levels identified in Table 1 below; – The matters of water sensitive urban design (WSUD), stormwater management and stormwater quality will be addressed throughout the Bremer Business Park Area in an integrated approach, and – A refined Conceptual Design Stormwater Quality Management Plan (the Conceptual Design SQMP) is supplied for each development site prior to the issuing of a Development Permit for Building Works and/or prior to the issuing of a Development Permit for Reconfiguring a Lot and/or Development Permit for a Material Change of Use (Code or Impact or Self-Assessable (if applicable)) and	The management plan is required to be implemented by the developer and/or their contractors prior to and throughout relevant works.

<table>
<tr><th>Condition Number</th><th>Condition requirement</th><th>Timeframe</th></tr>
<tr><td></td><td>then a Detailed Design Stormwater Quality Management Plan (the Detailed Design SQMP) is supplied for each development site prior to the issuing of a Development Permit for Operational Works.
(ii) Demonstrate, through appropriate pollutant export modelling (eg AQUALM or MUSIC), that the pollutant levels in the stormwater discharged from the Bremer Business Park Area comply with the pollutant levels identified in Table 1 below.
TABLE 1
<table>
<tr><td>Indicator</td><td>Modified ecosystem, wildlife, cultural heritage, secondary & visual recreation, industry, stock and irrigation</td></tr>
<tr><td>Total Phosphorus</td><td>70 ug/L</td></tr>
<tr><td>Total Nitrogen</td><td>650 ug/L</td></tr>
<tr><td>Suspended solids</td><td>15mg/L for combined wet and dry periods
90% ile < 100mg/L for wet weather periods</td></tr>
<tr><td>Oils and grease</td><td>no visible films or odour</td></tr>
<tr><td>Organic Carbon</td><td>As determined through the investigations into organic carbon on the site.</td></tr>
<tr><td>Litter/gross pollutants</td><td>No anthropogenic (man-made) material greater than 5mm in any dimension</td></tr>
<tr><td>Riparian vegetation & habitat</td><td>Protect & restore consistent with Council policy and plans</td></tr>
<tr><td>Cultural heritage</td><td>Protect & restore consistent with Council policy and plans</td></tr>
</table>
– - Levels are upper limits for median values or ranges in which medians should lie, unless otherwise stated.
– - Dependencies on hardness iron and chromium shown in brackets are difficult to quantify. They may be ignored initially but subsequently considered if the pollutant level range is exceeded. For more information refer to the latest Australian Water Quality Guidelines for Fresh and Marine Waters (ANZECC).
– - A wet weather period is defined as “any period where stormwater runoff leaves the site”.</td><td></td></tr>
<tr><td>22</td><td><u>Conservation, Parks and Sport Requirements</u></td><td></td></tr>
</table>

<table>
<tr><th>Condition Number</th><th>Condition requirement</th><th>Timeframe</th></tr>
<tr><td></td><td>Conditions 23 – 26, unless otherwise stated, shall be completed to the satisfaction of the Conservation, Parks and Sport Manager.</td><td></td></tr>
<tr><td>23</td><td><u>Parkland Dedication/Requirements</u>
Parkland works within the area included in the Open Space Sub-Area under the Bremer Business Park Preliminary Approval shall be undertaken generally in accordance with Plan Number 01, revision ~~N~~ Q, Overall Landscape Master Plan, dated ~~14/09/2015~~ 7/12/2017 and Plan Number 02, revision ~~N~~ Q, Indicative Circulation Hierarchy Plan, dated <u>14/09/2015</u> 7/12/2017, prepared by Place Design Group. Open space shall be dedicated, free of cost to and compensation by Council, in fee simple, in accordance with the following requirements:
<table>
<tr><th>Location</th><th>OPW approval requirements</th><th>Timing of works</th><th>Dedication</th></tr>
<tr><td>Eastern Tributary Park South</td><td>Landscape plans to be approved with the first operational works application associated with a reconfiguring a lot approval for industrial/business lots within stage 2.</td><td>Works to be finalised prior to 31 December 2013.</td><td>Park is to be dedicated to Council either with plan sealing of the first lot in stage 2 or as otherwise determined by a reconfiguration permit for stage 2.</td></tr>
<tr><td>Warrego Highway south side buffer landscaping</td><td>Landscape plans to be approved with the first operational works application associated with a reconfiguring a lot approval for industrial/business lots within stage 1.</td><td>Works to be finalised prior to 31 December 2013.</td><td>Not required.</td></tr>
<tr><td>Stage 5 buffer in accordance with application no. 5760/15</td><td>Landscape plans to be approved with the first operational works application associated with a reconfiguring ~~a lot approval for industrial/business lots within stage 5~~ application no. 5760/15.</td><td>Works to be finalised prior to dedication or as otherwise determined by a ~~reconfiguration permit or operational works permit for stage 5~~ application no. 5760/15.</td><td>Prior to plan sealing of the first lot ~~adjacent to the buffer (not including balance lots) or as otherwise determined by a reconfiguration permit or operational works permit for stage 5~~ as part of application no. 5760/15.</td></tr>
</table></td><td>Bremer River Riparian Park works to be finalised prior to dedication or as otherwise determined by a reconfiguration permit or operational works permit for stage 7.
The works will comprise of the following:
• A riparian corridor along the Bremer River frontage; and,
• Turf and open space landscaping on the remainder of the parkland dedication.</td></tr>
</table>

Condition Number	Condition requirement			Timeframe
	Stage 6 – 5,000m2 local recreational park	Landscape plans to be approved with the first operational works application associated with a reconfiguring a lot approval for industrial/business lots within stage 6.	Works to be finalised prior to dedication or as otherwise determined by a reconfiguration permit or operational works permit for stage 6 or deed between Council and Walker.	Park is to be dedicated as otherwise determined by a reconfiguration permit or operational works permit for stage 6 or deed between Council and Walker.
	Stage 6 – eastern landscape buffer	Landscape plans to be approved with the first operational works application associated with a reconfiguring a lot approval for industrial/business lots within stage 6.	Works to be finalised prior to dedication or as otherwise determined by a reconfiguration permit or operational works permit for stage 6 or deed between Council and Walker.	Park is to be dedicated as otherwise determined by a reconfiguration permit or operational works permit for stage 6 or deed between Council and Walker.
	Stage 6 – western landscape buffer	Landscape plans to be approved with the first operational works application associated with a reconfiguring a lot approval for industrial/business lots within stage 6.	Works to be finalised prior to dedication or as otherwise determined by a reconfiguration permit or operational works permit for stage 6 or deed between Council and Walker.	Park is to be dedicated as otherwise determined by a reconfiguration permit or operational works permit for stage 6 or deed between Council and Walker.
	Archer Street Park	Landscape plans to be approved with the first operational works application associated with a reconfiguring a lot approval for industrial/business lots	Works to be finalised prior to dedication or as otherwise determined by a reconfiguration permit or operational works permit for	Prior to plan sealing of the first lot (not including balance lots) for stage 7 or as otherwise determined by a reconfiguration permit or operational works permit for stage 7 or as

<table>
<tr><th>Condition Number</th><th>Condition requirement</th><th>Timeframe</th></tr>
<tr><td></td><td>
<table>
<tr><td></td><td>within stage 7 or as agreed between Council and Walker.</td><td>stage 7 or as agreed between Council and Walker.</td><td>determined by an option deed to be exercised by Council to buy the land for $1 in the following time frame: 1 July 2018, with a caveat that Walker may extend this timeframe for a further 5 years, after which further extensions may be sought and agreed to.</td></tr>
<tr><td>Bremer River Riparian Park</td><td>Detailed landscape plans to be approved with the first operational works application associated with a reconfiguring a lot approval for industrial/business lots within stage 7.</td><td>Works to be finalised prior to dedication or as otherwise determined by a reconfiguration permit or operational works permit for stage 7.</td><td>Prior to plan sealing of the first lot adjacent to the open space (not including balance lots) or as otherwise determined by a reconfiguration permit or operational works permit for stage 7.</td></tr>
</table>
</td><td></td></tr>
<tr><td>24</td><td><u>Clearing/Disturbance within Proposed Parkland</u>
(a) No clearing shall be undertaken in proposed parkland without the prior approval of the Conservation, Parks and Sport Manager.
(b) All areas of disturbance within parkland including areas of erosion and bare ground shall be rehabilitated. All batters and banks shall be fully stabilised and vegetated to the satisfaction of the Conservation, Parks and Sport Manager.</td><td>Bremer River Riparian Park works to be finalised prior to dedication or as otherwise determined by a reconfiguration permit or operational works permit for stage 7.</td></tr>
<tr><td>25</td><td><u>Quality of Park Dedication</u>
Land to be dedicated for park purposes shall be upgraded to the satisfaction of the Conservation, Parks and Sport Manager as follows:
(a) Declared plants, environmental weeds and rubbish shall be removed;
(b) Dead trees shall be removed and dangerous trees made safe within 10 m of proposed house blocks or proposed pathways or playgrounds;
(c) Open areas shall be grassed and left in mowable condition;
(d) Open areas shall be free of rocks, stumps, humps and hollows;
(e) Disturbed areas shall be revegetated using indigenous plant species;
(f) A cleared 4m wide mowable strip shall be formed behind proposed house blocks;
(g) All rubbish shall be removed from parkland;
(h) Parkland shall be freely and safely drained;</td><td>Bremer River Riparian Park works to be finalised prior to dedication or as otherwise determined by a reconfiguration permit or operational works permit for stage 7.</td></tr>
</table>

Condition Number	Condition requirement	Timeframe
	(i) All playground equipment and park furniture shall meet Australian Standards both in supply and installation; (j) No overburden or spoil shall be pushed or deposited into parkland; (k) Water, sewer and power service shall be provided to the proposed park; and (l) There shall be no removal of soil or filling around trees.	
26	Naming of Parkland (a) The developer shall submit to and for approval by Council a list of at least three names and their name meanings for each new park. The proposed names shall be submitted as part of the Operational Works application. Should a theme be considered appropriate, the theme should be submitted to Council at the time of submitting the road names. (b) The developer shall erect a suitable park name sign to the satisfaction of the Development Manager.	Bremer River Riparian Park works to be finalised prior to dedication or as otherwise determined by a reconfiguration permit or operational works permit for stage 7.
PERMIT: Environmental Protection Agency – 5927 Part 5 – Concurrence agency response		
1	Prior to the commencement of any operational works, building works or remediation works, the applicant must conduct or commission an investigation of land in accordance with the *Draft Guidelines for the Assessment and Management of Contaminated Land in Queensland* to scientifically assess whether lands described as Lot 13 SL 2982, Lot 2 RP 86838 and Lot 2 RP 104683 are contaminated and submit reports about the investigations to the Environmental Protection Agency (Contaminated Land Unit). to enable Suitability Statements to be issued for Lot 13 SL 2982, Lot 2 RP 86838 and Lot 2 RP 104683 specifying that the land is suitable for the intended use.	The developer must ensure that contaminated land is managed / remediated as part of the development works.
3	Prior to the commencement of any operational works, building works or remediation works, the applicant must conduct or commission an investigation of land in accordance with the *Draft Guidelines for the Assessment and Management of Contaminated Land in Queensland to* scientifically assess whether lands excluding those described as Lot 13 SL 2982, Lot 2 RP 86838 and Lot 2 RP 104683 are suitable for the intended use and submit reports about the investigations to the Environmental Protection Agency (Contaminated Land Unit), to enable the EPA to determine if the land is suitable for the intended use.	The developer must ensure that contaminated land is managed / remediated as part of the development works.
8	The removal of any contaminated soil from the site requires prior approval from the Environmental Protection Agency (EPA) (Contaminated Land Unit) under the *Environmental Protection Act 1994* (EP Act) under Section 424.	The developer must ensure that contaminated land is managed / remediated as part of the development works.
PERMIT: Ipswich City Council – 3668/2013/OW – Operational Works Bulk Earthworks – Citiswich Stage 7		
8	Sediment and Erosion Management	The control measures are required to be implemented by the developer

Condition Number	Condition requirement	Timeframe
	(a) The Developer is responsible for the installation and maintenance of erosion and sediment management facilities and truck shake down facilities from the time of commencement of construction until the works have been completed. All management facilities must be designed, installed and maintained in accordance with the latest version of the document "*Best Practice Erosion and Sediment Control"* published by the International Erosion and Sediment Control Association Australasia. Sediment and erosion control and truck shake down facilities must be installed and available for inspection prior to commencement of work. (b) If the Assessment Manager determines that erosion and sediment originating from the site has caused sediment deposit and/or erosion on other property, the Developer shall be responsible to restore any damage. Such restoration works must be completed in the time and to a standard determined by the Assessment Manager. (c) Should the Developer fail to complete the restoration works determined by the Assessment Manager within the specified time or to a satisfactory standard, Council may complete the work and recover all costs from the Developer associated with that work. For this purpose, the Developer must lodge a $10,000.00 silt and erosion bond with Council, prior to commencement of works, which shall only be released by Council at the time of completion of the works and satisfactory revegetation of the site. Where Council determines that a drawdown of the bond is required, the Developer must restore the bond to its full amount within ten (10) business days of a notice from Council to that effect.	and/or their contractors prior to and throughout relevant works.
PERMIT: Department of State Development, Infrastructure and Planning – SDA-0813-004253 – Concurrence agency response – Development Permit for Operational Work (Bulk Earthworks – Citiswich Stage 7)		
2	(a) Development must be in accordance with the *Citiswich Masterplan Flood Investigation (Including Local Flooding Assessment),* Project No. LJ8714/R3/V5 by Cardno Lawson Treloar dated 24 August 2012 and *Warrego Highway Hydraulic Assessment Letter,* LJ8714/Lt88 MPG:la by Cardno (QLD) Pty Ltd dated 05 August 2013. Stormwater management for the development must ensure no worsening or actionable nuisance to the state-controlled road network caused by peak discharges, flood levels, frequency/duration of flooding, flow velocities, water quality, sedimentation and scour effects. (b) Any excavation, filling, paving, landscaping, construction or any other works to the land must not: (i) create any new discharge points for stormwater runoff onto the state-controlled road; (ii) interfere with and/or cause damage to the existing stormwater drainage on the state-controlled road; (iii) surcharge any existing culvert or drain on the state-controlled road;	The control measures are required to be implemented by the developer and/or their contractors prior to and throughout relevant works.

Condition Number	Condition requirement	Timeframe
	(iv) reduce the quality of stormwater discharge onto the state-controlled road. (c) The applicant must provide RPEQ certification to the Department of Transport and Main Roads that the development has been designed and constructed in accordance with parts (a) and (b) of this condition.	
3	(a) The applicant must ensure that no dust/debris from the subject site enter the Warrego Highway (Ipswich – Toowoomba) during the construction phase of the development. (b) The applicant must install screening and abatement measures in accordance with the *Erosion & Sediment Control Plan*, 7902-44-014-201.1 by Cardno (QLD) Pty Ltd dated 05/07/13 as a minimum.	The control measures are required to be implemented by the developer and/or their contractors prior to and throughout relevant works.

8.2.2 SUPPLEMENTARY MANAGEMENT MEASURES

In addition to the permit conditions listed above, the following management practices and mitigation strategies which aim to reduce impacts of the proposed development on native vegetation and fauna will be implemented by the developer and/or their contractors as part of vegetation clearing. The measures are expected to be effective through the use of best practice management strategies to further minimise impacts on vegetation and fauna.

i. Vegetation clearing extents are clearly identified on-site prior to the commencement of works.
ii. Vegetation protection fencing is established at the interface between all works areas and vegetation to be retained / conserved during clearing works.
iii. Vegetation removal to be undertaken by suitably qualified contractors.
iv. Vegetation clearing is staged or takes place sequentially, allowing animals to move to adjoining habitats.
v. Any tree pruning or maintenance works is carried out by qualified arborist in accordance with *AS 4373 2007 Pruning of amenity trees*.
vi. All cleared native vegetation is mulched on-site and recycled for use in landscape treatments.
vii. Mulch stockpiles are to be located in existing cleared areas, outside of TPZs and at least 40m from waterway / wetland areas.
viii. Mulch stockpiles are subject to erosion / sediment control measures in accordance with best practice design standards.
ix. Best practice weed management protocols are developed to prevent the introduction and/or spread of pest species e.g. exotic vegetation mulch, in particular mulch containing declared pest plant material, is to be disposed of as green waste at landfill or recycled via composting.
x. A Wildlife Spotter Catcher is to inspect all areas to be cleared prior to the commencement of works.
xi. Wildlife Spotter Catcher is to supervise and be present on each day that vegetation clearing takes place.
xii. All areas containing ponded water are to be dewatered under the supervision of the Wildlife Spotter Catcher.
xiii. Where identified, active hollows, nests or other breeding places are not to be interfered with. Tampering with an animal breeding place is in violation of the *Nature Conservation Act 1999* under section 332 of the *Nature Conservation (Wildlife Management) Regulation 2006*. However, this does not apply to a person removing or otherwise tampering with the breeding place if the removal or tampering is part of an approved species management program for animals of the same species, or, the person holds a damage mitigation permit for the animal and the permit authorises the removal or tampering.
xiv. Declared pest mammals are contained and eradicated from the site according to current best practice management techniques.
xv. Best practice fauna management protocols are developed to prevent the introduction and spread of pest species.

8.3 SUMMARY

This section of the report describes environmental management measures which are to be implemented to avoid, mitigate and/or mange environmental impacts of the proposed action, including conditions imposed by the local government and State Government as part of any development approvals.

Measures to avoid and reduce impacts on MNES include:

- Impacts are avoided through:
    - Retention of 23.2 ha of existing native vegetation; and,
    - Inclusion of 57 ha of parkland (49% of the Stage 7 development).
- Impacts are reduced and mitigated through:
    - Implementation of compulsory permit conditions (Bremer Business Park approval) relating to:
        - Stormwater management;
        - Erosion and sediment control;
        - Management of contaminated land;
        - Rehabilitation and dedication of parkland, including the Bremer River Riparian Park.
    - Supplementary best-practice management measures including:
        - Vegetation and fauna management measures for clearing works;
        - Requirements for erosion and sediment control measures for any stockpiles; and,
        - Weed and pest management measures.

The implementation of the management measures described in the above sections assist in reducing any impacts to the point that any residual impacts are not considered significant.

9 OVERALL SUMMARY

This MNES Report has been prepared by Litoria Consulting on behalf of Kirkwood Road Community Centre Pty Limited for land described as Citiswich (Lot 13 on SP238272, Lot 34 on SP326668 and Lot 2 on RP104683); namely the Citiswich Stage 7 development.

The proposed action involves the development of Stage 7 of 'Citiswich'. The total area of Stage 7 (subject site) is approximately 116 ha, including:

- 59 ha of mixed development; and,
- 57 ha to be dedicated as parkland.

The identification of potential impacts was supported by baseline data collection using evidence-based methods. Potential direct and indirect impacts on MNES were identified via a combination of desktop assessment and on ground survey methods. Desktop assessment or desktop research was used to identify potential MNES which occurred, were likely to occur or could potentially occur within the locality of the subject site. To ensure that the assessment was supported by best-available baseline data, both existing on-ground survey information and supplementary on-ground surveys were undertaken. Where possible[10], baseline data was collected in accordance with Commonwealth-approved survey guidelines.

A total of seven (7) MNES were identified as potentially impacted by the proposed action, including:

- Wetlands of international importance;
- Threatened and migratory fauna species:
  - Grey-headed Flying-fox;
  - White-throated Needletail;
  - Rufous Fantail;
  - Greater Glider;
  - Koala; and,
  - Dunmall's Snake.

An assessment of the likely significance of impacts on the above MNES was completed in accordance with the Significant Impact Guidelines (Department of the Environment 2013) and/or species specific guidelines where relevant. Results of the impact assessment indicated that:

- Although 59 ha of land is proposed as mixed development, only 12.9 ha of native vegetation is proposed to be cleared to facilitate this.
- The proposed development conserves an area of 57 ha as open space, which equates to approximately 49% of the Stage 7 land and includes approximately 23.2 ha of existing native vegetation.
- The development avoids impacts on the Moreton Bay Ramsar wetland.

[10] In circumstances where Commonwealth-approved survey guidelines were not available, State (Qld) guidelines were used.

- With respect to indirect impacts on downstream water quality, the local and State development permits (Section 8.2.1 and Appendix 1) associated with the proposed action contain relevant conditions relating to the environment and water quality.
- The development avoids direct impacts on threatened and migratory fauna; however, does result in impacts on potential habitat for threatened and migratory species.
- Despite the impacts on potential habitat for threatened and migratory fauna, the impacts are not considered to be significant for a range of reasons, including:
    - There was no direct or indirect evidence of these species (except for the Grey-headed Flying-fox);
    - The site does not support an important population of these species or an ecologically significant proportion of the population;
    - The site does not contain an area of important habitat for these species, nor areas essential for reproduction and breeding;
    - The proposed action is unlikely to adversely affect habitat critical to the survival of this species; and,
    - The development includes 57 ha of land to be dedicated as parkland, including the Bremer River Riparian Park.

Measures to avoid and reduce impacts have been outlined, which assist in avoiding, reducing or otherwise managing the action in such a way as to not result in a direct or indirect *significant impact* on MNES.

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FIGURES

FIGURE 1: Aerial Imagery

Legend

Site

Cadastre

Lot boundary

Easement

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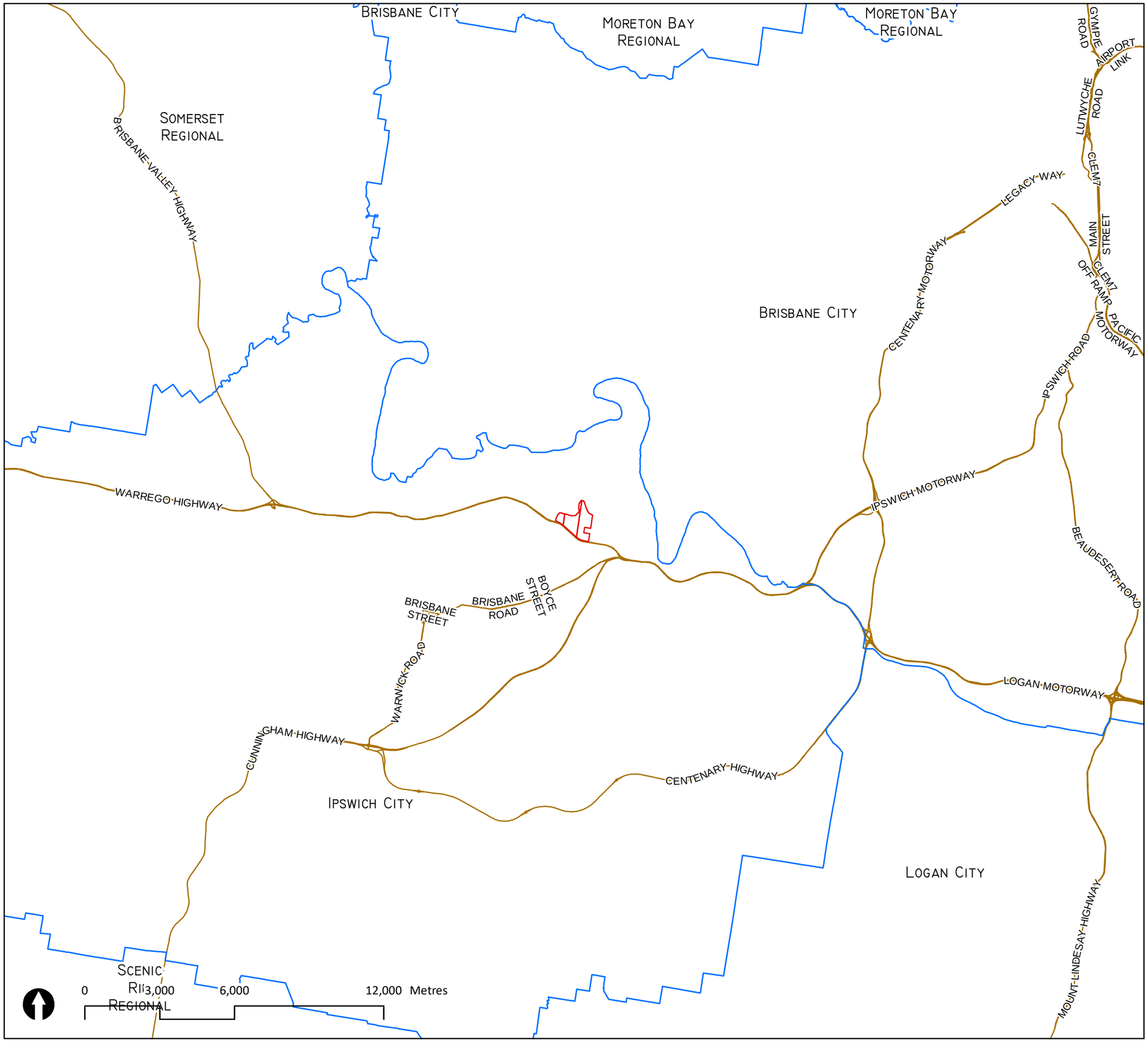
FIGURE 2: Regional Context



Legend

- Site
- Local government area
- Major road

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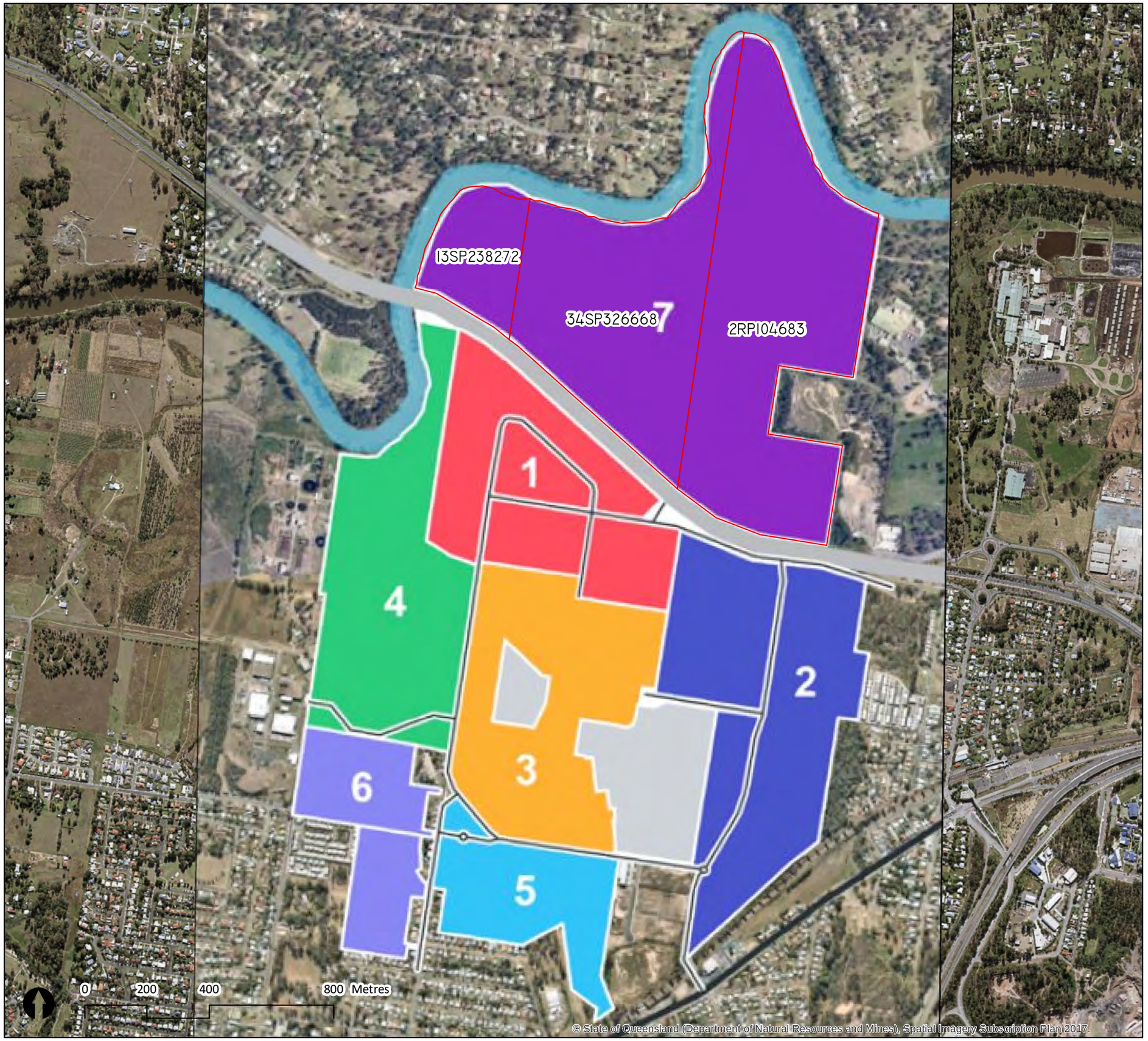
FIGURE 3: Citiswich Staging



Legend

Site

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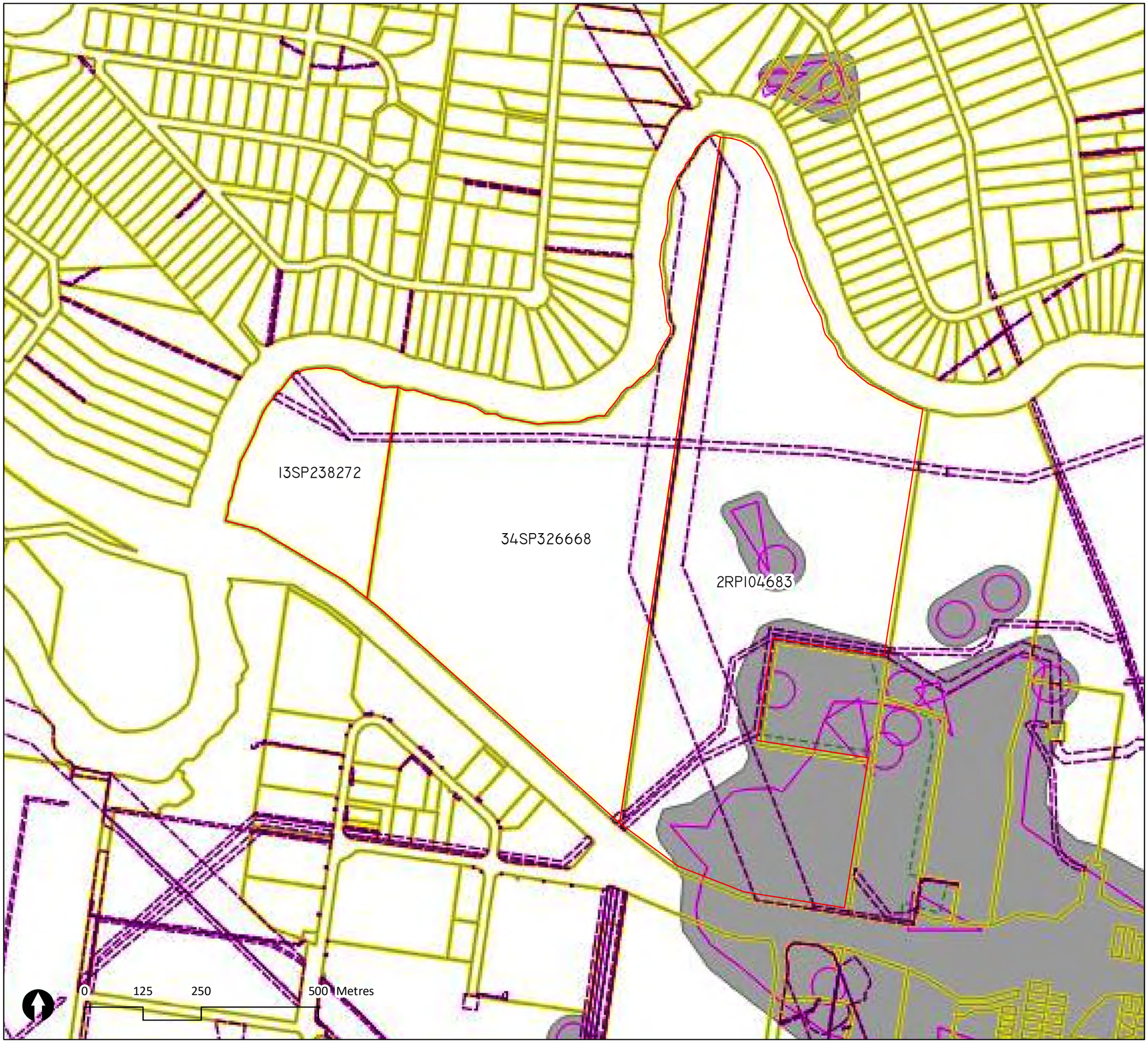
FIGURE 4: Mining Influence Areas



Legend

Site

Ipswich Planning Scheme Mining influence areas

Surface Disturbance - Including Open-Cut Mining

Area Affected by Underground Mining

Mining Influenced Constrained Area

Easements

Property

Ipswich City Council LGA

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FIGURE 5: Easements

Legend

Site

Easements

- Access
- Drainage
- Electricity
- Gas
- Sewer
- Water
- DTMR highway expansion (indicative only)

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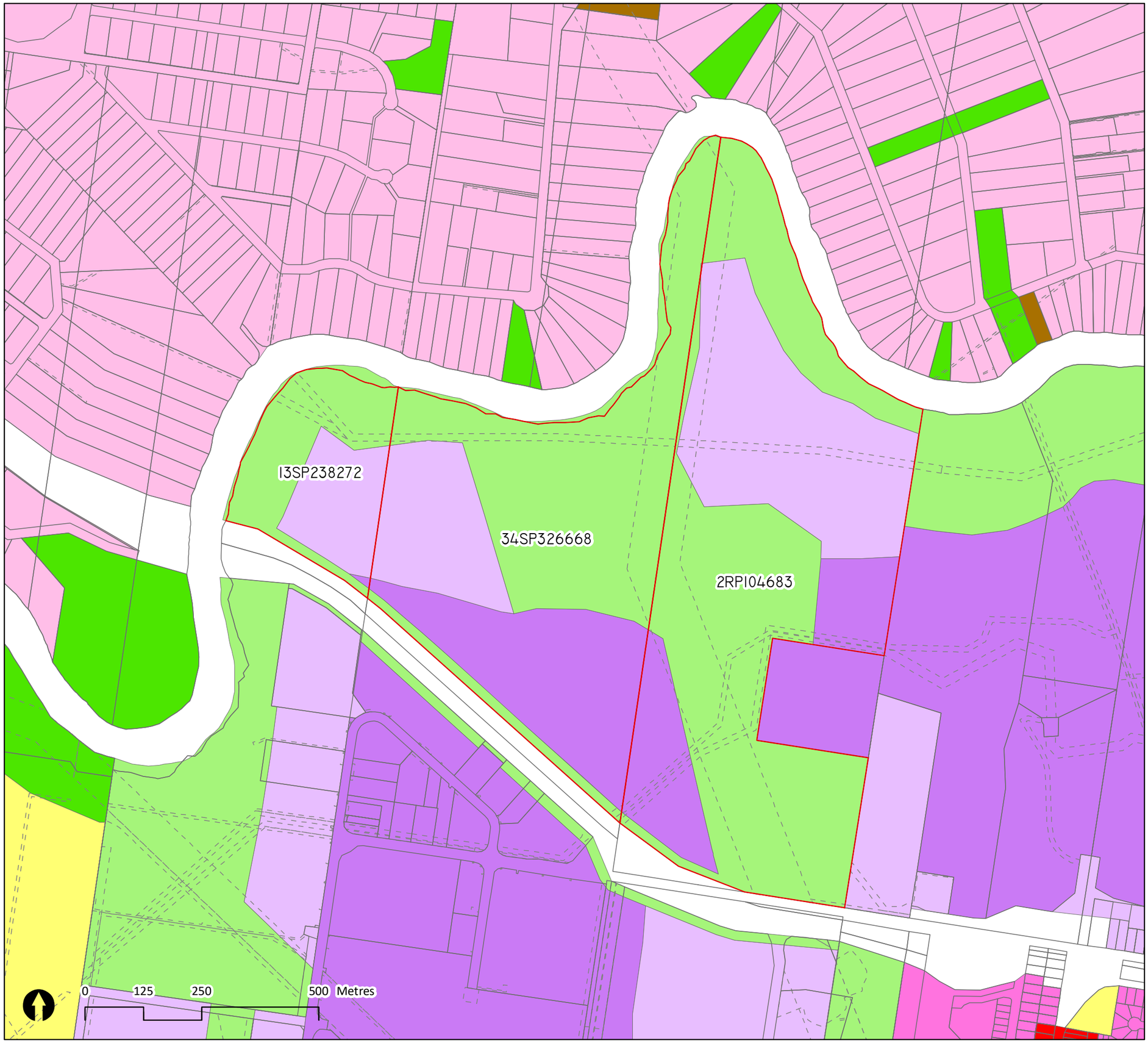
FIGURE 6: Zoning



Legend

- Site

Cadastre

- Lot boundary
- Easement

Ipswich Planning Scheme zoning

- Character Housing Mixed Density
- Large Lot Residential
- Limited Development (Constrained)
- Recreation
- Regional Business and Industry - Low Impact
- Regional Business and Industry - Medium Impact
- Regional Business and Industry Buffer
- Residential Low Density
- Special Uses

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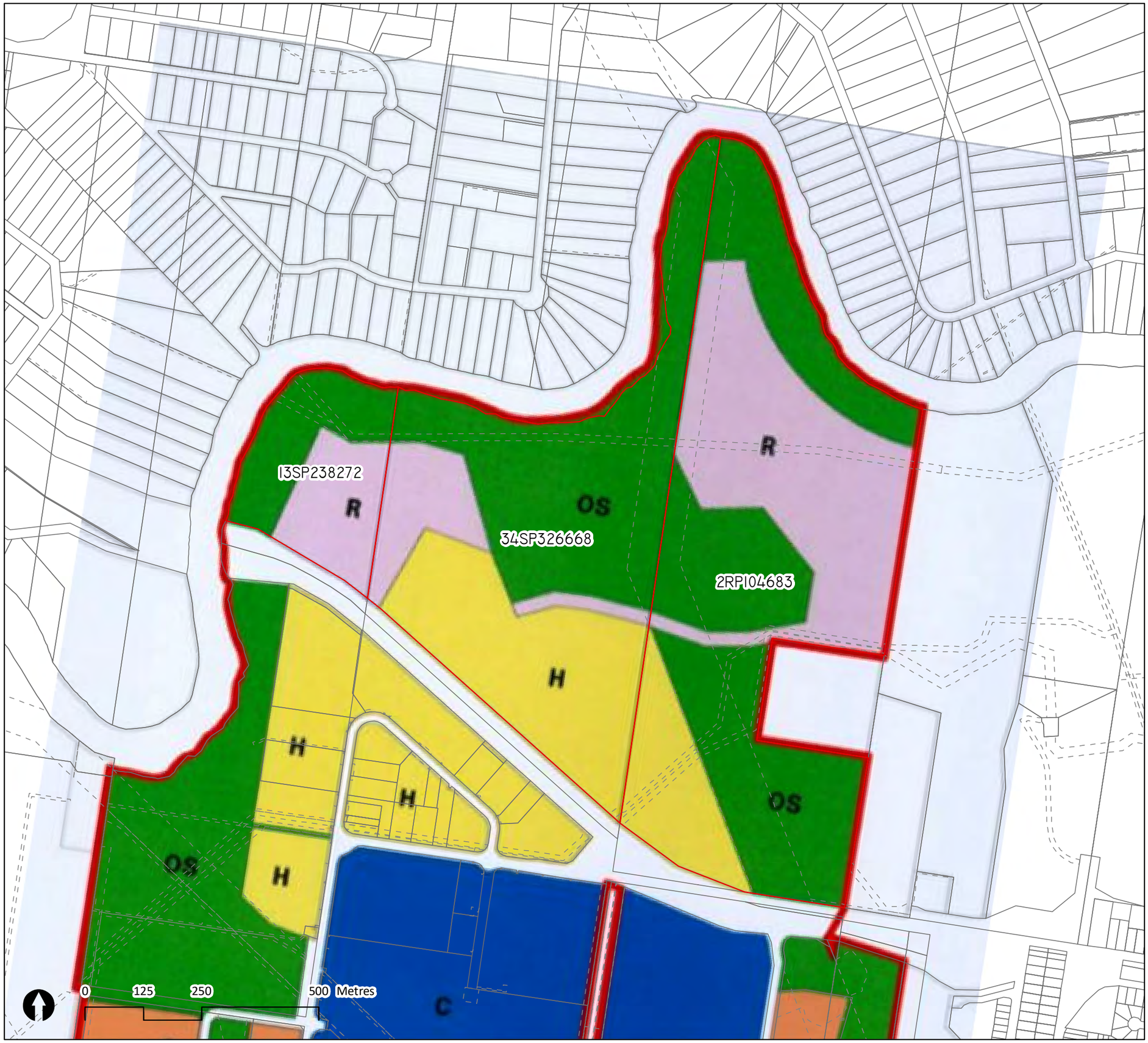
FIGURE 7: Citiswich Sub-areas



Legend

Site

Cadastre

Lot boundary

Easement

Sub-areas

- R - Riverside Sub-Area
- F - Frame Sub-Area
- H - Highway Sub-Area
- C - Core Sub-Area
- RES - Residential Sub-Area Low Density Residential
- OS - Open Space Sub-Area
- CC - Community and Commercial Centre Sub-Area

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FIGURE 8: Overall Landscape Masterplan

Legend

Site

Cadastre

Lot boundary

Easement

Overall Landscape Masterplan

EXISTING POWER EASEMENT
EXISTING GAS EASEMENT
EXISTING WATER MAIN
RIPARIAN CORRIDOR
TURF AND OPEN SPACE

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FIGURE 9: Approved Development

Legend

- Site

Cadastre

- Lot boundary
- Easement

Approved development (3356/02/MAMC/A)

- Stage 7 development footprint
- Open space

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FIGURE 10: Proposed Action

Legend

- Site

Cadastre

- Lot boundary
- Easement

Approved development (3356/02/MAMC/A)

- Stage 7 development footprint

Proposed action

- Clearing of native forest or woodland
- Clearing of scattered trees
- Retained vegetation (within open space)

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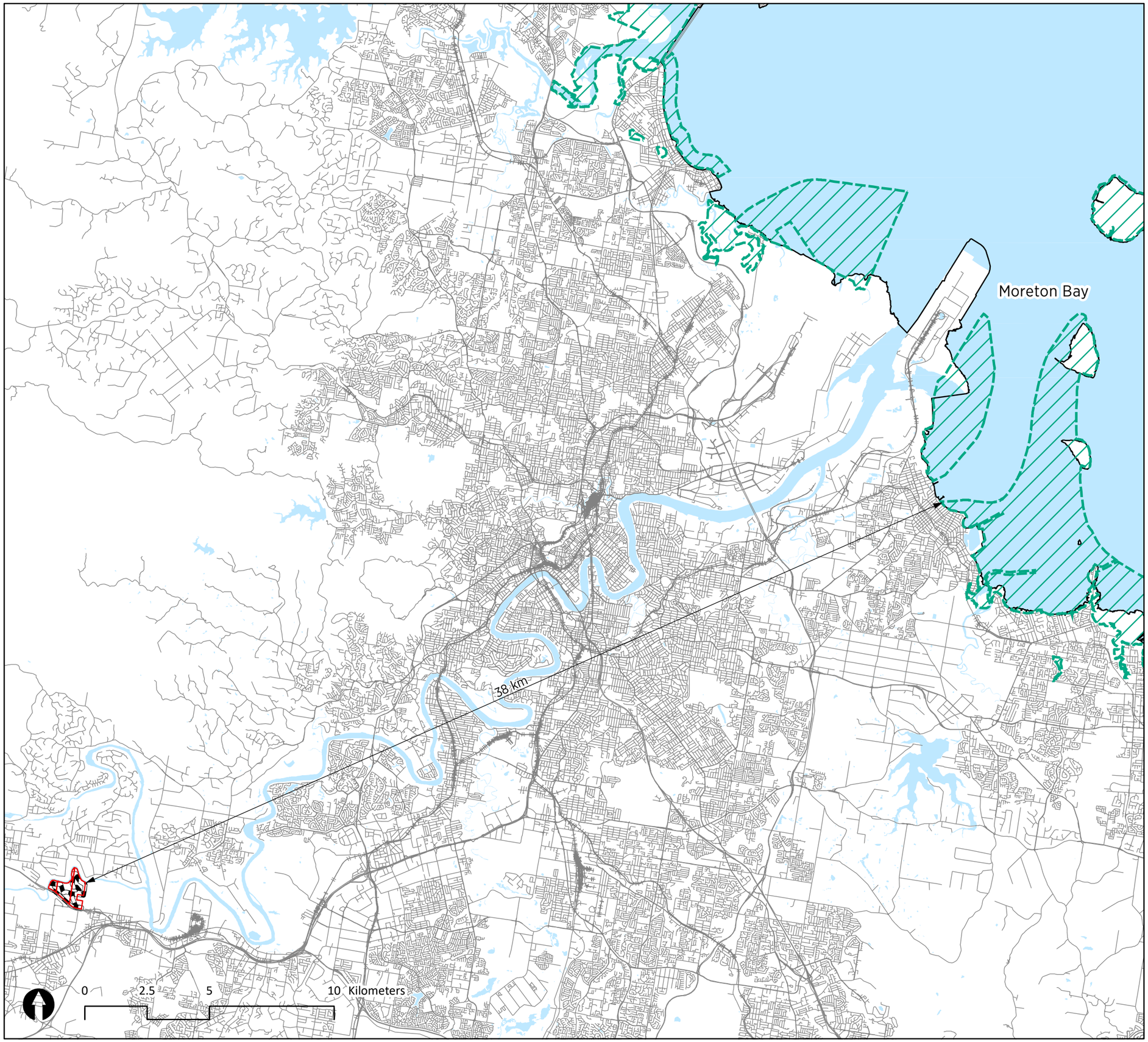
FIGURE 11: Wetland of International Importance



Legend

- Site
- Coastline
- Road network
- Rail network
- Water

Wetland of international importance

- Ramsar wetland

Approved development (3356/02/MAMC/A)

- Stage 7 development footprint

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CONTENTS

APPENDIX 1: EXISTING APPROVALS

Your reference
Our reference 3356/2002/MAEXT/A:SH
Contact Officer Sally Holznagel
Telephone (07) 3810 7854

City of Ipswich

Ipswich City Council

45 Roderick St
PO Box 191
Ipswich QLD 4305
Australia

Tel (07) 3810 6666
Fax (07) 3810 6731
Email council@ipswich.qld.gov.au
Web www.ipswich.qld.gov.au

Walker Corporation Pty Ltd
(Attn: Katie Eynon)
Email: katie.eynon@walkercorp.com.au

7 April 2020

Dear Sir/Madam

Re: Decision Notice for Extension to Currency Period Application
Application No: 3356/2002/MAEXT/A
Proposal: Extension to Currency Period Application - Bremer Business Park - Preliminary Approval for Material Change of Use of Premises (Development in accordance with a Plan of Development, including seven (7) Sub-Areas: Riverside Sub-Area, Highways Sub-Area, Frame Sub-Area, Core Sub-Area, Residential Sub-Area, Open Space Sub-Area, Community and Commercial Centre Sub-Area)and Preliminary Approval for Reconfiguring a Lot (16 lots into 34 lots)
Property Location: Ashburn Road, Bognuda Street, Hawkins Crescent and Hoepner Road, BUNDAMBA QLD 4304

I refer to the extension to currency period application dated 17 March 2020 to extend the currency period of development permit 3356/2002 for Preliminary Approval for Material Change of Use of Premises (Development in accordance with a Plan of Development, including seven (7) Sub-Areas: Riverside Sub-Area, Highways Sub-Area, Frame Sub-Area, Core Sub-Area, Residential Sub-Area, Open Space Sub-Area, Community and Commercial Centre Sub-Area) and Preliminary Approval for Reconfiguring a Lot (16 lots into 34 lots), known as Bremer Business Park on land located at Ashburn Road, Bognuda Street, Hawkins Crescent and Hoepner Road, Bundamba.

In accordance with section 87(2)(a) of the *Planning Act 2016*, the currency period has been extended for two (2) years up to and including 6 July 2022.

A statement about appeal rights relating to this decision is attached.

If you have any queries regarding this extension application decision notice, please contact Sally Holznagel on the telephone number listed above.

Yours faithfully

Mitchell Grant
DEVELOPMENT ASSESSMENT CENTRAL MANAGER
CC: Department of State Development, Manufacturing, Infrastructure and Planning
ipswichsara@dsdmip.qld.gov.au.

Powerlink
property@powerlink.com.au

Energex
townplanning@energex.com.au

APPEAL RIGHTS

Applicant appeal rights

You have appeal rights in relation to this decision. An appeal may be made against a responsible entity's decision for an extension application.

An appeal must be started within 20 business days after this notice is given to you.

An appeal may be made to the Planning and Environment Court or, for certain matters which are identified in section 1(2) of Schedule 1 of the *Planning Act 2016*, to a development tribunal.

An appeal is started by lodging a notice of appeal with the registrar of the Planning and Environment Court or a development tribunal, as applicable. The notice of appeal must be in the approved form, succinctly state the grounds of the appeal and be accompanied by the required fee.

An appellant to the Planning and Environment Court must give a copy of the notice of appeal, within 10 business days after the appeal is started, to the persons identified in section 230(3) of the *Planning Act 2016*. A person who is appealing to the Planning and Environment Court must comply with the rules of the court that apply to the appeal.

Chapter 6, Part 1 and Schedule 1 of the *Planning Act 2016* sets out further information about appeal rights. **Attached** is an extract from the *Planning Act 2016* about appeal rights.

Concurrence/Advice agency appeal rights

If this notice is given to a concurrence agency or advice agency, other than the chief executive under the *Planning Act 2016* that gave a pre-request response or response notice:

You have appeal rights against the decision for a change application if you are an affected entity that gave a pre-request response notice or response notice for the change application.

An appeal must be started within 20 business days after this notice is given to you.

An appeal may be made to the Planning and Environment Court or, for certain matters which are identified in section 1(2) of Schedule 1 of the *Planning Act 2016*, to a development tribunal.

An appeal is started by lodging a notice of appeal with the registrar of the Planning and Environment Court or a development tribunal, as applicable. The notice of appeal must be in the approved form, succinctly state the grounds of the appeal and be accompanied by the required fee.

An appellant to the Planning and Environment Court must give a copy of the notice of appeal, within 10 business days after the appeal is started, to the persons identified in section 230(3) of the *Planning Act 2016*. A person who is appealing to the Planning and Environment Court must comply with the rules of the court that apply to the appeal.

Chapter 6, Part 1 and Schedule 1 of the *Planning Act 2016* sets out further information about appeal rights. **Attached** is an extract from the *Planning Act 2016* about appeal rights.

Your reference
Our reference 3356/2002/MAMC/A:SH
Contact Officer Sally Holznagel
Telephone (07) 3810 7854

City of Ipswich

Ipswich City Council

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Australia

Tel (07) 3810 6666
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Email council@ipswich.qld.gov.au
Web www.ipswich.qld.gov.au

Walker Corporation Pty Ltd
(Attn: Katherine Eynon)
katie.eynon@walkercorp.com.au

11 July 2018

Dear Sir/Madam

Re: Decision Notice for Change Application to a Development Approval
Application No: 3356/2002/MAMC/A
Proposal: Minor Change - Bremer Business Park – Preliminary Approval for a Material Change of Use of Premises (Development in accordance with a Plan of Development, including seven (7) Sub-Areas: Riverside Sub-Area, Highways Sub-Area, Frame Industrial and Commercial Sub-Area, Central Industry Sub-Area, Residential Sub-Area, Open Space Sub-Area, Community Centre Sub-Area and Business and Industry Buffer Sub-Area)
Preliminary Approval for Reconfiguring a Lot (16 lots into 34 lots)
Property Location: Ashburn Road, Bognuda Street, Hawkins Crescent and Hopener Road, BUNDAMBA QLD 4304

I refer to the change application made under section 78 of the *Planning Act 2016*, received by Council on 4 June 2018 for a minor change to Application Number 3356/02, that was originally approved by Council on 6 July 2004 for land situated at Ashburn Road, Bognuda Street, Hawkins Crescent and Hopener Road, Bundamba.

I wish to advise that the change application has been approved by the Team Coordinator (Development) on 11 July 2018 as follows:

Nature of Changes:

Nature of Change	Decision
Bremer Business Park Preliminary Approval Document	To be amended
Part 1 Decision Details	To be amended
Condition 23: Parkland Dedication/Requirements	To be amended

Enclosed with this letter is the amended Development Approval, including:

- Attachment A – Assessment Manager's Conditions
- Attachment B – Approved Plans
- Attachment C – Referral Agency Responses
- Appeal Rights

To avoid any doubt, please note that this approval commences from the date the original development approval started to have effect.

If you have any queries regarding this Change Application Decision Notice, please contact Sally Holznagel on the telephone number listed above.

Yours faithfully

Mitchell Grant
TEAM COORDINATOR (DEVELOPMENT)

Cc. Department of State Development, Infrastructure and Planning

ipswichsara@dsdip.qld.gov.au

Queensland Urban Utilities

ATTACHMENT A – CHANGED APPLICATION DECISION NOTICE

1. Decision Details:

Development	Approval Type	Decision	Relevant Period
Material Change of Use of Premises (Development in accordance with a Plan of Development, including seven (7) Sub-Areas: Riverside Sub-Area, Highways Sub-Area, Frame ~~Industrial and Commercial~~ Sub-Area, ~~Central Industry~~ **Core** Sub-Area, Residential Sub-Area, Open Space Sub-Area, Community **and Commercial** Centre Sub-Area ~~and Business and Industry Buffer Sub-Area~~)	Preliminary Approval	Approved subject to the conditions set out in Attachment A – Assessment Manager Conditions and Attachment B - Referral Agency Response	4 years
Reconfiguring a Lot (16 lots into 34 lots	Preliminary Approval	Approved subject to the conditions set out in Attachment A – Assessment Manager Conditions and Attachment B - Referral Agency Response	4 years

2. Preliminary Approval Affecting the Planning Scheme

A preliminary approval to which section 242 of the *Sustainable Planning Act 2009* applies is given and the Assessment Manager has approved a variation to the local planning instruments, namely the Ipswich Planning Scheme 2006.

3. Approved Plans

The approved plans for this development approval are listed in condition 1 of the preliminary approval (material change of use – development in accordance with a Plan of Development) component and condition 3 of the preliminary approval (reconfiguring a lot – 16 lots into 34 lots) of the approval.

4. Codes for Self Assessable Development

Not applicable to this decision.

5. Other Necessary Development Permits and/or Compliance Permits

Further development permits, as required by the *Sustainable Planning Act 2009,* shall be obtained in respect of any material change of use, reconfiguring a lot, operational works, building works and plumbing works in relation to this approval prior to the commencement of use pursuant to the *Sustainable Planning Act 2009*.

6. Details of any Compliance Assessment Required for Documents or Work in Relation to the Development

Not applicable to this decision.

7. Submissions

There were properly made submissions received with respect to this application.

8. Conflict with a Relevant Instrument and Reasons for the Decision Despite the Conflict

Not applicable to this decision.

9. Referral Agencies

The referral agencies for this application are:

Referral Agency	Referral Role	Aspect of Development Requiring Referral	Address
Department of State Development, Infrastructure and Planning Ipswich SARA	Concurrence Agency	-Material Change of Use -Reconfiguring a Lot	Via email: ipswichsara@dsdip.qld.gov.au

Note: Referral agency response is attached to this decision notice.

10. When Development Approval Lapses

The relevant period for this approval is as outlined in part 1 – 'decision details' of this decision notice, starting the day the approval takes effect. Unless the relevant period is extended by the Assessment Manager pursuant to Chapter 6,

Part 8, Division 5 of the *Sustainable Planning Act 2009* (Extending period of approvals), this development approval lapses in accordance with section 341 of the *Sustainable Planning Act 2009*.

11. When s.242 Preliminary Approval Lapses

This s.242 preliminary approval lapses in accordance with s.343 of the *Sustainable Planning Act 2009*.

12. Conditions of Assessment Manager (Ipswich City Council)

Refer to Attachment A for Assessment Manager conditions.

13. Infrastructure Charges

Not applicable to this decision.

14. Appeal Rights

Attachment C is an extract from the *Sustainable Planning Act 2009* which details the applicant's appeal rights and the appeal rights of any submitters regarding this decision.

Attachment A

Assessment Manager (Ipswich City Council) Conditions

Conditions applicable to this approval under the Sustainable Planning Act 2009:

Preliminary Approval for Material Change of Use of Premises – Bremer Business Park Preliminary Approval

1. Site Development

The proposed development of the Bremer Business Park Area shall be undertaken in accordance with the Bremer Business Park Preliminary Approval (see Attachment A).

2. Self-Assessable Development

The developer is required to notify Council in writing of the commencement of any self-assessable use to be undertaken in accordance with the Bremer Business Park Preliminary Approval.

3. Code Assessable Development

Any code assessable development to be undertaken in accordance with the Bremer Business Park Preliminary Approval shall demonstrate compliance with the Bremer Business Park Preliminary Approval, relevant assessment criteria and Planning Scheme Policies contained within the Ipswich Planning Scheme unless specified otherwise in the Bremer Business Park Preliminary Approval.

4. Contributions

(a) The developer shall establish a 'serviced' headworks contribution credit for the land included in the Core Sub-Area, Frame Sub-Area, Highway Sub-Area, Riverside Sub-Area and Community and Commercial Sub-Area under the Bremer Business Park Preliminary Approval. To this end, the developer shall pay headworks contributions for the Core Sub-Area, Frame Sub-Area, Highway Sub-Area and Riverside Sub-Area at the level of 22.5 equivalent persons (ep) per hectare for water supply and sewerage and 46.5 equivalent persons (ep) per hectare for roadworks and for the Community and Commercial Sub-Area at the level of 22.5 equivalent persons (ep) per hectare for water supply and sewerage and 133 equivalent persons (ep) per hectare for roadworks; and

NB: These contributions established a minimum deemed credit for the land included in the abovementioned Sub-Areas. Where establishing/commencing uses and/or works create a demand greater than the deemed credit, further contributions may be applicable in accordance with the relevant Council Policies.

(b) The developer shall pay a recycled water infrastructure and streetscape contributions (where applicable); and

(c) The developer shall pay contributions towards the provision of water, sewerage, roadworks, social amenity and open space (parks) headworks for the land included in the Residential Sub-Area in accordance with the relevant Council Policies prior to the issuing of a Development Permit for Building works and/or prior to the issuing of a Development Permit for Reconfiguring a Lot and/or prior to the issuing of a Development Permit for a Material Change of Use (Code or Impact or Self-Assessable (if applicable)); and

The contributions must be paid at the rates applicable at the time of payment. Payment is required prior to the issuing of a Development Permit for Building Works and/or prior to the issuing of a Development Permit for Reconfiguring a Lot and/or as per conditions of a further Development Permit for a Material Change of Use (Code or Impact or Self-Assessable (if applicable)); or

(d) The developer may seek an alternative agreement in respect to water supply and sewerage infrastructure contributions. The agreement shall be prepared and approved by Council prior to the issuing of a Development Permit for Building Works and/or prior to the issuing of a Development Permit for Reconfiguring a Lot and/or prior to the issuing of a Development Permit for a Material Change of Use (Code or Impact or Self-Assessable (if applicable)).

5. Hours of Construction

Unless otherwise approved in writing by the Development Manager hours of construction shall be:

Monday to Saturday 6.30 a.m. to 6.30 p.m.

Work or business shall not be conducted from or on the premises outside the above hours or on Sundays or public holidays.

6. Road Naming Plan

The developer shall submit to and for approval by Council a list of names and name meanings for each new road to be opened. The proposed names shall be submitted to Council as part of any further application for a development permit for reconfiguring of a lot over the land.

7. Locality References

(a) Any place name or estate name used by the developer (excluding a reference to a building, structure or the like and excluding minor, subsidiary signage within a development) shall make reference to the relevant, approved place name under the *Place Names Act 1994*.

(b) Any reference to the regional location of the site or the development shall not refer to the place or estate as being located in Brisbane or a Brisbane suburb or in

the metropolitan area or in the western suburbs (excluding the western suburbs of Ipswich as determined by Council in writing from time to time).

8. Cultural Heritage Identification

(a) The developer shall prepare a schedule of places/locations or structures of cultural heritage significance within the Bremer Business Park Area for identification. This list is to be approved by the Development Manager and such identified places/locations or structures are to be acknowledged on the specific site through the installation of appropriately located and detailed interpretive works and signage describing the history and cultural significance of relevant item/s.

(b) The developer is to engage an appropriately qualified person to photograph and document (with measured drawings) the places/locations or structures in their existing condition, all items that are proposed to be demolished, removed or adaptively reused.

Four (4) copies of a report, including photographs and documentation shall be submitted to the Development Manager for approval. Once approved, two (2) copies of the report shall be held by the Planning and Development Department with the other two (2) copies being forwarded to the Ipswich City Council Library and John Oxley Library.

(c) Such work shall be completed prior to the issuing of a Development Permit for Building Works and/or prior to the issuing of a Development Permit for Reconfiguring a Lot and/or as per conditions of a further Development Permit for a Material Change of Use (Code or Impact or Self-Assessable (if applicable)).

9. Engineering Requirements

The following engineering requirements, detailed in Conditions 10 – 18, shall be completed to the satisfaction of the Senior Development Engineer and in accordance with Council's Planning Scheme Policy 3 – General Works.

10. Mining

(a) The developer shall prepare a detailed mining and geological assessment and recommendations report for those areas of the Bremer Business Park Area where there is evidence of previous mining activity or mining influence.

(b) The proposed development shall be designed and constructed in accordance with the approved recommendations as outlined in the geotechnical report and any required amendments.

(c) Prior to the approval of any application for building works, the Developer shall submit to Council a Structural Engineer's Certificate certifying that the proposed

structures have been designed in accordance with the abovementioned geotechnical report(s).

(d) The developer shall prepare and register a Covenant with the Register of Titles for each of the affected lots as identified in the abovementioned report, prior to the issuing of a Development Permit for Building Works and/or prior to the issuing of a Development Permit for Reconfiguring a Lot and/or as per conditions of a further Development Permit for a Material Change of Use (Code or Impact or Self-Assessable (if applicable)). The covenant shall be to the satisfaction of the Development Manager and advise that:

(i) All building structures shall be designed and constructed in accordance with the recommendations as outlined in the geotechnical report;

(ii) Any application for Building Works shall be accompanied by a Structural Engineer's Certificate certifying that the proposed structures have been designed in accordance with the abovementioned geotechnical reports.

(e) The Developer shall pay all costs concerning the preparation and execution of the covenant and any registration fees and duty (if any).

11. <u>Roadworks/Traffic</u>

(a) The developer shall provide an updated and detailed traffic study and recommendations, prepared by a RPEQ for the Bremer Business Park Area. Amongst other matters, the study shall address, but not be limited to, the following:

(i) A review of the traffic generated by the Bremer Business Park Area;

(ii) Road hierarchy for the Bremer Business Park Area, including connection points to the external road network;

(iii) Generalised land use;

(iv) Public transport needs;

(v) Staging and timing of the proposed works;

(vi) Effects on existing road networks;

(vii) Recommendation of specific measures to be undertaken to improve the alignment, sight distances, and signage of all roads which will result in safe movements of light and heavy vehicles, and reduce delays and queuing distances, including the connectivity of all transport systems available to the regions north and south of the Warrego Highway.

The access to the area on the northern side of the Warrego Highway is to be established prior to the commencement of any works on this portion of the Bremer Business Park Area and will be either via a service road connecting the northern round-a-bout at the River Road fly-over to the Warrego Highway, together with the necessary upgrading of the on and off-ramps to the Warrego Highway and with the necessary upgrades to the River Road bridge, both round-a-bouts, and Ashburn Road near the fly-over. Alternatively, this access may be achieved via a new fly-over over the Warrego Highway as an extension of Bognuda Street, together with the necessary accompanying on and off-ramps to the Warrego Highway.

It should be noted that both option for this northern connection require the approval of the Department of Main Roads and Council. Additionally, if any land is under other private ownership, written permission for the connection shall be obtained and forwarded to Council.

(viii) Recommendation of specific measures to be undertaken to upgrade Bognuda, Ashburn, Carberry and Bird Streets in terms of pavement widths and quality footpaths and stormwater management. It is noted that the developer has made specific commitments to the community in respect to the provision of works in Bird Street. To this end, the developer shall provide kerb and channel on both sides of Bird Street and drainage works and pavement infill as determined necessary by the Senior Development Engineer;

(ix) Recommendation of specific measures to be undertaken to define and improve the intersections of and to Brisbane Road, River Road and Ashburn Road and Warrego Highway;

(x) Recommendation of specific measures to be undertaken to isolate or distinctly separate all industrial traffic from residential traffic on Bognuda Street (where practical);

(xi) Recommendation of specific measures for the construction of a new connection road between Ashburn and Brisbane Roads.

This road shall be constructed with the cross-section of an arterial road, a design speed of 70km/h and be able to cater for B-Doubles.

The road is to be established prior to the commencement of any works on this portion of the Bremer Business Park Area and will access Brisbane Road through Lots 2 and 7 on RP22379. Additionally, if any land is under other private ownership, written permission for the connection shall be obtained and forwarded to Council.

(b) The study shall be submitted to and approved by the Development Manager prior to the issuing of a Development Permit for Building Works and/or prior to the issuing of a Development Permit for Reconfiguring a Lot and/or Development

Permit for a Material Change of Use (Code or Impact or Self-Assessable (if applicable)).

The Developer shall undertake any works deemed necessary by the Senior Development Engineer, to comply with the requirements of the traffic study.

12. Local Area Traffic Management Scheme

(a) The developer shall implement an integrated local area traffic management (LATM) scheme in the existing residential areas to the south and south-west of the Bremer Business Park Area, as follows:

(i) The LATM scheme shall be designed in accordance with the requirements of Council and approved by the Works Manager prior to the issuing of a Development Permit for Building Works and/or prior to the issuing of a Development Permit for Reconfiguring a Lot and/or Development Permit for a Material Change of Use (Code or Impact or Self-Assessable (if applicable));

(ii) The LATM scheme shall include a comprehensive public consultation component in which the developer must prepare and submit a communication plan for approval by the Works Manager prior to the issuing of a Development Permit for Building Works and/or prior to the issuing of a Development Permit for Reconfiguring a Lot and/or Development Permit for a Material Change of Use (Code or Impact or Self-Assessable (if applicable));

(iii) Initial design guidelines (to be finalised after public consultation) for the LATM scheme are:

- Direction signs on Brisbane Road, Jacaranda Street and Wattle Street to advise motorists (particularly heavy vehicle drivers) of alternative routes to Bremer Business Park. The type, size, layout and location of the direction signs requires approval from Council before implementation;

- Traffic control devices on Bryne Street (south of Law Street), Bognuda Street (north & south of Law Street) and Vale Street (east of Bognuda Street). These devices are to be either or a combination of angled slow points, deflected T-intersection devices or speed platforms. They shall be spaced at appropriate intervals so as to achieve a 50km/h speed environment and designed to provide adequate deflection for general traffic but still be able to accommodate buses and other large vehicles;

- Roundabouts at the intersections of:

    - Law Street - Byrne Street;
    - Bognuda Street - Law Street; and
    - Boundary Street - Bognuda Street - proposed Residential Access Street.

Adequate design and approach widening will be required at these roundabouts in order to accommodate turning vehicles, including turning articulated vehicles that are required to use the Law Street - Byrne Street and Bognuda Street - Law Street intersections from time to time. The central roundabout islands may need to be fully mountable, however the approach splitter islands should be of semi-mountable kerb and accommodate appropriate signage to provide sufficient prominence and control vehicle movements;

- Entry thresholds (consisting of kerb build-outs, central islands and raised & coloured pavement treatments) to signify entry to the residential area at:

  - the southern approach from the Bremer Business Park (just after the proposed roundabout at the intersection of the new east-west internal road and the realigned Bognuda Street;
  - Byrne Street (north of Vale Street); and
  - Vale Street (east of Byrne Street).

- The closure of Bognuda Street in the vicinity of 44 Bognuda Street (Lot 1 on RP102431);

(b) The LATM scheme shall be fully completed within *two (2) years* from the date of approval of this development application;

(c) Council may by agreement extend the period by which the LATM scheme has to be completed; and

(d) Design and construction of this LATM scheme shall be at no cost to Council;

(e) In lieu of (a) to (d) above (ie. implementation of the LATM scheme), the developer may:

(i) Design and construct a roundabout at the intersection of Boundary Street, Bognuda Street and the proposed Residential Access Street in accordance with Council requirements; and

(ii) Provide Council a monetary contribution of $600,000 (equal to the value of the consultation, planning, design and construction of the LATM scheme outlined (a) to (d) above).

This contribution shall be applicable for a period of twelve months and thereafter shall be calculated from the date of development approval to the date when payment is made in accordance with the CPI.

13. <u>Sewerage</u>

(a) The developer shall submit a sewerage planning report to and for approval by the Ipswich Water Manager. The scope of the report should be determined in consultation with Ipswich Water. The report shall address, but not be limited to,

the sewerage works required to service the Bremer Business Park Area, the timing of infrastructure and the impacts the proposed Bremer Business Park Area has on the existing (including the Bundamba Wastewater Centre) and planned infrastructure of Council.

(a) This sewerage planning report shall be submitted prior to the issuing of a Development Permit for Building Works and/or prior to the issuing of a Development Permit for Reconfiguring a Lot and/or Development Permit for a Material Change of Use (Code or Impact or Self-Assessable (if applicable)).

(b) The developer shall review and update, if necessary, the report as determined by Council. Council may request the developer to review and update the report where the assumptions used in the report vary from what is being proposed by the developer. This may occur where the anticipated demands or timing of development have been amended/altered.

(c) The developer shall undertake all works identified within the approved report. This includes all aspects of the works including, but not limited to, the design, construction, supervision, land acquisition, testing, survey and preparation of as-constructed drawings.

14. Non-Potable Water (Recycled Sewage Effluent)

(a) The developer shall provide a recycled water reticulation system in the Bremer Business Park Area in accordance with Council's requirements. Such a system may include a trunk main for the conveyance of the processed sewage effluent from the Bundamba Sewage Treatment Plant. The sizing of the main is to be established by an RPEQ in conjunction with discussions and projected demands anticipated by Ipswich Water;

(b) The Developer shall make provision for a recycled water main on both sides of each applicable road. An approved route for the location of the trunk water, sewage and recycled water mains is to be established prior to the issuing of a Development Permit for Building Works and/or prior to the issuing of a Development Permit for Reconfiguring a Lot and/or Development Permit for a Material Change of Use (Code or Impact or Self-Assessable (if applicable)).

15. Water

(a) The developer shall submit a water supply planning report to and for approval by the Ipswich Water Manager. The scope of the report shall be determined in consultation with Ipswich Water. The report shall address, but not be limited to, the water supply works required to service the Bremer Business Park Area, the timing of infrastructure and the impacts the proposed development has on the existing and planned infrastructure of Council.

(b) The report shall be approved by the Ipswich Water Manager prior to the issuing of a Development Permit for Building Works and/or prior to the issuing of a

Development Permit for Reconfiguring a Lot and/or Development Permit for a Material Change of Use (Code or Impact or Self-Assessable (if applicable)).

(c) The developer shall review and update, if necessary, the report as determined by Council. This may be as a result of the development amending/altering anticipated demands or timing.

(d) The developer shall undertake all works identified within the approved report. This includes all aspects of the works including, but not limited to, the design, construction, supervision, land acquisition, testing, survey and preparation of as-constructed drawings.

(e) The developer shall provide water mains on both sides of each applicable road, unless otherwise agreed to by Ipswich Water.

(f) The developer shall construct a new water main in the Bremer Business Park Area to replace the existing 500mm central trunk water main located between River Road and Bognuda Street. The developer shall contact Council to determine its requirements. The developer will be advised by Council as to, but not limited to, the extent of works that needs to be undertaken on the existing main (whether the main needs to be removed or the existing easement/s relinquished), the timing of the works (new main has to be constructed before the existing main has been taken off line), the alignment of the new main (open space, water and wastewater corridor) and the size of the main.

(g) The developer shall contact Council prior to the issuing of a Development Permit for Building Works and/or prior to the issuing of a Development Permit for Reconfiguring a Lot and/or Development Permit for a Material Change of Use (Code or Impact or Self-Assessable (if applicable)) to determine if Council has any requirements in respect to the works that will be carried out within or in vicinity of the water and wastewater corridors. Council may request that the developer undertake works to ensure the water and wastewater pipelines that are proposed within the corridor are not adversely impacted by the developer's proposed works. The developer shall incorporate Council's requirements. Any works requested by Council shall be undertaken at the expense of Council. Council would be responsible for the full costs of the main crossings.

16. <u>Water and Wastewater Corridors</u>

(a) The developer shall provide water and wastewater purpose corridors through the Bremer Business Park Area on the alignments generally indicated in the Bremer Business Park Preliminary Approval.

(b) The corridors will vary in width depending on the infrastructure that is to be constructed within them. The corridors are to have a minimum width of 20 metres and are expected to have an average width of 25 metres, unless otherwise approved by the Development Manager.

(c) The developer shall locate the corridors in open space, verge widths and in front setbacks of private properties, in this order. If required, the developer shall amend the proposed layout to ensure that this is achieved, unless otherwise approved by Council.

(d) The developer shall provide an easement in favour of Council for water and wastewater purposes where the corridors are located in private property.

(e) The developer shall provide an access easement in favour of Council to the water and wastewater easement where no direct frontage is available to any public areas.

(f) The developer shall contact Council prior to undertaking any works within the designated corridors to ascertain Council's requirements. This includes works relating to fencing, landscaping and driveways.

17. Road Reserves – Service Alignments

The developer shall provide a plan detailing the road reserve widths required within the Bremer Business Park Area. This plan should detail the services to be contained within each road reserve, their alignments and expected time for construction. The plan should provide adequate cross sections, with details of the existing infrastructure, for Council to determine if the road reserves proposed are sufficient.

18. Stormwater

(a) The developer shall provide all necessary stormwater drainage (both internal and external to the development) and such drainage works (except for roofwater systems) shall be designed and constructed in accordance with QUDM such that the overall drainage system caters for a storm event with an ARI of 100 years.

Overland flow paths shall be suitably designed to cater for the water from a storm event with an ARI of 100 years. In the case where the piped system is carrying part of the flow, the overland flow paths shall be designed to cater for that volume which is represented by the difference between the predicted volume from the storm event with an ARI of 100 years and the capacity of the pipe system, noting the requirements of QUDM.

(b) All stormwater flows within and adjacent to the Bremer Business Park Area, other than inter-allotment drainage, shall be confined to dedicated roads, drainage reserves, registered drainage easements or within parkland. The registered drainage easements, if related to piped drainage, shall be centrally located over such underground pipe system and shall be not less than 4.0 m wide, except for drainage easements required for side boundaries which may be 3.0 m wide where approved by the Senior Development Engineer. In addition, the easements shall be of suitable width to contain the predicted overland flow from the storm event with an ARI of 100 years in that location.

(c) No ponding or redirection of stormwater shall occur onto adjoining land unless specifically approved by Council in consultation with the owner of the adjoining land.

(d) Due consideration shall be given in these and future designs and construction of the development in relation to the effect of the developed catchment flows on the downstream discharge receival areas. Suitable stormwater control devices are to be provided to ensure that there is no increase in flows in watercourses. Such control devices are to be designed so as to integrate the landscaping, recreational, infrastructural and drainage roles of watercourses.

(e) Each proposed residential, commercial and/or industrial allotment shall be designed to comply with QUDM, Council's standards and the New Ipswich City Planning Scheme, including unimpeded access to a road system which is also above the design flood level.

(f) There shall be no filling or removal of material in the flood area below the flood level associated with an ARI of 100 years without the approval of the Senior Development Engineer. There shall be minimal disturbance to vegetation in the flood area, unless prior written approval is obtained from Council.

(g) Filling in proposed Lots, which are adjacent to the watercourse shown on the proposal plan, shall not be undertaken without the written approval of Council.

19. Health and Environmental Protection Requirements

Conditions 20 – 21, unless otherwise stated, shall be completed to the satisfaction of the Chief Environmental Health Officer.

20. Contaminated Land

The developer shall ensure all land to be dedicated to Council is not listed on either the Contaminated Land Register or the Environmental Management Register prior to dedication. In this regard the developer shall be responsible for all works associated with the removal of any land to be dedicated to Council from these registers. The developer shall provide details to Council demonstrating that the requirements of this condition have been met prior to the issuing of a Development Permit for Building Works and/or prior to the issuing of a Development Permit for Reconfiguring a Lot and/or Development Permit for a Material Change of Use (Code or Impact or Self-Assessable (if applicable)).

21. Stormwater Quality

The developer shall submit to and receive approval from the Health and Environmental Protection Manager for a Master Stormwater Quality Management Plan for the Bremer Business Park Area (the Master SQMP) prior to the issuing of a Development Permit for Building Works and/or prior to the issuing of a Development Permit for Reconfiguring a Lot and/or Development

Permit for a Material Change of Use (Code or Impact or Self-Assessable (if applicable)). A suitably qualified and experienced professional must prepare the Master SQMP. The Master SQMP must:

(i) Provide a management approach that ensures:

- Stormwater quality management measures for the Bremer Business Park Area consist of physical treatment measures to ensure that the stormwater discharged from a land use type complies with the pollutant levels identified in Table 1 below;

- Stormwater quality management measures for residential areas and roads consist of physical treatment measures to ensure that the stormwater discharged from these areas comply with the pollutant levels identified in Table 1 below;

- The matters of water sensitive urban design (WSUD), stormwater management and stormwater quality will be addressed throughout the Bremer Business Park Area in an integrated approach, and

- A refined Conceptual Design Stormwater Quality Management Plan (the Conceptual Design SQMP) is supplied for each development site prior to the issuing of a Development Permit for Building Works and/or prior to the issuing of a Development Permit for Reconfiguring a Lot and/or Development Permit for a Material Change of Use (Code or Impact or Self-Assessable (if applicable)) and then a Detailed Design Stormwater Quality Management Plan (the Detailed Design SQMP) is supplied for each development site prior to the issuing of a Development Permit for Operational Works.

(ii) Demonstrate, through appropriate pollutant export modelling (eg AQUALM or MUSIC), that the pollutant levels in the stormwater discharged from the Bremer Business Park Area comply with the pollutant levels identified in Table 1 below.

TABLE 1

Indicator	Modified ecosystem, wildlife, cultural heritage, secondary & visual recreation, industry, stock and irrigation
Total Phosphorus	70 ug/L
Total Nitrogen	650 ug/L
Suspended solids	15mg/L for combined wet and dry periods 90% ile < 100mg/L for wet weather periods
Oils and grease	no visible films or odour
Organic Carbon	As determined through the investigations into organic carbon on the site.
Litter/gross pollutants	No anthropogenic (man-made) material greater than 5mm in any dimension
Riparian vegetation & habitat	Protect & restore consistent with Council policy and plans
Cultural heritage	Protect & restore consistent with Council policy and plans

- Levels are upper limits for median values or ranges in which medians should lie, unless otherwise stated.
- Dependencies on hardness iron and chromium shown in brackets are difficult to quantify. They may be ignored initially but subsequently considered if the pollutant level range is exceeded. For more information refer to the latest Australian Water Quality Guidelines for Fresh and Marine Waters (ANZECC).
- A wet weather period is defined as "any period where stormwater runoff leaves the site".

22. Conservation, Parks and Sport Requirements

Conditions 23 – 26, unless otherwise stated, shall be completed to the satisfaction of the Conservation, Parks and Sport Manager.

23. Parkland Dedication/Requirements

Parkland works within the area included in the Open Space Sub-Area under the Bremer Business Park Preliminary Approval shall be undertaken generally in accordance with Plan Number 01, revision ~~N~~ **Q**, Overall Landscape Master Plan, dated ~~14/09/2015~~ **7/12/2017** and Plan Number 02, revision ~~N~~ **Q**, Indicative Circulation Hierarchy Plan, dated ~~14/09/2015~~ **7/12/2017**, prepared by Place Design Group. Open space shall be dedicated, free of cost to and compensation by Council, in fee simple, in accordance with the following requirements:

Location	OPW approval requirements	Timing of works	Dedication
Eastern Tributary Park South	Landscape plans to be approved with the first operational works application associated with a reconfiguring a lot approval for industrial/business lots within stage 2.	Works to be finalised prior to 31 December 2013.	Park is to be dedicated to Council either with plan sealing of the first lot in stage 2 or as otherwise determined by a reconfiguration permit for stage 2.
Warrego Highway south side buffer landscaping	Landscape plans to be approved with the first operational works application associated with a reconfiguring a lot approval for industrial/business lots within stage 1.	Works to be finalised prior to 31 December 2013.	Not required.
Stage 5 buffer **in accordance with application no. 5760/15**	Landscape plans to be approved with the first operational works application associated with ~~a reconfiguring a lot approval for industrial/business lots within stage 5~~ **application no. 5760/15**.	Works to be finalised prior to dedication or as otherwise determined by ~~a reconfiguration permit or operational works permit for stage 5~~ **application no. 5760/15**.	Prior to plan sealing of the first lot ~~adjacent to the buffer (not including balance lots) or as otherwise determined by a reconfiguration permit or operational works permit for stage 5~~ **as part of application no. 5760/15**.
Stage 6 – 5,000m² local recreational	Landscape plans to be approved with the first operational works application associated with a reconfiguring a lot approval for	Works to be finalised prior to dedication or as otherwise	Park is to be dedicated as otherwise determined by a reconfiguration permit or operational works permit for stage 6 or deed between Council and

park	industrial/business lots within stage 6.	determined by a reconfiguration permit or operational works permit for stage 6 or deed between Council and Walker.	Walker.
Stage 6 – eastern landscape buffer	Landscape plans to be approved with the first operational works application associated with a reconfiguring a lot approval for industrial/business lots within stage 6.	Works to be finalised prior to dedication or as otherwise determined by a reconfiguration permit or operational works permit for stage 6 or deed between Council and Walker.	Park is to be dedicated as otherwise determined by a reconfiguration permit or operational works permit for stage 6 or deed between Council and Walker.
Stage 6 – western landscape buffer	Landscape plans to be approved with the first operational works application associated with a reconfiguring a lot approval for industrial/business lots within stage 6.	Works to be finalised prior to dedication or as otherwise determined by a reconfiguration permit or operational works permit for stage 6 or deed between Council and Walker.	Park is to be dedicated as otherwise determined by a reconfiguration permit or operational works permit for stage 6 or deed between Council and Walker.
Archer Street Park	Landscape plans to be approved with the first operational works application associated with a reconfiguring a lot approval for industrial/business lots within stage 7 or as agreed between Council and Walker.	Works to be finalised prior to dedication or as otherwise determined by a reconfiguration permit or operational works permit for stage 7 or as agreed between Council and Walker.	Prior to plan sealing of the first lot (not including balance lots) for stage 7 or as otherwise determined by a reconfiguration permit or operational works permit for stage 7 or as determined by an option deed to be exercised by Council to buy the land for $1 in the following time frame: 1 July 2018, with a caveat that Walker may extend this timeframe for a further 5 years, after which further extensions may be sought and agreed to.
Bremer River Riparian Park	Detailed landscape plans to be approved with the first operational works application associated with a reconfiguring a lot approval for industrial/business lots within stage 7.	Works to be finalised prior to dedication or as otherwise determined by a reconfiguration permit or operational works permit for stage 7.	Prior to plan sealing of the first lot adjacent to the open space (not including balance lots) or as otherwise determined by a reconfiguration permit or operational works permit for stage 7.

24. Clearing/Disturbance within Proposed Parkland

(a) No clearing shall be undertaken in proposed parkland without the prior approval of the Conservation, Parks and Sport Manager.

(b) All areas of disturbance within parkland including areas of erosion and bare ground shall be rehabilitated. All batters and banks shall be fully stabilised and vegetated to the satisfaction of the Conservation, Parks and Sport Manager.

25. Quality of Park Dedication

Land to be dedicated for park purposes shall be upgraded to the satisfaction of the Conservation, Parks and Sport Manager as follows:

(a) Declared plants, environmental weeds and rubbish shall be removed;

(b) Dead trees shall be removed and dangerous trees made safe within 10 m of proposed house blocks or proposed pathways or playgrounds;

(c) Open areas shall be grassed and left in mowable condition;

(d) Open areas shall be free of rocks, stumps, humps and hollows;

(e) Disturbed areas shall be revegetated using indigenous plant species;

(f) A cleared 4m wide mowable strip shall be formed behind proposed house blocks;

(g) All rubbish shall be removed from parkland;

(h) Parkland shall be freely and safely drained;

(i) All playground equipment and park furniture shall meet Australian Standards both in supply and installation;

(j) No overburden or spoil shall be pushed or deposited into parkland;

(k) Water, sewer and power service shall be provided to the proposed park; and

(l) There shall be no removal of soil or filling around trees.

26. Naming of Parkland

(a) The developer shall submit to and for approval by Council a list of at least three names and their name meanings for each new park. The proposed names shall be submitted as part of the Operational Works application. Should a theme be considered appropriate, the theme should be submitted to Council at the time of submitting the road names.

(b) The developer shall erect a suitable park name sign to the satisfaction of the Development Manager.

27. Department of Main Roads

The Bremer Business Park Preliminary Approval excludes the areas identified for quarantine in the Department of Main Road's Concurrence Agency response dated 24 September 2003 until such time as the quarantine period lapses or the Department of Main Roads determines that the quarantine is no longer required.

28. When Preliminary Approval Takes Effect

This preliminary approval has effect in accordance with the provisions of Section 3.5.19 of the *Integrated Planning Act 1997* as follows:

(a) If the applicant does not appeal the decision to the court - when the submitter's appeal period ends; or

(b) If an appeal is made to the court - subject to the decision of the court, when the appeal is finally decided.

29. When Preliminary Approval Lapses

(a) This preliminary approval lapses:

(i) At the end of the currency period, unless the change of use happens before the end of the currency period. The currency period for this approval is 4 years starting the day the approval takes effect; and

(ii) Where the change of use of any premises established pursuant to the development approval has ceased for a period of at least 12 months.

(b) An extended currency period may be agreed upon, pursuant to Section 3.5.22 of the *Integrated Planning Act 1997*, provided a written notice to Council is made before the end of the currency period. Such written notice is to be on Council's approved form, accompanied by the owner's consent and the prescribed fee in Council's Register of General Charges.

(c) All of the development the subject of this approval shall be completed within the periods stated in Condition (a)(i) above. This approval shall lapse for any part of the development of the site that has not commenced within the currency period stated in Condition (a)(i) above.

Preliminary Approval for Reconfiguring of a Lot

1. Basis of Approval

Subject to these conditions, the facts and circumstances set out in the application and all relevant Council Local Laws and/or Planning Scheme Policies shall be adhered to.

2. Minor Alterations

Notwithstanding the requirements detailed in this approval, any other minor alterations and/or modifications acceptable to the Development Manager will suffice.

3. Development Plan

An amended development plan and staging plan, generally in accordance with Plan Number JD 2322-00-069 (Attachment B), dated 14 April 2004 and prepared by Keilar Fox and McGhie and Plan Number JD 2322-00-070 (Attachment C), dated 14 April 2004 and prepared by Keilar Fox and McGhie, shall be submitted to and approved by the Development Manager prior to Council issuing a development permit for reconfiguring of a lot over the land. Such plan shall include, amongst other items, the following:-

(i) Approved locations, widths and paths for the trunk water, sewer and recycled water mains and any sewer rising mains with the Bremer Business Park Area (Refer to Conditions 9, 10, 11 and 12 from the abovementioned Preliminary Approval for Material Change of Use of Premises);

(ii) Trafficable connections for the Bremer Business Park Area (Refer to Condition 8 from the abovementioned Preliminary Approval for Material Change of Use of Premises);

4. Rates in Arrears

In accordance with the provisions of the *Integrated Planning Act 1997*, all rates and other expenses as a charge against the land shall not be in arrears at the date of signing of the plan of survey.

5. Compliance with Conditions

(a) Conditions 1 to 27 from the abovementioned Preliminary Approval for Material Change of Use of Premises shall be completed prior to signing of the relevant plan of survey or as determined by the Development Manager.

(b) Unless otherwise stated all conditions from this Preliminary Approval for Reconfiguring of a Lot shall be completed prior to signing of the relevant plan of survey or as determined by the Development Manager.

(c) All conditions shall be completed to the satisfaction of the Development Manager.

6. When this Approval Takes Effect

This approval has effect in accordance with the provisions of Section 3.5.19 of the *Integrated Planning Act 1997* as follows:

(a) If the applicant does not appeal the decision to the court - from the time the decision notice is given (or if a negotiated decision notice is given, from the time the negotiated decision notice is given); or

(b) If an appeal is made to the court - subject to the decision of the court, when the appeal is finally decided.

7. When Approval Lapses

(a) The currency period for this approval is 4 years starting the day the approval takes effect. The Developer is required to submit to Council an accurate plan of survey before the end of the currency period, otherwise the approval will lapse.

(b) An extended currency period may be agreed upon, pursuant to Section 3.5.22 of the *Integrated Planning Act 1997*, provided a written notice to Council is made before the end of the currency period. Such written notice is to be on Council's approved form, accompanied by the owner's consent and the prescribed fee in Council's Register of General Charges.

8. Conditions of Concurrence Agencies

(a) The Environmental Protection Agency (Contaminated Land Unit) is a concurrence agency with regard to this development approval. The attached concurrence agency response, dated 10 September 2003 forms part of this Decision Notice as per Attachment D to the report by the Development Manager dated 15 June 2004.(

(b) The Department of Main Roads is a concurrence agency with regard to this development approval. The attached concurrence agency response, dated 24 September 2003 forms part of this Decision Notice as per Attachment E to the report by the Development Manager dated 15 June 2004.

Advice

The following advices are offered for your information only and should not be viewed as mandatory conditions of this approval.

Assessment Manager (Ipswich City Council)

1. Fire Ants

In accordance with the *Plant Protection Act 1989* and the Plant Protection Regulation 1990, a quarantine notice has been issued for the State of Queensland to prevent the spread of the Red Imported Fire Ant (ant species Solenopsis invicta) and to eradicate it from the State.

It is the legal obligation of the land owner or any consultant or contractor employed by the land owner to report the presence or suspicion of Fire Ants to the Queensland Department of Primary Industries on 132523 within 24 hours of becoming aware of the presence or suspicion, and to advise in writing within seven days to:

Director General
Department of Primary Industries
GPO Box 46, Brisbane QLD 4001

It should be noted that the movement of Fire Ants is prohibited, unless under the conditions of a Department of Primary Industries Inspectors Approval. More information can be obtained from the Queensland Department of Primary Industries website www.dpi.qld.gov.au.

The development approved herein, by its very nature, includes activities considered to be "high risk" in respect of controlling the spread of Fire Ants. The following lists show high risk activities and some precautions should be considered for implementation.

(a) High risk activities can include:

(i) Earthworks of a minor or major scale;

(ii) Revegetation or rehabilitation;

(iii) Import of fill onto a site;

(iv) Export of fill or other materials such as soils, gravel, mulch and plants; and

(v) Export off or import on to a site of construction and demolition waste and materials or green waste.

(b) Precautions for implementation

(i) Checking for ants regularly;

(ii) Checking all soil, fill and waste materials (construction and green waste) for ants;

(iii) Asking questions about the quality and source of soil, fill and waste materials (construction and green waste);

(iv) Keeping records of all movements of soil, fill and waste materials (construction and green waste);

(v) Cleaning of all earthmoving or other soiled vehicles prior to exit from the site; and

(vi) Informing staff and contractors about these precautions.

2. Portable Long Service Leave

From 1 January 2001, the Building and Construction Industry (Portable Long Service Leave) Levy must be paid prior to the issue of a development permit where one is required for the 'Building and Construction Industry'. This applies to Building Works, Operational Works and Plumbing and Drainage Works applications, as defined under the *Integrated Planning Act 1997*, where the works are $80 000 or more and matching the definition of 'Building and Construction Industry' under the *Building and Construction Industry (Portable Long Service Leave) Act 1991*.

Council will not be able to issue a decision notice without receipt of details that the levy has been paid. Should you require clarification in regard to the amendments to the *Building and Construction Industry (Portable Long Service Leave) Act 1991*, you should contact QLeave on 1800 803 481 (free call) or (07) 3212 6855.

3. Cultural Heritage

The Cultural Heritage Branch of the Environmental Protection Agency advised Council in a letter dated 10 April 2003 that three (3) Queensland Estate sites were destroyed on land within the Bremer Business Park Area through site works associated with the establishment of the Capral Aluminium Extrusion Plant. Queensland Estate sites are protected under the *Cultural Record (Landscape Queensland and Queensland Estate) Act 1987*. The Act states that it is offence under section 56(2) to '...take, destroy, damage, deface, excavate, expose, conceal or interfere with an item of Queensland Estate', unless a person does so under the authority of the Act. As such, the developer is reminded of its responsibilities under the Act.

4. Mining

The land to which this approval relates may have been worked by underground coal mining operations. Council, and its servants and agents, accept no liability or responsibility for any loss or damage to person or property of whatever nature or however caused as the direct or indirect consequence of the g ranting of the approval herein contained. Such approval has been granted at the request of the developer and in reliance of information submitted by the developer in support thereof.

APPEAL RIGHTS

Applicant appeal rights

You have appeal rights in relation to this decision. An appeal may be made against a responsible entity's decision for a change application.

An appeal must be started within 20 business days after this notice is given to you.

An appeal may be made to the Planning and Environment Court or, for certain matters which are identified in section 1(2) of Schedule 1 of the *Planning Act 2016*, to a development tribunal.

An appeal is started by lodging a notice of appeal with the registrar of the Planning and Environment Court or a development tribunal, as applicable. The notice of appeal must be in the approved form, succinctly state the grounds of the appeal and be accompanied by the required fee.

An appellant to the Planning and Environment Court must give a copy of the notice of appeal, within 10 business days after the appeal is started, to the persons identified in section 230(3) of the *Planning Act 2016*. A person who is appealing to the Planning and Environment Court must comply with the rules of the court that apply to the appeal.

Chapter 6, Part 1 and Schedule 1 of the *Planning Act 2016* sets out further information about appeal rights. **Attached** is an extract from the *Planning Act 2016* about appeal rights.

Concurrence/Advice agency appeal rights

If this notice is given to a concurrence agency or advice agency, other than the chief executive under the *Planning Act 2016* that gave a pre-request response or response notice:

You have appeal rights against the decision for a change application if you are an affected entity that gave a pre-request response notice or response notice for the change application.

An appeal must be started within 20 business days after this notice is given to you.

An appeal may be made to the Planning and Environment Court or, for certain matters which are identified in section 1(2) of Schedule 1 of the *Planning Act 2016*, to a development tribunal.

An appeal is started by lodging a notice of appeal with the registrar of the Planning and Environment Court or a development tribunal, as applicable. The notice of appeal must be in the approved form, succinctly state the grounds of the appeal and be accompanied by the required fee.

An appellant to the Planning and Environment Court must give a copy of the notice of appeal, within 10 business days after the appeal is started, to the persons identified in section 230(3) of the *Planning Act 2016*. A person who is appealing to the Planning and Environment Court must comply with the rules of the court that apply to the appeal.

Chapter 6, Part 1 and Schedule 1 of the *Planning Act 2016* sets out further information about appeal rights. **Attached** is an extract from the *Planning Act 2016* about appeal rights.

If this notice is given to an advice agency which requested that its referral agency response be treated as a properly made submission:

You have appeal rights in relation to this decision if you are an eligible advice agency. An appeal may be made against, as applicable, a provision of a development approval, or failure to include a provision in the development approval, to the extent the matter relates to:

- any part of the change application that required impact assessment; or
- a variation request.

An appeal must be started within 20 business days after this notice is given to you.

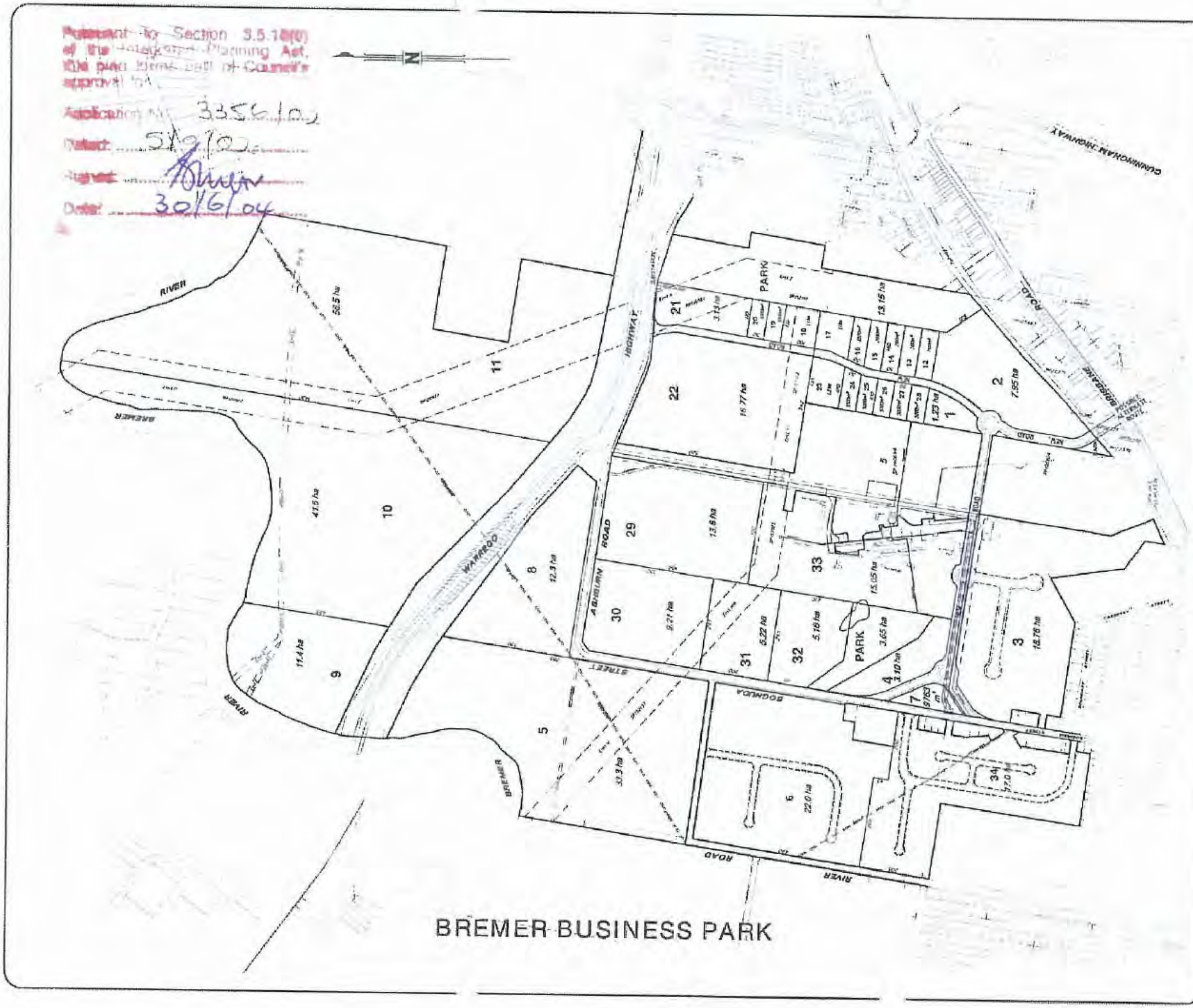
An appeal may be made to the Planning and Environment Court.

An appeal is started by lodging a notice of appeal with the registrar of the Planning and Environment Court. The notice of appeal must be in the approved form, succinctly state the grounds of the appeal and be accompanied by the required fee.
An appellant to the Planning and Environment Court must give a copy of the notice of appeal, within 2 business days after the appeal is started, to the persons identified in section 230(3) of the *Planning Act 2016*. A person who is appealing to the Planning and Environment Court must comply with the rules of the court that apply to the appeal.
Chapter 6, Part 1 and Schedule 1 of the *Planning Act 2016* sets out further information about appeal rights. **Attached** is an extract from the *Planning Act 2016* about appeal rights.

Submitter appeal rights
You have appeal rights in relation to this decision if you are an eligible submitter. An appeal may be made against, as applicable, the decision to approve the change application, a provision of a development approval, or failure to include a provision in the development approval, to the extent the matter relates to:

- any part of the development approval or change application that required impact assessment; or
- a variation request.

An appeal must be started within 20 business days after this notice is given to you.
An appeal may be made to the Planning and Environment Court.
An appeal is started by lodging a notice of appeal with the registrar of the Planning and Environment Court. The notice of appeal must be in the approved form, succinctly state the grounds of the appeal and be accompanied by the required fee.
An appellant to the Planning and Environment Court must give a copy of the notice of appeal, within 2 business days after the appeal is started, to the persons identified in section 230(3) of the *Planning Act 2016*. A person who is appealing to the Planning and Environment Court must comply with the rules of the court that apply to the appeal.
Chapter 6, Part 1 and Schedule 1 of the *Planning Act 2016* sets out further information about appeal rights. **Attached** is an extract from the *Planning Act 2016* about appeal rights.



WINGATE/HUDSON JOINT VENTURE

PROPOSED SUBDIVISION

OF LOT 13 ON SL2987, LOT 1 ON RP84725, LOT 142 ON RP84515, LOTS 44 ON RP2291, LOT 3 ON RP132087, LOT 31 ON SL2911, LOT 1 ON RP86806, LOT 1 ON RP22376, LOT 2 ON RP101883, LOT 1 ON RP22380, LOT 2 ON RP86697, LOT 1 ON RP125443 AND LOTS 4 & 6 ON RP14024

GOODNA | STANLEY

IPSWICH CITY COUNCIL

SCALE 1:5000 (A1)
SCALE 1:10000 (A3)

KEILAR FOX McGHIE

JD 2322-00-069

Pursuant to Section 3.5.15(5) of the Integrated Planning Act, this plan forms part of Council's approval for

Application No: 33561C

Date: 30/6/04

BREMER BUSINESS PARK
STAGING PLAN

WINGATE/HUDSON JOINT VENTURE

STAGING PLAN OF THE BREMER INDUSTRIAL DEVELOPMENT

GOODNA | STANLEY

IPSWICH CITY COUNCIL

SCALE 1:5000 (A1)
SCALE 1:10000 (A3)

KEILAR FOX McGHIE

JD 2329-00-070

Cardno (Qld) Pty Ltd | ABN 57 051 074 992
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Fax: 07 3369 9722
Web: www.cardno.com.au
Email: brisbane@cardno.com.au

Cardno®
Shaping the Future

WALKER CORPORATION PTY LTD
CITISWICH STAGE 7
PRELIMINARY BULK EARTHWORKS

LOCALITY
N.T.S.

SCHEDULE OF DRAWINGS	
SHEET NUMBER	SHEET TITLE
BULK EARTHWORKS	
7902/44/014-100	COVER SHEET
7902/44/014-101	EXISTING CONDITIONS PLAN & GENERAL NOTES
7902/44/014-102	OVERALL EARTHWORKS PLAN
7902/44/014-105	SETOUT PLAN - SHEET 1 OF 2
7902/44/014-106	SETOUT PLAN - SHEET 2 OF 2
7902/44/014-107	SETOUT TABLES
7902/44/014-110	SITE CROSS SECTIONS - SHEET 1 OF 2
7902/44/014-111	SITE CROSS SECTIONS - SHEET 2 OF 2
EROSION & SEDIMENT CONTROL	
7902/44/014-200	EROSION & SEDIMENT CONTROL NOTES & DETIALS
7902/44/014-201	EROSION & SEDIMENT CONTROL PLAN

Pursuant to Section 330(1) of the Sustainable Planning Act 2009, this plan forms part of Council's approval for:

Approval No: 3464/13

Signed:

Decision Date: 10 December 2013

walker

Drawing No.: 7902-44-014-100
Date: 05/07/2013
Client Ref No:

NOTES:

1. LEVELS AND GRADIENTS AT JUNCTIONS WITH EXISTING WORKS MAY BE VARIED AS REQUIRED TO ACHIEVE SATISFACTORY CONNECTIONS AND THE COSTS DEEMED INCLUDED IN THE RELEVANT SCHEDULE ITEMS.
2. ALL EXISTING SERVICES AND STRUCTURES ARE TO BE MAINTAINED IN GOOD ORDER FOR THE DURATION OF THE CONTRACT AND WHERE RELOCATION IS REQUIRED REFER SPECIFICATION.
3. ~~NOT WITHSTANDING THE LIMITS OF EARTHWORKS SHOWN ON THE DRAWINGS, THE ACTUAL LIMITS SHALL BE DETERMINED ON SITE BY THE SUPERINTENDENT.~~
4. FILLING ON ALLOTMENTS TO BE COMPACTED TO 98% STANDARD DRY DENSITY AS1289 5.1.1 AND TRIMMED TO BE FREE DRAINING. ALL ALLOTMENT FILL SHALL BE SUPERVISED BY A GEOTECHNICAL TESTING AUTHORITY TO LEVEL 1 REQUIREMENTS IN ACCORDANCE WITH AS 3798. FOOTINGS SYSTEMS PROPOSED FOR INDIVIDUAL STRUCTURES SHALL BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER WITH EXPERIENCE IN STRUCTURAL DESIGN.
5. NO FILLING TO BE UNDERTAKEN UNTIL APPROVAL OF SUBGRADE BY GEOTECHNICAL ENGINEER, INCLUDING UNDER EXISTING STOCKPILES.
6. THE CONTRACTOR IS TO PROVIDE EROSION AND SEDIMENT DEPOSITION CONTROL DEVICES DURING THE CONSTRUCTION PERIOD. GENERALLY IN ACCORDANCE WITH THE SEDIMENT AND EROSION CONTROL PLANS.
7. CONTRACTOR TO CONDUCT FIELD DENSITY TESTING, PROVIDE RESULTS AND CERTIFICATION IN ACCORDANCE WITH IPSWICH CITY COUNCIL PLANNING SCHEME POLICY 6. MINIMUM FREQUENCY OF TESTING FOR LARGE SCALE OPERATIONS TO BE GREATEST OF:
   (A) 1 TEST PER 500M3 DISTRIBUTED REASONABLY EVENLY THROUGHOUT FULL DEPTH AND AREA; OR
   (B) 1 TEST PER LAYER PER MATERIAL TYPE PER 2500M²; OR
   (C) 1 TEST PER 200MM THICKNESS PER MATERIAL TYPE PER 2500M²;
   (D) 1 TEST PER LOT
8. ALL BATTERS WITHIN LOTS TO BE 1:2 MAX GRADE OR AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
9. THE CONTRACTOR SHALL SETOUT THE WORKS FROM THE PEGS, SURVEY BENCHMARKS AND OTHER NOMINATED DESIGN REFERENCE LINES. THE CONTRACTOR SHALL MAINTAIN AND PROTECT THE PEGS AND SURVEY MARKS FOR THE DURATION OF THE CONTRACT.
10. ANY WORKS UNDERTAKEN IN THE VICINITY OF PUBLIC ROADS MUST BE APPROPRIATELY SIGNED, LIT AND BARRICADED TO ENSURE THE SAFETY OF THE PEDESTRIAN AND VEHICULAR TRAFFIC IN THEIR VICINITY. WORKS WILL BE SO ORDERED TO ENSURE THAT PUBLIC ACCESS ALONG THE ROADS IS MAINTAINED AT ALL TIMES TO THE SATISFACTION OF IPSWICH CITY COUNCIL AND DTMR.
11. WHERE REQUIRED, BEFORE COMMENCEMENT OF THE WORKS THE CONTRACTOR SHALL OBTAIN THE REGULATORY AUTHORITIES APPROVAL AND OPERATING REQUIREMENT FOR THE TRUCK ROUTES TO BE USED BY ALL VEHICLES ASSOCIATED WITH THE CIVIL WORKS. APPROPRIATE CLEANSING DEVICES SHALL BE INSTALLED ON SITE TO ENSURE THERE IS NO ADVERSE IMPACT FROM VEHICLES ALONG THESE ROUTES.
12. THE LOCATION OF EXISTING SERVICES HAS BEEN OBTAINED FROM THE AVAILABLE AUTHORITY RECORDS. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN ON THE PLANS. THE CONTRACTOR SHALL ASCERTAIN THE LOCATION OF ALL EXISTING SERVICES PRIOR TO COMMENCEMENT OF WORKS. ANY DISCREPANCIES SHALL BE IMMEDIATELY REPORTED TO THE SUPERINTENDENT.
13. WHERE A CONNECTION IS TO BE MADE TO EXISTING CONSTRUCTION THE CONTRACTOR SHALL CONFIRM THE LOCATION AND LEVEL OF THIS CONSTRUCTION PRIOR TO THE COMMENCEMENT OF WORK ON ANY CRITICAL SECTION. ANY DISCREPANCIES ARE TO BE IMMEDIATELY REPORTED TO THE SUPERINTENDENT. CARDNO MAY VARY THE LEVELS AND GRADIENTS AT NEW WORKS TO ACHIEVE A SATISFACTORY CONNECTION.
14. THE CONTRACTOR SHALL ENSURE THAT THE SITE IS FREE DRAINING AT ALL TIMES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL SURFACES FOR THE DURATION OF THE CONTRACT AND WILL BE REQUIRED TO UNDERTAKE REMEDIAL WORKS AS DEEMED NECESSARY BY THE SUPERINTENDENT.
15. THE CONTRACTOR SHALL ALLOW FOR THE CONTROL OF WATER FLOWS OVER THE SITE DURING THE CONTRACT PERIOD WHICH MAY INCLUDE THE CONSTRUCTION OF TEMPORARY CUTOFF DRAINS IF DEEMED NECESSARY BY THE SUPERINTENDENT. FINAL ALIGNMENT AND CROSS SECTION TO BE AGREED ON SITE WITH THE SUPERINTENDENT PRIOR TO SETOUT AND EXCAVATION. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING THE EXISTING DRAINAGE SYSTEM WITHIN THE VICINITY OF THE SITE AND SHALL TAKE ALL MEASURES NECESSARY TO CONTROL SOIL EROSION AND AVOID POLLUTION OF COUNCIL'S DRAINAGE SYSTEMS.
16. STRIP ALL TOPSOIL TO EXTENT OF WORKS TO ENSURE COMPLETE REMOVAL OF ALL ORGANIC MATTER PRIOR TO EARTHWORKS COMMENCING. MATERIAL TO BE STOCKPILED FOR REUSE AS DIRECTED BY THE SUPERINTENDENT. ALL EXCESS TOPSOIL TO BE REMOVED FROM SITE ON COMPLETION OF THE WORKS.

FIRE ANT TREATMENT ZONE

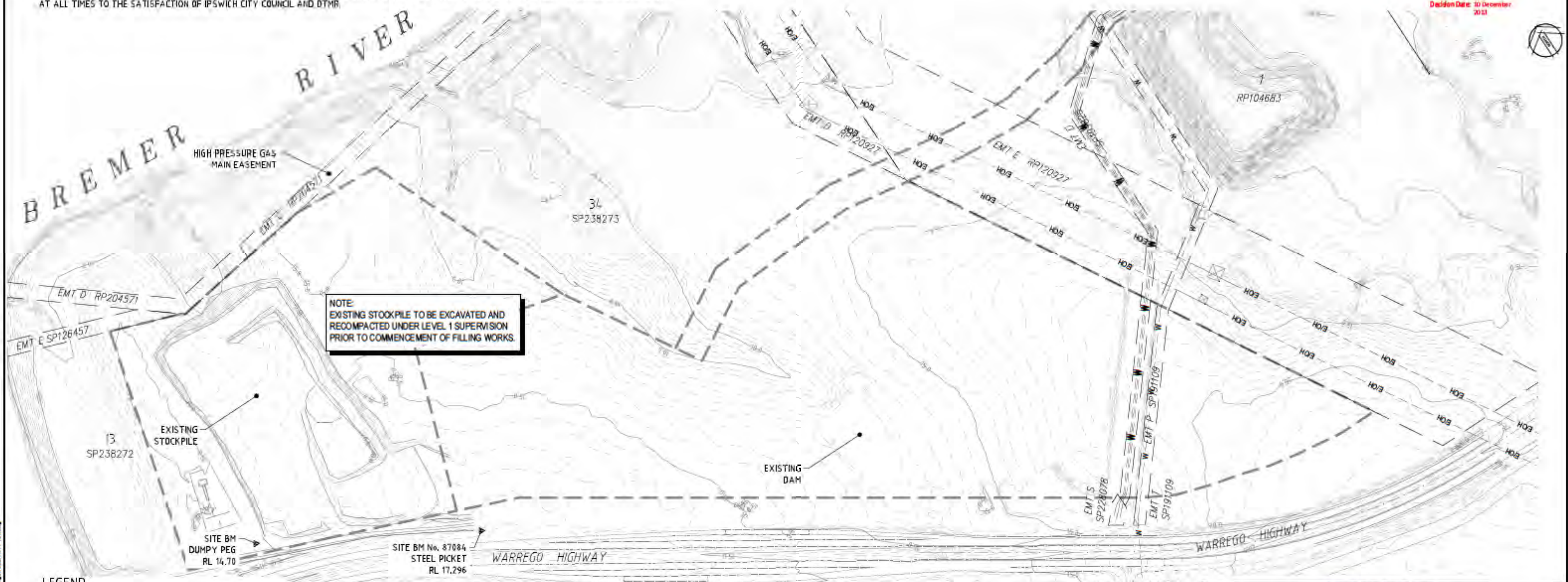
FIRE ANT TREATMENT ZONE – DISPOSAL OF MATERIAL SHALL BE IN ACCORDANCE WITH THE DEPARTMENT OF PRIMARY INDUSTRIES REGULATIONS.
REFER TO WEBSITE: WWW.DPI.QLD.GOV.AU FOR MOVEMENT CONTROL DETAILS.

Pursuant to Section 336(b) of the Sustainable Planning Act 2009, this plan forms part of Council's approval for

Approval No: 3464/13

Signed: [signature]

Decision Date: 10 December 2013



NOTE:
THE SERVICES INFORMATION SHOWN ON THE DRAWINGS HAS BEEN DERIVED FROM THE FOLLOWING SOURCES
- PLAN DATA PROVIDED BY SERVICE AUTHORITIES
- DIAL BEFORE YOU DIG INFORMATION REQUESTS
THE CONTRACTOR OR CONSTRUCTION AUTHORITY IS TO CONFIRM THE ACTUAL LOCATIONS OF ALL EXISTING UNDERGROUND SERVICES PRIOR TO COMMENCEMENT OF CONSTRUCTION

LEGEND

— 135 —	EXISTING CONTOUR 0.5m INT.
—	EXISTING CONTOUR 5m INT.
— — —	DEVELOPMENT BOUNDARY APPROVAL No 3356/2002
— E/OH —	EXISTING OVERHEAD POWER
— W —	EXISTING WATER MAIN
— SWD —	EXISTING STORMWATER DRAINAGE
— —	EXISTING EASEMENT

EXISTING CONDITIONS
1:2000

BENCHMARK TABLE

BM	HORIZONTAL DATUM	EASTING	NORTHING	RL.	DESCRIPTION
N/A	AHD	9033.316	5767.703	14.7	DUMPY PEG
87084	AHD	9233.537	5650.744	17.296	STEEL PICKET

BENCHMARK DETAILS AS PROVIDED BY B & P SURVEYS.

20 0 20 40 60 80 100m
1:2000 - A1 1:4000 - A3

Rev	Date	Description	Drawn	Appr.
2	03/08/2013	FIRE ANT TREATMENT ZONE	BRS	EC
1	05/07/2013	ORIGINAL ISSUE	BRS	EC

Verified: [signature] Date 05-08-2013
Approved: [signature] Date 05-08-2013
RPEQ No. 13143

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Cardno (Qld) Pty Ltd A.C.N. 051 074 992
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Locked Bag 4006, Fortitude Valley Qld 4006
Phone (07) 3369 9822 Fax (07) 3369 9722
Email: cardno@cardno.com.au Web: www.cardno.com.au

Quality Endorsed Company

Drawn	BRS	Date 05/07/2013
Checked	FV	Date 05/07/2013
Designed	BRS	Date 05/07/2013

Client: WALKER CORPORATION PTY LTD

CITISWICH STAGE 7
PRELIMINARY BULK EARTHWORKS

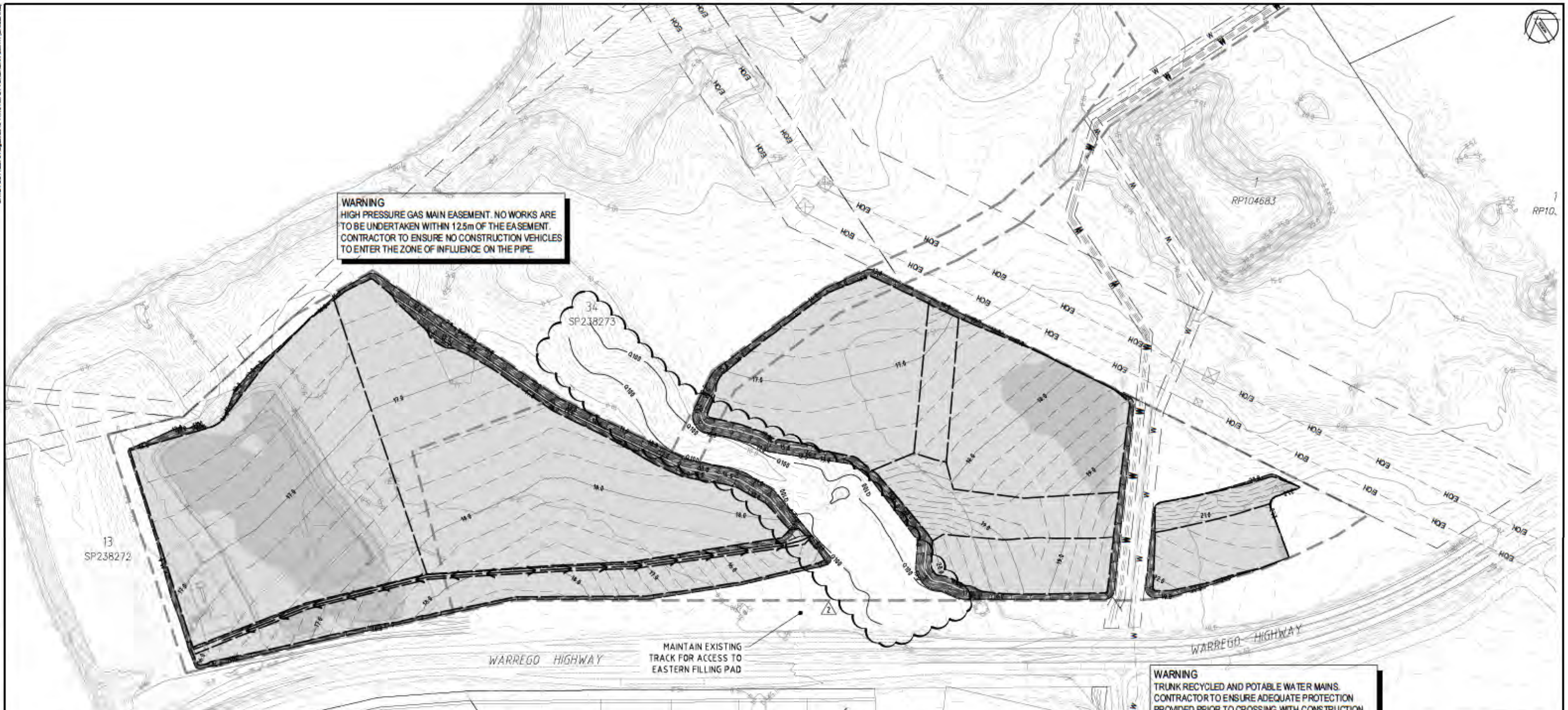
EXISTING CONDITIONS PLAN & GENERAL NOTES

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum	Grid	Scale	Size
A.H.D.		1:2000	A1

Drawing Number: 7902-44-014-101 Revision: 2

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150mm ON A1 ORIGINAL



OVERALL BULK EARTHWORKS
1:2000

LEGEND

- DESIGN CONTOUR MAJOR (1.0m INT.)
- DESIGN CONTOUR MINOR (0.2m INT.)
- DEVELOPMENT BOUNDARY APPROVAL No 3356/2002
- PROPOSED TABLE DRAIN REFER TO DRG 7902/44/014-111
- Q100 LINE REFER TO NOTE 1.
- EARTHWORKS FILL SHADING
- EARTHWORKS CUT SHADING
- EXISTING CONTOUR 0.5m INT.
- EXISTING CONTOUR 5m INT.
- EXISTING OVERHEAD POWER
- EXISTING WATER MAIN
- EXISTING STORMWATER DRAINAGE
- EXISTING EASEMENT

NOTES:
1. THE Q100 LINE IS AS PER CARDNO LAWSON TRELOAR HYDRAULIC ASSESSMENT DATED 2 AUGUST 2013.

Pursuant to Section 336(b) of the Sustainable Planning Act 2009, this plan forms part of Council's approval for
Approval No: 3668/13
Signed:
Decision Date: 10 December 2013

20 0 20 40 60 80 100m
1:2000 - A1 1:4000 - A3

Rev	Date	Description	Drawn	Appr.
2	03/08/2013	Q100 LINE ADDED	BRS	EC
1	05/07/2013	ORIGINAL ISSUE	BRS	EC

Verified — Date 05-08-2013
Approved — Date 05-08-2013
RPEQ No. 13143

walker

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Locked Bag 4006, Fortitude Valley Qld 4006
Phone (07) 3369 9822 Fax (07) 3369 9722
Email cardno@cardno.com.au Web www.cardno.com.au

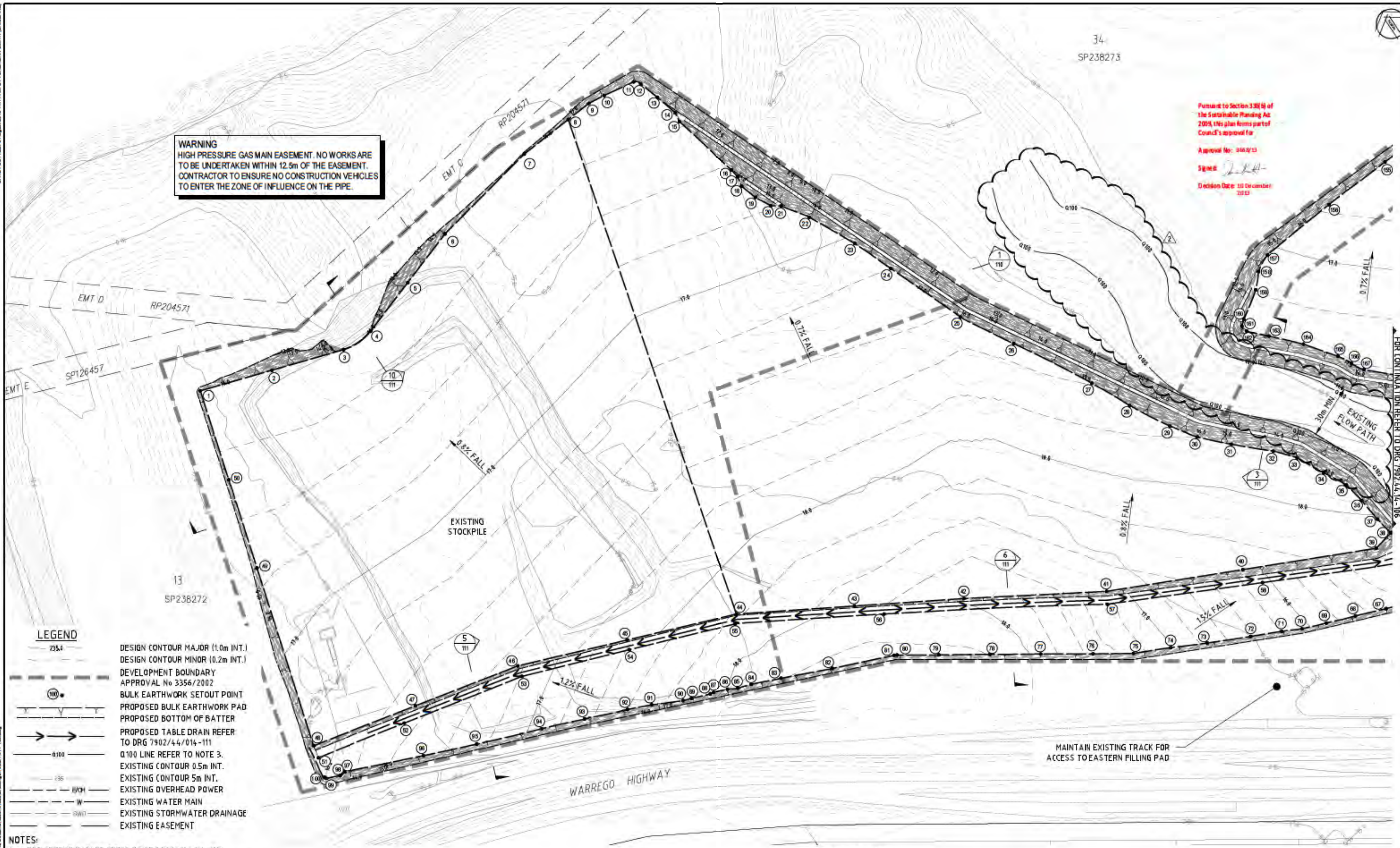
Quality Endorsed Company

Drawn	Date	Checked	Date	Designed	Date
BRS	05/07/2013	FV	05/07/2013	BRS	05/07/2013

Client: WALKER CORPORATION PTY LTD
CITISWICH STAGE 7
PRELIMINARY BULK EARTHWORKS
OVERALL EARTHWORKS PLAN

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES
Datum: A.H.D. | Grid | Scale: 1:2000 | Size: A1
Drawing Number: 7902-44-014-102 | Revision: 2

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150mm ON A1 ORIGINAL



LEGEND

- DESIGN CONTOUR MAJOR (1.0m INT.)
- DESIGN CONTOUR MINOR (0.2m INT.)
- DEVELOPMENT BOUNDARY APPROVAL No 3356/2002
- BULK EARTHWORK SETOUT POINT
- PROPOSED BULK EARTHWORK PAD
- PROPOSED BOTTOM OF BATTER
- PROPOSED TABLE DRAIN REFER TO DRG 7902/44/014-111
- Q100 LINE REFER TO NOTE 3.
- EXISTING CONTOUR 0.5m INT.
- EXISTING CONTOUR 5m INT.
- EXISTING OVERHEAD POWER
- EXISTING WATER MAIN
- EXISTING STORMWATER DRAINAGE
- EXISTING EASEMENT

NOTES:

1. FOR SETOUT TABLES REFER TO DRG 7902/44/14-107.
2. FOR TYPICAL SECTIONS REFER TO DRGS 7902/44/14-(110-111).
3. THE Q100 LINE IS AS PER CARDNO LAWSON TRELOAR HYDRAUL ASSESSMENT DATED 2 AUGUST 2013.

Rev	Date	Description	Drawn	Appr.
2	03/08/2013	Q100 LINE ADDED	BRS	EC
1	05/07/2013	ORIGINAL ISSUE	BRS	EC

Verified — Date 05-08-2013
Approved — Date 05-08-2013
RPEQ No. 13143

walker

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Quality Endorsed Company

Drawn	BRS	Date 05/07/2013
Checked	FV	Date 05/07/2013
Designed	BRS	Date 05/07/2013

Client: WALKER CORPORATION PTY LTD

CITISWICH STAGE 7
PRELIMINARY BULK EARTHWORKS

SETOUT PLAN
SHEET 1 OF 2

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum	Grid	Scale	Size
A.H.D.		1:1000	A1

Drawing Number: 7902-44-014-105
Revision: 2

ON A1 ORIGINAL

Pursuant to Section 336(b) of the Sustainable Planning Act 2009, this plan forms part of Council's approval for
Approval No: 3640/13
Signed:
Decision Date: 10 December 2013

LEGEND

235.0	DESIGN CONTOUR MAJOR (1.0m INT.)
	DESIGN CONTOUR MINOR (0.2m INT.)
	DEVELOPMENT BOUNDARY APPROVAL No 3356/2002
(100)	BULK EARTHWORK SETOUT POINT
	PROPOSED BULK EARTHWORK PAD
	PROPOSED BOTTOM OF BATTER
→ →	PROPOSED TABLE DRAIN REFER TO DRG 7902/44/014-111
Q100	Q100 LINE REFER TO NOTE 3.
	EXISTING CONTOUR 0.5m INT.
135	EXISTING CONTOUR 5m INT.
E/OH	EXISTING OVERHEAD POWER
W	EXISTING WATER MAIN
SWD	EXISTING STORMWATER DRAINAGE
	EXISTING EASEMENT

NOTES:
1. FOR SETOUT TABLES REFER TO DRG 7902/44/14-107.
2. FOR TYPICAL SECTIONS REFER TO DRGS 7902/44/14-(110-111).
3. THE Q100 LINE IS AS PER CARDNO LAWSON TRELOAR HYDRAULIC ASSESSMENT DATED 2 AUGUST 2013.

LAYOUT PLAN
1:1000

10 0 10 20 30 40 50m
1:1000 - A1 1:2000 - A3

Rev	Date	Description	Drawn	Appr.
2	03/08/2013	Q100 LINE ADDED	BRS	EC
1	05/07/2013	ORIGINAL ISSUE	BRS	EC

Verified — Date 05-08-2013
Approved — Date 05-08-2013
RPEQ No. 13143

walker

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Quality Endorsed Company

Drawn	BRS	Date 05/07/2013
Checked	FV	Date 05/07/2013
Designed	BRS	Date 05/07/2013

Client: WALKER CORPORATION PTY LTD
CITISWICH STAGE 7
PRELIMINARY BULK EARTHWORKS
SETOUT PLAN
SHEET 2 OF 2

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES
Datum: A.H.D. | Scale: 1:1000 | Size: A1
Drawing Number: 7902-44-014-106 | Revision: 2

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150mm ON A1 ORIGINAL

BULK EARTHWORKS SETOUT POINTS

POINT	EASTING	NORTHING	RL
1	9039.048	6005.493	16.220
2	9079.530	5992.740	16.220
3	9120.012	5979.987	16.220
4	9138.827	5980.247	16.220
5	9171.736	5991.622	16.220
6	9204.645	6002.997	16.220
7	9267.363	6015.981	16.220
8	9299.191	6018.548	16.220
9	9313.994	6019.742	16.220
10	9323.763	6018.699	16.220
11	9342.012	6015.865	16.220
12	9344.778	6012.723	16.220
13	9348.454	6001.123	16.215
14	9351.966	5988.207	16.341
15	9351.354	5982.551	16.379
16	9360.844	5943.209	16.621
17	9361.624	5938.125	16.650
18	9360.553	5932.281	16.689
19	9363.528	5922.692	16.742
20	9368.317	5913.848	16.789
21	9373.106	5910.409	16.801
22	9382.867	5896.343	16.872
23	9396.284	5869.421	17.008
24	9405.557	5846.203	17.197
25	9423.389	5801.207	17.446
26	9440.243	5772.004	17.509
27	9464.934	5728.513	17.591
28	9475.935	5705.966	17.669
29	9488.518	5683.638	17.753
30	9498.064	5669.848	17.798
31	9512.046	5655.612	17.818
32	9529.628	5639.270	17.803
33	9538.906	5628.586	17.806
34	9546.857	5613.039	17.853
35	9553.759	5600.081	17.893
36	9556.065	5587.812	17.949
37	9557.783	5573.917	18.014
38	9559.795	5563.252	18.035
39	9547.999	5560.511	18.098
40	9478.037	5592.296	18.303
41	9406.450	5624.818	18.513
42	9336.257	5666.422	18.814
43	9281.952	5697.298	18.509
44	9223.344	5730.619	18.180
45	9163.295	5752.681	17.923
46	9103.246	5774.743	17.666
47	9042.105	5787.978	17.469
48	8980.963	5801.212	17.263
49	9010.006	5903.352	16.746
50	9024.500	5954.328	16.483
51	8979.420	5793.960	15.925
52	9031.289	5783.297	16.344
53	9101.857	5768.464	16.816
54	9161.230	5747.385	17.417
55	9219.547	5726.330	17.840
56	9293.479	5684.195	18.070
57	9402.719	5618.524	17.195
58	9483.202	5579.963	16.065
59	9563.910	5541.903	15.425
60	9570.559	5543.660	15.490
61	9572.169	5527.253	15.667
62	9573.361	5517.647	15.732
63	9572.389	5516.834	15.724
64	9565.473	5518.029	15.644
65	9559.352	5520.072	15.576
66	9545.990	5524.340	15.456

BULK EARTHWORKS SETOUT POINTS

POINT	EASTING	NORTHING	RL
67	9533.705	5528.726	15.500
68	9516.799	5534.907	15.686
69	9500.800	5540.658	15.885
70	9487.499	5545.603	16.057
71	9477.073	5550.729	16.194
72	9460.656	5558.112	16.426
73	9437.988	5568.656	16.749
74	9419.144	5577.941	17.022
75	9399.637	5586.917	17.292
76	9380.334	5599.424	17.533
77	9355.262	5618.900	17.927
78	9330.972	5631.744	18.193
79	9306.644	5647.531	18.245
80	9286.607	5660.741	18.255
81	9285.240	5661.414	18.257
82	9251.754	5674.631	18.257
83	9224.370	5686.115	18.189
84	9208.303	5692.561	18.127
85	9200.661	5694.991	18.067
86	9195.520	5697.717	18.035
87	9187.821	5700.590	17.999
88	9185.811	5700.947	17.990
89	9175.465	5704.696	17.919
90	9170.718	5706.288	17.886
91	9154.494	5714.212	17.730
92	9141.558	5719.569	17.597
93	9118.241	5728.589	17.344
94	9094.791	5737.440	17.088
95	9059.131	5750.570	16.748
96	9030.237	5761.809	16.529
97	8987.529	5778.932	16.121
98	8984.225	5778.660	16.093
99	8976.713	5781.691	15.996
100	8976.115	5782.911	15.986
101	9675.407	5472.123	20.013
102	9659.711	5450.562	20.114
103	9658.995	5447.709	20.114
104	9659.418	5442.044	20.078
105	9660.520	5439.621	20.054
106	9666.426	5434.146	19.950
107	9670.071	5429.682	19.882
108	9678.546	5414.921	19.706
109	9684.135	5410.598	19.615
110	9689.644	5400.455	19.511
111	9705.096	5387.566	19.274
112	9738.178	5365.076	18.901
113	9795.038	5336.180	19.775
114	9797.561	5330.782	19.815
115	9809.844	5345.441	19.789
116	9823.073	5361.484	19.763
117	9862.813	5341.533	21.712
118	9851.363	5325.735	21.896
119	9837.985	5307.177	22.108
120	9838.242	5303.033	22.126
121	9850.530	5294.799	22.014
122	9889.071	5279.307	21.695
123	9918.629	5270.832	21.645
124	9944.283	5261.733	21.551
125	9972.052	5255.988	21.514
126	9979.439	5286.713	21.213
127	9984.096	5308.445	21.004
128	9985.707	5312.781	20.958
129	9990.095	5318.860	20.791
130	9994.535	5315.817	20.747
131	10006.397	5313.420	20.668
132	10021.522	5309.036	20.627

BULK EARTHWORKS SETOUT POINTS

POINT	EASTING	NORTHING	RL
133	10004.228	5333.850	20.041
134	9949.677	5352.440	20.251
135	9894.292	5375.288	20.095
136	9862.918	5408.112	19.489
137	9878.434	5426.337	19.263
138	9891.232	5441.371	19.079
139	9909.021	5462.107	18.826
140	9921.731	5476.904	18.646
141	9921.980	5482.834	18.535
142	9920.433	5489.127	18.514
143	9917.087	5499.254	18.400
144	9902.301	5524.597	18.138
145	9887.687	5549.644	17.873
146	9875.188	5571.295	17.656
147	9856.288	5600.795	17.401
148	9845.034	5617.389	17.265
149	9824.600	5648.452	17.032
150	9807.088	5677.715	16.688
151	9794.936	5698.156	16.504
152	9782.093	5719.608	16.382
153	9772.557	5734.572	16.290
154	9726.961	5744.057	16.324
155	9673.639	5741.438	16.560
156	9633.720	5738.813	16.765
157	9588.567	5734.090	17.040
158	9579.183	5729.050	17.108
159	9572.071	5721.360	17.184
160	9557.054	5710.925	17.309
161	9554.108	5708.400	17.336
162	9554.809	5704.700	17.355
163	9563.787	5695.294	17.353
164	9577.677	5680.597	17.347
165	9590.202	5664.045	17.375
166	9594.349	5656.460	17.397
167	9598.415	5649.515	17.417
168	9625.743	5623.075	17.443
169	9628.274	5619.908	17.449
170	9628.382	5617.039	17.465
171	9640.988	5604.137	17.499
172	9656.029	5589.440	17.544
173	9658.634	5584.946	17.567
174	9664.102	5566.973	17.672
175	9666.189	5560.774	17.811
176	9670.729	5526.380	18.653
177	9675.779	5481.840	19.756
178	9688.740	5471.948	19.762
179	9736.931	5432.706	19.010
180	9768.458	5414.835	18.721
181	9782.786	5404.115	18.850
182	9815.508	5382.634	19.463
183	9832.834	5372.895	19.776
184	9871.434	5353.420	21.545
185	9881.560	5348.877	21.506
186	9919.169	5334.336	21.259
187	9950.196	5323.216	21.117
188	9969.791	5317.458	21.029
189	9885.474	5374.228	20.374
190	9821.476	5432.098	19.089
191	9778.700	5456.855	18.678
192	9722.888	5504.993	18.062
193	9732.157	5532.100	17.823
194	9709.631	5558.100	17.577

Pursuant to Section 336(b) of the Sustainable Planning Act 2009, this plan forms part of Council's approval for
Approval No: 3668/13
Signed:
Decision Date: 10 December 2013

SETOUT NOTES

1. CO-ORDINATE SETOUT PROVIDED ON THESE DRAWINGS IS BASED ON AN ARBITRARY CO-ORDINATE BASE. REFERENCE MARKS AND CORRESPONDING CO-ORDINATES ARE PROVIDED ON THIS DRAWING.
2. THE LEVEL DATUM FOR WORKS IS AHD (AUSTRALIAN HEIGHT DATUM). A SITE BENCHMARK HAS BEEN PROVIDED BY B & P SURVEYORS AND LEVEL BENCHMARK IS NOTED ON ATTACHED LAYOUT.

Rev	Date	Description	Drawn	Appr.
2	03/08/2013	SETOUT NOTE ADDED	BRS	EC
1	05/07/2013	ORIGINAL ISSUE	BRS	EC

Verified — Date 05-08-2013
Approved — RPEQ No. 13143 — Date 05-08-2013

walker

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Cardno (Qld) Pty Ltd

Drawn: BRS — Date: 05/07/2013
Checked: FV — Date: 05/07/2013
Designed: BRS — Date: 05/07/2013

Client: WALKER CORPORATION PTY LTD

CITISWICH STAGE 7
PRELIMINARY BULK EARTHWORKS

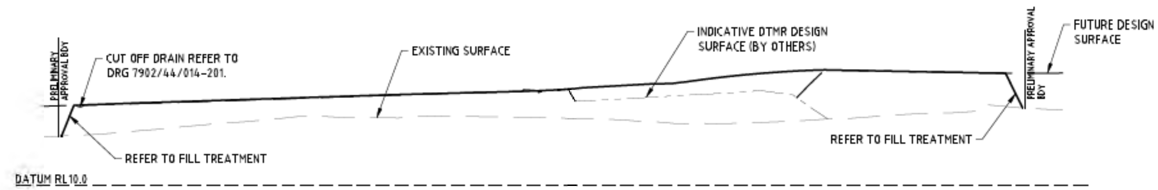
SETOUT TABLES

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum	Grid	Scale	Size
A.H.D.		AS SHOWN	A1

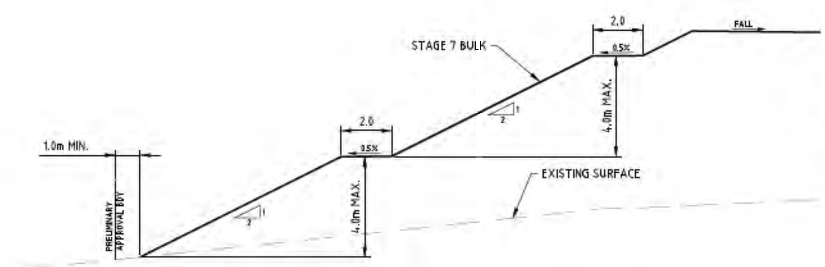
Drawing Number: 7902-44-014-107 — Revision: 2

ON A1 ORIGINAL



SECTION 2 / 106
SCALE H1:1000 V1:250

SECTION 1 / 105
SCALE H1:1000 V1:250



NOTE:
DESIGN TO BE VERIFIED BY GEOTECHNICAL ENGINEER BASED ON ASSESSMENT OF EMBANKMENT AND FOUNDATION MATERIALS. FOUNDATION PREPARATION AND CONSTRUCTION TO BE SUPERVISED BY GEOTECHNICAL ENGINEER.

TYPICAL FILL BATTER TREATMENT
1:100

NOTES:
1. FOR BULK EARTHWORKS NOTES REFER TO DRG 7902/44/014-101.
2. FOR SETOUT PLANS REFER TO DRGS 7902/44/014-(105-106).

Pursuant to Section 335(b) of the Sustainable Planning Act 2009, this plan forms part of Council's approval for
Approval No: 3668/13
Signed:
Decision Date: 10 December 2013

1:100 - A1 1:200 - A3 | 1:250 - A1 1:500 - A3 | 1:1000 - A1 1:2000 - A3

Rev	Date	Description	Drawn	Appr.
1	05/07/2013	ORIGINAL ISSUE	BRS	

Verified — Date 05-07-2013
Approved — Date 05-07-2013
RPEQ No. 13143

walker

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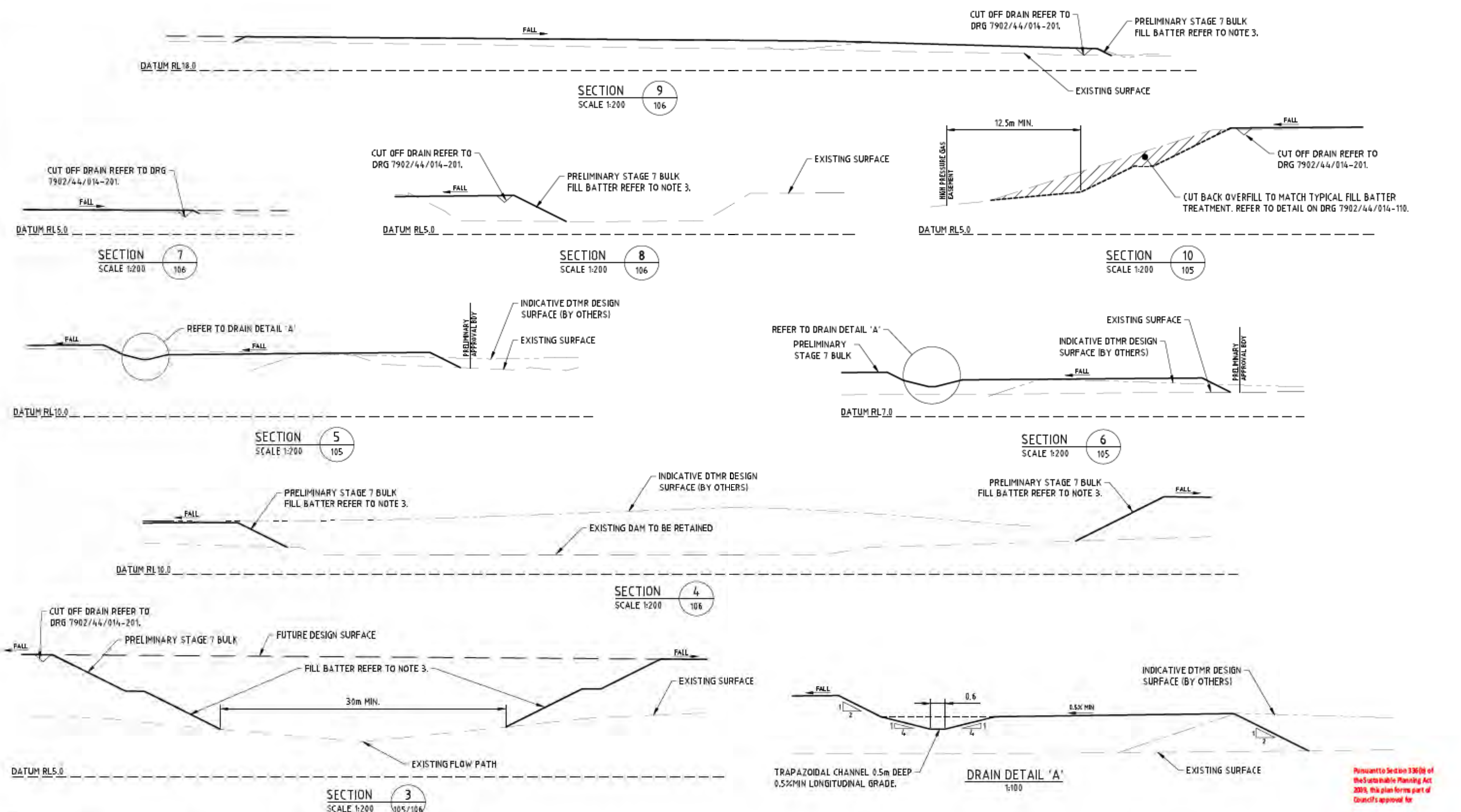
Drawn	BRS	Date 05/07/2013
Checked	FV	Date 05/07/2013
Designed	BRS	Date 05/07/2013

Client: WALKER CORPORATION PTY LTD
CITISWICH STAGE 7
PRELIMINARY BULK EARTHWORKS
SITE CROSS SECTIONS
SHEET 1 OF 2

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES
Datum: A.H.D. | Scale: AS SHOWN | Size: A1
Drawing Number: 7902-44-014-110 | Revision: 1

ON A1 ORIGINAL



NOTES:

1. FOR BULK EARTHWORKS NOTES REFER TO DRG 7902/44/014-101.
2. FOR SETOUT PLANS REFER TO DRGS 7902/44/014-(105-106).
3. FOR TYPICAL FILL BATTER TREATMENT REFER TO DETAIL ON DRG 7902/44/014-110.

Pursuant to Section 336(b) of the Sustainable Planning Act 2009, this plan forms part of Council's approval for

Approval No: 3468/13

Signed:

Decision Date: 10 December 2013

1:100 - A1 1:200 - A3

1:200 - A1 1:400 - A3

Rev	Date	Description	Drawn	Appr
1	05/07/2013	ORIGINAL ISSUE	BRS	

Verified — Date 05-07-2013
Approved — Date 05-07-2013
RPEQ No. 13143

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Cardno (Qld) Pty Ltd

Drawn	Date
BRS	05/07/2013
Checked FV	05/07/2013
Designed BRS	05/07/2013

Client: WALKER CORPORATION PTY LTD

CITISWICH STAGE 7
PRELIMINARY BULK EARTHWORKS

SITE CROSS SECTIONS
SHEET 2 OF 2

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum: A.H.D. | Scale: AS SHOWN | Size: A1

Drawing Number: 7902-44-014-111 | Revision: 1

ON A1 ORIGINAL

Bremer Business Park
Preliminary Approval

Ipswich City Council

11 July 2018

Pursuant to the Planning Act 2016, this plan forms part of Council's approval for

Approval No: 3356/02/MAMC/A

Date: 11 July 2018

Signed:

1 Introduction

1.1 The Bremer Business Park Preliminary Approval

The development application for 'preliminary approval' in accordance with section 3.1.6 of the now repealed *Integrated Planning Act 1997* (IPA) was lodged with Ipswich City Council on 5 September 2002 by Wingate Properties Pty Ltd. The Bremer Business Park Preliminary Approval relates to the Preliminary Approval of a material change of use for "Development in accordance with a Plan of Development, including seven (7) Sub-Areas: Riverside Sub- Area, Highway Sub-Area, Frame Sub-Area, Core Sub-Area, Residential Sub-Area, Open Space Sub-Area and Community and Commercial Sub- Area".

1.2 Status of the Bremer Business Park Preliminary Approval

The Bremer Business Park Preliminary Approval prescribes a planning framework to facilitate an integrated and coordinated approach to development of land within the area known as the Bremer Business Park Area.

The Overall and Specific Outcomes set out in this preliminary approval must be satisfied prior to a development permit for development, over any part of the Bremer Business Park Area, being determined by Council or its delegated officer.

The Overall and Specific Outcomes of the applicable codes of the Ipswich Planning Scheme apply in the Bremer Business Park Area, unless otherwise set out in this preliminary approval. Unless otherwise specifically outlined, all references to the Ipswich Planning Scheme refer to the Ipswich Planning Scheme which came into force on 5 April 2004 and any subsequent amendments to that scheme which are in force.

The Bremer Business Park Preliminary Approval has precedence over the Ipswich Planning Scheme provisions where an inconsistency arises.

If the Bremer Business Park Preliminary Approval does not take effect and/or lapses, then future development of the Bremer Business Park Area shall occur in accordance with the Ipswich Planning Scheme.

1.3 The Bremer Business Park Area

The Bremer Business Park Area is defined in Figure 1.

Pursuant to the Planning Act 2016, this plan forms part of Council's approval for

Approval No: 3356/02/MAMC/A

Date: 11 July 2018

Signed:

Under the Ipswich Planning Scheme, part of the site is included in the Regionally Significant Business and Industry (Bundamba / Riverview Sub-Area - RB2) Zone. The RB2 Sub-Area is intended to provide for low and medium impact business and industry activities.

Pursuant to the Planning Act 2016, this plan forms part of Council's approval for

Approval No: 3356/02/MAMC/A

Date: 11 July 2018

Signed:

2 Preliminary Approval Structural Elements

2.1 Division of the Bremer Business Park into Sub-Areas

For the purposes of this Preliminary Approval, the Sub-Areas are the areas of land that are-

- bordered by a heavy solid red line in Figure 3;
- contain a Sub-Area reference; and
- are listed by that Sub-Area reference and name in Table 1.

Table 1 – Sub-Areas

SUB-AREA	REFERENCE
Riverside Sub-Area	R
Highway Sub-Area	H
Frame Sub-Area	F
Core Sub-Area	C
Residential Sub-Area	RES
Open Space Sub-Area	OS
Community and Commercial Sub-Area	CC
No Sub-Area Reference: any registered land parcel(s) within the Bremer Business Park Area (i.e. land bordered by a heavy solid red line in Figure 3) that does not contain a Sub-Area reference, is excluded from the Sub-Area Codes described in this document.	

2.2 Preliminary Approval has Development Constraints Overlays

For the purposes of the Bremer Business Park Preliminary Approval development constraints overlays apply to the Bremer Business Park Area, as outlined in Part 11 of the Ipswich Planning Scheme and Section 2 of this preliminary approval.

The land use opportunities outlined in this preliminary approval only take force and effect within the DMR Road Corridor Quarantine Area (refer Section 11.4) once the quarantine lapses or DMR determines that the quarantine is no longer required.

2.3 Determining the Level of Assessment of Development

Assessment tables for each Sub-Area identifies the level of assessment of development.

2.4 Types of Codes

The preliminary approval is structured to comprise the following types of codes:

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- Bremer Business Park Area Code;
- Sub-Area Codes; and
- Overlay Codes.

Other relevant codes are also 'called up' from the Ipswich Planning Scheme. These codes may include zone codes (refer to Parts 4 and 5 of the Ipswich Planning Scheme), overlay codes (refer to Part 11 of the Ipswich Planning Scheme) and codes for development for a stated purpose or of a stated type (refer to Part 12 of the Ipswich Planning Scheme).

2.5 Codes Applicable to Ongoing Use

A code that is applicable to a material change of use is also applicable to the ongoing use that results from the change.

2.6 Preliminary Approval Seeks to Achieve Outcomes

The preliminary approval seeks to achieve outcomes that are identified according to the following levels:

(a) overall outcomes for the Bremer Business Park Area and Sub-Areas;

(b) specific outcomes for the Bremer Business Park Area and Sub-Areas; and

(c) probable solutions for a specific outcome.

2.7 Probable Solutions for Code Assessable Development

A probable solution for a specific outcome provides a guide for achieving that outcome in whole or in part and does not limit the assessment manager's discretion under the relevant Act to impose conditions on a development approval.

2.8 Definitions

This preliminary approval uses the dictionary in the Ipswich Planning Scheme.

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3 The Bremer Business Park Area

3.1 The Bremer Business Park Area Provisions

The following provisions in this part comprise the Bremer Business Park Area Code–

- overall outcomes for the Bremer Business Park Area; and
- specific outcomes for the Bremer Business Park Area.

3.2 Compliance with Bremer Business Park Area Code

Development that in the assessment manager's opinion, is consistent with specific outcomes for the Bremer Business Park Area, as a whole and the specific outcomes for the relevant sub-area, complies with the Bremer Business Park Area Code.

3.3 Overall Outcomes for the Bremer Business Park Area

The overall outcomes sought for the Bremer Business Park Area are the following-

Overall Vision

The Bremer Business Park Area is a fully integrated business and industry centre consisting of a range of land uses set in an attractive, open, landscaped environment, with high levels of accessibility to the State and local transportation networks and which is designed and buffered in a manner which protects the amenity of nearby residents.

3.4 Specific Outcomes for the Bremer Business Park Area, as a whole

Uses and works in the Bremer Business Park Area are to comply with the Specific Outcomes of the Regional Business and Industry Zone with the following exceptions and additions -

Environmental Sustainability - Specific Outcomes

(a) Bremer Business Park Area achieves sustained economic growth, good design and ecological sustainability, through -

- the development of appropriately located transport orientated activities such as warehousing, distribution, and wholesaling which are supported by co-located manufacturing businesses and industries;

- the possible creation of a connection road between the Warrego Highway and the Cunningham Highway along the eastern boundary of the Bremer

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Business Park Area that provides an opportunity to locate businesses that desire higher levels of access;

- an efficient, safe and attractive transport network that provides for a range of transport modes including motor vehicles, freight vehicles, public transport (bus and rail), pedestrians and cyclists;

- the creation of a land use pattern that transitions from lower impact uses on the edge to higher impact activities towards the centre, with buffer areas on the periphery to separate incompatible and sensitive uses; refer to the Ipswich Planning scheme Zoning Map and Sub Areas, and development application 5760/2015;

- the establishment of a range of business and industry uses and other employment opportunities that are associated with industrial operations, particularly those directly serving the day-to-day needs of workers;

- the development of buildings in an attractive parkland setting, inclusive of active and passive recreation facilities and spaces and pedestrian and cycle trails;

- the conservation of important vegetation areas and the linkage of riparian, or other wildlife corridors;

- the rehabilitation of degraded and contaminated sites and their use in an appropriate manner;

- the establishment of land uses and capital works that support the efficient provision and extension of infrastructure, including physical infrastructure and human services and related facilities;

- the establishment of land uses that demonstrate best practice environmental management; and

- sustainable water usage is facilitated, particularly where relating to water sensitive design and the use of recycled water.

Streetscape, Visual/Aesthetic Considerations - Specific Outcomes

(a) The Bremer Business Park Area provides a high level of visual and social amenity through the provision of –

- a distinctive high quality environment for business and industry, residential and associated activities;

- a safe, healthy, attractive, and convenient surroundings for working, living, shopping and recreation; and

- a park-like atmosphere over the total area.

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(b) New uses and works -

- respond directly to function and climate;
- preferred colours for offices, warehouses and factories are non-reflective metallic, white, light grey, or bold colours to define different uses;
- provide offices of a high quality that establish a corporate identity for each site. Materials such as masonry, including precast and tilt-up concrete, lightweight modular metal panels and glazing are used for offices;
- where involving warehouses and factories utilise a broader range of materials including metal cladding for walls and are articulated from, but connected as necessary to, the offices.

Refer to photos in Figure 5.

Transport and Access - Specific Outcomes

(a) The Bremer Business Park Area is a well-connected and accessible area for freight, vehicles, pedestrians and cyclists.

(b) Land uses support efficient links to and from the Warrego and Cunningham Highways and the Ipswich Motorway. [Note: Refer to Section 11.4 of this preliminary approval which outlines the requirements for a DMR Road Corridor Quarantine Area].

(c) The Bremer Business Park Area has a road network and hierarchy that accommodates heavy vehicles, refer to Figure 6. The road network includes the following features –

- a Brisbane Road to Ashburn Road connection road located, designed and constructed to feature the following–
  - 70 km/h design speed;
  - 27 metre road reserve;
  - 19 metre pavement (consisting of 2 x 3.5m through lanes, 2 x 4.0m parking/cycle lanes and 1 x 4.0m central two-way right-turn lane);
  - 2 x 4m verges (minimum) consisting of a 1.5m footpath on the eastern side and 2.5m shared path on the western side;
  - efficient and safe movement of all forms of heavy vehicles including B-Doubles and those with a Higher Mass Limit. This includes appropriate intersection treatments;

Note: The portion of this road that has been constructed for the frontage of the Capral proposal is required to be constructed to the abovementioned

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standard at such time as the land to the east of the constructed road develops.

- an at-grade intersection at Brisbane Road connecting to the Bremer Business Park Area via a bridge over the Ipswich Railway line. This intersection shall be through Lot 30 on SP130150 (formally Lots 2 and 7 on RP22379);

- a new east-west road connection linking Bognuda Street with the new north-south road from Brisbane Road to Ashburn Road. This road shall be designed and constructed to the standards of an industrial collector with a design speed of 70 km/h;

- Bognuda Street (between Ashburn Road and Boundary Street) is upgraded to an industrial collector standard with the following:

  - Bognuda Street is realigned to the east between 34 Bognuda Street (Lot 12 on RP88386) and 68 Bognuda Street (Lot 9 on RP846150) as per Keilar Fox McGhie Plan Number JD 2322-00-054;

  - construction of a roundabout at the intersection of the new east-west road and the realigned Bognuda Street as per Keilar Fox McGhie Plan Number JD 2322-00-054. The design and approach widening at this roundabout will accommodate turning vehicles, including turning articulated vehicles; and

  - Bognuda Street in the vicinity of 44 Bognuda Street (Lot 1 on RP102431) and the proposed northern residential access shall be closed.

- Ashburn Road (between Bognuda Street and the entrance to the Warrego Highway) is upgraded to an industrial collector and includes geometric improvement works at the intersection of Ashburn Road and Bognuda Street to accommodate turning articulated vehicles.

Car Parking - Specific Outcomes

Car parking is provided in accordance with the demand generated by uses or works and will include -

- compliance with the Parking Code, as contained in Division 9, Part 12 of the Ipswich Planning Scheme;

- shared parking and access arrangements between two (2) or more adjoining sites; and

- high quality landscape treatments of car park areas with shade trees and shrub planting.

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Public Transport - Specific Outcomes

The Bremer Business Park Area encourages the use of public transport to and from the site through-

- the extension of existing bus routes through the Bremer Business Park Area;
- the provision of well distributed bus stops close to employment;
- the relocation of the proposed community and commercial centre to encourage a greater focus on transit orientated development around the Ebbw Vale Railway Station; and
- appropriate streetscape, planting, lighting and pavement along streets which operate as bus routes or which connect to the railway station.

Open Space Network - Specific Outcomes

The Bremer Business Park Area open space network is shown in the approved 'Overall Landscape Masterplan'. The Bremer Business Park Area contains an integrated network of greenspace and parkland, inclusive of active and passive recreation activity settings and pedestrian and cycle trails, including -

- riparian corridors along the Bremer River and other local watercourses offering views of and access to the Bremer River for canoeing, walking and cycling, picnicking and, under appropriate management, horse-riding and opportunities for landscape and habitat enhancement, water quality management, and wildlife corridor development;
- open woodlands offering opportunities for walking and cycling, horse-riding under appropriate management, picnicking and nature appreciation; and
- open rural land previously cleared to be used for active recreation, sports and informal recreation, as well as opportunities for floodplain storage and water quality management; and
- buffer areas to nearby residences.

All land to be dedicated to Council as parkland is to be removed from the Environmental Management Register and Contaminated Land Register prior to its dedication.

Pedestrian Priorities - Specific Outcomes

The Bremer Business Park Area contains the following pedestrian components-

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- street tree boulevards, particularly along major pedestrian/vehicle thoroughfares and circulation routes;
- street furniture;
- pedestrian signage;
- lighting;
- streetscape sculptures;
- paving design;
- complex facade treatments;
- public structures;
- equitable access;
- solid and natural shade; and
- open space and informal spaces where pedestrian walkways meet to create rest stops.

Pedestrian Nodes - Specific Outcomes

Safe and efficient local traffic, cycling and pedestrian access is provided to internal and off-site destinations, including –

- Ebbw Vale Railway Station and the new community and commercial centre;
- the Bremer River;
- Dinmore Primary School;
- Bognuda Street residential area; and
- the Bremer TAFE.

These nodes are identified on Figure 8.

Pedestrian and Cycle Links – On Road - Specific Outcomes

Pedestrian and cycle paths are located along all roads providing links between each of the following –

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- Parkland;
- Residential areas;
- Businesses and Industry premises;
- Ebbw Vale Railway Station;
- The Bremer TAFE; and
- Community and Commercial Centre.

Pedestrian and cycle paths along roads are 2.5m wide in-situ concrete and are provided on both side of the road. These paths are identified on the approved 'Indicative Circulation Hierarchy Plan'.

Environmental Management and Infrastructure Efficiency- Specific Outcomes

(a) All uses and works are located and designed to treat stormwater to minimise impacts to the water quality and riparian environs of the Bremer River. This is to be achieved through uses and works that–

- do not alter the natural drainage patterns (identified on Figure 10) through the inappropriate location of buildings;
- incorporate low impact uses north of the Warrego Highway, directly adjoining the Bremer River and its riparian corridor;
- involve effluent management systems or techniques, such as wastewater reuse or recycling;
- treat stormwater runoff from uses and works on-site through the use of systems such as porous pavements, infiltration beds, swale drains, sand filters rather than by major wetlands (or equivalent) located off-site within open space drainage corridors;
- involve on-site stormwater detention basins to ameliorate the impacts of increased stormwater discharges. Detention basins are as indicated on Figure 10;
- include opportunities and incentives such as a mandatory reward to reuse stormwater within industries and properties; and
- incorporate use of water sensitive urban design (WSUD), stormwater management and stormwater quality design.

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(b) Water quality and quantity management is integrated at all levels of site planning.

(c) Detailed stormwater management planning is undertaken between the broad catchment scale and the detailed planning of works on individual lots. This planning is to include:

- a Master Stormwater Quality Management Plan;
- a Conceptual Design Stormwater Quality Management Plan for each use and works;
- a Detailed Design Stormwater Quality Management Plan for each use and works.

(d) Uses and works are located to maximise opportunities to reduce greenhouse gas emissions by employing small scale integrated renewable energy generation to provide thermal and electrical energy needs;

(e) Industry clusters are co-located to create synergies for the reuse of waste heat, steam, water and other by-products;

(f) Development in the Bremer Business Park Area is water efficient and incorporates water conservation and recycling measures. Rainwater is collected from roofs and uses are co-located to ensure recycling opportunities are maximised;

(g) Renewable energy is used for outdoor lighting, primarily in open space areas. All other street lighting on roads have energy efficient bulbs;

(h) Uses and works support energy efficiency through the following-

- orientation of buildings to minimise heat gain;
- use of sun shading to screen windows of buildings;
- use of light colours on buildings;
- use of gas or solar for hot water storage requirements; and
- use of planting to shade buildings and pavements.

Landscape Treatment - Specific Outcomes

(a) Landscaping enhances the image of the Bremer Business Park Area by providing -

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- landscaped entry features and landscaped roundabouts to Bremer Business Park Area that clearly identify and signal the entrance, enhancing the sense of arrival;

- appropriate street trees and conserving the existing large and mature vegetation in road reserves;

- dominant avenues of street trees and planted central median strips along streets;

- landscaping that softens the view of large areas of hard paving and unsightly storage or work areas when viewed from adjoining streets;

- a minimum ten (10) metre wide densely planted landscaped buffer between high impact and sensitive land uses;

- landscaped areas along the inside of the front property boundary to contribute to the character of the street, respond to the alignment of the building, emphasise building entries;

- to partially screen storage, service and parking areas; and

- landscaped buffers and suitable acoustic treatment to protect the amenity of nearby residential areas.

Signage - Specific Outcomes

(a) All signage within the Bremer Business Park Area does not detract from the overall setting. This is achieved by-

- compliance with the Advertising Devices Code, as contained in Division 14 of Part 12 of the Ipswich Planning Scheme;

- minimising signage along the Warrego Highway, Brisbane Road, the railway line and other major thoroughfares and circulation roads;

- locating an entry sign to the Bremer Business Park Area at either an entry roundabout or central median or as otherwise approved by the Development Manager;

- integrating all business signage into the design of the buildings or locating it within the landscape buffer at the front boundary; and

- preparing a signage master plan that reinforces the intent and character of the Bremer Business Park Area. The masterplan should address the elements of architecture, public realms and entry statements.

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Refer to photos in Figure 11 for examples of acceptable solutions.

Street Lighting - Specific Outcomes

(a) Street lighting enhances the amenity of the Bremer Business Park Area. This is achieved by-

- providing energy efficient Energex approved street lights for all street lights;
- providing entry lighting at roundabouts and providing for banners to street lighting at the main entry;
- providing security lighting with light shields where necessary (particularly near residential areas) with a black powder coat finish;
- using architectural feature lighting such as bollards, uplights, spot lights to highlight areas of built form, in particular the building entry;
- providing uplights to street trees and lighting to signage at the main entry; and
- developing a lighting strategy to set provisions for night time business operations, after hours pedestrian safety and the overall character of the Bremer Business Park Area.

Fencing - Specific Outcomes

(a) Fencing maintains open, uncluttered streetscape and building frontages. This is achieved by –

- appropriate treatments, inclusive of timber or masonry screen fences, at a height of 2 metres , dense planting or mounding along all propertyboundaries adjoining sites either zoned or used for residential purposes or included in the Residential Sub-Area under this approval;
- limiting fences to road frontages and/or between site entries and building entries. Planting should be used to define side property boundaries in front of the building line, and any side or rear fence that are visible from the road has a minimum of 10m of planting to the front of the fence;
- where security fences are required on the front boundary, using transparent, steel or aluminium picket, or chain wire fencing either black or green in colour. Solid side fences are not to be used in front of the building line. It is preferred that security fences are set back behind the front facades of buildings. Timber palings or chain wire are to be utilized for side and rear boundaries;

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- where open mesh fencing is used to separate offices from the industrial use component of a site and/ or used to secure a site, green or black mesh is used. Such fencing is set back from road frontages;

- unsightly areas are screened with planting, mounding and/ or solid fencing.

Residential Amenity - Specific Outcomes

(a) Noise generating activities and outdoor storage areas are designed and orientated away from residential and open space areas.

(b) A 300m air, odour, and noise buffer restricts the location of difficult to locate industries away from adjoining sensitive uses.

(c) Buffers may be reduced where uses are designed, located and operated with no discernible impact on nearby residential areas to the east, south and south-west.

Residential Streets - Specific Outcomes

(a) Residential streets are designed in accordance with Council's Standard Designs for Roadworks. These residential streets are indicated in Figure 13.

(b) A Local Area Traffic Management Plan (LATM) is implemented to restrict heavy vehicles accessing residential streets. The LATM includes–

- direction signs on Brisbane Road, Jacaranda Street and Wattle Street to advise motorists (particularly heavy vehicle drivers) of alternative routes to the Bremer Business Park Area. The type, size, layout and location of the direction signs are to be approved by Council prior to implementation;

- traffic control devices are installed on Bryne Street (south of Law Street), Bognuda Street (north and south of Law Street) and Vale Street (east of Bognuda Street). These devices are either a combination of angled slow points, deflected T-intersection devices or speed platforms. They are spaced at appropriate intervals so as to achieve a 50km/h speed environment and designed to provide adequate deflection for general traffic. The streets are able to accommodate buses and other large vehicles;

- roundabouts are provided at the intersections of:
  - Law Street and Byrne Street;
  - Bognuda Street and Law Street; and
  - Boundary Street and Bognuda Street.

- roundabouts are carefully designed and approaches widened to accommodate turning vehicles, including turning articulated vehicles that use the Law

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Street and Byrne Street and Bognuda Street and Law Street intersections from time to time. The central roundabout islands are fully mountable, however the approach splitter islands are only semi-mountable kerb and accommodate appropriate signage to provide sufficient prominence and control vehicle movements;

- entry thresholds (consisting of kerb build-outs, central islands and raised and coloured pavement treatments) signify the entry to the residential area at:
  - the southern approach from the Bremer Business Park Area (after the roundabout at the intersection of the east-west internal road and the realigned Bognuda Street);
  - Byrne Street (north of Vale Street);
  - Vale Street (east of Byrne Street); and
- Bognuda Street is closed in the vicinity of 44 Bognuda Street (Lot 1 on RP102431) and the northern residential access.

Integrated Management Plan - Specific Outcomes

(a) An Integrated Management Plan supports the Bremer Business Park Area. The plan ensures that the right mix and types of uses and development standards are maintained.

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4 Core Sub-Area

4.1 The Core Sub-Area Provisions

The following provisions in this part comprise the Core Sub-Area Code–

- overall outcomes for the Core Sub-Area; and
- specific outcomes for the Core Sub-Area.

4.2 Overall Outcomes for the Core Sub-Area

The overall outcomes sought for the Core Sub-Area are the following-

Overall Vision

The Core Sub-Area includes a wide range of medium to large scale industrial and business activities primarily associated with manufacturing, processing, treating or otherwise modifying goods and secondary activities associated with the packaging, storage, wholesaling and distribution. Established activities/land uses utilise 'best practice' on-site management of waste, including waste water and stormwater drainage to minimise environmental impacts.

4.3 Specific Outcomes for the Core Sub-Area, as a whole

Uses and works in the Core Sub-Area are to comply with the Specific Outcomes of the Regional Business and Industry Zone of the Ipswich Planning Scheme with the following exceptions and additions-

(a) Landscaping, including street trees, are used to soften the overall appearance of the Sub-Area when viewed from the Warrego Highway and the main circulation roads;

(b) Use and Works have-

- attractive and well designed street frontages and facades; and
- well defined front entries and office areas;

(c) Office areas are to be located at the front of sites;

(d) Appropriate colours are used to reduce overall building mass;

(e) The building form creates shade to entry/pedestrian areas;

(f) Non-reflective roofing and building materials are used on buildings;

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(g) Hardstand areas are located to the rear of buildings;

4.4 Assessment Categories and Relevant Assessment Criteria for the Core Sub-Area

The assessment categories and assessment criteria as set out in Tables 6.1 and 6.2 of the Regional Business and Industry Zone – Medium Impact Sub-Area of the Ipswich Planning Scheme apply to the Bremer Business Park – Core Sub-Area.

The Bremer Business Park Area Code and the Core Sub-Area Code also apply as relevant assessment criteria.

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5 Frame Sub-Area

5.1 The Frame Sub-Area Provisions

The following provisions in this part comprise the Frame Sub-Area Code–

- overall outcomes for the Frame Sub-Area; and
- specific outcomes for the Frame Sub-Area.

5.2 Overall Outcomes for the Frame Sub-Area

The overall outcomes sought for the Frame Sub-Area are the following-

Overall Vision

The Frame Sub-Area is a transition from the Core Sub-Area activities to the Residential Sub-Area and the existing residential and other areas extending beyond the boundaries of the Bremer Business Park Area.

The Sub-Area includes a diverse mix of low impact industrial and commercial activities, maximising the Sub-Area's high accessibility to transport opportunities and providing services to the Core Sub-Area and those enterprises beyond the Bremer Business Park Area.

Land uses in this Sub-Area include warehousing, storage and small scale distribution, research and laboratories, service trades, equipment hire, appliances and household goods assembly, storage and distribution, and small scale commercial offices and factories for start-up businesses and the like.

5.3 Specific Outcomes for the Frame Sub-Area, as a whole

Uses and works in the Frame Sub-Area are to comply with the Specific Outcomes of the Regional Business and Industry Zone of the Ipswich Planning Scheme with the following exceptions and additions-

(a) The frontage setback of buildings is a minimum of 10m from the front boundary;

(b) Office areas are to be located at the front of sites;

(c) Appropriate colours are used to reduce overall building mass/bulk;

(d) The building form creates shade to entry/pedestrian areas;

(e) Non-reflective roofing and building materials are used on buildings;

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(f) Hardstand areas are located to the rear of buildings.

5.4 Assessment Categories and Relevant Assessment Criteria for the Frame Sub-Area

The assessment categories and assessment criteria as set out in Tables 6.1 and 6.2 of the Regional Business and Industry Zone – Low Impact Sub-Area of the Ipswich Planning Scheme apply to the Bremer Business Park Frame Sub-Area.

The Bremer Business Park Area Code and the Frame Sub-Area Code also apply as relevant assessment criteria.

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6 Community and Commercial Sub-Area

6.1 The Community and Commercial Sub-Area Provisions

The following provisions in this part comprise the Community and Commercial Sub-Area Code–

- overall outcomes for the Community and Commercial Sub-Area; and
- specific outcomes for the Community and Commercial Sub-Area.

6.2 Overall Outcomes for the Community and Commercial Sub-Area

The overall outcomes sought for the Community and Commercial Sub-Area are the following-

Overall Vision

The Community and Commercial Sub-Area provides a range of community facilities and services for the Bremer Business Park workforce and the nearby residential communities.

The Sub-Area includes a range of community uses such as child care, health care, counselling and welfare services and business uses such as convenience retailing and dining facilities.

6.3 Specific Outcomes for the Community and Commercial Sub-Area, as a whole

Uses and works in the Community and Commercial Sub-Area are to comply with the Specific Outcomes of the Local Retail and Commercial Zone, LC2 Sub-Area, as per Division 10, Part 4 of the Ipswich Planning Scheme.

6.4 Assessment Categories and Relevant Assessment Criteria for the Community and Commercial Sub-Area

The assessment categories and assessment criteria as set out in Tables 4.10.1 and 4.10.2 of the Local Retail and Commercial Zone (LC2) Sub-Area of the Ipswich Planning Scheme apply to the Bremer Business Park – Community and Commercial Sub-Area with the following variance to Tables 4.10.1;

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Column 1 Defined use or use class	Column 2 Assessment category	Column 3 Relevant assessment criteria – applicable code if development is self-assessable or requires code assessment
Shopping Centre – inconsistent use if more than 6000m^2 of gross floor area in LC2 Sub Area	Impact Assessable, if the use exceeds 4000m^2 of gross floor area in the LC2 Sub Area. Code Assessable otherwise.	Urban Area Code (Part 4) – particularly the specific outcomes in section 4.3.3 and the Local Retail and Commercial Zone (division 10) Commercial and Industrial Code (Part 12, division 7) Parking Code (Part 12, division 9)

The Bremer Business Park Area Code and the Community and Commercial Sub-Area Code also apply as relevant assessment criteria.

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7 Highway Sub-Area

7.1 The Highway Sub-Area Provisions

The following provisions in this part comprise the Highway Sub-Area Code–

- overall outcomes for the Highway Sub-Area; and
- specific outcomes for the Highway Sub-Area.

7.2 Overall Outcomes for the Highway Sub-Area

The overall outcomes sought for the Highway Sub-Area are the following-

Overall Vision

The Highway Sub-Area provides a transition from the highly intensive industrial character of the Core Sub-Area to the Warrego Highway. The Sub-Area primarily consists of light industry and commercial activities, such as highway service centres, commercial premises for corporate headquarters and storage, and distribution facilities that rely on and maximise the benefits of their accessibility to the Warrego Highway. The wholesaling and retailing of on-site manufactured goods within buildings is encouraged, where the wholesale and/ or retail component of the use is minor and ancillary to the principle use of on-site manufacturing.

7.3 Specific Outcomes for the Highway Sub-Area, as a whole

Uses and works in the Highway Sub-Area are to comply with the Specific Outcomes of the Regional Business and Industry Zone of the Ipswich Planning Scheme with the following exceptions and additions-

(a) The frontage setback of buildings is a minimum of 20m or half the height of the building, which ever is the greater;

(b) Buildings address the Warrego Highway and orientate storage and service areas away from the Highway;

(c) Front fences on property boundaries are to be avoided. Only transparent fencing is to be used if security fencing is required;

(d) Landscaping, including street trees, are used to soften building outlines, to screen outdoor uses and service areas, and to enhance the overall appearance of the Sub-Area when viewed from the Warrego Highway, Brisbane Road, the Railway line and any other inter-suburban road links;

(e) Signage to the Warrego Highway is avoided and minimised to all other roads;

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(f) On-site car parking is designed so that the visual character of the Sub-Area is not reduced and to ensure on-site parking areas do not become a dominant visual element;

(g) Visitor car parking is located to the front of buildings or structures (Note: buildings/structures address the Warrego Highway); and

(h) Staff and heavy vehicle parking is located at the rear of buildings or structures (Note: buildings/structures address the Warrego Highway).

7.4 Assessment Categories and Relevant Assessment Criteria for the Highway Sub-Area

The assessment categories and assessment criteria as set out in Tables 6.1 and 6.2 of the Regional Business and Industry Zone Medium Impact Sub-Area of the Ipswich Planning Scheme, apply to the Bremer Business Park – Highway Sub-Area.

The Bremer Business Park Area Code and the Highway Sub-Area Code also apply as relevant assessment criteria.

Pursuant to the Planning Act 2016, this plan forms part of Council's approval for

Approval No: 3356/02/MAMC/A

Date: 11 July 2018

Signed:

8 Riverside Sub-Area

8.1 The Riverside Sub-Area Provisions

The following provisions in this part comprise the Riverside Sub-Area Code–

- overall outcomes for the Riverside Sub-Area; and
- specific outcomes for the Riverside Sub-Area.

8.2 Overall Outcomes for the Riverside Sub-Area

The overall outcomes sought for the Riverside Sub-Area are the following-

Overall Vision

The Riverside Sub-Area is located north of the Warrego Highway and provides a transition between the industrial activities to the south and the Bremer River corridor and the rural residential settlements on the northern side of the Bremer River.

The Riverside Sub-Area includes low intensity industrial and related activities including research, technology, education, and some limited service industries.

8.3 Specific Outcomes for the Riverside Sub-Area, as a whole

Uses and works in the Riverside Sub-Area are to comply with the Specific Outcomes of the Regional Business and Industry Zone of the Ipswich Planning Scheme with the following exceptions and additions-

(a) Landscaping, including street trees, are used to soften building outlines, to screen outdoor uses and service areas, and to enhance the overall appearance of the Sub-Area when viewed from the Warrego Highway;

(b) A 10m minimum buffer of endemic vegetation is provided to adjoining open space areas;

(c) Front fences on property boundaries are avoided. Only transparent fencing is to be used if security fencing is required;

(d) Woodland planting is used at the rear of buildings or structures that adjoin the Open Space Sub-Area to screen development from the Bremer River and residential development on the northern side of the river;

(e) The front setback of buildings or structures is a minimum of 20m to the Warrego Highway and 10m from all other property boundaries;

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(f) On-site car parking is designed so that the visual character of the Sub-Area is not reduced and to ensure on-site parking areas do not become a dominant visual element;

(g) Visitor car parking is located to the front of buildings or structures;

(h) Staff and heavy vehicle parking is located at the rear of buildings or structures; and

(i) Parking areas should be dispersed, rather than concentrated on the site, to optimise tree retention and visual character.

8.4 Assessment Categories and Relevant Assessment Criteria for the Riverside Sub-Area

The assessment categories and assessment criteria as set out in Tables 6.1 and 6.2 of the Regional Business and Industry Zone Low Impact Sub-Area of the Ipswich Planning Scheme apply to the Bremer Business Park – Riverside Sub-Area.

The Bremer Business Park Area Code and the Riverside Sub-Area Code also apply as relevant assessment criteria.

Pursuant to the Planning Act 2016, this plan forms part of Council's approval for

Approval No: 3356/02/MAMC/A

Date: 11 July 2018

Signed:

9 Residential Sub-Area

9.1 The Residential Sub-Area Provisions

The following provisions in this part comprise the Residential Sub-Area Code–

- overall outcomes for the Residential Sub-Area; and
- specific outcomes for the Residential Sub-Area.

9.2 Overall Outcomes of the Residential Sub-Area

The overall outcomes sought for the Residential Sub-Area are the following-

Overall Vision

The Residential Sub-Area provides a range of housing choices with access to a range of employment opportunities, community facilities and open space.

Residential development is at a density consistent with that of the existing residential development and includes a mix of residential low density lots. Residential development within the Bundamba Wastewater Centre Buffer (refer to Ipswich Planning Scheme Map OV9) is at a lower density (ie large lots).

9.3 Specific Outcomes for the Residential Sub-Area, as a whole

(a) Uses and works within the Residential Sub-Area – Low Density Residential designation are to comply with the Specific Outcomes of the Residential Low Density Zone, RL2 Sub-Area, as per Division 5, Park 4 of the Ipswich Planning Scheme.

(b) Uses and works within the Residential Sub-Area – Large Lot Residential designation are to comply with the Specific Outcomes of the Large Lot Residential Zone, as per Division 4, Part 4 of the Ipswich Planning Scheme.

(c) Building envelopes are to be used to ensure that habitable buildings within the Large Lot Residential designation are well separated from the Bundamba Wastewater Centre.

9.4 Assessment Categories and Relevant Assessment Criteria for the Residential Sub-Area – Residential Low Density

The assessment categories and assessment criteria as set out in Tables 4.5.1 and 4.5.2 of the Residential Low Density Zone (RL2 Sub-Area) of the Ipswich Planning Scheme apply to the Bremer Business Park – Residential Sub-Area – Residential Low Density designation.

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The Bremer Business Park Area Code and the Residential Sub-Area Code also apply as relevant assessment criteria.

9.5 Assessment Categories and Relevant Assessment Criteria for the Residential Sub-Area – Large Lot Residential

The assessment categories and assessment criteria as set out in Tables 4.4.1 and 4.4.2 of the Large Lot Residential Zone of the Ipswich Planning Scheme apply to the Bremer Business Park – Residential Sub-Area – Large Lot Residential designation.

The Bremer Business Park Area Code and the Residential Sub-Area Code also apply as relevant assessment criteria.

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Approval No: 3356/02/MAMC/A

Date: 11 July 2018

Signed:

10 Open Space Sub-Area

10.1 The Open Space Sub-Area Provisions

The following provisions in this part comprise the Open Space Sub-Area Code–

- overall outcomes for the Open Space Sub-Area; and
- specific outcomes for the Open Space Sub-Area.

10.2 Overall Outcomes for the Open Space Sub-Area

The overall outcomes sought for the Open Space Sub-Area are the following-

Overall Vision

The Open Space Sub-Area provides for the development of an integrated open space network including the use of land for-

- both active and passive recreation opportunities within parks;
- linear/riparian corridors as open space links; and
- private and public sporting /recreation facilities

The Open Space Sub-Area provides for the protection and management of areas or features of particular habitat significance.

The Open Space Sub-Area serves as a buffer to separate business and industry uses from other sensitive uses, particularly residential areas.

Significant areas of native vegetation are retained and, where necessary supplementary planting is undertaken to enhance-

- buffer and screening effects; and
- securing of riparian and other wildlife corridors.

10.3 Specific Outcomes for the Open Space Sub-Area, as a whole

Uses and works in the Open Space Sub-Area are to comply with Specific Outcomes of the Recreation Zone, as Division 17, Part 4 of the Ipswich Planning Scheme and the Recreation and Entertainment Code as per Division 11, Part 12 of the Ipswich Planning Scheme with the following exceptions and additions -

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Signed:

- buildings and other structures are setback a minimum of 20m from property boundaries;

- on-site car parking is minimised to protect the visual character of the street and to ensure that the on-site parking areas do not become a dominant visual element. This is to be achieved by providing well dispersed car parking along all access roads and adjacent to picnic and BBQ areas and sporting complexes;

- planting mounds are utilised to reduce the visual impact of car parks; and

- endemic vegetation is used throughout the Sub-Area with emphasis on native grasses.

Pedestrian and Cycle Links - Specific Outcomes

Shared pedestrian and cycle paths provide links between each of the following -

- riverside parkland;

- residential areas;

- Dinmore Primary School; and

- Businesses and Industry areas.

Paths are 2.5m wide in-situ concrete and are provided with amenities such as bins, seating and shelters. These paths are identified on the approved 'Indicative Circulation Hierarchy Plan'.

10.4 Assessment Categories and Relevant Assessment Criteria for the Open Space Sub-Area

The assessment categories and assessment criteria as set out in Tables 4.17.1 and 4.17.2 of the Recreation Zone of the Ipswich Planning Scheme apply to the Bremer Business Park – Open Space Sub-Area.

The Bremer Business Park Area Code and the Open Space Sub-Area Code also apply as relevant assessment criteria.

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Approval No: 3356/02/MAMC/A

Date: 11 July 2018

Signed:

11 Development Constraints Overlay for the Bremer Business Park

11.1 The Development Constraints Overlay Provisions

The following provisions in this part deal with Overlays–

- overall outcomes for the Development Constraints Overlay; and
- specific outcomes for the Development Constraints Overlay.

11.2 The Development Constraints Overlay Code

The following provisions comprise the Development Constraints Overlay Code. They are-

- overall outcomes for the Development Constraints Overlay; and
- specific outcomes for the Development Constraints Overlay.

The Development Constraints identified in Part 2 and the associated Overlay Maps of the Ipswich Planning Scheme continue to apply to the Bremer Business Park Area.

These constraints include -

- flooding and urban stormwater flow path areas;
- mining influence areas;
- wastewater treatment buffers;
- high voltage electricity transmission lines;
- buffers to highways and regional transport corridors;
- high pressure pipelines (gas);
- difficult topography; and
- Defence (Area Central) Regulations and Obstruction Clearance Surfaces.

Additional constraints, which are identified in the Bremer Business Park Preliminary Approval are –

- land affected by contamination; and
- Infrastructure, ie -
  – proposed water main to Swanbank;

Pursuant to the Planning Act 2016, this plan forms part of Council's approval for

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Date: 11 July 2018

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– proposed water extension;

– DMR road corridor quarantine; and

– proposed Powerlink Sub-Station.

11.3 Overall Outcomes for the Development Constraints Overlay

The overall outcomes sought for the Development Constraints Overlay are the following-

(a) Uses and works are located on land free from significant constraints upon development, or when within such areas, risk to property, health and safety is minimised;

(b) Land is appropriately developed to avoid compromising the integrity and operation of defence facilities, wastewater treatment plants, high pressure pipelines, high voltage electricity transmission lines, and other key infrastructure; and

(c) Uses and works are sited, designed and constructed to avoid, minimise of withstand the incidence of a development constraint.

11.4 Specific Outcomes for the Development Constraints Overlay

(a) The specific outcomes for the Development Constraints identified in Part 2 and the associated Overlay Maps of the Ipswich Planning Scheme continue to apply to the Bremer Business Park Area.

(b) The specific outcomes for the additional Development Constraints identified as part of this preliminary approval are as follows -

(i) Contamination - Specific Outcome

A site investigation report into the presence of organic carbon on all land within the Bremer Business Park Area is to be submitted to the Ipswich City Council for approval prior to the commencement of any uses or works. A copy of the report is to also be supplied to the Environmental Protection Agency. The investigation report is to include, but is not limited to:

- a comprehensive site history of the nature and location all land used for the disposal of wastewater;
- determination of the extent and levels of organic carbon on all land used for the disposal of wastewater;

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Signed:

- determination of background levels of organic carbon in the surrounding area;
- determination of the actual and potential pathways for the transport of organic carbon off all land used for the disposal of wastewater;
- determination of the risk for the transport of organic carbon off all land used for the disposal of wastewater;
- management and remediation measures required to reduce the levels of organic carbon to acceptable background levels. These management and remediation measures should be developed in consultation with the Ipswich City Council and the Environmental Protection Agency and may include such measures as;

– the 'harvesting' of organic carbon from the site,

– the use of detention ponds; and

– minimising the exposure of soil containing organic carbon to stormwater by staging earth works and through the use of the soil under slabs, driveways, roads or other hardstand areas.

Land affected by contamination is indicated on Figure 14.

Uses and works are to comply with all applicable requirements outlined in the Environmental Protection Agency's Notice of Concurrence Agency response dated 10 September 2003.

Organic Carbon

The 'Lower Bremer River Audit: Implications for Management' report, dated October 2003 identifies high levels of organic carbon in the Bremer River and recommends that management actions should be aimed at reducing inputs of carbon, nitrogen and phosphorus at the source. Due to the past use of land within the Bremer Business Park for the disposal of wastewater high in organic carbon, consideration must be given to the potential for the release of organic carbon during construction and operation of uses on the land. The Ipswich City Council and the Environmental Protection Agency require scientific investigation, management and where necessary remediation of organic carbon on all land within the Bremer Business Park Area before uses and works can occur.

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Other Contaminants

High levels of manganese, petroleum hydrocarbons and other contaminants have been identified on land within the Bremer Business Park Area. Before uses and works can occur, the Environmental Protection Agency (EPA) requires scientific investigation into the level of contamination on Lot 13 on SL 2982, Lot 2 on RP 86838 and Lot 2 on RP 104683. The investigations undertaken will determine management and remediation measures required for the land and establish the suitability of the land for the intended uses.

(ii) Infrastructure - DMR Road Corridor Quarantine

Development of the quarantined land is not permitted for a period of 12 months from the date of this approval. The Department of Main Roads (DMR) have identified part of the Bremer Business Park Area that may be required for future road purposes (Refer to Figure 15) (See DMR Concurrence Agency Response dated 24 September 2003 for further detail).

DMR may extend the period of the quarantine for a further period of 12 months.

If the DMR quarantine period lapses or the DMR determines that the quarantine is no longer required, the part of the Bremer Business Park Area affected by the quarantine is to be developed in accordance with the Preliminary Approval as outlined in Figure 3.

(iii) Infrastructure – Proposed Water Mains Specific Outcomes

A west-south easement and a east-west easement is to be provided for water main extensions (minimum width of 20 metres with an average width of 25 metres). Uses and Works are to be resolved so as to support the extension of water mains and the associated easements.

Land affected by a proposed Swanbank water main easement and proposed water main extension easement is indicated on Figure 16.

Works and uses should be designed and located to provide water and wastewater purpose corridors through the Bremer Business Park Area.

The corridors may vary in width depending on the infrastructure that is to be constructed within them. The corridors are to have a minimum width of 20 metres with an average width of 25 metres.

The corridors are to be located in open space, verge widths and in the front setbacks of private properties, in this order of preference, unless otherwise approved by Council.

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Date: 11 July 2018

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Where located on private property, corridors and access to corridors should have easements over them in favour of Council.

(iv) Infrastructure – Electricity Sub-Station Specific Outcomes

Provision is to be made within the Bremer Business Park Area for an Electricity Sub-Station. The precise location for the Sub-Station is to be determined by Council after further negotiations with Powerlink.

The Sub-Station is to be designed and located to:-

- protect the amenity of nearby residences and business and industry uses;
- be compatible with the desired built and landscaped character for the surrounding area; and
- provide for a functional electricity distribution network that meets the demands of the Bremer Business Park Area and its associated key electricity users.

Pursuant to the Planning Act 2016, this plan forms part of Council's approval for

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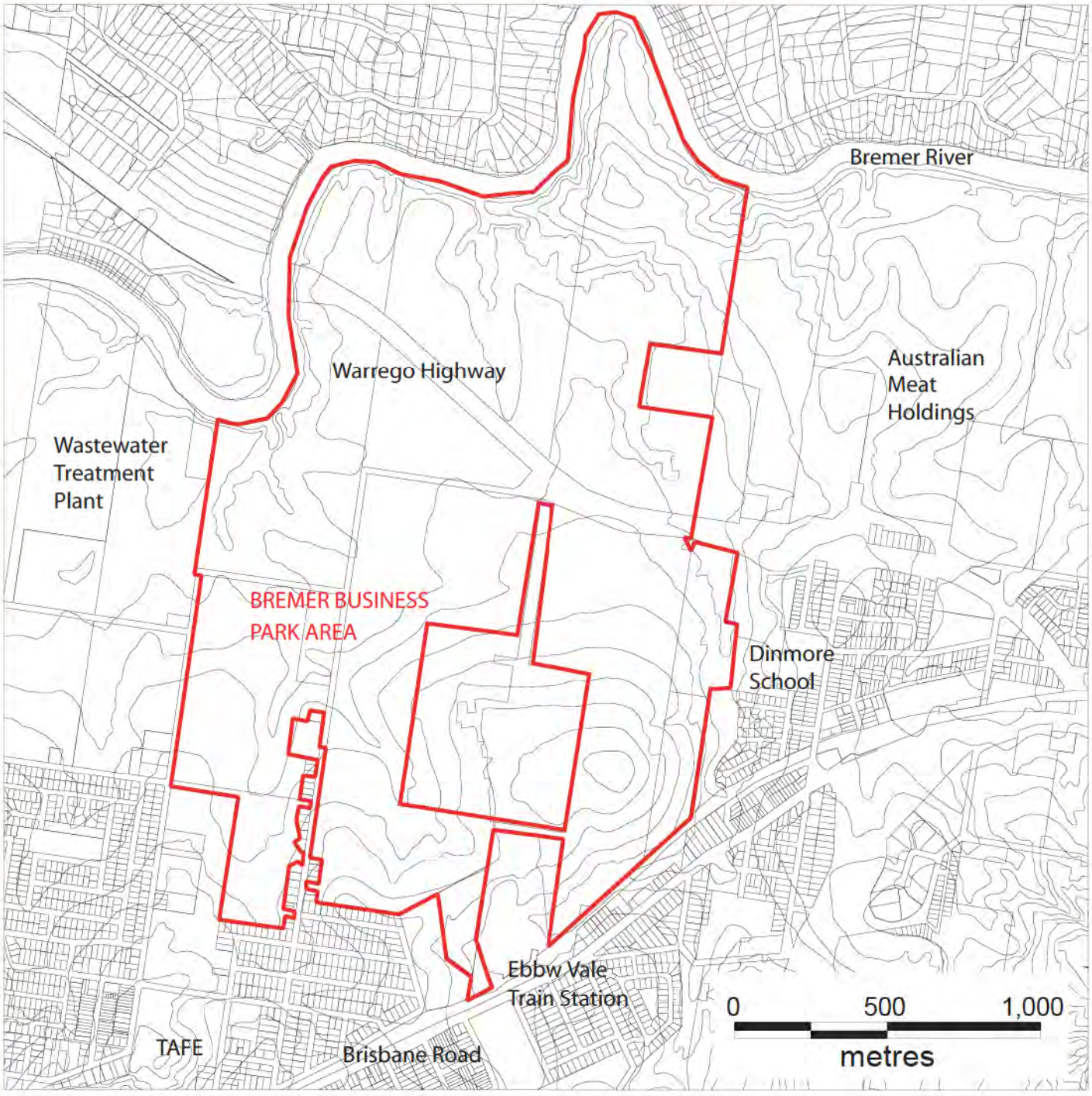
Date: 11 July 2018

Signed:



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Date: 11 July 2018

Signed:

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FIGURE 1
BREMER BUSINESS PARK AREA

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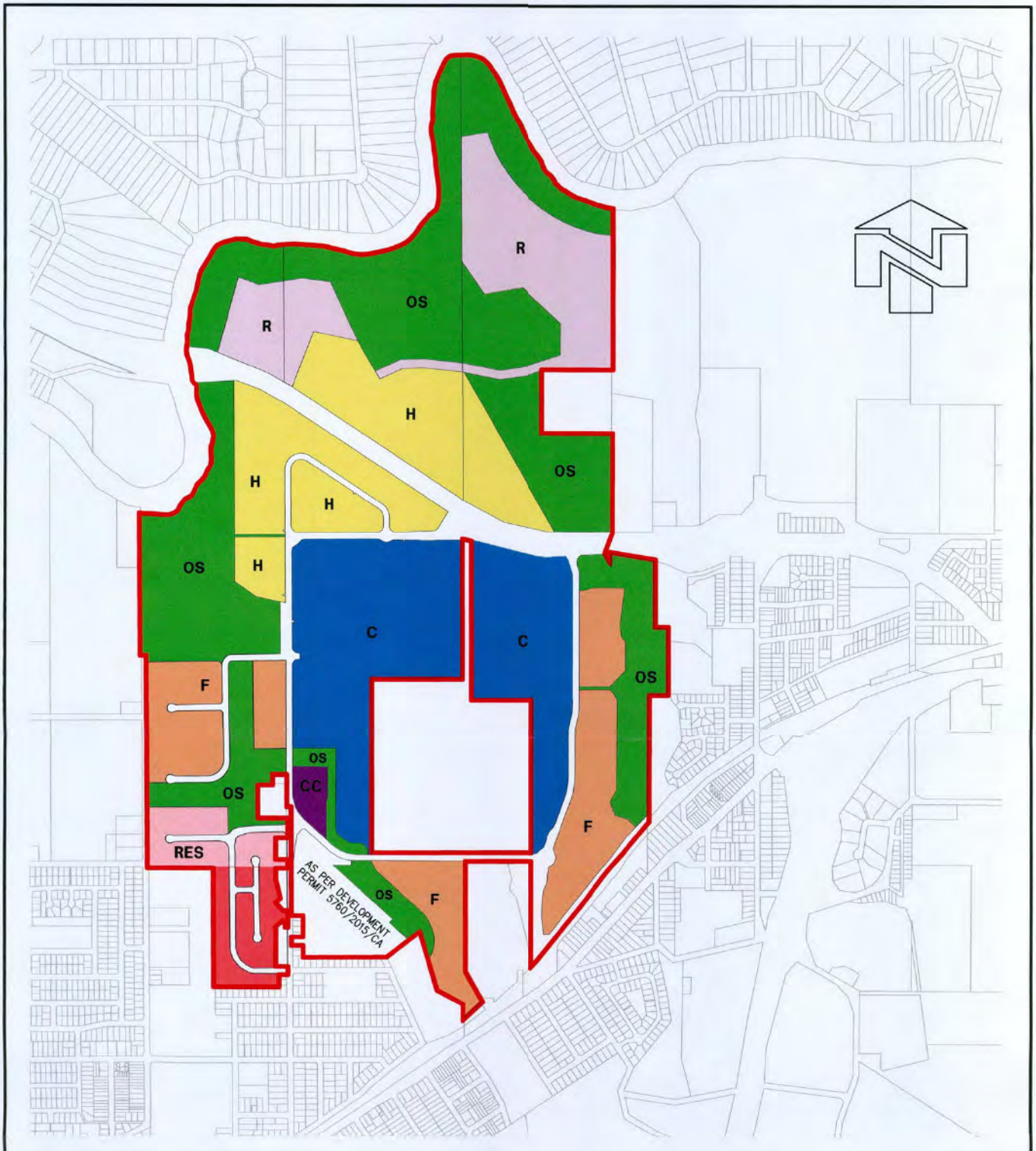

LEGEND

- R - Riverside Sub-Area
- F - Frame Sub-Area
- H - Highway Sub-Area
- C - Core Sub-Area
- RES - Residential Sub-Area Low Density Residential
- OS - Open Space Sub-Area
- CC - Community and Commercial Centre Sub-Area

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Date: 11 July 2018

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FIGURE 3 - Revision F
BREMER BUSINESS PARK SUB-AREAS

J:\41891\dwgs\180529 RECONFIG-FIG 3 rev F.pro
29/05/2018

High quality design and attention to detail adds individuality to the built form

High quality entry statements to buildings add character to the streetscape

Architectural character is created through variations in built form and high quality design

Office space is located to the front with storage space to the rear of the allotment

Bright colours, feature awnings and variations in facade heights add character to the built form and through articulation reduce the visual bulk of large buildings.

Varied building heights and colours help define individual businesses

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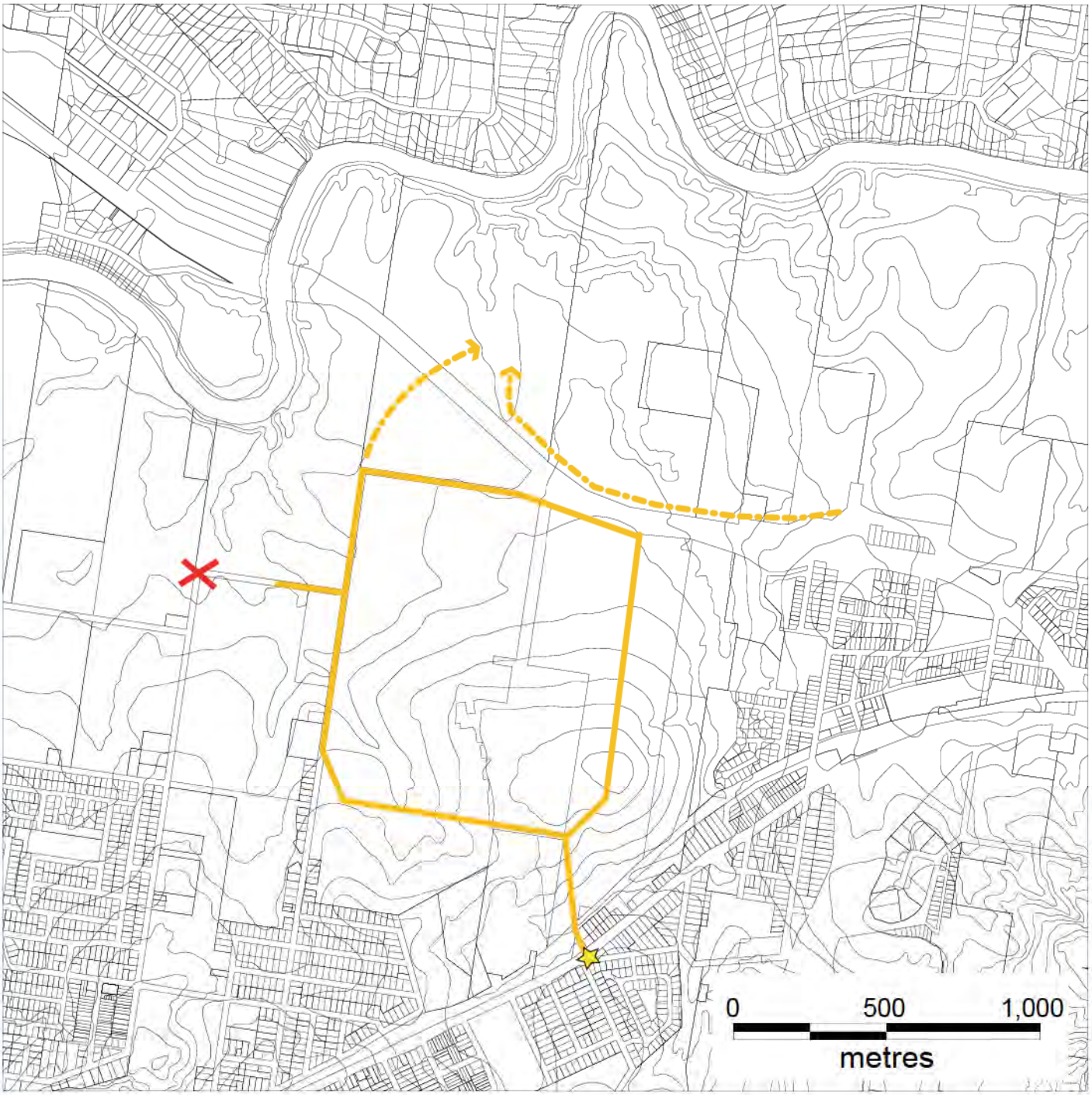
FIGURE 5
BUILDING DESIGN



Legend

- Industrial Collector Roads
- Potential Future Links
- Future Intersection with Brisbane Road
- No vehicular connection permitted from industrial areas to River Road

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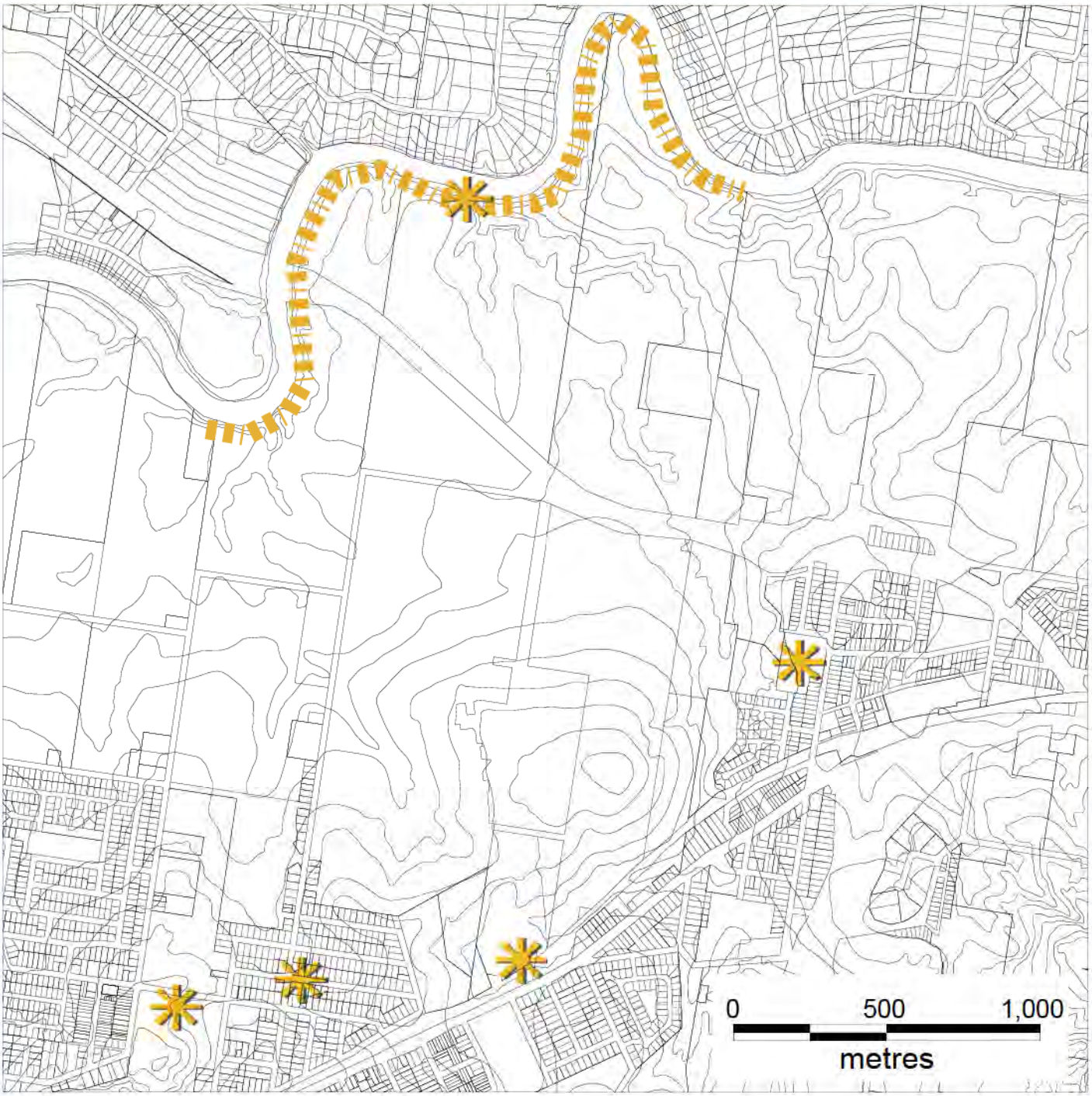
FIGURE 6 INDUSTRIAL COLLECTORS



Legend

Pedestrian Destinations/ Nodes

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Approval No: 3356/02/MAMC/A

Date: 11 July 2018

Signed:

FIGURE 8
PEDESTRIAN NODES

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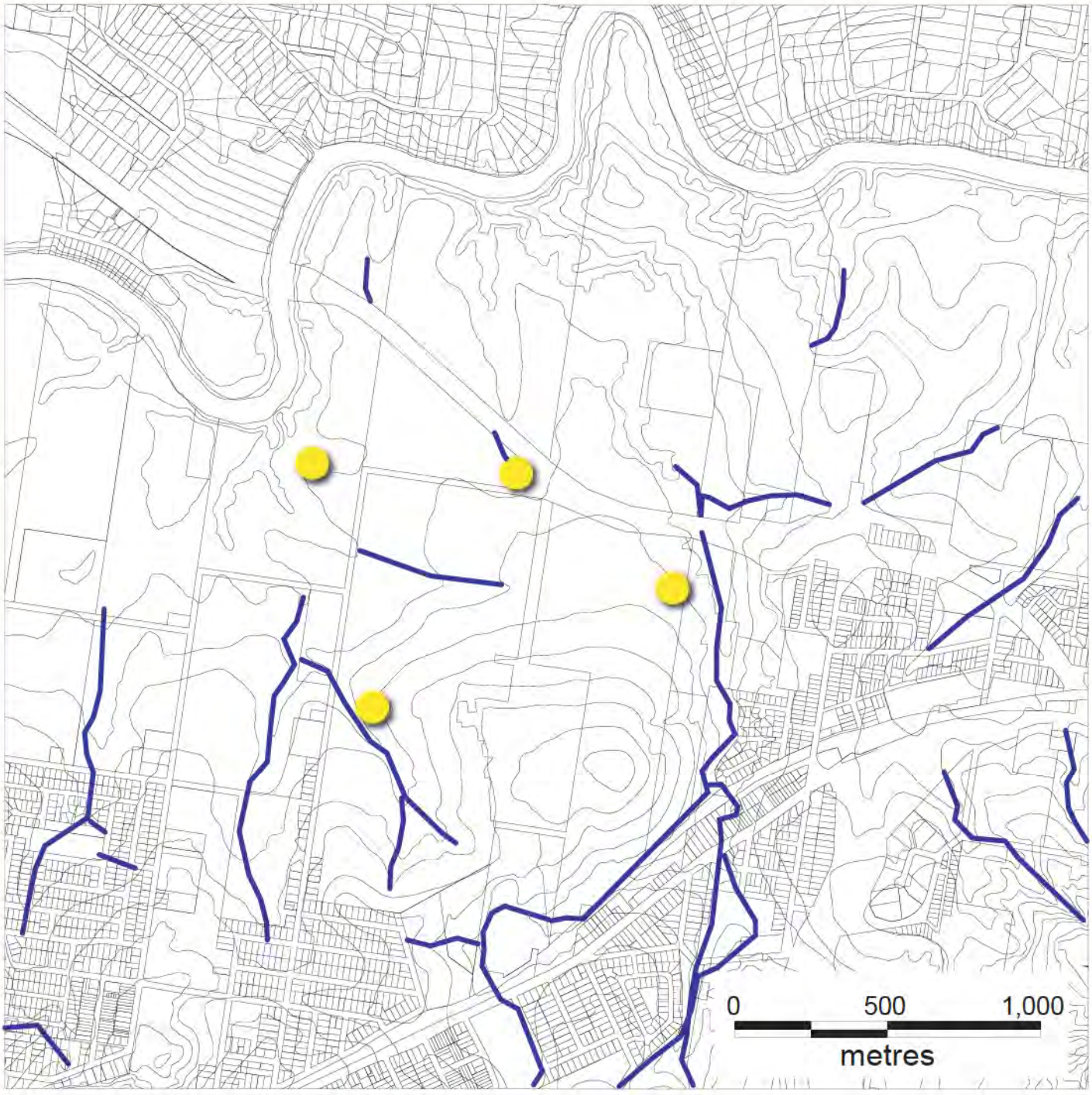

Legend

- Possible Detention Basins
- Natural Drainage Lines

Pursuant to the Planning Act 2016, this plan forms part of Council's approval for

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Date: 11 July 2018

Signed:

FIGURE 10
STORMWATER MANAGEMENT

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High quality entry signs emphasise the entrance and provide identity to the Business Park

Signage becomes a feature of the built form through colour and high quality design

Estate directory plans will be provided at the entry to guide visitors around the Business Park

Business signage may be incorporated into the facade of the building

Pursuant to the Planning Act 2016, this plan forms part of Council's approval for

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Date: 11 July 2018

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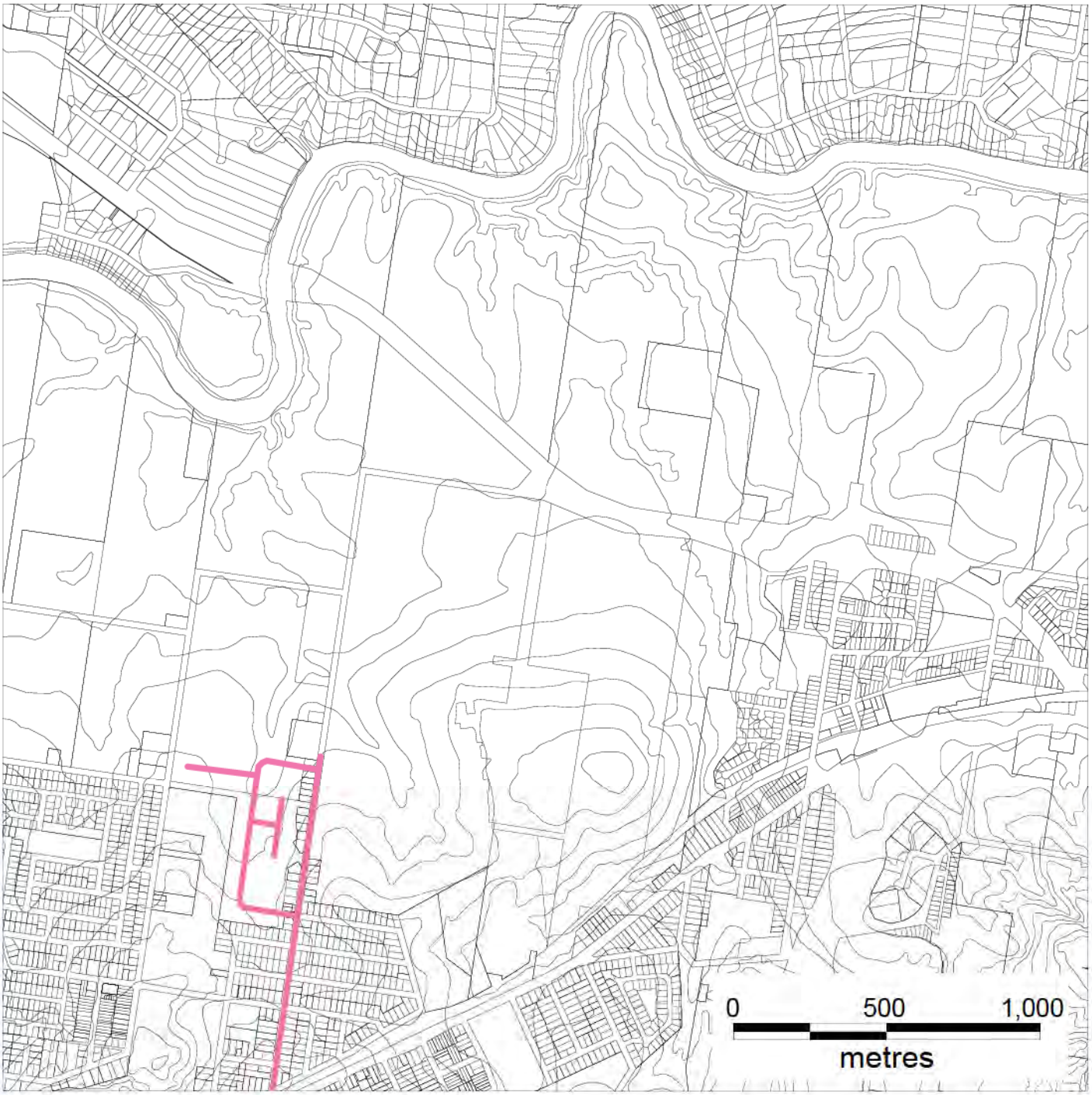
FIGURE 11
SIGNAGE



Legend

Local Residential Streets
(Local Traffic Management Focus)

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Date: 11 July 2018

Signed:

FIGURE 13
RESIDENTIAL STREETS

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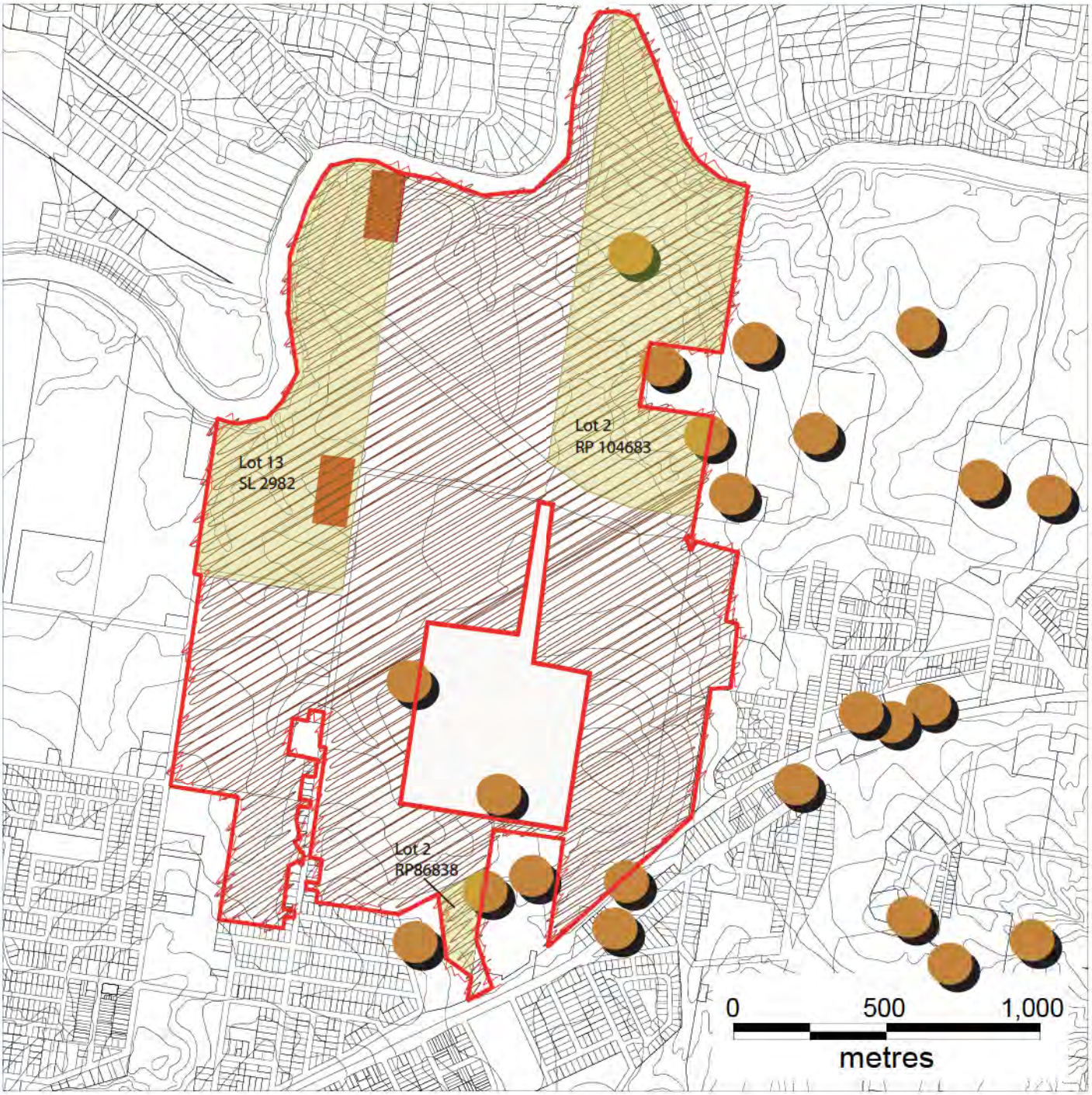

Legend

- Cattle Dip Area
- Contaminated Land Sites
- Sites to be scientifically investigated, as per EPA requirements
- Areas to be investigated for organic carbon
- Site Area

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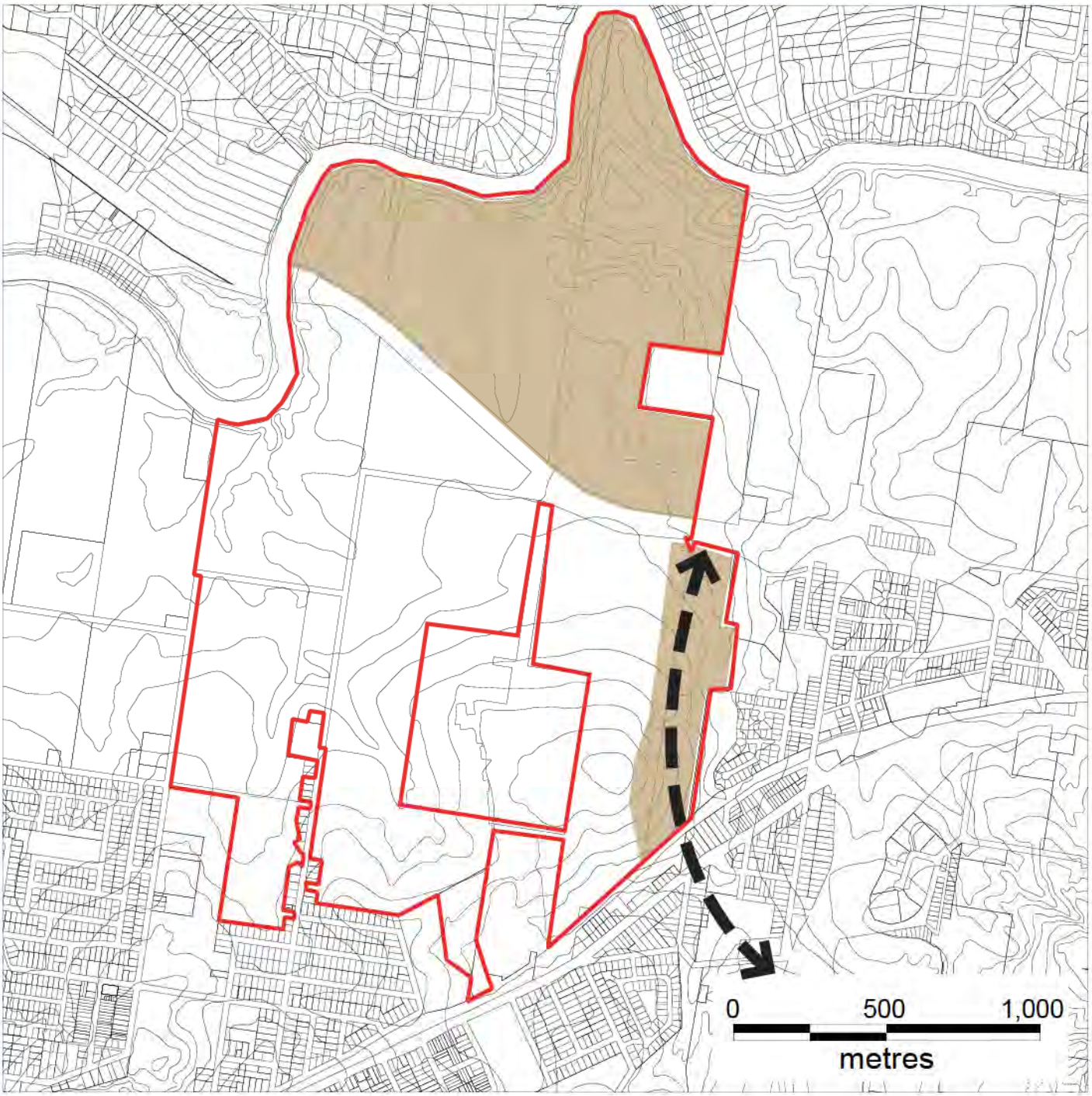
Pursuant to the Planning Act 2016, this plan forms part of Council's approval for

Approval No: 3356/02/MAMC/A

Date: 11 July 2018

Signed:

FIGURE 14
SOIL CONTAMINATION



Legend

- DMR Quarantine Area
- Possible Highway Connections
- Site Area

Pursuant to the Planning Act 2016, this plan forms part of Council's approval for

Approval No: 3356/02/MAMC/A

Date: 11 July 2018

Signed:

FIGURE 15
HIGHWAY QUARANTINE

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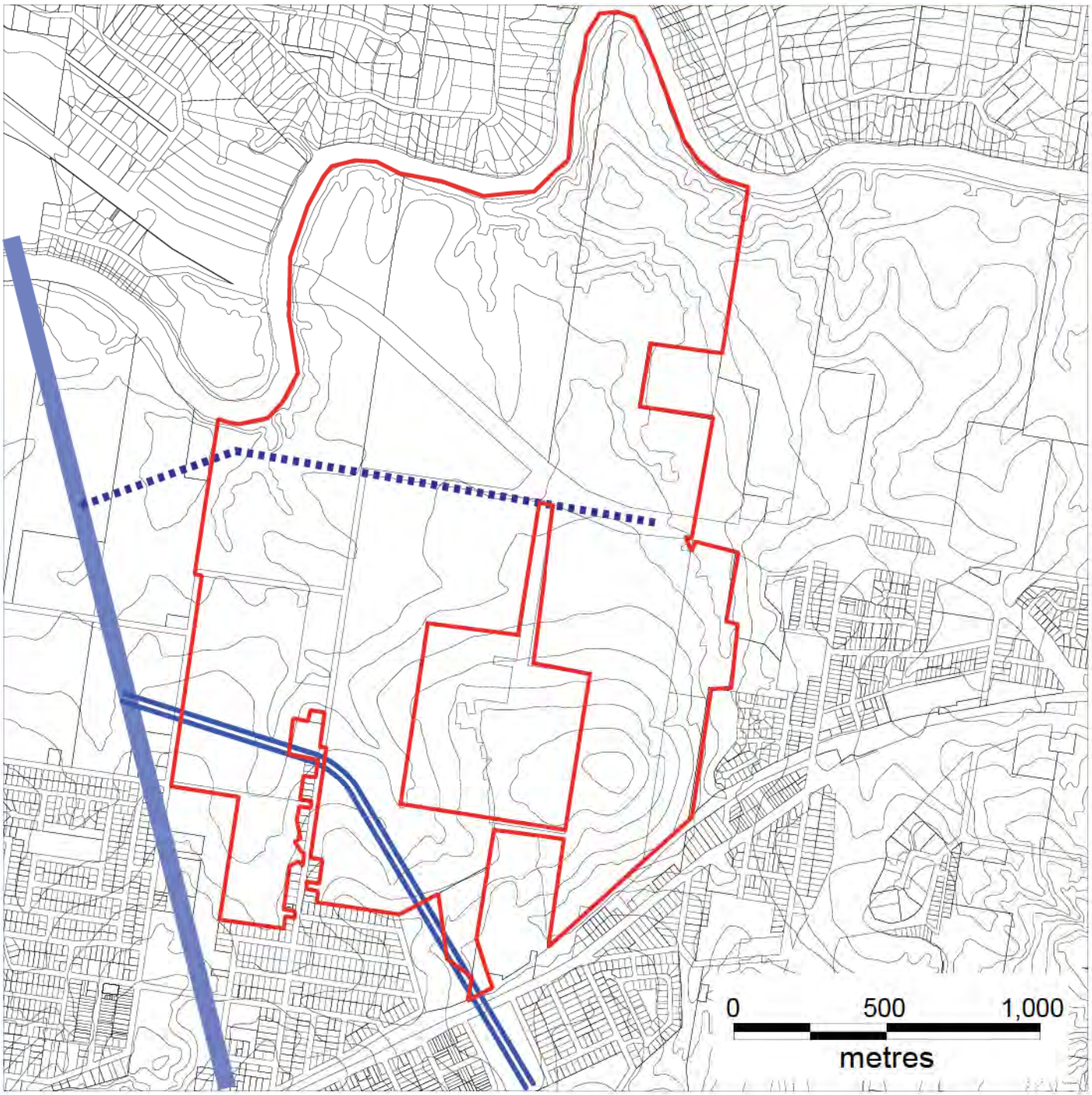

Legend

- Existing Water Main
- Water Main to Swanbank (25m)
- Water Main Extension (10m)
- Site Area

Pursuant to the Planning Act 2016, this plan forms part of Council's approval for

Approval No: 3356/02/MAMC/A

Date: 11 July 2018

Signed:

FIGURE 16
WATER MAINS

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LEGEND

- EXISTING POWER EASEMENT
- EXISTING GAS EASEMENT
- EXISTING WATER MAIN
- 25M RIPARIAN CORRIDOR
- STAGE BOUNDARY
- STREET TREE
- BUFFER PLANTING
- DRAINAGE CORRIDOR
- RIPARIAN CORRIDOR
- TURF AND OPEN SPACE
- BIORETENTION BASIN

ARCHER STREET PARK:

- REFER TO APPROVALS NOTE
- TO BE CONSISTENT WITH THE MASTER FLOOD STUDY AS APPROVED BY THE ENGINEERING AND ENVIRONMENT MANAGER IN A LETTER DATED 8 OCTOBER 2012 OR AS LAWFULLY AMENDED

DEDICATION

- DEDICATION WITH THE SIGNING OF THE PLAN OF SUBDIVISION FOR THE FIRST LOT ASSOCIATED WITH THE RECONFIGURING A LOT DEVELOPMENT PERMIT FOR STAGE 7; OR
- DEDICATION TO BE IN ACCORDANCE WITH AN OPTION DEED TO BE GRANTED TO COUNCIL. THE OPTION DEED MUST GIVE COUNCIL THE ABILITY TO PURCHASE THE LAND FOR A NOMINAL FEE (I.E. $1). THE OPTION DEED MUST STATE THAT COUNCIL MAY EXERCISE THE OPTION TO BUY THE LAND FOR $1 IN THE FOLLOWING TIMEFRAME:

1 JULY 2018 (5 YEARS), WITH A CAVEAT THAT WALKER MAY EXTEND THIS TIMEFRAME FOR A FURTHER 5 YEARS, AFTER WHICH FURTHER EXTENSIONS MUST BE AGREED TO BY COUNCIL.

WORKS

- WORKS TO INCLUDE BASIC EARTHWORKS AND SITE REHABILITATION TO ENABLE THE LAND TO BE USED FOR THE PURPOSES OF LINEAR OPEN SPACE. WORKS TO INCLUDE REMOVAL OF WEEDS AND SATISFACTION OF CULTURAL HERITAGE REQUIREMENTS BUT NOT FULL EMBELLISHMENT UNLESS OTHERWISE AGREED WITH COUNCIL.

STAGE 6 PARK:

REFER TO APPROVALS NOTE

5000M² LOCAL RECREATIONAL PARK:

DEDICATION

- DEDICATION WITH THE SIGNING OF THE PLAN OF SUBDIVISION FOR THE FIRST LOT ASSOCIATED WITH THE RECONFIGURING A LOT DEVELOPMENT PERMIT FOR STAGE 6; OR
- DEDICATION TO BE IN ACCORDANCE WITH THE OPTION DEED GRANTED TO COUNCIL

WORKS

- WORKS TO BE IN ACCORDANCE WITH THE DETAILED LANDSCAPE PLANS APPROVED IN THE FIRST OPERATIONAL WORKS APPLICATION ASSOCIATED WITH THE RECONFIGURING A LOT APPROVAL.
- WORKS TO BE FINALISED PRIOR TO THE DEDICATION OF THE PARKLAND OR AS OTHERWISE DETERMINED IN THE CONDITIONS OF THE RECONFIGURING A LOT OR OPERATIONAL WORKS DEVELOPMENT PERMIT FOR STAGE 6.

REMAINDER OF OPEN SPACE:

DEDICATION

- WITH PLAN SEALING OF THE 1ST OF STAGE 6C OR 6D

WORKS

- FINALISED PRIOR TO DEDICATION

Pursuant to the Planning Act 2016, this plan forms part of Council's approval for

Approval No: 3356/02/MAMC/A

Date: 11 July 2018

Signed:

place design group.

Place Design Group Pty Ltd
131 Robertson Street
Fortitude Valley, Brisbane, QLD
4006 Australia
T + 61 7 3852 3922
F + 61 7 3852 4766

Citiswich

Overall Landscape Masterplan

Date	Project No.	Revision	DWG No
07/12/2017	WLK26	Q	01

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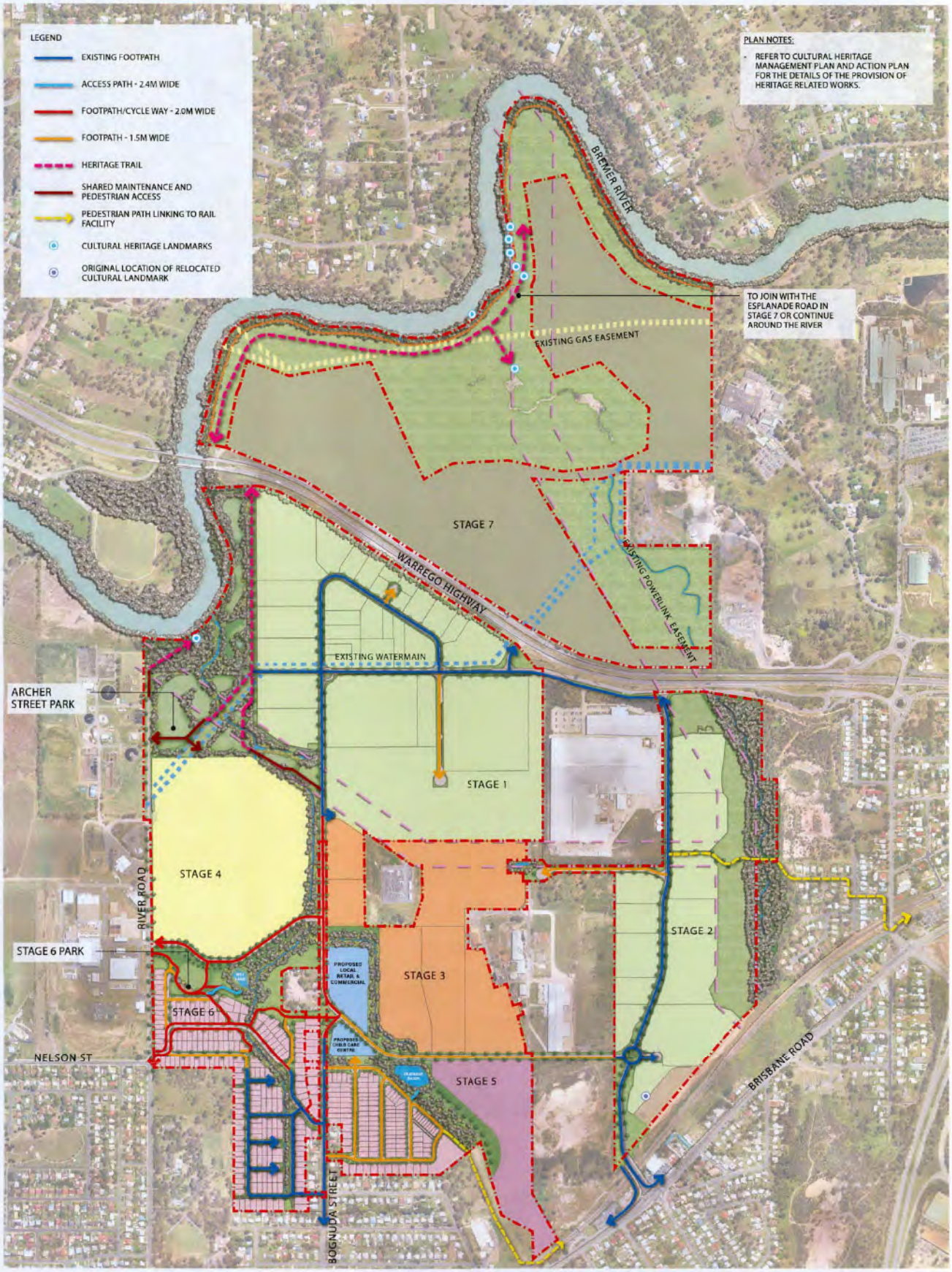

INDICATIVE CIRCULATION HIERARCHY PLAN.
DETAILED DESIGN TO BE DETERMINED WITH INDIVIDUAL RECONFIGURING A LOT APPLICATIONS FOR EACH STAGE.

Pursuant to the Planning Act 2016, this plan forms part of Council's approval for

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Date: 11 July 2018

Signed:

place design group.

Place Design Group Pty Ltd
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Fortitude Valley, Brisbane, QLD
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T +61 7 3852 3922
F +61 7 3852 4766

Citiswich
Indicative Circulation Hierarchy Plan

Date	Project No.	Revision	DWG No.
07/12/2017	WLK26	0	02

3356/02

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Phone: (07) 3225 1827 Fax: (07) 3247 3278
www.env.qld.gov.au ABN:87221158786

Queensland Government
Environmental Protection Agency
Queensland Parks and Wildlife Service

Notice of concurrence agency response

Sections 3.3.16 and 3.3.18 *Integrated Planning Act 1997*

This notice is issued by the administering authority pursuant to sections 3.3.16 and 3.3.18 of the *Integrated Planning Act 1997*, to advise you of a decision or action.

Enquiries to: Kapila Bogoda
Telephone: 3225 8416 E-mail: Kapila.Bogoda@epa.qld.gov.au
Your reference: 3356/2002/CA
Our reference: 5927 Part 5 File No.:BNE6881

Ipswich City Council J. Wheeler
RECEIVED
15 SEP 2003
Doc. No.
D/V4

CC: Wingate Properties Pty Ltd
48 Wharf Street
KANGAROO POINT 4169

Ipswich City Council
PO Box 191
IPSWICH 4305

Attention: James Wheeler

Re: Application (No. 3356/2002/CA) for development approval for assessable development to be carried out at Archer Street, Ashburn Road, Bognuda Street, Carberry Street, River Road West and Vale Street, Bundamba (Lot 4 on SP140694, Lot 6 on SP140694, Lot 2 on RP854997, Lot 1 on RP22385, Lot 1 on RP125443, Lot 2 on RP104683, Lot 1 on RP86838, Lot 1 on RP22378, Lot 34 on SL3911, Lot 1 RP84779, Lot 142 on RP846150, Lot 4 on RP92591, Lot 5 on RP92591, Lot 6 on RP92591, 13 SL2982, Lot 3 on RP132087, Lot 2 on RP86838).

Pursuant to the following items of Schedule 2 of the *Integrated Planning Regulation 1998*, the Environmental Protection Agency is a concurrence agency for the development application:

- ☐ Item 3 of Schedule 2 of the *Integrated Planning Regulation 1998* (for Environmentally Relevant Activities)
- ☑ Item 6 of Schedule 2 of the *Integrated Planning Regulation 1998* (for contaminated land)

The Environmental Protection Agency (EPA), acting as a concurrence agency under the *Integrated Planning Act 1997*, provides its response to the application detailed above as attached.

It would be appreciated if Council could provide a signed hard copy of the final development approval issued by Council (which includes the Agency's concurrence conditions).

The EPA has not provided a notification to native title parties for this application. The State's Native Title Work Procedures indicate that responsibility for assessment of native title issues for an IDAS application rest with the Assessment Manager. It is recommended that you undertake an assessment using your own guidelines to determine if a native title notification is required for this application.

Should you require any further information please do not hesitate to contact the above officer on the telephone number or e-mail address provided.

10 Sept 2003

Signed Date

Delegate of Administering Authority
Environmental Protection Act 1994.

Concurrence agency response
Sections 3.3.16 and 3.5.18 *Integrated Planning Act 1997*

Applicant:	Wingate Properties Pty Ltd
Council Application Number:	3356/2002/CA
EPA Application Number:	5927 Part 5
Date application received by EPA:	25/09/2002
Relevant Laws and Policies:	*Environmental Protection Act 1994*
Jurisdiction:	Chapter 7, Part 8 *Environmental Protection Act 1994*

Development Description:

Material Change of Use & Reconfiguration of a Lot

where:

- ☐ the existing use of the land is, or if the land is vacant land with no existing use the most recent use of the land was, for a notifiable activity under the *Environmental Protection Act 1994.*
- ☐ the proposed use of the land is for child care, educational, recreational, residential or similar purposes and the existing use of the land is, or if the land is vacant land with no existing use the most recent use of the land was, for an industrial activity.
- ☑ the land is on the Environmental Management Register or Contaminated Land Register under the *Environmental Protection Act 1994.*
- ☐ the land is wholly or partly within an area for which an Area Management Advice for industrial activity or natural mineralisation has been issued and the proposed use of the land is for child care, educational, recreational, residential or similar purposes.
- ☐ the land is wholly or partly in an area for which an Area Management Advice for unexploded ordnance has been issued.

at the following place(s):

Archer Street, Ashburn Road, Bognuda Street, Carberry Street, River Road West and Vale Street, Bundamba
(Lot 4 on SP140694, Lot 6 on SP140694, Lot 2 on RP854997, Lot 1 on RP22385, Lot 1 on RP125443, Lot 2 on RP104683, Lot 1 on RP86638, Lot 1 on RP22378, Lot 34 on SL3911, Lot 1 on RP84779, Lot 142 on RP846150, Lot 4 on RP92591, Lot 5 on RP92591, Lot 6 on RP92591, Lot 13 on SL2982, Lot 3 on RP132087, Lot 2 on RP86838)

Response to Development Application

The Environmental Protection Agency, acting as a concurrence agency under the *Integrated Planning Act 1997*, provides its response to the application detailed above.

The concurrence agency response is that

- ☑ **conditions must attach to any development approval**
- ☐ any approval must be for part only of the development
- ☐ any approval must be a preliminary approval only
- ☐ there are no concurrence agency requirements;
- ☐ the application must be refused

Conditions of the development approval

The following concurrence agency condition(s) is/are to be attached to any development approval issued for this application:

1. Prior to the commencement of any operational works, building works or remediation works, the applicant must conduct or commission an investigation of land in accordance with the *Draft Guidelines for the Assessment and Management of Contaminated Land in Queensland* to scientifically assess whether lands described as Lot 13 SL 2982, Lot 2 RP 86838 and Lot 2 RP 104683 are contaminated and submit reports about the investigations to the Environmental Protection Agency (Contaminated Land Unit), to enable Suitability Statements to be issued for Lot 13 SL 2982, Lot 2 RP 86838 and Lot 2 RP 104683 specifying that the land is suitable for the intended use.

2. The land may be regarded as uncontaminated if the site history and analyses of soil samples adequately demonstrates that the investigation thresholds have not been exceeded for any of the contaminants listed in Table 1:

Table 1.

Lot	Contaminant	Investigation Threshold
Lot 13 SL 2982	**Arsenic**	**100mg/kg**
	Manganese	1500mg/kg
	Total Organochlorine Pesticides	50mg/kg
	Total Organophosphorous Pesticides	50mg/kg
Lot 2 RP 86838	**Arsenic**	**100mg/kg**
	Cadmium	20 mg/kg
	Cr	100mg/kg
	Cu	200mg/kg
	Lead	300mg/kg
	Ni	600mg/kg
	Zinc	400mg/kg
	TPH (C_6-C_9)	100mg/kg
	TPH (C_{10}-C_{14})	100mg/kg
	TPH (C_{15}-C_{28})	1000mg/kg
	TPH (C_{29}-C_{36})	1000 mg/kg
	PAH (Polycyclic Aromatic Hydrocarbons)	20 mg/kg
	BaP (Benzo (a) Pyrene)	1 mg/kg
Lot 2 RP 104683	**Arsenic**	**100mg/kg**
	Cadmium	20 mg/kg
	Cr	100mg/kg
	Cu	200mg/kg
	Lead	300mg/kg
	Ni	600mg/kg
	Zinc	400mg/kg
	PAH (Polycyclic Aromatic Hydrocarbons)	20 mg/kg
	BaP (Benzo (a) Pyrene)	1 mg/kg

NB: Sample collection, analysis and density must be in accordance with the appropriate Australian Standards (ie. AS4482.1-1997 / AS4482.2-1999).

3. Prior to the commencement of any operational works, building works or remediation works, the applicant must conduct or commission an investigation of land in accordance with the *Draft Guidelines for the Assessment and Management of Contaminated Land in Queensland* to scientifically assess whether lands excluding those described as Lot 13 SL 2982, Lot 2 RP 86838 and Lot 2 RP 104683 are suitable for the intended use and submit reports about the investigations to the Environmental Protection Agency (Contaminated Land Unit), to enable the EPA to determine if the land is suitable for the intended use.

4. The land may be regarded as suitable for the intended use if the site history and analyses of soil samples adequately demonstrates that the investigation thresholds have not been exceeded for any of the contaminants listed in Table 2:

Table 2.

Intended Use	Contaminant	Investigation Threshold
Any Use	Manganese	1500mg/kg
Industrial/Commercial	Manganese	7500mg/kg

NB: Sample collection, analysis and density must be in accordance with the appropriate Australian Standards (ie. AS4482.1-1997 / AS4482.2-1999).

5. For substances other than those listed in Tables 1 and 2 above, concentrations must not exceed the Interim Urban Environmental Investigation Levels as identified in Table 5-A of the National Environment Protection (Assessment of Site Contamination) Measure, without written agreement from the Environmental Protection Agency.

6. For substances other than those listed in Tables 1 and 2 above, concentrations must not exceed the Interim Urban Environmental Investigation Levels as identified in Table 5-A of the National Environment Protection (Assessment of Site Contamination) Measure, without written agreement from the Environmental Protection Agency.
7. The *Draft Guidelines for the Assessment and Management of Contaminated Land in Queensland* may be obtained from the Environmental Protection Agency's Internet site at www.env.qld.gov.au, or by contacting the Environmental Protection Agency (EPA) (Contaminated Land Unit). Please ensure that the appropriate statutory fee is included with this application for the assessment of the site investigation and / or validation reports.

8. The removal of any contaminated soil from the site requires prior approval from the Environmental Protection Agency (EPA) (Contaminated Land Unit) under the *Environmental Protection Act 1994* (EP Act) under Section 424.

Reasons for inclusion of development conditions or refusal

In accordance with section 3.3.18 of the *Integrated Planning Act 1997* and section 27B of the Acts Interpretation Act 1954, a concurrence response must include reasons for a refusal or for the inclusion of development conditions.

The Environmental Protection Agency is recognised as a concurrence agency under the *Integrated Planning Regulation 1998* for the protection of the environment by the management of contaminated land. The Environmental Protection Agency concurrence agency conditions for this proposed development that are contained within this response are required to mitigate any potential risk to human health or the environment from possible hazardous contaminants present on the site.

Additional comments or advice about the application

Not applicable

Additional information for applicants

This concurrence response pursuant to Chapter 7, Part 8 of the *Environmental Protection Act 1994* applies only to contaminated land issues and does not remove the need to obtain any further approval for this development which may be required by this or other legislation, State and/or Commonwealth. Applicants are advised to check with all relevant statutory authorities for such approvals as may be required.

~ End Of Concurrence Agency Response ~

Queensland Government

24 September 2003

Ipswich City Council J Wheeler
RECEIVED
25 SEP 2003
Doc. No.
Div 4

Department of Main Roads

Mr Jamie Quinn
Chief Executive Officer
Ipswich City Council
PO Box 191
Ipswich Qld 4305

Dear Mr Quinn

REFERRAL AGENCY'S RESPONSE (conditions apply)

Ipswich City: Warrego Highway
Proposed and Material Change of Use
Application No: 3356/2002/CA
(Lot 1 on RP22378 and others)
Situated at Bognuda Street, Bundamba

I refer to the above application received on 25 September 2002 requesting approval for development.

Pursuant to Section 3.3.16 of the *Integrated Planning Act 1997*, Main Roads as a *concurrence agency* has assessed the impact of the proposed development on the state-controlled road network and requires council to include the conditions of development for the subject application as indicated on the attached Statement of Reasons.

The Department of Main Roads reserves the right to re-assess this advice should the proposal not proceed along the lines indicated and this advice is valid for two (2) years from the date of this letter.

This Department would appreciate a copy of Council's Decision Notice, **(including conditions)** regarding this application.

A copy of this letter and list of conditions has been sent to Sinclair Knight Merz for his information.

Yours sincerely

Don Steele
District Director (Metropolitan)
Enc (2)

South East Queensland Region
Metropolitan District
PO Box 70 Spring Hill Queensland 4004
183 Wharf Street Spring Hill Queensland 4004
ABN 57 838 727 711

Our ref 510/111 (Q461) sz
Your ref 3356/2002/CA JW
Enquiries Mr Richard Lesson
Telephone +61 7 3834 8463
Facsimile +61 7 3834 8363
Website www.mainroads.qld.gov.au
Email ddmetropolitan@mainroads.qld.gov.au

South East Queensland Region
Metropolitan District
183 Wharf Street Spring Hill Queensland 4000
PO Box 70 Spring Hill Queensland 4004
ABN 57 836 727 711
dumowopolitan@mainroads.qld.gov.au

Enquiries Mr Richard Leeson
Telephone +61 7 3834 8463
Facsimile +61 7 3834 8363
Our Ref: 510/111 (C461)
Your Ref: 3356/2002/CA JJW

CONDITIONS OF DEVELOPMENT AND STATEMENT of REASONS

Ipswich City: Warrego Highway
Proposed and Material Change of Use
Application No: 3356/2002/CA
(Lot 1 on RP22378 and others)
Situated at Bognuda Street, Bundamba

Our Ref: 510/111(C461)
Sheet No: 1 of 2

Issue/Concerns	Conditions of Development for the subject Application	The..(*reasons/information/studies/findings*).. Used in the setting of conditions included.
The development will generate traffic that will have an adverse impact on the Warrego Highway and Brisbane Road, both State-controlled roads.	1. The Department of Main Roads has identified parcels of land that may be required for future road purposes. These parcels shall be quarantined from the development for a period of 12 months from the date of approval by Ipswich City Council of this development application. The quarantined parcels are defined as: (i) The shaded area shown on plan SK18A – 03 C attached. (ii) All land that is part of this application and that is located north of the Warrego Highway. 2. No lots of the reconfigured development shall have direct access to the Warrego Highway 3. Main Roads may extend the period of quarantine referred to in condition 1. above for a further period of 12 months. 4. The applicant shall construct a road linking Brisbane Road to Ashburn Road through the subject land, as follows.	The department of Main Roads' Road Planning & Design Manual.

Queensland Government
Department of Main Roads

South East Queensland Region
Metropolitan District
183 Wharf Street Spring Hill Queensland 4000
PO Box 70 Spring Hill Queensland 4004
ABN 57 836 727 711
ddmetropolitan@mainroads.qld.gov.au

Enquiries Mr Richard Leeson
Telephone +61 7 3834 8463
Facsimile +61 7 3834 8363
Our Ref: 510/111 (C461)
Your Ref: 3356/2002/CA JJW

CONDITIONS OF DEVELOPMENT AND STATEMENT of REASONS

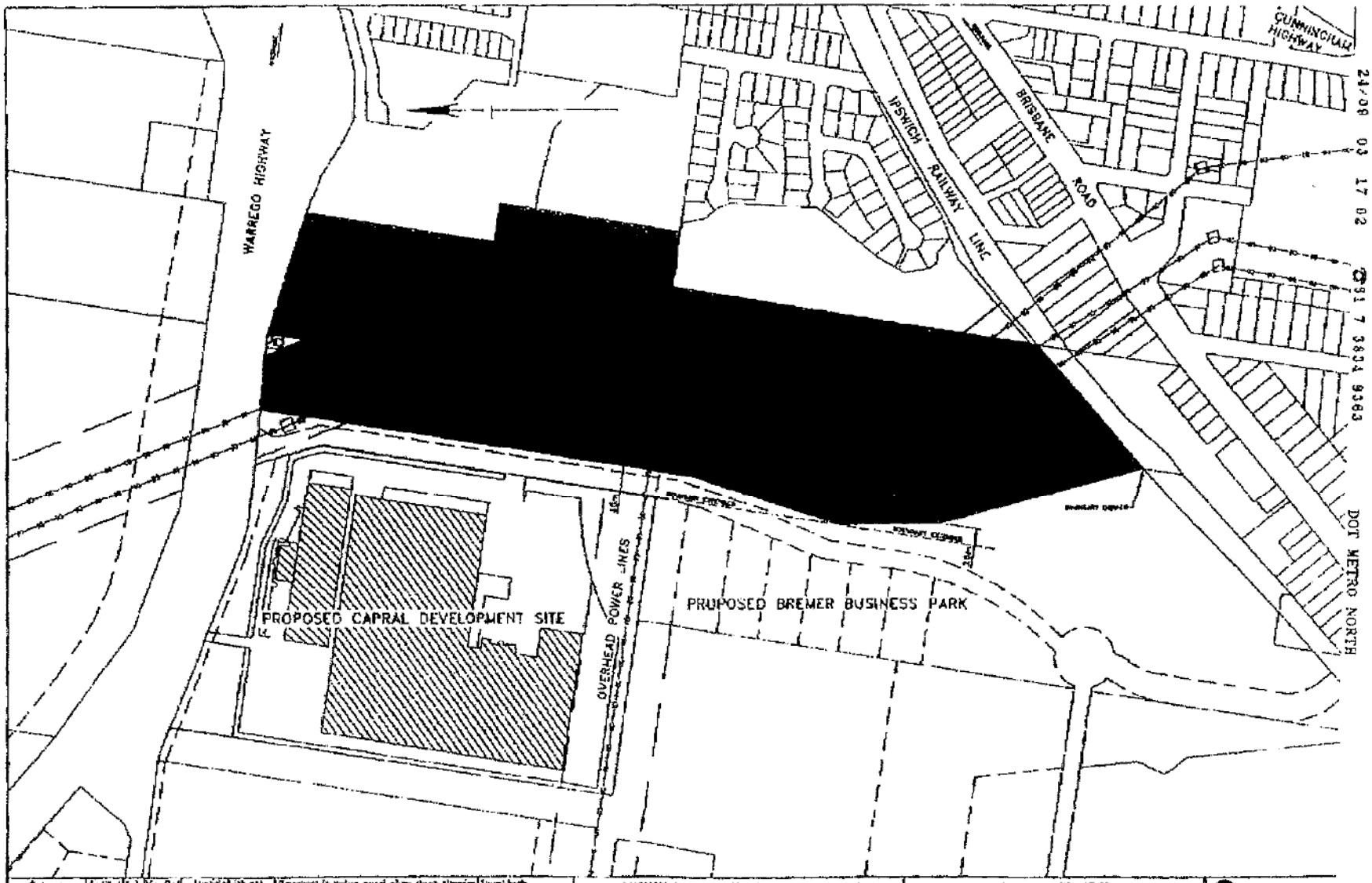
Ipswich City: Warrego Highway
Proposed and Material Change of Use
Application No: 3356/2002/CA
(Lot 1 on RP22378 and others)
Situated at Bognuda Street, Bundamba

Our Ref: 510/111(C461)
Sheet No: 2 of 2

Issue/Concerns	Conditions of Development for the subject Application	The *(reasons/information/studies/findings)* Used in the setting of conditions included
	4.(a) The road shall be designed and constructed in accordance with the requirements of Ipswich City Council.	
	4.(b) The intersection with Brisbane Road shall be through Lots 2 and 7 on RP22379.	
	4.(c) The intersection with Brisbane Road shall be designed and constructed in accordance with the requirements of Main Roads	
	4.(d) The road shall be completed within 5 years from the date of approval of this application and before 40% of the subject land south of the Warrego Highway has commenced use -- (whichever is sooner).	
	4.(e) Main Roads may by agreement extend the period by which this road has to be built.	
	4.(f) Design and construction of this road shall be at no cost to Main Roads.	

Queensland Government
Department of Main Roads

24. 08 03 17:01 07 3834 8363 DOT METRO NORTH 004


CUNNINGHAM HIGHWAY
WARREGO HIGHWAY
IPSWICH RAILWAY LINE
BRISBANE ROAD
PROPOSED CAPRAL DEVELOPMENT SITE
OVERHEAD POWER LINES
PROPOSED BREMER BUSINESS PARK
DOT METRO NORTH
24/09 03 17 02
91 7 3834 9383
CUNNINGHAM HWY — WARREGO HWY CONNECTION
C.R. CHOE
QUARANTINED AREA
BREMER BUSINESS PARK
JOB No.
510/111
Drawing
SKIRA-005

Queensland Government

Department of Infrastructure, Local Government and Planning

Our reference: SPD-0516-027011
Your reference: MA - 3356 / 2002 - E

20 May 2016

The Chief Executive Officer
Ipswich City Council
PO Box 191
Ipswich Qld 4305
plandev@ipswich.qld.gov.au

Attn: Ms Meredith Hartigan

Dear Ms Hartigan

Notice about request to extend relevant period
Citiswich Estate - Lot 13 SP238272, Lot 34 SP238273, Lot 2 RP104683, Lot 131 SP238272, Lot 1 SP249408, Lot 1 & 2 SP249408, Lot 2 SP 255793, Lot 12 SP255793, Lot 4 SP238273, Lot 8 SP214482, Lot 10 SP255802, Lot 11 SP151177, Lot 14 SP221438, Lot 21 SP227109, Lot 23 SP222633, Lot 25 SP214482, Lot 101 SP 255802, Lot 900 SP250301, Lot 1 SP255803, Lot 6 SP 255794 and Lot 11 & 12 SP222644.
(Given under section 385 of the *Sustainable Planning Act 2009*)

The Department of Infrastructure, Local Government and Planning received written notice under section 383(1)(a) of the *Sustainable Planning Act 2009* (the act) on 2 May 2016 advising the department, as a concurrence agency, of the request to extend the relevant period. The proposed extension to the relevant period is 6 July 2020.

The department has considered the request to extend the relevant period and advises that it has no objection to the extension being approved.

If you require any further information, please contact Jane McInnes, Senior Planner, on 3432 2423, or via email ipswichSARA@dilgp.qld.gov.au who will be pleased to assist.

Yours sincerely

Kieran Hanna
A/Manager – Planning

SEQ West Region
Level 4,117 Brisbane Street
PO Box 129
Ipswich QLD 4305

Your reference
Our reference 3668/2013/OW:CLH
Contact Officer Cameron Hoger
Telephone (07) 3810 7741

City of Ipswich

Ipswich City Council

45 Roderick St
PO Box 191
Ipswich QLD 4305
Australia

Tel (07) 3810 6666
Fax (07) 3810 6731
Email council@ipswich.qld.gov.au
Web www.ipswich.qld.gov.au

Walker Bremer Park Pty Ltd
GPO Box 4073
SYDNEY NSW 2001

11 December 2013

SUSTAINABLE PLANNING ACT 2009

DEVELOPMENT APPLICATION DECISION NOTICE

Application Details

Application No: 3668/2013/OW

Real Property Description: Lot 13 SP 238272 PAR GOODNA, Lot 34 SP 238273 PAR GOODNA, Lot 2 RP 104683 PAR GOODNA

Property Location: Lot 13 Bognuda Street, BUNDAMBA QLD 4304, 24 Hawkins Crescent, BUNDAMBA QLD 4304, 239 Warrego Highway, BUNDAMBA QLD 4304

Decision Date: 10 December 2013

Decision: This application is approved subject to the conditions listed below.

Decision Authority: Senior Engineering Officer

Decision Details:

Development	Approval Type	Decision	Relevant Period
Operational Works Bulk Earthworks – Citiswich Stage 7	Development Permit	Approved subject to the conditions set out in Attachment A – Assessment Manager Conditions and Attachment C - Referral Agency Responses including conditions.	Two (2) years

1. Approved Plans

(a) The approved plans for this development approval are:

(i) the plans referred to in the table of approved plans (including any amendments that are required to be made to those plans); and

(ii) where the amended versions of the plans referred to in the table of approved plans have been approved by the assessment manager, the amended versions of those plans.

(b) The approved plans are attached to this decision notice at Attachment B.

Table of Approved Plans

Plan Number	Revision Number
Civil	
7902-44-014-100	-
7902-44-014-101	2
7902-44-014-102	2
7902-44-014-105	2
7902-44-014-106	2
7902-44-014-107	2
7902-44-014-110	1
7902-44-014-111	1

2. Referral Agencies

Referral Agency	Type of Referral
State Assessment and Referral Agency South East Queensland (South) Regional Office Main Office - Ipswich Ground Level, Tower Central 114 Brisbane Street Ipswich City Council Post: PO Box 129 Ipswich QLD 4305 Tel: 07 3381 7570 IpswichSARA@dsdip.qld.gov.au	Concurrence
Powerlink PO Box 1193 VIRGINIA QLD 4014	Advice

3. Conditions of Assessment Manager (Ipswich City Council)

Refer Attachment A

4. Appeal Rights

Attachment D contains an extract from the *Sustainable Planning Act 2009* which details the applicant's appeal rights and the appeal rights of any submitters regarding this decision.

Yours faithfully

Aaron Katt
SENIOR ENGINEERING OFFICER

cc:

SARA
PO Box 129
IPSWICH QLD 4305; and

Powerlink
PO Box 1193
VIRGINIA QLD 4014

Encl:

A. Assessment Manager Conditions (Attachment A)
B. Approved Plans
C. Referral Agency Responses – (1) SARA and (2) Powerlink
D. *Sustainable Planning Act 2009* extract on appeal rights (Attachment D)

Attachment A

Assessment Manager (Ipswich City Council) Conditions

Conditions applicable to this approval under Sustainable Planning Act:

1. Basis of Approval

The facts and circumstances set out in the application and all relevant Council Local Laws and/or Local Planning Policies shall be adhered to, except as amended in these conditions.

2. Minor Alterations

Notwithstanding the requirements detailed in this approval, any other minor alterations and/or modifications shall be subject to the prior written approval of the Assessment Manager.

3. Hours of Construction

Unless otherwise approved in writing by the Assessment Manager hours of construction shall be:

Monday to Saturday 6.30 am to 6.30 pm

Work or business shall not be conducted from or on the premises outside the above hours or on Sundays or public holidays.

4. Terms

RPEQ - A Registered Professional Engineer of Queensland, suitably qualified and experienced in the particular area of expertise required.

5. Pre-start Requirements

The following information must be submitted prior to commencement of work:-

(a) Contractor's on site and after hour's telephone number;

(b) Supervising engineer's office and after hours telephone number; and

(c) Date of commencement of works and expected duration.

(d) The Developer must submit evidence of possession of the following insurances as required by Planning Scheme Policy 3 Part 7.2.5 prior to commencement of work:

(i) Public Liability insurance to a minimum value of $10M, with a notation nominating the Local Government as an Interested Party; and

(ii) Worker's Compensation Insurance

No work may commence on the site unless the Developer has the necessary insurances in place.

(e) A sign that has dimensions not less than 900mm in height and 1200mm in length must be installed a minimum 300mm above the ground on or within 1500mm of the property boundary of the development site at every location where the development site fronts on to a dedicated road reserve. The sign must be made of weatherproof materials and contain the business and after hours contact phone numbers of the applicant, supervising/consulting engineer and contractor as well as the relevant operational works application number with all details displayed with a minimum lettering height of 40mm and in bold text (approximately 147 point Arial bold font). All signs must be installed and be available for inspection at the prestart meeting and remain in place until the earthworks operation is complete.

6. Earthworks

(a) The applicant must demonstrate prior to the commencement of work that the proposed interim earthworks causes a non-worsening effect to adjacent, upstream and downstream properties compared to the ultimate model within the Citiswich Masterplan – Flooding Investigation (including Local Flooding Assessment) by Cardno dated August 2012 (Project Number LJ8714/R3/V5).

(b) Any allotment or other filling creating a soil depth of 500mm or more must be conducted in accordance with Australian Standard 3798. Test results as required by Australian Standard 3798 at Responsibility Level 1, and a certificate of quality and uniformity of fill must be provided by a RPEQ.

(c) The applicant must demonstrate that the relieving earthworks as required to be completed as part of Stage 7 earthworks as stated in dot point four (4) of Council's letter titled "Citiswich Masterplan Flooding Investigation (including Local Flooding Assessment) and Riparian Zone Hydraulic Impact Assessment" dated 8 October 2012 are being undertaken as part of these works.

(d) Where batters resulting from cut and fill on the site produce slopes greater than 1:4, the Developer must provide RPEQ certification that the slopes are stable and properly drained.

NOTE :- Albeit batters are accepted with this approval, these batters are considered interim and the ultimate configuration of batter and open space interface shall be subject to future development permits concerning Stage 7 RAL and linear open space approved landscape plan.

(e) The development of the site is subject to the conditions of any related Reconfiguring a Lot, Material Change of Use and Operational Works approval.

7. Engineering Certifications

(a) Engineering certification (by RPEQ) must be submitted to Council for the completed earthworks associated with the development and must include specific certification that the works have been undertaken in accordance with the Citiswich Masterplan – Flooding

Investigation (including Local Flooding Assessment) dated August 2012 (Project Number LJ8714/R3/V5) as well as the Citiswich – Riparian Hydraulic Impact Assessment by Cardno dated 29 June 2012 and any amendments as required by the conditions within this approval.

(b) The certifying authority (or their representative) is expected to undertake inspections as necessary to ensure the finished product conforms to the required standards, and is appropriate for its intended use.

8. Sediment and Erosion Management

(a) The Developer is responsible for the installation and maintenance of erosion and sediment management facilities and truck shake down facilities from the time of commencement of construction until the works have been completed. All management facilities must be designed, installed and maintained in accordance with the latest version of the document *"Best Practice Erosion and Sediment Control"* published by the International Erosion and Sediment Control Association Australasia. Sediment and erosion control and truck shake down facilities must be installed and available for inspection prior to commencement of work.

(b) If the Assessment Manager determines that erosion and sediment originating from the site has caused sediment deposit and/or erosion on other property, the Developer shall be responsible to restore any damage. Such restoration works must be completed in the time and to a standard determined by the Assessment Manager.

(c) Should the Developer fail to complete the restoration works determined by the Assessment Manager within the specified time or to a satisfactory standard, Council may complete the work and recover all costs from the Developer associated with that work. For this purpose, the Developer must lodge a $10,000.00 silt and erosion bond with Council, prior to commencement of works, which shall only be released by Council at the time of completion of the works and satisfactory revegetation of the site. Where Council determines that a drawdown of the bond is required, the Developer must restore the bond to its full amount within ten (10) business days of a notice from Council to that effect.

9. Transport of Soil, Gravels, Fill or Excavated Material

During the transportation of soil, gravels and other fill/excavated material:

(a) All trucks hauling soil, gravels, fill or excavated material must have their loads secured and covered;

(b) Any spillage that falls from the trucks or their wheels must be collected and removed from the streets along which the trucks travel, on a daily basis;

(c) Measures must be taken to remove soil from the wheels of vehicles prior to the vehicles exiting the site, to prevent soil and mud being deposited on public roads; and

(d) Proposed haul routes are subject to separate approval by the Assessment Manager. The application for approval of a haul route is to contain the following information:-

- Confirmation of expected amount of excess fill material to be transported;
- Proposed truck route;

- Proposed number of trucks per day;
- Hours of operation.

10. **Approved Plans**

The following is a list of the plans upon which this determination is forwarded:-

Plan Number	Revision Number
Civil	
7902-44-014-100	-
7902-44-014-101	2
7902-44-014-102	2
7902-44-014-105	2
7902-44-014-106	2
7902-44-014-107	2
7902-44-014-110	1
7902-44-014-111	1

11. When Approval Takes Effect

This approval has effect in accordance with the provisions of section 339 of the *Sustainable Planning Act 2009* as follows:

(a) If the Developer does not appeal the decision to the court - from the time the decision notice is given (or if a negotiated decision notice is given, from the time the negotiated decision notice is given); or

(b) If an appeal is made to the court - subject to the decision of the court, when the appeal is finally decided or withdrawn.

12. When Approval Lapses

(a) This approval lapses at the end of the relevant period, unless the development happens before the end of the relevant period. The relevant period for this approval is two (2) years commencing on the day the approval takes effect.

(b) An extended relevant period may be agreed upon, pursuant to section 383 of the *Sustainable Planning Act 2009*, provided a written notice to Council is made before the end of the relevant period. Such written notice must be submitted on Council's approved form and include the owner's consent and the prescribed fee listed in Council's Register of Fees and Charges.

Advice

The following advices are offered for your information only and should not be viewed as mandatory conditions of this approval.

Assessment Manager (Ipswich City Council)

That the applicant be further advised of the following:-

1. Council has reviewed the Operational Works drawings in relation to the proposed works, to ensure that the design conforms to the relevant approvals over the site as well as Council's Standards. A detailed check of the calculations and drawings has not been undertaken, as they must be certified by a RPEQ. Council reserves the right to require further amendments and/or additions at a later date should design errors or omissions become apparent in regard to the works relevant to this Operational Works approval.

2. Fire Ants *Restricted Areas*

   In accordance with the *Plant Protection Act 1989* and the Plant Protection Regulation 1990, a quarantine notice has been issued for the State of Queensland to prevent the spread of the Red Imported Fire Ant (ant species Solenopsis invicta) and to eradicate it from the State.

   It is the legal obligation of the land owner or any consultant or contractor employed by the land owner to report the presence or suspicion of Fire Ants to the Queensland Department of Primary Industries on 132523 within 24 hours of becoming aware of the presence or suspicion, and to advise in writing within seven days to:

   Director General
   Department of Primary Industries
   GPO Box 46, Brisbane QLD 4001

   It should be noted that the movement of Fire Ants is prohibited, unless under the conditions of an Inspectors Approval. More information can be obtained from the Queensland Department of Primary Industries website www.dpi.qld.gov.au.

   The land over which you have made a development application is within a suburb known to have Fire Ants and as such is within a "Restricted Area". The presence of Fire Ants on the site may affect the nature, form and extent of works permitted on the site. In view of this it will be necessary for you to contact the Department of Primary Industries to investigate the site and for you to implement any necessary matters required by that Department prior to the commencement of any works.

Attachment C

Conditions of Concurrence Agencies

1. The Department of Transport and Main Roads is a concurrence agency with regard to this development approval. The attached concurrence agency response, dated 9 October 2013, forms part of this decision notice.

2. Powerlink is an advice agency with regard to this development approval. The attached concurrence agency response, dated 1 October 2013, forms part of this decision notice. A copy of this decision be forwarded to the following referral agencies:

Referral Agency	Referral Role
State Assessment and Referral Agency South East Queensland (South) Regional Office Main Office - Ipswich Ground Level, Tower Central 114 Brisbane Street Ipswich City Council Post: PO Box 129 Ipswich QLD 4305 Tel: 07 3381 7570 IpswichSARA@dsdip.qld.gov.au	Concurrence
Powerlink PO Box 1193 VIRGINIA QLD 4014	Advice

Attachment D

Appeal Rights

The following is an extract from the *Sustainable Planning Act 2009*

Chapter 6, Part 8 Division 1

Division 1 Changing decision notices and approvals during applicant's appeal period

360 Application of div 1

This division applies only during the applicant's appeal period.

361 Applicant may make representations about decision

(1) The applicant may make written representations to the assessment manager about—
  (a) a matter stated in the decision notice, other than a refusal or a matter about which a concurrence agency told the assessment manager under section 287(1) or (5); or
  (b) the standard conditions applying to a deemed approval.

(2) However, the applicant cannot make representations under subsection (1)(a) about a condition attached to an approval under the direction of the Minister.

362 Assessment manager to consider representations

The assessment manager must consider any representations made to the assessment manager under section 361.

363 Decision about representations

(1) If the assessment manager agrees with any of the representations about a decision notice or a deemed approval, the assessment manager must give a new decision notice (the ***negotiated decision notice***) to—
  (a) the applicant; and
  (b) each principal submitter; and
  (c) each referral agency; and
  (d) if the assessment manager is not the local government and the development is in a local government area—the local government.

(2) Before the assessment manager agrees to a change under this section, the assessment manager must consider the matters the assessment manager was required to consider in assessing the application, to the extent the matters are relevant.

(3) Only 1 negotiated decision notice may be given.

(4) The negotiated decision notice—
  (a) must be given within 5 business days after the day the assessment manager agrees with the representations; and
  (b) must comply with section 335; and
  (c) must state the nature of the changes; and
  (d) replaces—
    (i) the decision notice previously given; or
    (ii) if a decision notice was not previously given and the negotiated decision notice relates to a deemed approval—the standard conditions applying to the deemed approval.

(5) If the assessment manager does not agree with any of the representations, the assessment manager must, within 5 business days after the day the assessment manager decides not to agree with any of the representations, give written notice to the applicant stating the decision about the representations.

366 Applicant may suspend applicant's appeal period

(1) If the applicant needs more time to make the representations, the applicant may, by written notice given to the assessment manager, suspend the applicant's appeal period.

(2) The applicant may act under subsection (1) only once.

(3) If the representations are not made within 20 business days after the day written notice was given to the assessment manager, the balance of the applicant's appeal period restarts.

(4) If the representations are made within 20 business days after the day written notice was given to the assessment manager—

(a) if the applicant gives the assessment manager a notice withdrawing the notice under subsection (1)—the balance of the applicant's appeal period restarts the day after the assessment manager receives the notice of withdrawal; or

(b) if the assessment manager gives the applicant a notice under section 363(5)—the balance of the applicant's appeal period restarts the day after the applicant receives the notice; or

(c) if the assessment manager gives the applicant a negotiated decision notice—the applicant's appeal period starts again the day after the applicant receives the negotiated decision notice.

Chapter 7, Part 1, Division 8

Division 8 Appeals to court relating to development applications and approvals

461 Appeals by applicants

(1) An applicant for a development application may appeal to the court against any of the following—

(a) the refusal, or the refusal in part, of the development application;

(b) any condition of a development approval, another matter stated in a development approval and the identification or inclusion of a code under section 242;

(c) the decision to give a preliminary approval when a development permit was applied for;

(d) the length of a period mentioned in section 341;

(e) a deemed refusal of the development application.

(2) An appeal under subsection (1)(a), (b), (c) or (d) must be started within 20 business days (the ***applicant's appeal period***) after—

(a) if a decision notice or negotiated decision notice is given—the day the decision notice or negotiated decision notice is given to the applicant; or

(b) otherwise—the day a decision notice was required to be given to the applicant.

(3) An appeal under subsection (1)(e) may be started at any time after the last day a decision on the matter should have been made.

462 Appeals by submitters—general

(1) A submitter for a development application may appeal to the court only against—

(a) the part of the approval relating to the assessment manager's decision about any part of the application requiring impact assessment under section 314; or

(b) the part of the approval relating to the assessment manager's decision under section 327.

(2) To the extent an appeal may be made under subsection (1), the appeal may be against 1 or more of the following—

(a) the giving of a development approval;

(b) any provision of the approval including—

(i) a condition of, or lack of condition for, the approval; or

(ii) the length of a period mentioned in section 341 for the approval.

(3) However, a submitter may not appeal if the submitter—

(a) withdraws the submission before the application is decided; or

(b) has given the assessment manager a notice under section 339(1)(b)(ii).

(4) The appeal must be started within 20 business days (the ***submitter's appeal period***) after the decision notice or negotiated decision notice is given to the submitter.

463 Additional and extended appeal rights for submitters for particular development applications

(1) This section applies to a development application to which chapter 9, part 7 applies.

(2) A submitter of a properly made submission for the application may appeal to the court about a referral agency's response made by a prescribed concurrence agency for the application.

(3) However, the submitter may only appeal against a referral agency's response to the extent it relates to—

(a) if the prescribed concurrence agency is the chief executive (environment)—development for an aquacultural ERA; or

(b) if the prescribed concurrence agency is the chief executive (fisheries)—development that is—

(i) a material change of use of premises for aquaculture; or

(ii) operational work that is the removal, damage or destruction of a marine plant.

(4) Despite section 462(1), the submitter may appeal against the following matters for the application even if the matters relate to code assessment—

(a) a decision about a matter mentioned in section 462(2) if it is a decision of the chief executive (fisheries);

(b) a referral agency's response mentioned in subsection (2).

464 Appeals by advice agency submitters

(1) Subsection (2) applies if an advice agency, in its response for an application, told the assessment manager to treat the response as a properly made submission.

(2) The advice agency may, within the limits of its jurisdiction, appeal to the court about—

(a) any part of the approval relating to the assessment manager's decision about any part of the application requiring impact assessment under section 314; or

(b) any part of the approval relating to the assessment manager's decision under section 327.

(3) The appeal must be started within 20 business days after the day the decision notice or negotiated decision notice is given to the advice agency as a submitter.

(4) However, if the advice agency has given the assessment manager a notice under section 339(1)(b)(ii), the advice agency may not appeal the decision.

465 Appeals about decisions relating to extensions for approvals

(1) For a development approval given for a development application, a person to whom a notice is given under section 389, other than a notice for a decision under section 386(2), may appeal to the court against the decision in the notice.

(2) The appeal must be started within 20 business days after the day the notice of the decision is given to the person.

(3) Also, a person who has made a request under section 383 may appeal to the court against a deemed refusal of the request.

(4) An appeal under subsection (3) may be started at any time after the last day the decision on the matter should have been made.

466 Appeals about decisions relating to permissible changes

(1) For a development approval given for a development application, the following persons may appeal to the court against a decision on a request to make a permissible change to the approval—

(a) if the responsible entity for making the change is the assessment manager for the application—

(i) the person who made the request; or

(ii) an entity that gave a notice under section 373 or a pre-request response notice about the request;

(b) if the responsible entity for making the change is a concurrence agency for the application—the person who made the request.

(2) The appeal must be started within 20 business days after the day the person is given notice of the decision on the request under section 376.

(3) Also, a person who has made a request under section 369 may appeal to the court against a deemed refusal of the request.

(4) An appeal under subsection (3) may be started at any time after the last day the decision on the matter should have been made.

467 Appeals about changing or cancelling conditions imposed by assessment manager or concurrence agency

(1) A person to whom a notice under section 378(9)(b) giving a decision to change or cancel a condition of a development approval has been given may appeal to the court against the decision in the notice.

(2) The appeal must be started within 20 business days after the day the notice of the decision is given to the person.

Queensland Government

Department of
State Development,
Infrastructure and Planning

Our reference: SDA-0813-004253
Your reference: 3668/2013/OW

Date: 9 October 2013

Chief Executive Officer
Ipswich City Council
PO Box 191
Ipswich QLD 4305
plandev@ipswich.qld.gov.au

Attention: Cameron Hoger

Dear Mr Hoger

Concurrence agency response—with conditions
(Given under section 285 of the *Sustainable Planning Act 2009*)

The referral agency material for the development application described below was received by the Department of State Development, Infrastructure and Planning under section 272 of the *Sustainable Planning Act 2009* on 29 August 2013.

Applicant details

Applicant name:	Walker Bremer Park Pty Ltd
Applicant contact details:	Sylvia Hrovatin GPO BOX 4073, Sydney NSW 2000 sylvia.hrovatin@walkercorp.com.au

Site details

Street address:	Lot 13 Bognuda Street, 24 Hawkins Crescent & 239 Warrego Highway, Bundamba
Real property description:	Lot 13 on SP238272 Lot 34 on SP238273 Lot 2 on RP104683
Site area:	118.06 hectares
Local government area:	Ipswich City Council

Application details

Proposed development: Development Permit for Operational Work
(Bulk Earthworks – Citiswich Stage 7)

Aspects of development and type of approval being sought

Nature of Development	Approval Type	Brief Description of Proposal	Level of Assessment
Operational Work	Development permit	Bulk earthworks not associated with the Material change of use over stage 7 of Citiswich Estate	Code Assessment

Referral triggers

The development application was referred to the department under the following provisions of the Sustainable Planning Regulation 2009:

Referral trigger Schedule 7, Table 3, Item 1A – State-controlled road

Conditions

Under section 287(1)(a) of the *Sustainable Planning Act 2009*, the department requires that the conditions set out in Attachment 1 attach to any development approval.

Reasons for decision to impose conditions

Under section 289(1) of the *Sustainable Planning Act 2009*, the department is required to set out the reasons for the decision to impose conditions. These reasons are set out in Attachment 2.

A copy of this response has been sent to the applicant for their information.

If you require any further information, please contact Ms Upendo Kowero, Planner, Regional Services, on (07) 3381 7591 or email IpswichSARA@dsdip.qld.gov.au who will be pleased to assist.

Yours sincerely

Nathan Rule
Manager - Planning

cc: Walker Bremer Park Pty Ltd, sylvia.hrovatin@walkercorp.com.au
DTMR Metropolitan Region, Metropolitan.IDAS@tmr.qld.gov.au

enc: Attachment 1—Conditions to be imposed
Attachment 2—Reasons for decision to impose conditions

Our reference: SDA-0813-004253
Your reference: 3668/2013/OW

Attachment 1—Conditions to be imposed

No.	Conditions	Condition timing
Development Permit for Operational Work (Bulk Earthworks – Citiswich Stage 7)		
Assessing authority for administration and enforcement of conditions – Department of Transport and Main Roads		
1.	Development must be carried out generally in accordance with the *Planning Assessment Report Citiswich Estate – Stage 7* by Walker Corporation Pty Ltd dated 12 August 2013, except as modified by these concurrence agency conditions.	Upon the completion of works and to be maintained at all times
2.	(a) Development must be in accordance with the *Citiswich Masterplan Flood Investigation (Including Local Flooding Assessment),* Project No. LJ8714/R3/V5 by Cardno Lawson Treloar dated 24 August 2012 and *Warrego Highway Hydraulic Assessment Letter,* LJ8714/Lt88 MPG:la by Cardno (QLD) Pty Ltd dated 05 August 2013. Stormwater management for the development must ensure no worsening or actionable nuisance to the state-controlled road network caused by peak discharges, flood levels, frequency/duration of flooding, flow velocities, water quality, sedimentation and scour effects. (b) Any excavation, filling, paving, landscaping, construction or any other works to the land must not: (i) create any new discharge points for stormwater runoff onto the state-controlled road; (ii) interfere with and/or cause damage to the existing stormwater drainage on the state-controlled road; (iii) surcharge any existing culvert or drain on the state-controlled road; (iv) reduce the quality of stormwater discharge onto the state-controlled road. (c) The applicant must provide RPEQ certification to the Department of Transport and Main Roads that the development has been designed and constructed in accordance with parts (a) and (b) of this condition.	(a) & (b) Upon completion of works and to be maintained at all times (c) Within 20 business days of the completion of works
3.	(a) The applicant must ensure that no dust/debris from the subject site enter the Warrego Highway (Ipswich – Toowoomba) during the construction phase of the development. (b) The applicant must install screening and abatement measures in accordance with the *Erosion & Sediment Control Plan*, 7902-44-014-201.1 by Cardno (QLD) Pty Ltd dated 05/07/13 as a minimum.	(a) & (b)To be maintained at all times during construction

Our reference: SDA-0813-004253
Your reference: 3668/2013/OW

Attachment 2—Reasons for decision to impose conditions

The reasons for this decision are:

Condition 1: The department's assessment of the development application was undertaken on the basis of the cited report(s) which details how the proposed development will be carried out.

Condition 2: The safety and efficiency of state-controlled roads can be adversely affected by changes to stormwater runoff as a result of the proposed development.

Condition 3: Dust and debris from development on the site can affect the state-controlled road, causing a safety hazard to road users.

Findings on material questions of fact

- The requirements of the State Development Assessment Provisions are either inherently satisfied, or can be satisfied by imposition of conditions.

Evidence or other material on which the findings were based

- The development application material
- State Development Assessment Provisions published by the Department of State Development, Infrastructure and Planning
- *Transport Infrastructure Act 1994*
- *Sustainable Planning Act 2009*
- Sustainable Planning Regulation 2009
- Department of Transport and Main Roads' Road Drainage Manual.

1 October 2013

Our ref: MSLink6977
& MSLink3309857

T.10 LG.7.7.1.

IMU RECEIVED
- 4 OCT 2013
Doc No: 3668/13
Responsible Officer: C. Hoger

cc. A. Katt

Walker Corporation Pty Ltd
GPO Box 4073
SYDNEY NSW 2001

Attn - Sylvia Hrovatin

Ipswich City Council
PO Box 191
IPSWICH QLD 4305

Attn – Cameron Hoger
Your Ref – 3668/2013/OW

Dear Sylvia

Swanbank Tee - South Pine 275kV Transmission Line Corridor
Lot 2 on RP104683 - Emt E on RP120927 – Dealing No 601669190
Lot 34 on SP238273 - Emt D on RP120927 – Dealing No 601669190
& Lot 13 on SP238272 - Development Permit
Carrying Out Operational Works - Earthworks - Citiswich Stage 7

We refer to your letter dated 16 September 2013 concerning the above.

Pursuant to the following item or items of Schedule 7 of the *Sustainable Planning Regulation 2009*, Powerlink Queensland is an advice agency for the above development application:

☐ Item 7, Table 3 of Schedule 7 of the *Sustainable Planning Regulation 2009* (a material change of use in certain circumstances);

☒ Item 9, Table 3 of Schedule 7 of the *Sustainable Planning Regulation 2009* (operational work in certain circumstances).

Powerlink Queensland acting as an advice agency under the *Sustainable Planning Act 2009* provides its response to the above application as attached.

Yours sincerely

Brandon Kingwill
Land Management Team Leader

Enquiries: Bernie Darch

Telephone: (07) 3860 2842

33 Harold Street, Virginia
PO Box 1193, Virginia, Queensland 4014, Australia
Telephone: (07) 3860 2111 Facsimile: (07) 3860 2100
Website: www.powerlink.com.au

Powerlink Queensland is the registered business name of the
Queensland Electricity Transmission Corporation Limited
ABN 82 078 849 233

ADVICE AGENCY'S RESPONSE
Sections 291 and 292
of the *Sustainable Planning Act 2009*

RESPONSE TO DEVELOPMENT APPLICATION

Powerlink Queensland, acting as an advice agency under the *Sustainable Planning Act 2009* provides its response to the above application.

The advice agency's response is that:

☐ this application be refused; or

☒ this application be approved **subject to the following conditions**:

1. Compliance with the terms and conditions of the easement dealing nos. shown in the heading of this letter.

2. Compliance with the generic requirements in respect to proposed works in the vicinity of Powerlink Queensland infrastructure as detailed in the enclosed Annexure "A".

3. Any variation to the proposed works as detailed in the enclosed copies of the submitted drawings shall require resubmission.

4. This advice is valid for a period of two years from the date of this response, should the works not be completed within that period, the applicant should resubmit the application for re-consideration.

5. Compliance with the *Electrical Safety Act 2002* ("the Act") including any Code of Practice under the Act and the *Electrical Safety Regulation 2002* ("the Regulation") including any safety exclusion zones defined in the Regulation.

   In respect to this application the exclusion zone for untrained persons and for operating plant operated by untrained persons is **six (6) metres** from the **275,000-volt** wires and exposed electrical parts.

   Should any doubt exist in maintaining the prescribed clearance to the conductors and electrical infrastructure, then the applicant is obliged under the Act to seek advice from Powerlink Queensland.

6. In order for Powerlink Queensland to maintain and operate a safe and reliable supply of electricity, we require unrestricted 24-hour access to our infrastructure.

   Typically such access must be suitable for a 4WD vehicle but to a standard no less than existing and the need for access by a 100-tonne crane should also be considered.

   In this instance we specifically alert you to our requirement that; **prior to the work commencing;** the applicant contacts our Easement Maintenance Manager (Luke Von Boehm – ph 3860-2111) to formalise unrestricted 24-hour access arrangements for Powerlink Queensland.

7. This response shall be read supplementary to (and in conjunction with) our previous responses relating to the Citiswich development at Bundamba.

ANNEXURE A – GENERIC REQUIREMENTS

The conditions contained in this Annexure have been compiled to assist persons (the applicant) intending to undertake work within the vicinity of high-voltage electrical installations and infrastructure owned or operated by Powerlink. The conditions are supplementary to the provisions of the Electrical Safety Act 2002, Electrical Safety Regulations 2002 and the Terms and Conditions of Registered Easements and other forms of Occupational Agreements hereinafter collectively referred to as the "Easement". Where any inconsistency exists between this Annexure and the Easement, the Easement shall take precedence.

1. **POWERLINK INFRASTRUCTURE**
   You may not do any act or thing which jeopardises the foundations, ground anchorages, supports, towers or poles, including (without limitation) inundate or place, excavate or remove any soil, sand or gravel within a distance of twenty (20) metres surrounding the base of any tower, pole, foundation, ground anchorage or support.

2. **STRUCTURES**
   No structures should be placed within twenty (20) metres of any part of a tower or structure foundation or within 5m of the conductor shadow area. Any structures on the easement require prior written consent from Powerlink.

3. **EXCLUSION ZONES**
   Exclusion zones for operating plant are defined in Schedule 2 of the Electrical Safety Regulation 2002 for Untrained Persons. All Powerlink infrastructure should be regarded as "electrically live" and therefore potentially dangerous at all times.

   In particular your attention is drawn to Schedule 2 of the Electrical Safety Regulation 2002 which defines exclusion zones for untrained persons in charge of operating plant or equipment in the vicinity of electrical facilities. If any doubt exists in meeting the prescribed clearance distances from the conductors, the applicant is obliged under this Act to seek advice from Powerlink.

4. **ACCESS AND EGRESS**
   Powerlink shall at all times retain the right to unobstructed access to and egress from its infrastructure. Typically, access shall be by 4WD vehicle.

5. **APPROVALS (ADDITIONAL)**
   Powerlink's consent to the proposal does not relieve the applicant from obtaining statutory, landowner or shire/local authority approvals.

6. **MACHINERY**
   All mechanical equipment proposed for use within the easement must not infringe the exclusion zones prescribed in Schedule 2 of the Electrical Safety Regulation 2002. All operators of machinery, plant or equipment within the easement must be made aware of the presence of live high-voltage overhead wires. It is recommended that all persons entering the Easement be advised of the presence of the conductors as part of on site workplace safety inductions. The use of warning signs is also recommended.

7. EASEMENTS

All terms and conditions of the easement are to be observed. Note that the easement takes precedence over all subsequent registered easement documents. Copies of the easement together with the plan of the Easement can be purchased from the Department of Environment & Resource Management.

8. EXPENDITURE AND COST RECOVERY

Should Powerlink incur costs as a result of the applicant's proposal, all costs shall be recovered from the applicant.

Where Powerlink expects such costs to be in excess of $10 000.00, advanced payments may be requested.

9. EXPLOSIVES

Blasting within the vicinity (500 metres) of Powerlink infrastructure must comply with AS 2187. Proposed blasting within 100 metres of Powerlink infrastructure must be referred to Powerlink for a detailed assessment.

10. BURNING OFF OR THE LIGHTING OF FIRES

We strongly recommend that fires not be lit or permitted to burn within the transmission line corridor and in the vicinity of any electrical infrastructure placed on the land. Due to safety risks Powerlink's written approval should be sort.

11. GROUND LEVEL VARIATIONS

Overhead Conductors

Changes in ground level must not reduce statutory ground to conductor clearance distances as prescribed by the Electrical Safety Act 2002 and the Electrical Safety Regulations 2002.

Underground Cables

Any change to the ground level above installed underground cable is not permitted without express written agreement of Powerlink.

12. VEGETATION

Vegetation planted within an easement must not exceed 3.5 metres in height when fully matured. Powerlink reserves the right to remove vegetation to ensure the safe operation of the transmission line and, where necessary, to maintain access to infrastructure.

13. INDEMNITY

Any use of the Easement by the applicant in a way which is not permitted under the easement and which is not strictly in accordance with Powerlink's prior written approval is an unauthorised use. Powerlink is not liable for personal injury or death or for property loss or damage resulting from unauthorized use. If other parties make damage claims against Powerlink as a result of unauthorized use then Powerlink reserves the right to recover those damages from the applicant.

14. INTERFERENCE

The applicant's attention is drawn to s.230 of the Electricity Act 1994 (the "Act"), which provides that a person must not wilfully, and unlawfully interfere with an electricity entity's works. "Works" are defined in s.12 (1) of the Act. The maximum penalty for breach of s.230 of the Act is a fine equal to 40 penalty units or up to 6 months imprisonment.

15. REMEDIAL ACTION

Should remedial action be necessary by Powerlink as a result of the proposal, the applicant will be liable for all costs incurred.

16. OWNERS USE OF LAND

The owner may use the easement land for any lawful purpose consistent with the terms of the registered easement; the conditions contained herein, the Electrical Safety Act 2002 and the Electrical Safety Regulations 2002.

17. ELECTRIC AND MAGNETIC FIELDS

Electric and Magnetic Fields (EMF) occur everywhere electricity is used (e.g. in homes and offices) as well as where electricity is transported (electricity networks).

Powerlink recognises that there is community interest about Electric and Magnetic Fields. We rely on expert advice on this matter from recognised health authorities in Australia and around the world. In Australia, the Federal Government agency charged with responsibility for regulation of EMFs is the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA). ARPANSA's *Fact Sheet – Magnetic and Electric Fields from Power Lines*, concludes:

"On balance, the scientific evidence does not indicate that exposure to 50Hz EMF's found around the home, the office or near powerlines is a hazard to human health."

Whilst there is no scientifically proven causal link between EMF and human health, Powerlink nevertheless follows an approach of *"prudent avoidance"* in the design and siting of new powerlines. This includes seeking to locate new powerline easements away from houses, schools and other buildings, where it is practical to do so and the added cost is modest.

The level of EMF decreases rapidly with distance from the source. EMF readings at the edge of a typical Powerlink easement are generally similar to those encountered by people in their daily activities at home or at work. And in the case of most Powerlink lines, at about 100 metres from the line, the EMF level is so small that it cannot be measured.

Powerlink is a member of the ENA's EMF Committee that monitors and compiles up-to-date information about EMF on behalf of all electricity network businesses in Australia. This includes subscribing to an international monitoring service that keeps the industry informed about any new developments regarding EMF such as new research studies, literature and research reviews, publications, and conferences.

We encourage community members with an interest in EMF to visit ARPANSA's website: www.arpansa.gov.au Information on EMF is also available on the ENA's website: www.ena.asn.au

Cardno (Qld) Pty Ltd | ABN 57 051 074 992
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Cardno®
Shaping the Future

WALKER CORPORATION PTY LTD
CITISWICH STAGE 7
PRELIMINARY BULK EARTHWORKS

LOCALITY
N.T.S.

SCHEDULE OF DRAWINGS	
SHEET NUMBER	SHEET TITLE
BULK EARTHWORKS	
7902/44/014-100	COVER SHEET
7902/44/014-101	EXISTING CONDITIONS PLAN & GENERAL NOTES
7902/44/014-102	OVERALL EARTHWORKS PLAN
7902/44/014-105	SETOUT PLAN - SHEET 1 OF 2
7902/44/014-106	SETOUT PLAN - SHEET 2 OF 2
7902/44/014-107	SETOUT TABLES
7902/44/014-110	SITE CROSS SECTIONS - SHEET 1 OF 2
7902/44/014-111	SITE CROSS SECTIONS - SHEET 2 OF 2
EROSION & SEDIMENT CONTROL	
7902/44/014-200	EROSION & SEDIMENT CONTROL NOTES & DETIALS
7902/44/014-201	EROSION & SEDIMENT CONTROL PLAN

walker

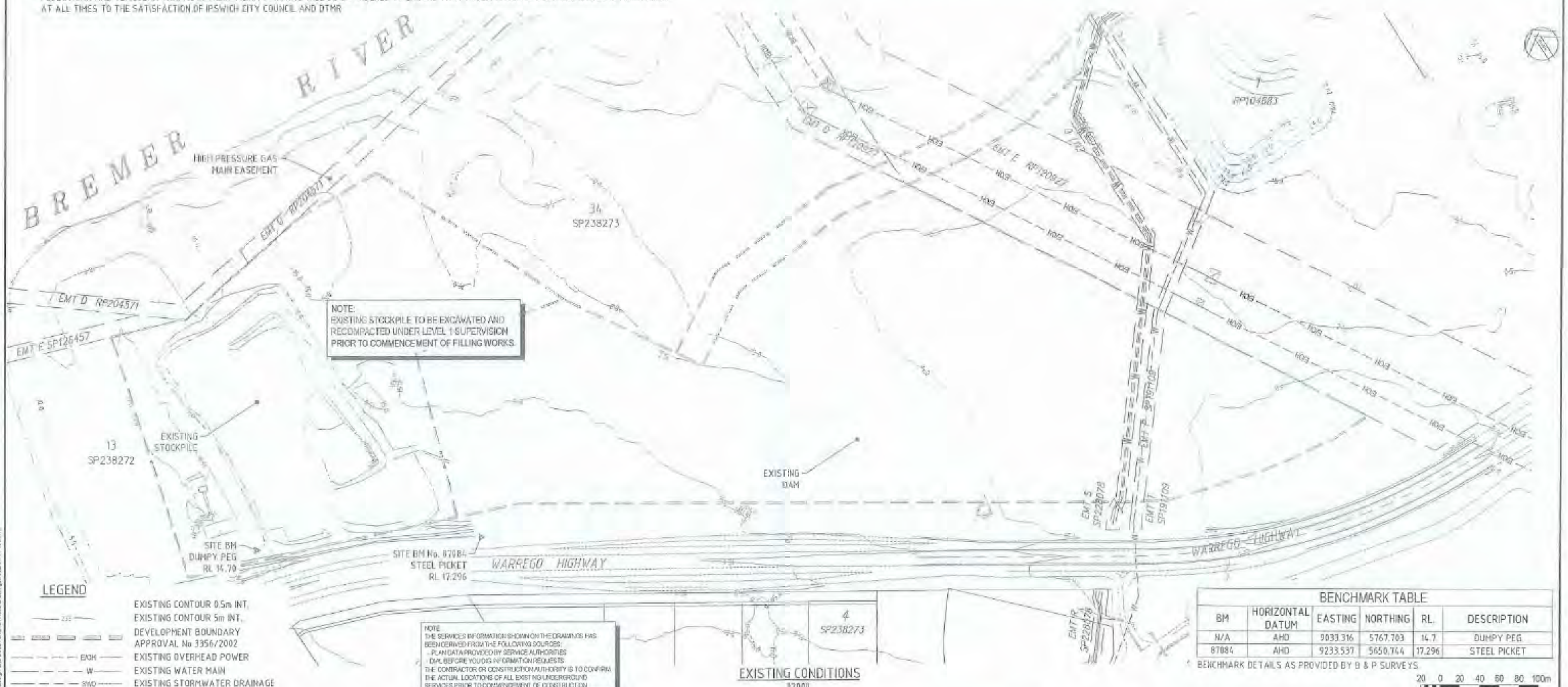
Drawing No.: 7902-44-014-100
Date: 05/07/2013
Client Ref No:

NOTES:

1. LEVELS AND GRADIENTS AT JUNCTIONS WITH EXISTING WORKS MAY BE VARIED AS REQUIRED TO ACHIEVE SATISFACTORY CONNECTIONS AND THE COSTS DEEMED INCLUDED IN THE RELEVANT SCHEDULE ITEMS.
2. ALL EXISTING SERVICES AND STRUCTURES ARE TO BE MAINTAINED IN GOOD ORDER FOR THE DURATION OF THE CONTRACT AND WHERE RELOCATION IS REQUIRED REFER SPECIFICATION.
3. NOT WITHSTANDING THE LIMITS OF EARTHWORKS SHOWN ON THE DRAWINGS, THE ACTUAL LIMITS SHALL BE DETERMINED ON SITE BY THE SUPERINTENDENT.
4. FILLING ON ALLOTMENTS TO BE COMPACTED TO 98% STANDARD DRY DENSITY AS1289 5.1.1 AND TRIMMED TO BE FREE DRAINING. ALL ALLOTMENT FILL SHALL BE SUPERVISED BY A GEOTECHNICAL TESTING AUTHORITY TO LEVEL 1 REQUIREMENTS IN ACCORDANCE WITH AS 3798. FOOTINGS SYSTEMS PROPOSED FOR INDIVIDUAL STRUCTURES SHALL BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER WITH EXPERIENCE IN STRUCTURAL DESIGN.
5. NO FILLING TO BE UNDERTAKEN UNTIL APPROVAL OF SUBGRADE BY GEOTECHNICAL ENGINEER, INCLUDING UNDER EXISTING STOCKPILES.
6. THE CONTRACTOR IS TO PROVIDE EROSION AND SEDIMENT DEPOSITION CONTROL DEVICES DURING THE CONSTRUCTION PERIOD. GENERALLY IN ACCORDANCE WITH THE SEDIMENT AND EROSION CONTROL PLANS.
7. CONTRACTOR TO CONDUCT FIELD DENSITY TESTING, PROVIDE RESULTS AND CERTIFICATION IN ACCORDANCE WITH IPSWICH CITY COUNCIL PLANNING SCHEME POLICY 6 MINIMUM FREQUENCY OF TESTING FOR LARGE SCALE OPERATIONS TO BE GREATEST OF:
   (A) 1 TEST PER 500M3 DISTRIBUTED REASONABLY EVENLY THROUGHOUT FULL DEPTH AND AREA; OR
   (B) 1 TEST PER LAYER PER MATERIAL TYPE PER 2500M^2; OR
   (C) 1 TEST PER 200MM THICKNESS PER MATERIAL TYPE PER 2500M^2;
   (D) 1 TEST PER LOT.
8. ALL BATTERS WITHIN LOTS TO BE 1:2 MAX GRADE OR AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
9. THE CONTRACTOR SHALL SETOUT THE WORKS FROM THE PEGS, SURVEY BENCHMARKS AND OTHER NOMINATED DESIGN REFERENCE LINES. THE CONTRACTOR SHALL MAINTAIN AND PROTECT THE PEGS AND SURVEY MARKS FOR THE DURATION OF THE CONTRACT.
10. ANY WORKS UNDERTAKEN IN THE VICINITY OF PUBLIC ROADS MUST BE APPROPRIATELY SIGNED, LIT AND BARRICADED TO ENSURE THE SAFETY OF THE PEDESTRIAN AND VEHICULAR TRAFFIC IN THEIR VICINITY. WORKS WILL BE SO ORDERED TO ENSURE THAT PUBLIC ACCESS ALONG THE ROADS IS MAINTAINED AT ALL TIMES TO THE SATISFACTION OF IPSWICH CITY COUNCIL AND DTMR.
11. WHERE REQUIRED, BEFORE COMMENCEMENT OF THE WORKS THE CONTRACTOR SHALL OBTAIN THE REGULATORY AUTHORITIES APPROVAL AND OPERATING REQUIREMENT FOR THE TRUCK ROUTES TO BE USED BY ALL VEHICLES ASSOCIATED WITH THE CIVIL WORKS. APPROPRIATE CLEANSING DEVICES SHALL BE INSTALLED ON SITE TO ENSURE THERE IS NO ADVERSE IMPACT FROM VEHICLES ALONG THESE ROUTES.
12. THE LOCATION OF EXISTING SERVICES HAS BEEN OBTAINED FROM THE AVAILABLE AUTHORITY RECORDS. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN ON THE PLANS. THE CONTRACTOR SHALL ASCERTAIN THE LOCATION OF ALL EXISTING SERVICES PRIOR TO COMMENCEMENT OF WORKS. ANY DISCREPANCIES SHALL BE IMMEDIATELY REPORTED TO THE SUPERINTENDENT.
13. WHERE A CONNECTION IS TO BE MADE TO EXISTING CONSTRUCTION THE CONTRACTOR SHALL CONFIRM THE LOCATION AND LEVEL OF THIS CONSTRUCTION PRIOR TO THE COMMENCEMENT OF WORK ON ANY CRITICAL SECTION. ANY DISCREPANCIES ARE TO BE IMMEDIATELY REPORTED TO THE SUPERINTENDENT. CARDNO MAY VARY THE LEVELS AND GRADIENTS AT NEW WORKS TO ACHIEVE A SATISFACTORY CONNECTION.
14. THE CONTRACTOR SHALL ENSURE THAT THE SITE IS FREE DRAINING AT ALL TIMES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL SURFACES FOR THE DURATION OF THE CONTRACT AND WILL BE REQUIRED TO UNDERTAKE REMEDIAL WORKS AS DEEMED NECESSARY BY THE SUPERINTENDENT.
15. THE CONTRACTOR SHALL ALLOW FOR THE CONTROL OF WATER FLOWS OVER THE SITE DURING THE CONTRACT PERIOD WHICH MAY INCLUDE THE CONSTRUCTION OF TEMPORARY CUTOFF DRAINS IF DEEMED NECESSARY BY THE SUPERINTENDENT. FINAL ALIGNMENT AND CROSS SECTION TO BE AGREED ON SITE WITH THE SUPERINTENDENT PRIOR TO SETOUT AND EXCAVATION. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING THE EXISTING DRAINAGE SYSTEM WITHIN THE VICINITY OF THE SITE AND SHALL TAKE ALL MEASURES NECESSARY TO CONTROL SOIL EROSION AND AVOID POLLUTION OF COUNCIL'S DRAINAGE SYSTEMS.
16. STRIP ALL TOPSOIL TO EXTENT OF WORKS TO ENSURE COMPLETE REMOVAL OF ALL ORGANIC MATTER PRIOR TO EARTHWORKS COMMENCING. MATERIAL TO BE STOCKPILED FOR REUSE AS DIRECTED BY THE SUPERINTENDENT. ALL EXCESS TOPSOIL TO BE REMOVED FROM SITE ON COMPLETION OF THE WORKS.

FIRE ANT TREATMENT ZONE

FIRE ANT TREATMENT ZONE – DISPOSAL OF MATERIAL SHALL BE IN ACCORDANCE WITH THE DEPARTMENT OF PRIMARY INDUSTRIES REGULATIONS.
REFER TO WEBSITE: WWW.DPI.QLD.GOV.AU FOR MOVEMENT CONTROL DETAILS



EXISTING CONDITIONS
1:2000

LEGEND

—— 235 ——	EXISTING CONTOUR 0.5m INT.
	EXISTING CONTOUR 5m INT.
	DEVELOPMENT BOUNDARY APPROVAL No 3356/2002
— EOH —	EXISTING OVERHEAD POWER
— W —	EXISTING WATER MAIN
— SWD —	EXISTING STORMWATER DRAINAGE
	EXISTING EASEMENT

NOTE:
THE SERVICES INFORMATION SHOWN ON THE DRAWINGS HAS BEEN DERIVED FROM THE FOLLOWING SOURCES:
- PLAN DATA PROVIDED BY SERVICE AUTHORITIES
- DIAL BEFORE YOU DIG INFORMATION REQUESTS
THE CONTRACTOR OR CONSTRUCTION AUTHORITY IS TO CONFIRM THE ACTUAL LOCATIONS OF ALL EXISTING UNDERGROUND SERVICES PRIOR TO COMMENCEMENT OF CONSTRUCTION.

BENCHMARK TABLE

BM	HORIZONTAL DATUM	EASTING	NORTHING	RL.	DESCRIPTION
N/A	AHD	9033.316	5767.703	14.7	DUMPY PEG
87084	AHD	9233.537	5650.744	17.296	STEEL PICKET

* BENCHMARK DETAILS AS PROVIDED BY B & P SURVEYS.

20 0 20 40 60 80 100m
1:2000 - A1 1:4000 - A3

Rev	Date	Description	Drawn	Appr
2	02/08/2013	FIRE ANT TREATMENT ZONE	BRS	EC
1	05/07/2013	ORIGINAL ISSUE	BRS	EC

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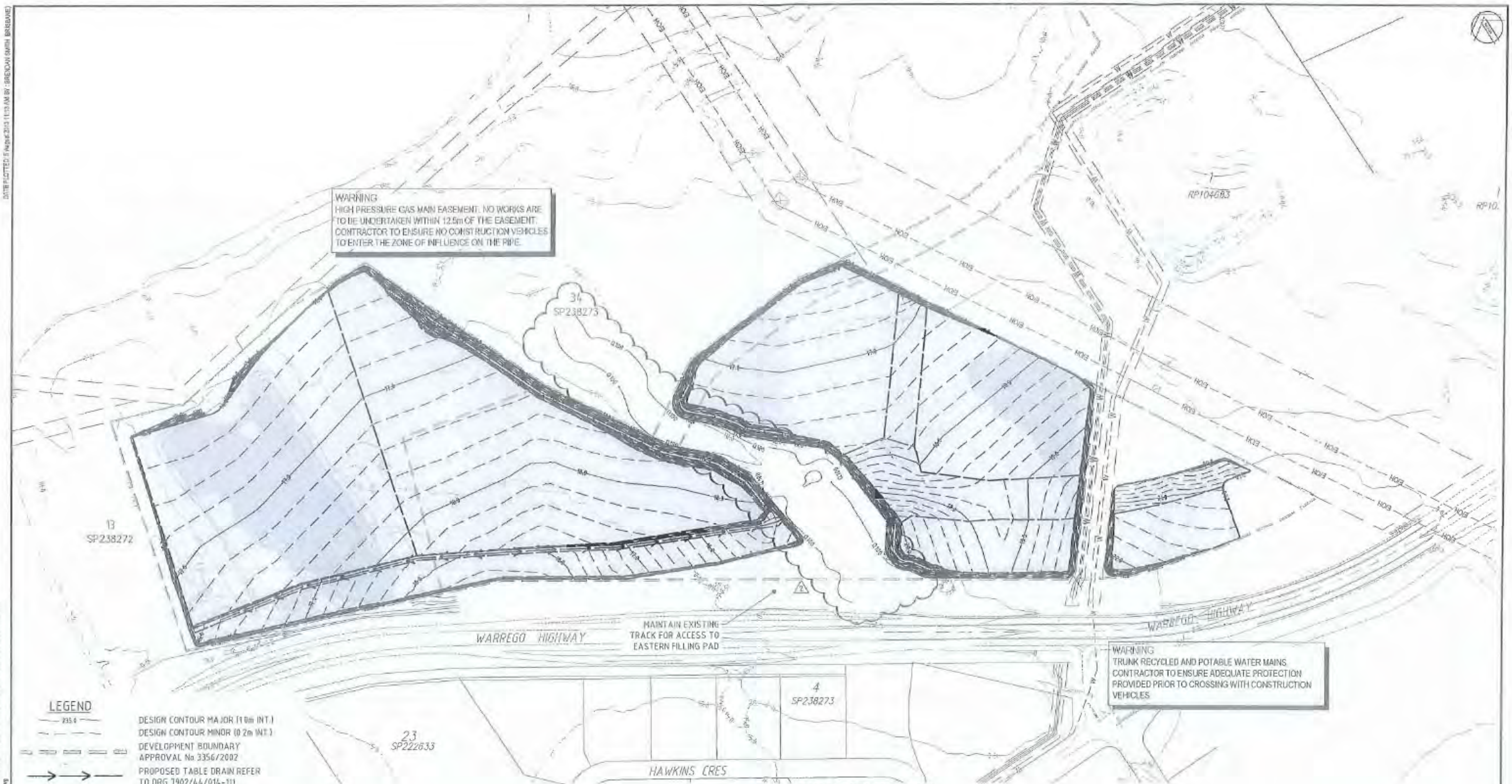
Drawn BRS 05/07/2013
Checked FV 05/07/2013
Designed BRS 05/07/2013

Client WALKER CORPORATION PTY LTD
CITISWICH STAGE 7
PRELIMINARY BULK EARTHWORKS
EXISTING CONDITIONS PLAN & GENERAL NOTES

FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES
Datum A.H.D. Scale 1:2000 Size A1
Drawing Number 7902-44-014-101 Revision 2

ON A1 ORIGINAL



OVERALL BULK EARTHWORKS
1:2000

LEGEND

- DESIGN CONTOUR MAJOR (1.0m INT.)
- DESIGN CONTOUR MINOR (0.2m INT.)
- DEVELOPMENT BOUNDARY APPROVAL No. 3356/2002
- PROPOSED TABLE DRAIN REFER TO DRG 7902/44/014-111
- Q100 LINE REFER TO NOTE 1
- EARTHWORKS FILL SHADING
- EARTHWORKS CUT SHADING
- EXISTING CONTOUR 0.5m INT.
- EXISTING CONTOUR 5m INT.
- EXISTING OVERHEAD POWER
- EXISTING WATER MAIN
- EXISTING STORMWATER DRAINAGE
- EXISTING EASEMENT

NOTES:
1. THE Q100 LINE IS AS PER CARDNO LAWSON TRELOAR HYDRAULIC ASSESSMENT DATED 2 AUGUST 2013.

20 0 20 40 60 80 100m
1:2000 - A1 1:4000 - A3

Rev	Date	Description	Drawn	App
2	02/08/2013	Q100 LINE ADDED	BRS	EC
1	05/07/2013	ORIGINAL ISSUE	BRS	EC

Verified ____ Date ____
Approved ____ Date ____
RPEQ No.

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Drawn	BRS	Date 05/07/2013
Checked	FV	Date 05/07/2013
Designed	BRS	Date 05/07/2013

Client: WALKER CORPORATION PTY LTD

CITISWICH STAGE 7
PRELIMINARY BULK EARTHWORKS

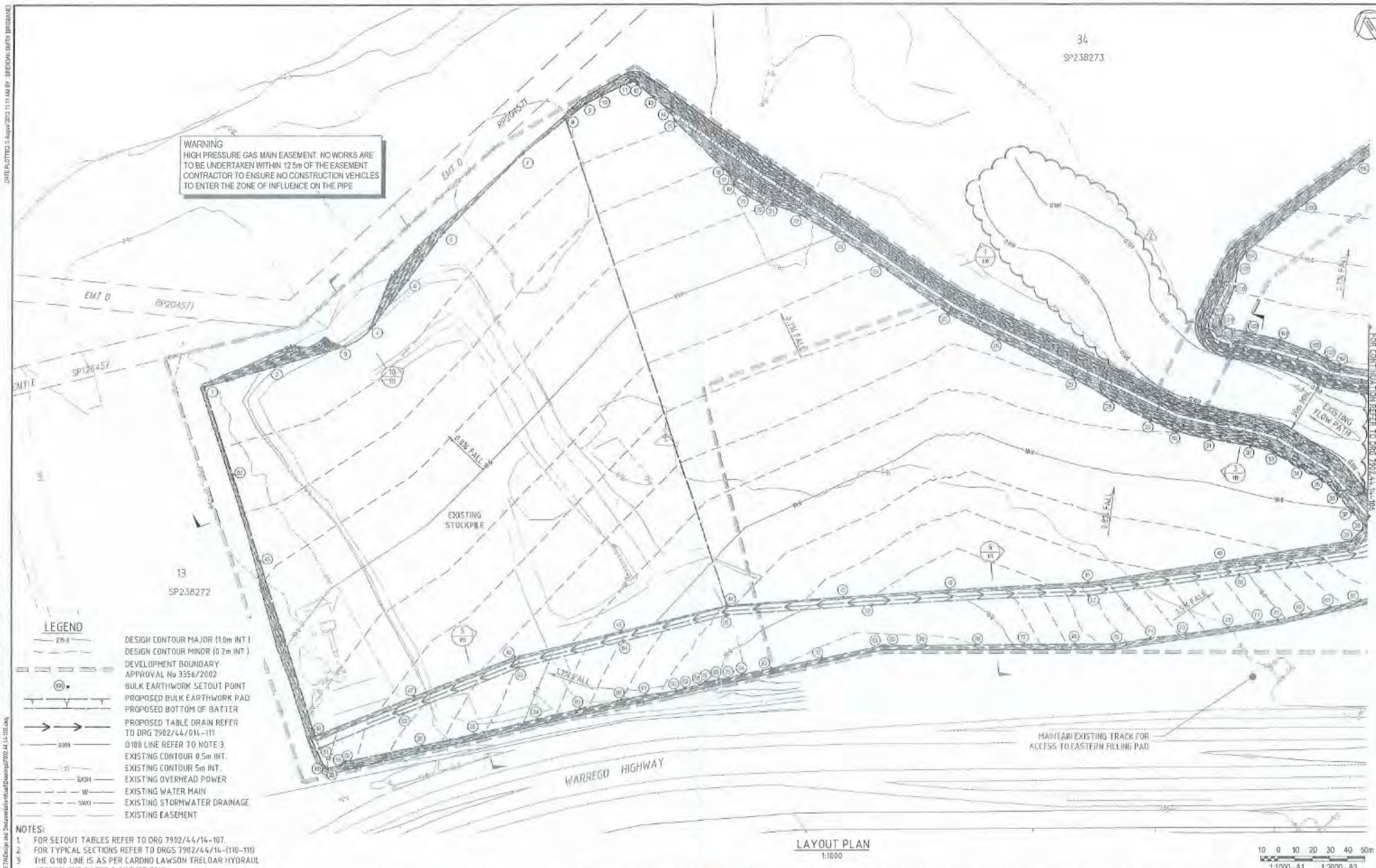
OVERALL EARTHWORKS PLAN

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum	Grid	Scale	Size
A.H.D.		1:2000	A1

Drawing Number: 7902-44-014-102 Revision: 2

ON A1 ORIGINAL



LEGEND

- DESIGN CONTOUR MAJOR (1.0m INT.)
- DESIGN CONTOUR MINOR (0.2m INT.)
- DEVELOPMENT BOUNDARY APPROVAL No 3356/2002
- BULK EARTHWORK SETOUT POINT
- PROPOSED BULK EARTHWORK PAD
- PROPOSED BOTTOM OF BATTER
- PROPOSED TABLE DRAIN REFER TO DRG 7902/44/014-111
- Q100 LINE REFER TO NOTE 3.
- EXISTING CONTOUR 0.5m INT.
- EXISTING CONTOUR 5m INT.
- EXISTING OVERHEAD POWER
- EXISTING WATER MAIN
- EXISTING STORMWATER DRAINAGE
- EXISTING EASEMENT

NOTES:
1. FOR SETOUT TABLES REFER TO DRG 7902/44/14-107.
2. FOR TYPICAL SECTIONS REFER TO DRGS 7902/44/14-(110-111)
3. THE Q100 LINE IS AS PER CARDNO LAWSON TRELOAR HYDRAUL ASSESSMENT DATED 2 AUGUST 2013.

LAYOUT PLAN
1:1000

10 0 10 20 30 40 50m
1:1000 - A1 1:2000 - A3

Rev	Date	Description	Drawn	Appr.
2	03/08/2013	Q100 LINE ADDED	BRS	EC
1	05/07/2013	ORIGINAL ISSUE	BRS	EC

Verified / Date / Approved / Date / RPEQ No.

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Drawn BRS	Date 05/07/2013	Client WALKER CORPORATION PTY LTD
Checked FV	Date 05/07/2013	CITISWICH STAGE 7 PRELIMINARY BULK EARTHWORKS
Designed BRS	Date 05/07/2013	SETOUT PLAN SHEET 1 OF 2

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum	Grid	Scale	Size
A.H.D.		1:1000	A1

Drawing Number: 7902-44-014-105 Revision: 2

ON A1 ORIGINAL

LEGEND

- DESIGN CONTOUR MAJOR (1.0m INT.)
- DESIGN CONTOUR MINOR (0.2m INT.)
- DEVELOPMENT BOUNDARY APPROVAL No 3356/2002
- BULK EARTHWORK SETOUT POINT
- PROPOSED BULK EARTHWORK PAD
- PROPOSED BOTTOM OF BATTER
- PROPOSED TABLE DRAIN REFER TO DRG 7902/44/014-111
- Q100 LINE REFER TO NOTE 3
- EXISTING CONTOUR 0.5m INT.
- EXISTING CONTOUR 5m INT.
- EXISTING OVERHEAD POWER
- EXISTING WATER MAIN
- EXISTING STORMWATER DRAINAGE
- EXISTING EASEMENT

NOTES:
1. FOR SETOUT TABLES REFER TO DRG 7902/44/14-107.
2. FOR TYPICAL SECTIONS REFER TO DRGS 7902/44/14-(110-111).
3. THE Q100 LINE IS AS PER CARDNO LAWSON TRELOAR HYDRAULIC ASSESSMENT DATED 2 AUGUST 2013.

LAYOUT PLAN
1/1000

10 0 10 20 30 40 50m
1:1000 - A1 1:2000 - A3

Rev	Date	Description	Drawn	App
2	05/08/2013	Q100 LINE ADDED	BRS	EO
1	05/07/2013	ORIGINAL ISSUE	BRS	EO

Verified / Date / Approved / Date / RPEQ No.

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Drawn BRS	Date 05/07/2013	Client WALKER CORPORATION PTY LTD
Checked FV	Date 05/07/2013	CITISWICH STAGE 7 PRELIMINARY BULK EARTHWORKS
Designed BRS	Date 05/07/2013	SETOUT PLAN SHEET 2 OF 2

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES
Datum: A.H.D. Scale: 1:1000 Size: A1
Drawing Number: 7902-44-014-106 Revision: 2

ON A1 ORIGINAL

BULK EARTHWORKS SETOUT POINTS			
POINT	EASTING	NORTHING	RL
1	9039.048	6005.493	16.220
2	9079.530	5992.740	16.220
3	9120.012	5979.987	16.220
4	9138.827	5980.247	16.220
5	9171.736	5991.622	16.220
6	9204.645	6002.997	16.220
7	9267.363	6015.981	16.220
8	9299.191	6018.540	16.220
9	9313.994	6019.742	16.220
10	9323.763	6018.699	16.220
11	9342.012	6015.865	16.220
12	9344.778	6012.723	16.220
13	9348.454	6001.123	16.215
14	9351.966	5988.207	16.341
15	9351.354	5982.551	16.379
16	9360.844	5943.209	16.621
17	9361.624	5938.125	16.650
18	9360.553	5932.281	16.689
19	9363.528	5922.692	16.742
20	9368.317	5913.848	16.783
21	9373.106	5910.409	16.801
22	9382.867	5896.343	16.872
23	9396.204	5869.421	17.008
24	9405.557	5846.203	17.197
25	9423.389	5801.207	17.446
26	9440.243	5772.004	17.509
27	9464.934	5728.513	17.591
28	9475.935	5705.966	17.669
29	9488.510	5683.638	17.753
30	9498.064	5669.848	17.798
31	9512.046	5655.612	17.818
32	9529.628	5639.270	17.803
33	9538.906	5628.506	17.806
34	9546.857	5613.039	17.853
35	9553.759	5600.081	17.893
36	9556.065	5587.812	17.949
37	9557.783	5573.917	18.014
38	9559.795	5563.252	18.035
39	9547.999	5560.511	18.098
40	9478.037	5592.296	18.303
41	9406.450	5624.810	18.513
42	9336.257	5666.422	18.814
43	9281.952	5697.298	18.509
44	9223.344	5730.619	18.180
45	9163.295	5752.681	17.923
46	9103.246	5774.743	17.666
47	9042.105	5787.978	17.469
48	8980.963	5801.212	17.263
49	9010.006	5903.352	16.746
50	9024.500	5954.328	15.483
51	8979.420	5793.960	15.925
52	9031.289	5783.297	16.344
53	9101.857	5768.464	16.816
54	9161.239	5747.385	17.417
55	9219.547	5726.330	17.840
56	9293.479	5684.195	18.070
57	9482.719	5618.524	17.195
58	9483.202	5579.963	16.065
59	9563.910	5541.903	15.425
60	9570.559	5543.660	15.490
61	9572.169	5523.253	15.667
62	9573.361	5517.647	15.732
63	9572.389	5516.834	15.724
64	9565.473	5518.029	15.644
65	9559.352	5520.072	15.576
66	9545.990	5524.340	15.456

BULK EARTHWORKS SETOUT POINTS			
POINT	EASTING	NORTHING	RL
67	9533.705	5528.726	15.500
68	9516.799	5534.907	15.686
69	9500.800	5540.658	15.885
70	9487.499	5545.603	16.057
71	9477.073	5550.729	16.194
72	9460.656	5558.112	16.426
73	9437.988	5568.656	16.749
74	9419.144	5577.941	17.022
75	9399.637	5586.917	17.292
76	9380.334	5599.424	17.533
77	9355.262	5615.900	17.927
78	9330.972	5631.744	18.193
79	9306.644	5647.531	18.245
80	9286.607	5660.741	18.255
81	9285.240	5661.414	18.257
82	9251.754	5674.631	18.257
83	9224.370	5686.115	18.189
84	9208.303	5692.561	18.127
85	9200.661	5694.991	18.067
86	9195.520	5697.717	18.035
87	9187.821	5700.590	17.999
88	9185.811	5700.947	17.990
89	9175.465	5704.696	17.919
90	9170.718	5706.288	17.886
91	9154.494	5714.212	17.730
92	9141.558	5719.569	17.597
93	9118.241	5728.589	17.344
94	9094.791	5737.440	17.088
95	9059.131	5750.570	16.748
96	9030.237	5761.809	16.529
97	8987.529	5778.932	16.121
98	8984.225	5778.660	16.093
99	8976.713	5781.691	15.996
100	8976.115	5782.911	15.986
101	9675.407	5432.123	20.013
102	9659.711	5450.562	20.114
103	9658.995	5447.709	20.114
104	9659.418	5442.044	20.078
105	9660.520	5439.621	20.054
106	9666.426	5434.146	19.950
107	9670.071	5429.682	19.882
108	9678.546	5414.921	19.706
109	9684.135	5410.598	19.615
110	9689.644	5400.455	19.511
111	9705.096	5387.566	19.274
112	9738.178	5365.076	18.901
113	[illegible]	[illegible]	[illegible]
114	9797.561	5330.782	19.815
115	9809.844	5345.441	19.789
116	9823.073	5361.484	19.763
117	9862.813	5341.533	21.712
118	9851.363	5325.735	21.896
119	9837.985	5307.177	22.108
120	9838.242	5303.033	22.126
121	9850.530	5294.799	22.014
122	9889.071	5279.307	21.695
123	9918.629	5270.832	21.645
124	9944.283	5261.733	21.551
125	9972.052	5255.988	21.514
126	9979.439	5286.713	21.213
127	9984.096	5308.445	21.004
128	9985.707	5312.781	20.958
129	9990.095	5315.860	20.791
130	9994.535	5315.817	20.747
131	10006.397	5313.420	20.668
132	10021.522	5309.036	20.627

BULK EARTHWORKS SETOUT POINTS			
POINT	EASTING	NORTHING	RL
133	10004.228	5333.850	20.041
134	9949.677	5352.440	20.251
135	9894.292	5375.288	20.095
136	9862.918	5408.112	19.489
137	9878.434	5426.337	19.263
138	9891.232	5441.371	19.079
139	9909.021	5462.107	18.826
140	9921.731	5476.904	18.646
141	9921.980	5482.834	18.535
142	9920.433	5489.127	18.514
143	9917.087	5499.254	18.400
144	9902.301	5524.597	18.138
145	9887.687	5549.644	17.873
146	9875.188	5571.295	17.656
147	9856.288	5600.795	17.401
148	9845.034	5617.309	17.265
149	9824.600	5648.452	17.032
150	9807.088	5677.715	16.688
151	9794.936	5698.156	16.504
152	9782.093	5719.608	16.382
153	9772.557	5734.572	16.290
154	9726.961	5744.057	16.324
155	9673.639	5741.438	16.560
156	9633.120	5738.813	16.765
157	9588.567	5734.090	17.040
158	9579.183	5729.050	17.108
159	9572.071	5721.360	17.184
160	9557.054	5710.925	17.309
161	9554.108	5708.400	17.336
162	9554.809	5704.700	17.355
163	9563.787	5695.294	17.353
164	9577.677	5680.597	17.347
165	9590.202	5664.045	17.375
166	9594.349	5656.460	17.397
167	9598.415	5649.515	17.417
168	9625.743	5623.075	17.443
169	9628.274	5619.908	17.449
170	9628.382	5617.039	17.465
171	9640.988	5604.137	17.499
172	9656.029	5589.440	17.544
173	9658.634	5584.946	17.567
174	9664.102	5566.973	17.672
175	9666.189	5560.774	17.811
176	9670.729	5526.380	18.653
177	9675.779	5481.840	19.756
178	9688.740	5471.948	19.762
179	9736.931	5432.706	19.010
180	9768.458	5414.835	18.721
181	9782.786	5404.115	18.850
182	9815.508	5382.634	19.463
183	9832.834	5312.895	19.776
184	9871.434	5353.420	21.545
185	9881.560	5348.877	21.506
186	9919.169	5334.336	21.259
187	9950.196	5323.216	21.117
188	9969.791	5317.458	21.029
189	9885.474	5374.228	20.374
190	9821.476	5432.098	19.089
191	9778.700	5456.855	18.678
192	9722.888	5504.993	18.062
193	9732.157	5532.100	17.823
194	9709.631	5558.100	17.577

SETOUT NOTES

1. CO-ORDINATE SETOUT PROVIDED ON THESE DRAWINGS IS BASED ON AN ARBITRARY CO-ORDINATE BASE. REFERENCE MARKS AND CORRESPONDING CO-ORDINATES ARE PROVIDED ON THIS DRAWING.
2. THE LEVEL DATUM FOR WORKS IS AHD (AUSTRALIAN HEIGHT DATUM). A SITE BENCHMARK HAS BEEN PROVIDED BY B & P SURVEYORS AND LEVEL BENCHMARK IS NOTED ON ATTACHED LAYOUT.

Rev	Date	Description	Drawn	Appr
2	02/08/2013	SETOUT NOTE ADDED	BRS	GC
1	05/07/2013	ORIGINAL ISSUE	BRS	GC

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Cardno (Qld) Pty Ltd

Drawn BRS 05/07/2013
Checked PV 05/07/2013
Designed BRS 05/07/2013

WALKER CORPORATION PTY LTD

CITISWICH STAGE 7
PRELIMINARY BULK EARTHWORKS

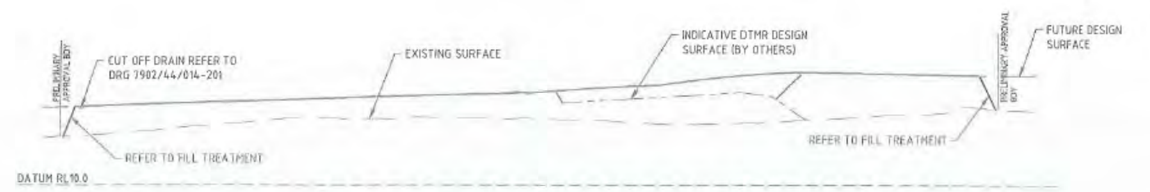
SETOUT TABLES

FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum AHD | Scale AS SHOWN | Size A1

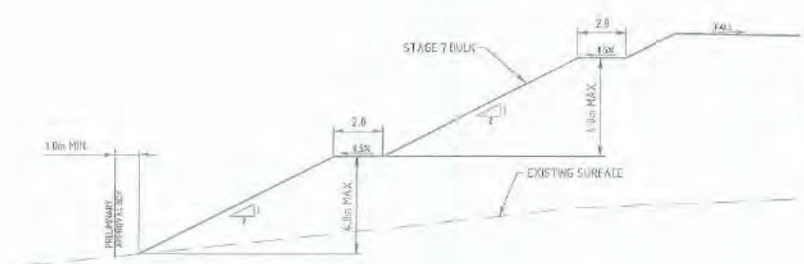
Drawing Number 7902-44-014-107 | Revision 2

ON A1 ORIGINAL



SECTION 2/106
SCALE H1:1000 V1:250

SECTION 1/105
SCALE H1:1000 V1:250



TYPICAL FILL BATTER TREATMENT
1:100

NOTE:
DESIGN TO BE VERIFIED BY GEOTECHNICAL ENGINEER BASED ON ASSESSMENT OF EMBANKMENT AND FOUNDATION MATERIALS. FOUNDATION PREPARATION AND CONSTRUCTION TO BE SUPERVISED BY GEOTECHNICAL ENGINEER.

NOTES:
1. FOR BULK EARTHWORKS NOTES REFER TO DRG 7902/44/014-101
2. FOR SETOUT PLANS REFER TO DRGS 7902/44/014-(105-106).

Rev	Date	Description	Drawn	Appr
1	05/07/2013	ORIGINAL ISSUE	BRS	

Verified / Date
Approved / Date
RPEQ No.

walker

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Quality Endorsed Company

Drawn	BRS	Date 05/07/2013
Checked	PV	Date 05/07/2013
Designed	BRS	Date 05/07/2013

Client: WALKER CORPORATION PTY LTD

CITISWICH STAGE 7
PRELIMINARY BULK EARTHWORKS

SITE CROSS SECTIONS
SHEET 1 OF 2

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

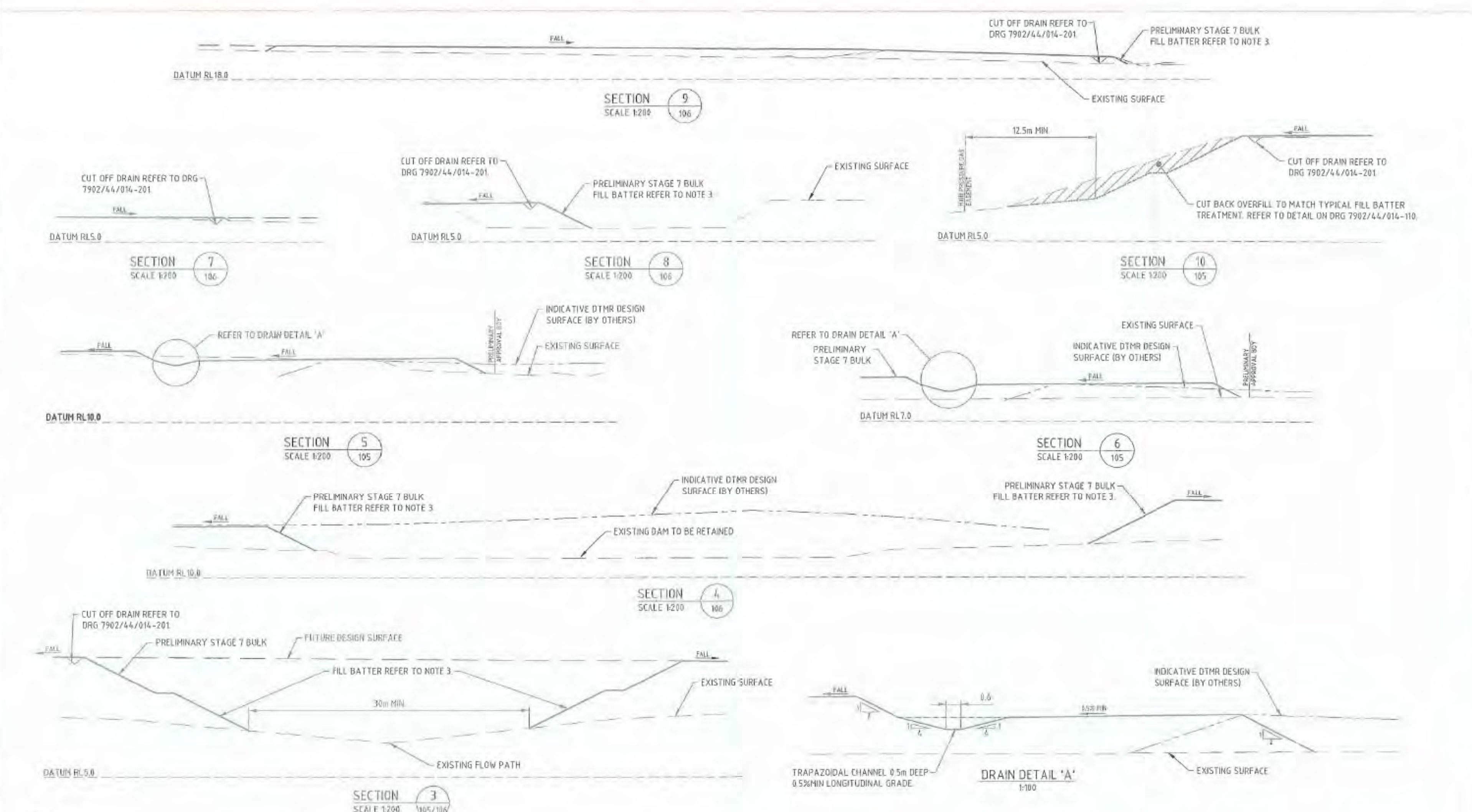
Datum: A.H.D. | Scale: AS SHOWN | Size: A1

Drawing Number: 7902-44-014-110 | Revision: 1

1:100 - A1 | 1:200 - A3 | 1:250 - A1 | 1:500 - A3 | 1:1000 - A1 | 1:2000 - A3

ON A1 ORIGINAL

DATE PLOTTED: 5 July 2013 5:22 PM BY : BRENDAN SMITH (BRISBANE)



NOTES:
1. FOR BULK EARTHWORKS NOTES REFER TO DRG 7902/44/014-101.
2. FOR SETOUT PLANS REFER TO DRGS 7902/44/014-(105-106).
3. FOR TYPICAL FILL BATTER TREATMENT REFER TO DETAIL ON DRG 7902/44/014-110.

Rev	Date	Description	Drawn	Appr
1	05/07/2013	ORIGINAL ISSUE	BRS	

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walker

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Drawn	BRS	Date 05/07/2013
Checked	FV	Date 05/07/2013
Designed	BRS	Date 05/07/2013

Client: WALKER CORPORATION PTY LTD

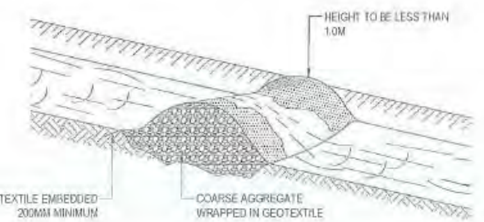
CITISWICH STAGE 7
PRELIMINARY BULK EARTHWORKS
SITE CROSS SECTIONS
SHEET 2 OF 2

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

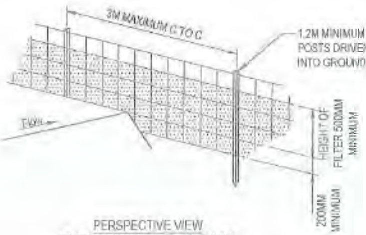
Datum: A.H.D. | Scale: AS SHOWN | Size: A1

Drawing Number: 7902-44-014-111 | Revision: 1

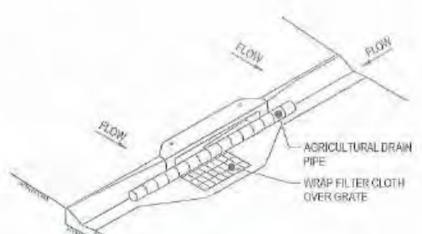
ON A1 ORIGINAL



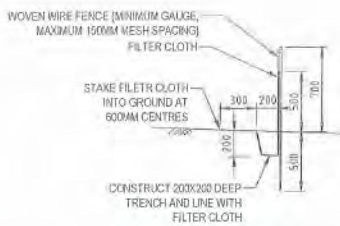
TYPE 1 CONTROL DEVICE
N.T.S



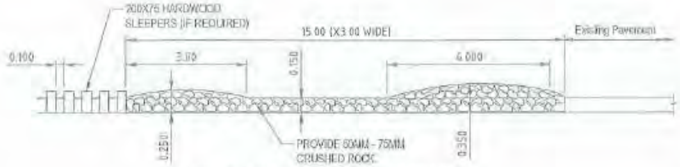
PERSPECTIVE VIEW
TYPE 2 CONTROL DEVICE
N.T.S



TYPE 3 CONTROL DEVICE
N.T.S



SILT FENCE DETAIL
N.T.S



TRUCK SHAKE DOWN FACILITY SECTION
N.T.S

NOTE:
ALL VEHICLES EXITING FROM THE SITE ARE TO BE CLEANED AND TREATED TO PREVENT MATERIAL BEING TRACKED OR DEPOSITED ONTO PUBLIC ROADS. IF MATERIAL IS ACCIDENTALLY DEPOSITED ONTO PUBLIC ROADS IT SHALL BE REMOVED WITHOUT DELAY. IF THE SHAKEDOWN DEVICE PROVES TO BE INEFFECTIVE THE CONTRACTOR IS TO USE OTHER MEANS TO PREVENT MATERIAL BEING DEPOSITED ONTO PUBLIC ROADS.

NOTES:

1. THE EROSION AND SEDIMENT CONTROL WILL COMPLY WITH:
   - ICC PLANNING SCHEME POLICY 3 PART 6
   - "BEST PRACTICE SEDIMENT AND EROSION CONTROL, INTERNATIONAL EROSION CONTROL ASSOCIATION, NOVEMBER 2008"
   - THE INSTITUTE OF ENGINEERS AUSTRALIA'S EROSION AND SEDIMENT CONTROL ENGINEERING GUIDELINES FOR QUEENSLAND CONSTRUCTION SITES - JUNE 1996
2. EXISTING GRASSED AREAS CLEAR OF EARTHWORKS TO BE MAINTAINED DURING CONSTRUCTION.
3. PROVIDE TYPE 1 CONTROL DEVICE 3M (MAXIMUM) DOWNSTREAM OF ALL STORMWATER DRAINAGE OUTLETS.
4. ADDITIONAL CONTROL DEVICES SHALL BE PLACED, WHERE DIRECTED BY THE SUPERINTENDENT. ALTERNATIVE DESIGNS TO BE APPROVED BY THE SUPERINTENDENT PRIOR TO CONSTRUCTION.
5. REVEGETATION OF DISTURBED AREAS IS TO BE IN ACCORDANCE WITH LANDSCAPE ARCHITECTS PLANS. SEEDING OF DISTURBED AREAS TO BE IN ACCORDANCE WITH ICC PLANNING SCHEME POLICY 3 PART 6.
   - SEEDING IS TO CONSIST OF DEHUSKED COUCH SEED MIXED WITH OTHER SEEDS AND FERTILISERS IN ACCORDANCE WITH THE FOLLOWING CRITERIA—
     A. THE SEED IS TO BE THOROUGHLY MIXED WITH FERTILISER AND LOAM IN THE FOLLOWING PROPORTIONS—
        (I) 200G, DEHUSKED COUCH SEED;
        (II) 10KG, SUPER PHOSPHATE FERTILISER OR EQUIVALENT; AND
        (III) 12KG, LOAM;
     B. THE RESULTANT MIXTURE IS TO BE SPREAD EVENLY OVER THE SURFACE AT THE RATE OF 21KG OF MIXTURE TO 100 SQUARE METRES; AND
     C. THE MIX IS TO ALSO INCLUDE A NURSERY GRASS (E.G. MILLET)

TYPE 2 CONTROL DEVICE NOTES:

1. WOVEN WIRE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 600MM AT TOP OF MID SECTION.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY 150MM AND FOLDED.
   POSTS: STAR PICKETS OR 50MM X 50MM HARDWOOD
   FENCE: WOVEN WIRE 14 GAUGE, 150MM MAXIMUM MESH OPENING
   FILTER CLOTH: FILTER AS SPECIFIED (TERRAM 1000, POLYFELT TS 500 BIDIM U24 OR EQUIVALENT)
   PREFABRICATED UNIT: GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT

STAGING NOTES:

1. CLEARING/EARTHWORKS
   INSTALL TYPE 1 AND TYPE 2 DEVICES AND CONSTRUCT SEDIMENT BASINS DOWNSTREAM OF ALL DISTURBED AREAS PRIOR TO START OF WORKS.
2. TRENCHING/SERVICES
   MAINTAIN TYPE 1 AND TYPE 2 DEVICES DOWNSTREAM OF ALL TRENCHES. TRENCH MATERIAL TO BE REMOVED OR REPLACED IN TRENCH AS SOON AS POSSIBLE.
3. ROADWORKS AND EXISTING ROADS
   USE TYPE 3 DEVICE ON GULLIES.
4. FINAL
   LEAVE ALL DEVICES IN PLACE UNTIL GRASS COVER IS SUFFICIENT TO PREVENT SCOURING.

PHASE 1

1. WHERE NATURAL AND CONSTRUCTED EARTHWORKS DISCHARGE TOWARDS EXISTING PROPERTIES THE CONTRACTOR SHALL INSTALL TYPE 2 DEVICES PRIOR TO COMMENCEMENT OF WORKS, MAINTAIN THE DEVICES OR USE TEMPORARY BUNDS TO DIVERT FLOW THROUGHOUT THE CONSTRUCTION PHASE.

PHASE 2

1. ON COMPLETION OF PHASE 1 CLEARING, THE BALANCE OF THE CLEARING, STRIPPING OF TOPSOIL AND SITE EARTHWORKS SHALL BE CARRIED OUT.
2. TEMPORARY AND PERMANENT SEDIMENT MANAGEMENT/EROSION CONTROL DEVICES SHALL BE MAINTAINED AT A SUITABLE CONDITION THROUGHOUT THE CLEARING AND EARTHWORKS OPERATIONS TO THE SATISFACTION OF COUNCIL'S SUBDIVISION ENGINEER.

PHASE 3

1. TOPSOILING, GRASS SEEDING AND PLACING OF TURF STRIPS, SHALL BE CARRIED OUT BY THE CONTRACTOR IMMEDIATELY FOLLOWING FINAL TRIMMING.
2. SEDIMENT AND EROSION CONTROL DEVICES SHALL NOT BE REMOVED UNTIL A SATISFACTORY GRASS COVER HAS BEEN ACHIEVED OR SUCH PRIOR TIME AS MAY BE DETERMINED BY COUNCIL'S SUPERVISOR.

MONITORING

1. ALL EROSION AND SEDIMENT CONTROL DEVICES ARE TO BE INSPECTED BEFORE AND AFTER STORM EVENTS.
2. WATER IN SEDIMENT BASINS TO BE TESTED AND FLOCCULATED AS REQUIRED PRIOR TO RELEASE.
3. CUT OFF DRAINS OR BUNDS TO DIRECT RUNOFF TO SEDIMENT BASINS.
4. MONITORING OF EROSION CONTROL DEVICES AND THE SEDIMENT BASINS SHALL BE EXECUTED IN ACCORDANCE WITH THE REQUIREMENTS OF "BEST PRACTICE SEDIMENT AND EROSION CONTROL, INTERNATIONAL EROSION CONTROL ASSOCIATION, NOVEMBER 2008"
5. LOCATION OF SILT FENCES SHOWN IS INDICATIVE ONLY. SILT FENCES SHALL BE PROVIDED TO SUIT THE CONDITIONS AT ANY PARTICULAR TIME.
6. EROSION AND SEDIMENT CONTROL DEVICES MAY NEED TO BE MODIFIED TO SUIT CONSTRUCTION STAGING AND ACTIVITIES. THE CONTRACTOR IS TO ENSURE APPROPRIATE PROTECTION IS IN PLACE PRIOR TO DISTURBING NEW AREAS AND COMMENCING NEW ACTIVITIES.

Rev	Date	Description	Drawn	Appr
1	05/07/2013	ORIGINAL ISSUE	BRS	

Verified / Date
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RPEQ No.

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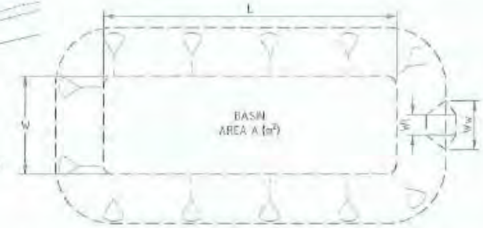
Drawn	BRS	Date	05/07/2013
Checked	FV	Date	05/07/2013
Designed	BRS	Date	05/07/2013

Client: WALKER CORPORATION PTY LTD
CITISWICH STAGE 7
PRELIMINARY BULK EARTHWORKS
EROSION & SEDIMENT CONTROL NOTES & DETAILS

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES
Datum: A.H.D. Scale: AS SHOWN Size: A1
Drawing Number: 7902-44-014-200 Revision: 1

ON A1 ORIGINAL

LAYOUT PLAN
1:2000

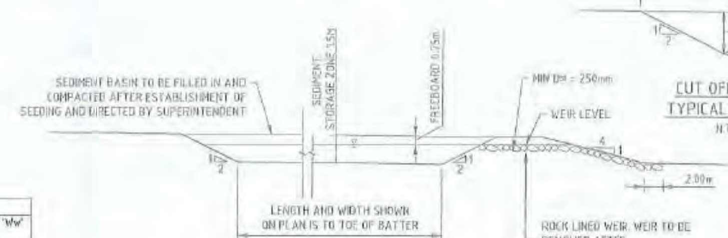


LEGEND

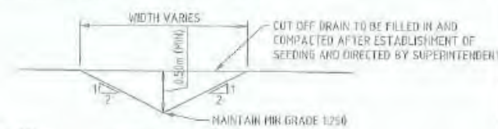
- EXISTING CONTOUR 0.5m INT.
- EXISTING CONTOUR 5m INT.
- CUT-OFF DRAIN (REFER TYPICAL SECTION)
- SILT FENCE TYPE 2 CONTROL DEVICE
- TRUCK SHAKE DOWN FACILITY
- PROPOSED TYPE 1 DEVICE ROCK CHECK DAM
- SEDIMENT BASIN (INDICATIVE SIZE & LOCATION SEE TABLE FOR DETAILS)
- PROPOSED BULK EARTHWORK PAD
- PROPOSED BOTTOM OF BATTER
- EXISTING OVERHEAD POWER
- EXISTING WATER MAIN
- EXISTING STORMWATER DRAINAGE
- EXISTING EASEMENT

NOTES:
1. FOR NOTES AND DETAILS REFER TO DRG 7902/44/14-200.

BASIN DIMENSIONS					
BASIN ID	BASIN AREA 'A' (m²)	BASIN LENGTH 'L' (m)	BASIN WIDTH 'W' (m)	WEIR LENGTH 'Wl' (m)	WIER TOP WIDTH 'Ww' (m)
1	3383	101	34	3	6
2	862	51	17	1	4
3	3015	95	32	3	6
4	400	35	12	1	4
5	323	31	10	1	4
6	480	35	12	1	4



TYPICAL SEDIMENT BASIN SECTION
N.T.S



CUT OFF DRAIN TYPICAL SECTION
N.T.S

20 0 20 40 60 80 100m
1:2000 - A1 1:4000 - A3

Rev	Date	Description	Drawn	Appr.
1	05/07/2013	ORIGINAL ISSUE	BRS	

Verified / Date
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RPEQ No.

walker

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Drawn BRS 05/07/2013
Checked FV 05/07/2013
Designed BRS 05/07/2013

Client WALKER CORPORATION PTY LTD
CITISWICH STAGE 7
PRELIMINARY BULK EARTHWORKS
EROSION & SEDIMENT CONTROL PLAN

Status FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES
Datum A.H.D. Scale 1:2000 Size A1
Drawing Number 7902-44-014-201 Revision 1

ON A1 ORIGINAL

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Shaping the Future

WALKER CORPORATION PTY LTD
CITISWICH STAGE 7
PRELIMINARY BULK EARTHWORKS

LOCALITY
N.T.S.

SCHEDULE OF DRAWINGS	
SHEET NUMBER	SHEET TITLE
BULK EARTHWORKS	
7902/44/014-100	COVER SHEET
7902/44/014-101	EXISTING CONDITIONS PLAN & GENERAL NOTES
7902/44/014-102	OVERALL EARTHWORKS PLAN
7902/44/014-105	SETOUT PLAN - SHEET 1 OF 2
7902/44/014-106	SETOUT PLAN - SHEET 2 OF 2
7902/44/014-107	SETOUT TABLES
7902/44/014-110	SITE CROSS SECTIONS - SHEET 1 OF 2
7902/44/014-111	SITE CROSS SECTIONS - SHEET 2 OF 2
EROSION & SEDIMENT CONTROL	
7902/44/014-200	EROSION & SEDIMENT CONTROL NOTES & DETIALS
7902/44/014-201	EROSION & SEDIMENT CONTROL PLAN

Pursuant to Section 334(1) of the Sustainable Planning Act 2009, this plan forms part of Council's approval for:

Approval No: 3460/13

Signed:

Decision Date: 10 December 2013

walker

Drawing No.: 7902-44-014-100
Date: 05/07/2013
Client Ref No:

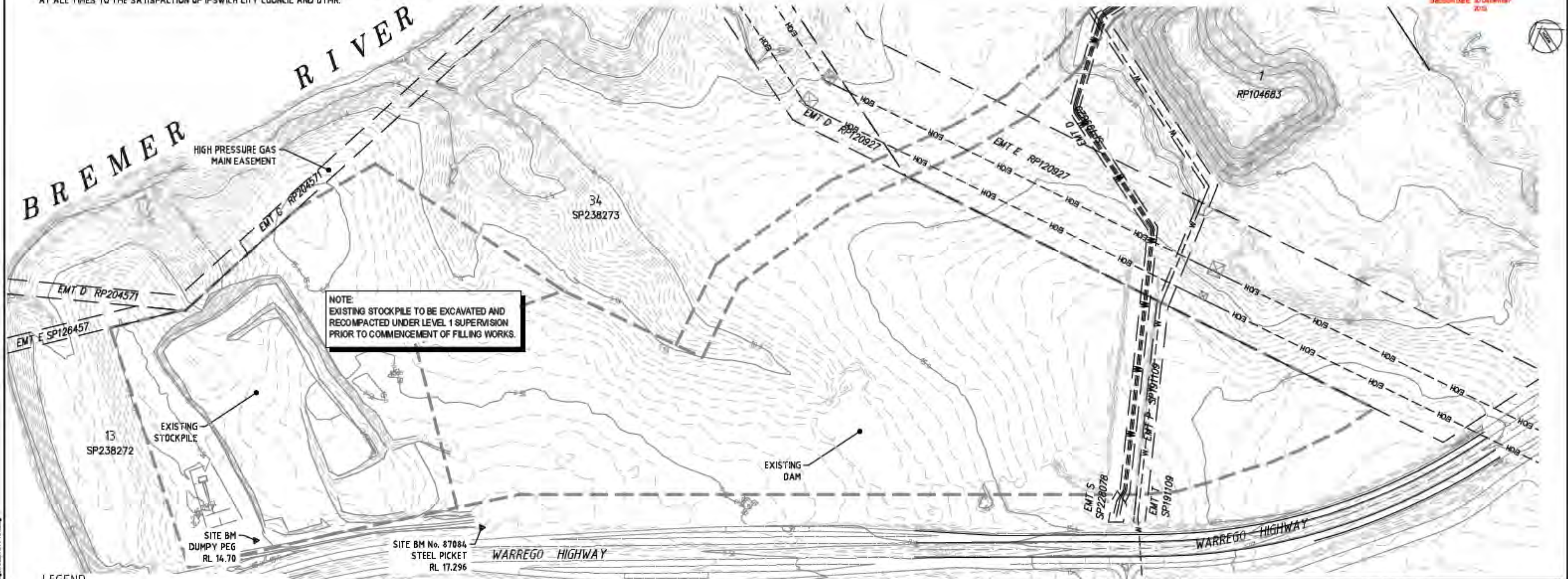
NOTES:

1. LEVELS AND GRADIENTS AT JUNCTIONS WITH EXISTING WORKS MAY BE VARIED AS REQUIRED TO ACHIEVE SATISFACTORY CONNECTIONS AND THE COSTS DEEMED INCLUDED IN THE RELEVANT SCHEDULE ITEMS.
2. ALL EXISTING SERVICES AND STRUCTURES ARE TO BE MAINTAINED IN GOOD ORDER FOR THE DURATION OF THE CONTRACT AND WHERE RELOCATION IS REQUIRED REFER SPECIFICATION.
3. ~~NOT WITHSTANDING THE LIMITS OF EARTHWORKS SHOWN ON THE DRAWINGS, THE ACTUAL LIMITS SHALL BE DETERMINED ON SITE BY THE SUPERINTENDENT.~~
4. FILLING ON ALLOTMENTS TO BE COMPACTED TO 98% STANDARD DRY DENSITY AS1289 5.1.1 AND TRIMMED TO BE FREE DRAINING. ALL ALLOTMENT FILL SHALL BE SUPERVISED BY A GEOTECHNICAL TESTING AUTHORITY TO LEVEL 1 REQUIREMENTS IN ACCORDANCE WITH AS 3798. FOOTINGS SYSTEMS PROPOSED FOR INDIVIDUAL STRUCTURES SHALL BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER WITH EXPERIENCE IN STRUCTURAL DESIGN.
5. NO FILLING TO BE UNDERTAKEN UNTIL APPROVAL OF SUBGRADE BY GEOTECHNICAL ENGINEER, INCLUDING UNDER EXISTING STOCKPILES.
6. THE CONTRACTOR IS TO PROVIDE EROSION AND SEDIMENT DEPOSITION CONTROL DEVICES DURING THE CONSTRUCTION PERIOD. GENERALLY IN ACCORDANCE WITH THE SEDIMENT AND EROSION CONTROL PLANS.
7. CONTRACTOR TO CONDUCT FIELD DENSITY TESTING, PROVIDE RESULTS AND CERTIFICATION IN ACCORDANCE WITH IPSWICH CITY COUNCIL PLANNING SCHEME POLICY 6. MINIMUM FREQUENCY OF TESTING FOR LARGE SCALE OPERATIONS TO BE GREATEST OF:
   (A) 1 TEST PER 500M3 DISTRIBUTED REASONABLY EVENLY THROUGHOUT FULL DEPTH AND AREA; OR
   (B) 1 TEST PER LAYER PER MATERIAL TYPE PER 2500M²; OR
   (C) 1 TEST PER 200MM THICKNESS PER MATERIAL TYPE PER 2500M²;
   (D) 1 TEST PER LOT
8. ALL BATTERS WITHIN LOTS TO BE 1:2 MAX GRADE OR AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
9. THE CONTRACTOR SHALL SETOUT THE WORKS FROM THE PEGS, SURVEY BENCHMARKS AND OTHER NOMINATED DESIGN REFERENCE LINES. THE CONTRACTOR SHALL MAINTAIN AND PROTECT THE PEGS AND SURVEY MARKS FOR THE DURATION OF THE CONTRACT.
10. ANY WORKS UNDERTAKEN IN THE VICINITY OF PUBLIC ROADS MUST BE APPROPRIATELY SIGNED, LIT AND BARRICADED TO ENSURE THE SAFETY OF THE PEDESTRIAN AND VEHICULAR TRAFFIC IN THEIR VICINITY. WORKS WILL BE SO ORDERED TO ENSURE THAT PUBLIC ACCESS ALONG THE ROADS IS MAINTAINED AT ALL TIMES TO THE SATISFACTION OF IPSWICH CITY COUNCIL AND DTMR.
11. WHERE REQUIRED, BEFORE COMMENCEMENT OF THE WORKS THE CONTRACTOR SHALL OBTAIN THE REGULATORY AUTHORITIES APPROVAL AND OPERATING REQUIREMENT FOR THE TRUCK ROUTES TO BE USED BY ALL VEHICLES ASSOCIATED WITH THE CIVIL WORKS. APPROPRIATE CLEANSING DEVICES SHALL BE INSTALLED ON SITE TO ENSURE THERE IS NO ADVERSE IMPACT FROM VEHICLES ALONG THESE ROUTES.
12. THE LOCATION OF EXISTING SERVICES HAS BEEN OBTAINED FROM THE AVAILABLE AUTHORITY RECORDS. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN ON THE PLANS. THE CONTRACTOR SHALL ASCERTAIN THE LOCATION OF ALL EXISTING SERVICES PRIOR TO COMMENCEMENT OF WORKS. ANY DISCREPANCIES SHALL BE IMMEDIATELY REPORTED TO THE SUPERINTENDENT.
13. WHERE A CONNECTION IS TO BE MADE TO EXISTING CONSTRUCTION THE CONTRACTOR SHALL CONFIRM THE LOCATION AND LEVEL OF THIS CONSTRUCTION PRIOR TO THE COMMENCEMENT OF WORK ON ANY CRITICAL SECTION. ANY DISCREPANCIES ARE TO BE IMMEDIATELY REPORTED TO THE SUPERINTENDENT. CARDNO MAY VARY THE LEVELS AND GRADIENTS AT NEW WORKS TO ACHIEVE A SATISFACTORY CONNECTION.
14. THE CONTRACTOR SHALL ENSURE THAT THE SITE IS FREE DRAINING AT ALL TIMES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL SURFACES FOR THE DURATION OF THE CONTRACT AND WILL BE REQUIRED TO UNDERTAKE REMEDIAL WORKS AS DEEMED NECESSARY BY THE SUPERINTENDENT.
15. THE CONTRACTOR SHALL ALLOW FOR THE CONTROL OF WATER FLOWS OVER THE SITE DURING THE CONTRACT PERIOD WHICH MAY INCLUDE THE CONSTRUCTION OF TEMPORARY CUTOFF DRAINS IF DEEMED NECESSARY BY THE SUPERINTENDENT. FINAL ALIGNMENT AND CROSS SECTION TO BE AGREED ON SITE WITH THE SUPERINTENDENT PRIOR TO SETOUT AND EXCAVATION. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING THE EXISTING DRAINAGE SYSTEM WITHIN THE VICINITY OF THE SITE AND SHALL TAKE ALL MEASURES NECESSARY TO CONTROL SOIL EROSION AND AVOID POLLUTION OF COUNCIL'S DRAINAGE SYSTEMS.
16. STRIP ALL TOPSOIL TO EXTENT OF WORKS TO ENSURE COMPLETE REMOVAL OF ALL ORGANIC MATTER PRIOR TO EARTHWORKS COMMENCING. MATERIAL TO BE STOCKPILED FOR REUSE AS DIRECTED BY THE SUPERINTENDENT. ALL EXCESS TOPSOIL TO BE REMOVED FROM SITE ON COMPLETION OF THE WORKS.

FIRE ANT TREATMENT ZONE

FIRE ANT TREATMENT ZONE – DISPOSAL OF MATERIAL SHALL BE IN ACCORDANCE WITH THE DEPARTMENT OF PRIMARY INDUSTRIES REGULATIONS.
REFER TO WEBSITE: WWW.DPI.QLD.GOV.AU FOR MOVEMENT CONTROL DETAILS.

Pursuant to Section [illegible] of the Sustainable Planning Act 2009, this plan forms part of Council's approval for
Approval No: [illegible]
Signed:
Decision Date: [illegible] December 2015



EXISTING CONDITIONS
1:2000

LEGEND

- EXISTING CONTOUR 0.5m INT.
- EXISTING CONTOUR 5m INT.
- DEVELOPMENT BOUNDARY APPROVAL No 3356/2002
- E/OH — EXISTING OVERHEAD POWER
- W — EXISTING WATER MAIN
- SWD — EXISTING STORMWATER DRAINAGE
- EXISTING EASEMENT

NOTE:
THE SERVICES INFORMATION SHOWN ON THE DRAWINGS HAS BEEN DERIVED FROM THE FOLLOWING SOURCES:
- PLAN DATA PROVIDED BY SERVICE AUTHORITIES
- DIAL BEFORE YOU DIG INFORMATION REQUESTS
THE CONTRACTOR OR CONSTRUCTION AUTHORITY IS TO CONFIRM THE ACTUAL LOCATIONS OF ALL EXISTING UNDERGROUND SERVICES PRIOR TO COMMENCEMENT OF CONSTRUCTION

BENCHMARK TABLE

BM	HORIZONTAL DATUM	EASTING	NORTHING	RL.	DESCRIPTION
N/A	AHD	9033.316	5767.703	14.7	DUMPY PEG
87084	AHD	9233.537	5650.744	17.296	STEEL PICKET

BENCHMARK DETAILS AS PROVIDED BY B & P SURVEYS.

20 0 20 40 60 80 100m
1:2000 - A1 1:4000 - A3

Rev	Date	Description	Drawn	Appr.
2	02.08.2013	FIRE ANT TREATMENT ZONE	BRS	EC
1	05.07.2013	ORIGINAL ISSUE	BRS	EC

Verified — Date 05-08-2013
Approved — Date 05-08-2013
RPEQ No. 13143

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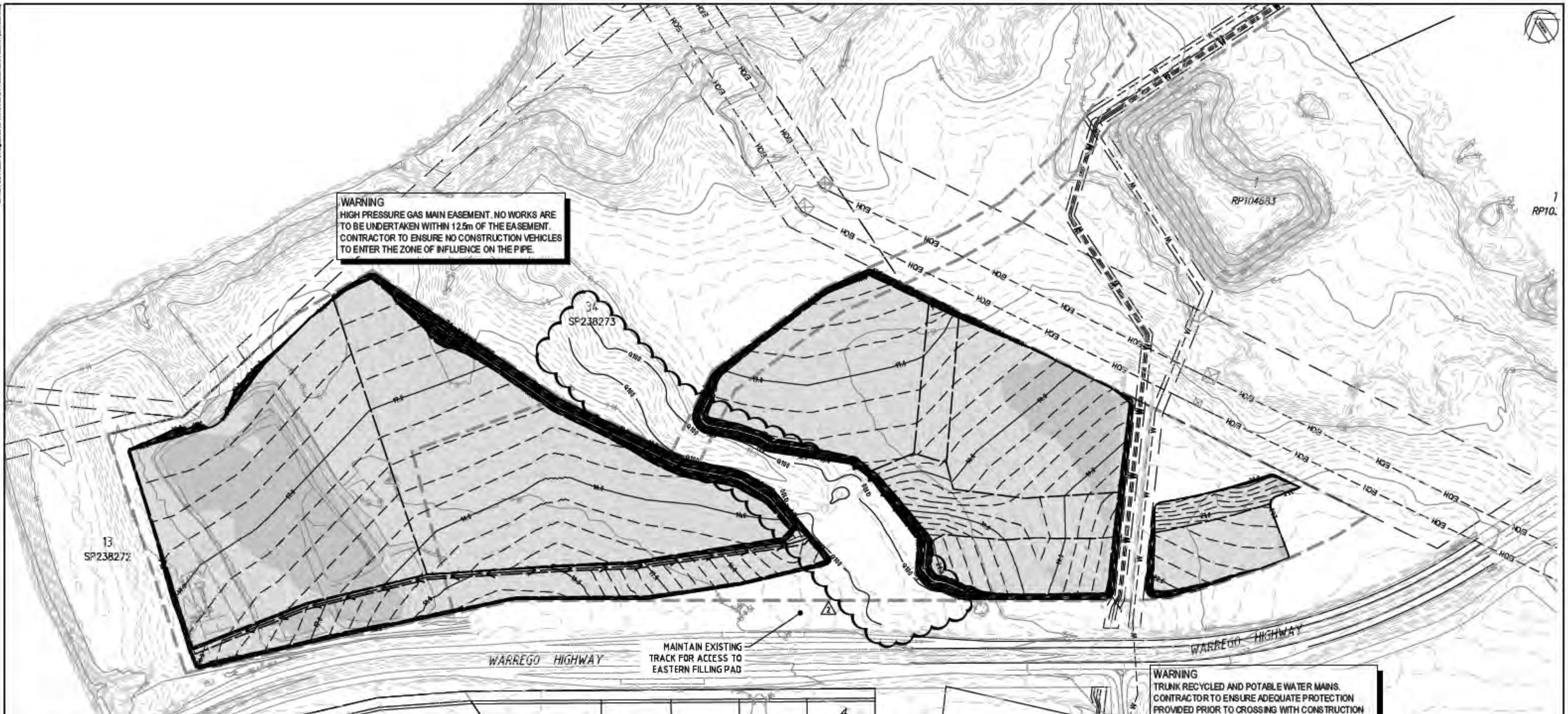
Quality Endorsed Company

Drawn BRS Date 05/07/2013
Checked FV Date 05/07/2013
Designed BRS Date 05/07/2013

Client: WALKER CORPORATION PTY LTD
CITISWICH STAGE 7
PRELIMINARY BULK EARTHWORKS
EXISTING CONDITIONS PLAN & GENERAL NOTES

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES
Datum: A.H.D. | Grid | Scale: 1:2000 | Size: A1
Drawing Number: 7902-44-014-101 | Revision: 2

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150mm ON A1 ORIGINAL



OVERALL BULK EARTHWORKS
1:2000

LEGEND

- DESIGN CONTOUR MAJOR (1.0m INT.)
- DESIGN CONTOUR MINOR (0.2m INT.)
- DEVELOPMENT BOUNDARY APPROVAL No 3356/2002
- PROPOSED TABLE DRAIN REFER TO DRG 7902/44/014-111
- Q100 LINE REFER TO NOTE 1.
- EARTHWORKS FILL SHADING
- EARTHWORKS CUT SHADING
- EXISTING CONTOUR 0.5m INT.
- EXISTING CONTOUR 5m INT.
- EXISTING OVERHEAD POWER
- EXISTING WATER MAIN
- EXISTING STORMWATER DRAINAGE
- EXISTING EASEMENT

NOTES:
1. THE Q100 LINE IS AS PER CARDNO LAWSON TRELOAR HYDRAULIC ASSESSMENT DATED 2 AUGUST 2013.

Pursuant to Section 336(?) of the Sustainable Planning Act 2009, this plan forms part of Council's approval for
Approval No: 1058/13
Signed:
Decision Date: 10 December 2013

20 0 20 40 60 80 100m
1:2000 - A1 1:4000 - A3

Rev	Date	Description	Drawn	App.
2	02/08/2013	Q100 LINE ADDED	BRS	EC
1	05/07/2013	ORIGINAL ISSUE	BRS	EC

Verified — Date 05-08-2013
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RPEQ No. 13143

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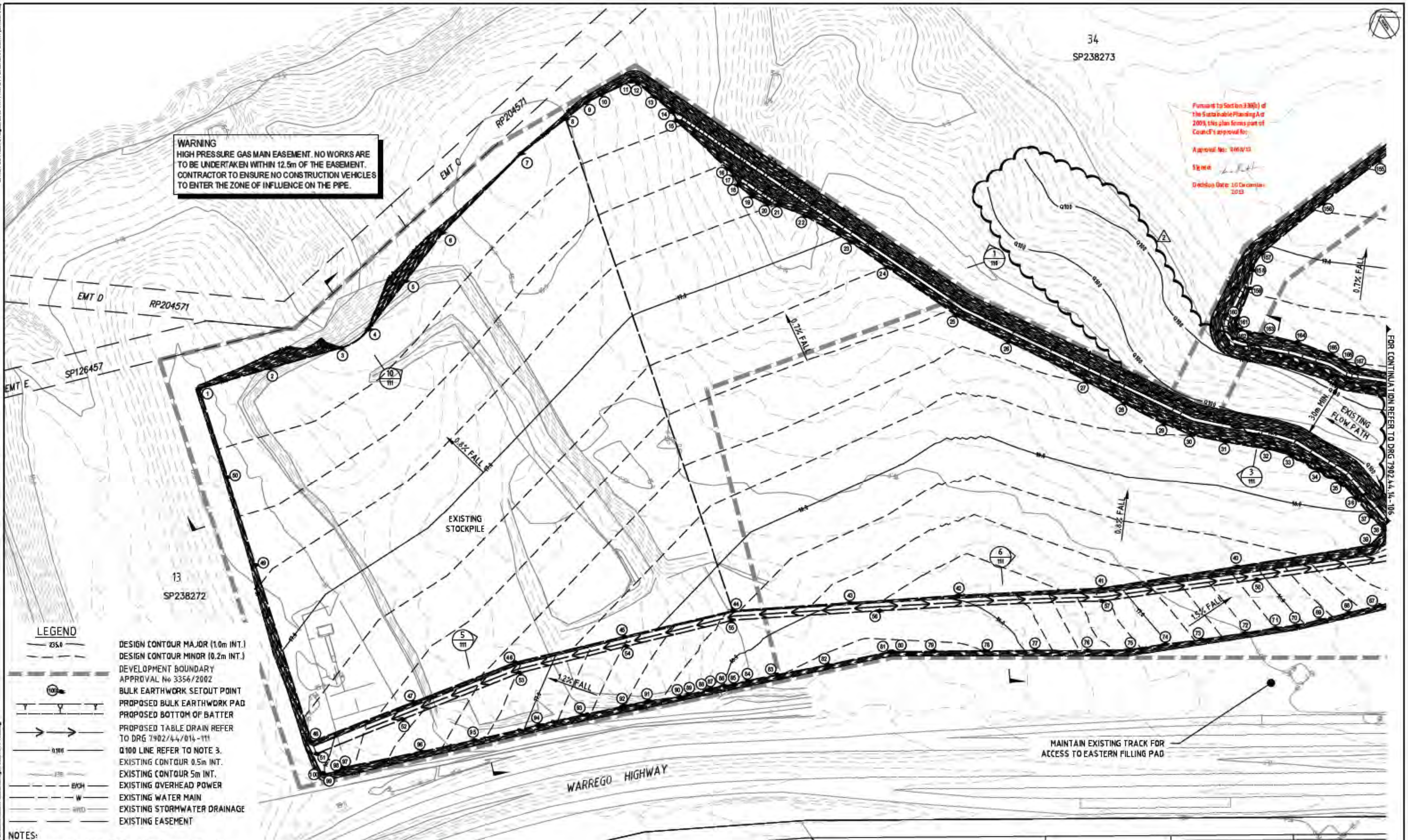
Quality Endorsed Company

Drawn BRS	Date 05/07/2013	Client WALKER CORPORATION PTY LTD
Checked FV	Date 05/07/2013	CITISWICH STAGE 7 PRELIMINARY BULK EARTHWORKS
Designed BRS	Date 05/07/2013	OVERALL EARTHWORKS PLAN

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES
Datum: A.H.D. | Grid | Scale: 1:2000 | Size: A1
Drawing Number: 7902-44-014-102 | Revision: 2

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150mm ON A1 ORIGINAL



LAYOUT PLAN
1:1000

LEGEND

- DESIGN CONTOUR MAJOR (1.0m INT.)
- DESIGN CONTOUR MINOR (0.2m INT.)
- DEVELOPMENT BOUNDARY APPROVAL No 3356/2002
- BULK EARTHWORK SETOUT POINT
- PROPOSED BULK EARTHWORK PAD
- PROPOSED BOTTOM OF BATTER
- PROPOSED TABLE DRAIN REFER TO DRG 7902/44/014-111
- Q100 LINE REFER TO NOTE 3.
- EXISTING CONTOUR 0.5m INT.
- EXISTING CONTOUR 5m INT.
- EXISTING OVERHEAD POWER
- EXISTING WATER MAIN
- EXISTING STORMWATER DRAINAGE
- EXISTING EASEMENT

NOTES:

1. FOR SETOUT TABLES REFER TO DRG 7902/44/14-107.
2. FOR TYPICAL SECTIONS REFER TO DRGS 7902/44/14-(110-111).
3. THE Q100 LINE IS AS PER CARDNO LAWSON TRELOAR HYDRAUL ASSESSMENT DATED 2 AUGUST 2013.

10 0 10 20 30 40 50m
1:1000 - A1 1:2000 - A3

Rev	Date	Description	Drawn	Appr.
2	02.08.2013	Q100 LINE ADDED	BRS	EC
1	05.07.2013	ORIGINAL ISSUE	BRS	EC

Verified — Date 05-08-2013
Approved — Date 05-08-2013
RPEQ No. 13143

walker

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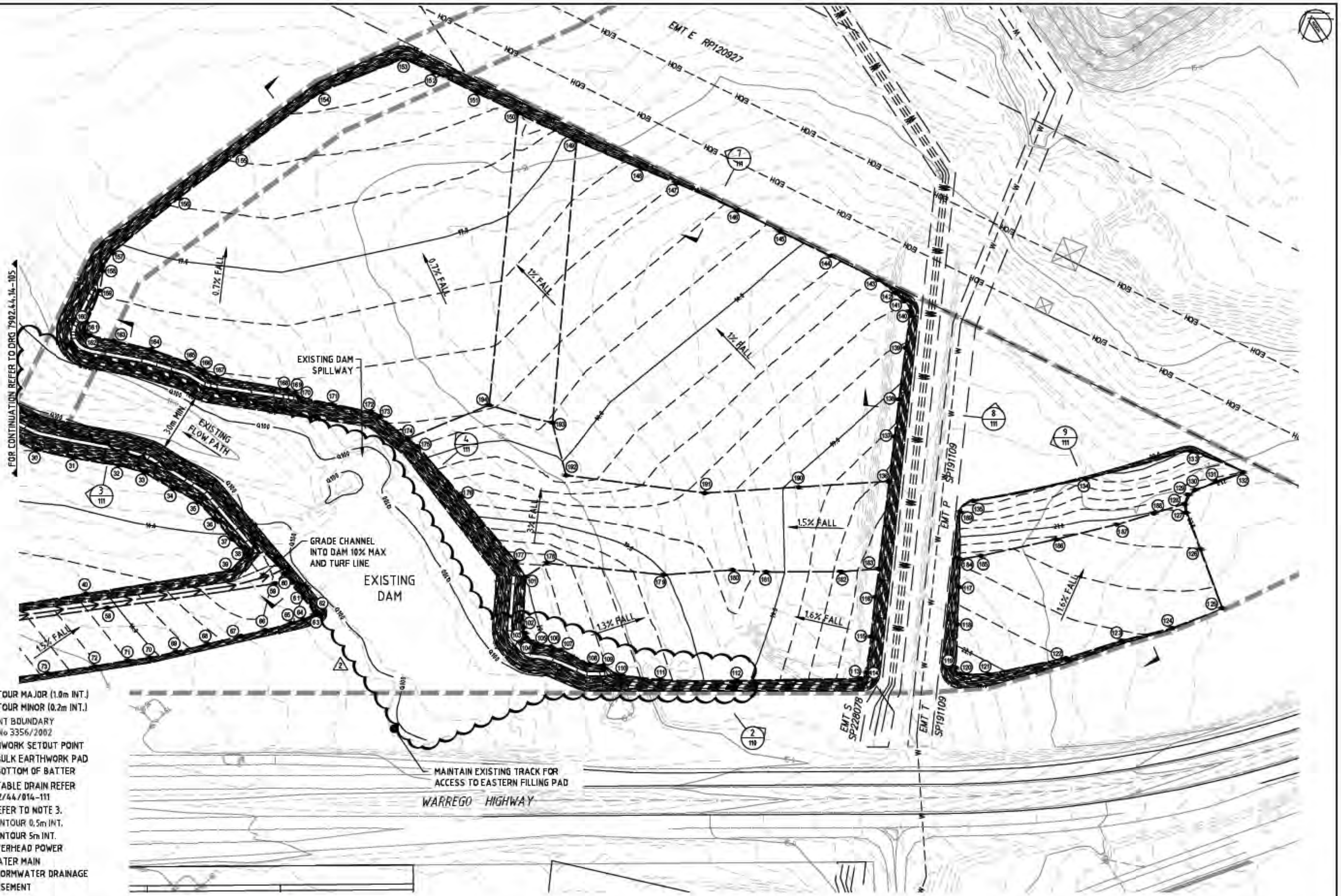
Quality Endorsed Company

Drawn	Date	Checked	Date	Designed	Date
BRS	05/07/2013	FV	05/07/2013	BRS	05/07/2013

Client: WALKER CORPORATION PTY LTD
CITISWICH STAGE 7
PRELIMINARY BULK EARTHWORKS
SETOUT PLAN
SHEET 1 OF 2

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES
Datum: A.H.D. | Grid | Scale: 1:1000 | Size: A1
Drawing Number: 7902-44-014-105 | Revision: 2

ON A1 ORIGINAL



LEGEND

235.0	DESIGN CONTOUR MAJOR (1.0m INT.)
	DESIGN CONTOUR MINOR (0.2m INT.)
	DEVELOPMENT BOUNDARY APPROVAL No 3356/2002
100	BULK EARTHWORK SETOUT POINT
	PROPOSED BULK EARTHWORK PAD PROPOSED BOTTOM OF BATTER
	PROPOSED TABLE DRAIN REFER TO DRG 7902/44/014-111
Q100	Q100 LINE REFER TO NOTE 3.
	EXISTING CONTOUR 0.5m INT.
105	EXISTING CONTOUR 5m INT.
E/OH	EXISTING OVERHEAD POWER
W	EXISTING WATER MAIN
SWD	EXISTING STORMWATER DRAINAGE
	EXISTING EASEMENT

NOTES:
1. FOR SETOUT TABLES REFER TO DRG 7902/44/14-107.
2. FOR TYPICAL SECTIONS REFER TO DRGS 7902/44/14-(110-111).
3. THE Q100 LINE IS AS PER CARDNO LAWSON TRELOAR HYDRAULIC ASSESSMENT DATED 2 AUGUST 2013.

LAYOUT PLAN
1:1000

10 0 10 20 30 40 50m
1:1000 - A1 1:2000 - A3

Rev	Date	Description	Drawn	Appr.
2	02/08/2013	Q100 LINE ADDED	BRS	EC
1	05/07/2013	ORIGINAL ISSUE	BRS	EC

Verified — Date 05-08-2013
Approved — Date 05-08-2013
RPEQ No. 13143

walker

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Quality Endorsed Company

Drawn	Date
BRS	05/07/2013
Checked FV	05/07/2013
Designed BRS	05/07/2013

Client: WALKER CORPORATION PTY LTD
CITISWICH STAGE 7
PRELIMINARY BULK EARTHWORKS
SETOUT PLAN
SHEET 2 OF 2

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES
Datum: A.H.D. | Grid | Scale: 1:1000 | Size: A1
Drawing Number: 7902-44-014-106 | Revision: 2

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150mm ON A1 ORIGINAL

BULK EARTHWORKS SETOUT POINTS			
POINT	EASTING	NORTHING	RL
1	9039.048	6005.493	16.220
2	9079.530	5992.740	16.220
3	9120.012	5979.987	16.220
4	9138.827	5980.247	16.220
5	9171.736	5991.622	16.220
6	9204.645	6002.997	16.220
7	9267.363	6015.981	16.220
8	9299.191	6018.548	16.220
9	9313.994	6019.742	16.220
10	9323.763	6018.699	16.220
11	9342.012	6015.865	16.220
12	9344.778	6012.723	16.220
13	9348.454	6001.123	16.215
14	9351.966	5988.207	16.341
15	9351.354	5982.551	16.379
16	9360.844	5943.209	16.621
17	9361.624	5938.125	16.650
18	9360.553	5932.281	16.689
19	9363.528	5922.692	16.742
20	9368.317	5913.848	16.789
21	9373.106	5910.409	16.801
22	9382.867	5896.343	16.872
23	9396.284	5869.421	17.008
24	9405.557	5846.203	17.197
25	9423.389	5801.207	17.446
26	9440.243	5772.004	17.509
27	9464.934	5728.513	17.591
28	9475.935	5705.966	17.669
29	9488.518	5683.638	17.753
30	9498.064	5669.848	17.798
31	9512.046	5655.612	17.818
32	9529.628	5639.270	17.803
33	9538.906	5628.586	17.806
34	9546.857	5613.039	17.853
35	9553.759	5600.081	17.893
36	9556.065	5587.812	17.949
37	9557.783	5573.917	18.014
38	9559.795	5563.252	18.035
39	9547.999	5560.511	18.098
40	9478.037	5592.296	18.303
41	9406.450	5624.818	18.513
42	9336.257	5666.422	18.814
43	9281.952	5697.298	18.509
44	9223.344	5730.619	18.180
45	9163.295	5752.681	17.923
46	9103.246	5774.743	17.666
47	9042.105	5787.978	17.469
48	8980.963	5801.212	17.263
49	9010.006	5903.352	16.746
50	9024.500	5954.328	16.483
51	8979.420	5793.960	15.925
52	9031.289	5783.297	16.344
53	9101.857	5768.464	16.816
54	9161.230	5747.385	17.417
55	9219.547	5726.330	17.840
56	9293.479	5684.195	18.070
57	9402.719	5618.524	17.195
58	9483.202	5579.963	16.065
59	9563.910	5541.903	15.425
60	9570.559	5543.660	15.490
61	9572.169	5527.253	15.667
62	9573.361	5517.647	15.732
63	9572.389	5516.834	15.724
64	9565.473	5518.029	15.644
65	9559.352	5520.072	15.576
66	9545.990	5524.340	15.456

BULK EARTHWORKS SETOUT POINTS			
POINT	EASTING	NORTHING	RL
67	9533.705	5528.726	15.500
68	9516.799	5534.907	15.686
69	9500.800	5540.658	15.885
70	9487.499	5545.603	16.057
71	9477.073	5550.729	16.194
72	9460.656	5558.112	16.426
73	9437.988	5568.656	16.749
74	9419.144	5577.941	17.022
75	9399.637	5586.917	17.292
76	9380.334	5599.424	17.533
77	9355.262	5615.900	17.927
78	9330.972	5631.744	18.193
79	9306.644	5647.531	18.245
80	9286.607	5660.741	18.255
81	9285.240	5661.414	18.257
82	9251.754	5674.631	18.257
83	9224.370	5686.115	18.189
84	9208.303	5692.561	18.127
85	9200.661	5694.991	18.067
86	9195.520	5697.717	18.035
87	9187.821	5700.590	17.999
88	9185.811	5700.947	17.990
89	9175.465	5704.696	17.919
90	9170.718	5706.288	17.886
91	9154.494	5714.212	17.730
92	9141.558	5719.569	17.597
93	9118.241	5728.589	17.344
94	9094.791	5737.440	17.088
95	9059.131	5750.570	16.748
96	9030.237	5761.809	16.529
97	8987.529	5778.932	16.121
98	8984.225	5778.660	16.093
99	8976.713	5781.691	15.996
100	8976.115	5782.911	15.986
101	9675.407	5472.123	20.013
102	9659.711	5450.562	20.114
103	9658.995	5447.709	20.114
104	9659.418	5442.044	20.078
105	9660.520	5439.621	20.054
106	9666.426	5434.146	19.950
107	9670.071	5429.682	19.882
108	9678.546	5414.921	19.706
109	9684.135	5410.598	19.615
110	9689.644	5400.455	19.511
111	9705.096	5387.566	19.274
112	9738.178	5365.076	18.901
113	[illegible]	[illegible]	[illegible]
114	9797.561	5330.782	19.815
115	9809.844	5345.441	19.789
116	9823.073	5361.484	19.763
117	9862.813	5341.533	21.712
118	9851.363	5325.735	21.896
119	9837.985	5307.177	22.108
120	9838.242	5303.033	22.126
121	9850.530	5294.799	22.014
122	9889.071	5279.307	21.695
123	9918.629	5270.832	21.645
124	9944.283	5261.733	21.551
125	9972.052	5255.988	21.514
126	9979.439	5286.713	21.213
127	9984.096	5308.445	21.004
128	9985.707	5312.781	20.958
129	9990.095	5315.860	20.791
130	9994.535	5315.817	20.747
131	10006.397	5313.420	20.668
132	10021.522	5309.036	20.627

BULK EARTHWORKS SETOUT POINTS			
POINT	EASTING	NORTHING	RL
133	10004.228	5333.850	20.041
134	9949.677	5352.440	20.251
135	9894.292	5375.288	20.095
136	9862.918	5408.112	19.489
137	9878.434	5426.337	19.263
138	9891.232	5441.371	19.079
139	9909.021	5462.107	18.826
140	9921.731	5476.904	18.646
141	9921.980	5482.834	18.535
142	9920.433	5489.127	18.514
143	9917.087	5499.254	18.400
144	9902.301	5524.597	18.138
145	9887.687	5549.644	17.873
146	9875.188	5571.295	17.656
147	9856.288	5600.795	17.401
148	9845.034	5617.389	17.265
149	9824.600	5648.452	17.032
150	9807.088	5677.715	16.688
151	9794.936	5698.156	16.504
152	9782.093	5719.608	16.382
153	9772.557	5734.572	16.290
154	9726.961	5744.057	16.324
155	9673.639	5741.438	16.560
156	9633.720	5738.813	16.765
157	9588.567	5734.090	17.040
158	9579.183	5729.050	17.108
159	9572.071	5721.360	17.184
160	9557.054	5710.925	17.309
161	9554.108	5708.400	17.336
162	9554.809	5704.700	17.355
163	9563.787	5695.294	17.353
164	9577.677	5680.597	17.347
165	9590.202	5664.045	17.375
166	9594.349	5656.460	17.397
167	9598.415	5649.515	17.417
168	9625.743	5623.075	17.443
169	9628.274	5619.908	17.449
170	9628.382	5617.039	17.465
171	9640.988	5604.137	17.499
172	9656.029	5589.440	17.544
173	9658.634	5584.946	17.567
174	9664.102	5566.973	17.672
175	9666.189	5560.774	17.811
176	9670.729	5526.380	18.653
177	9675.779	5481.840	19.756
178	9688.740	5471.948	19.762
179	9736.931	5432.706	19.010
180	9768.458	5414.835	18.721
181	9782.786	5404.115	18.850
182	9815.508	5382.634	19.463
183	9832.834	5372.895	19.776
184	9871.434	5353.420	21.545
185	9881.560	5348.877	21.506
186	9919.169	5334.336	21.259
187	9950.196	5323.216	21.117
188	9969.791	5317.458	21.029
189	9885.474	5374.228	20.374
190	9821.476	5432.098	19.089
191	9778.700	5456.855	18.678
192	9722.888	5504.993	18.062
193	9732.157	5532.100	17.823
194	9709.631	5558.100	17.577

SETOUT NOTES

1. CO-ORDINATE SETOUT PROVIDED ON THESE DRAWINGS IS BASED ON AN ARBITRARY CO-ORDINATE BASE. REFERENCE MARKS AND CORRESPONDING CO-ORDINATES ARE PROVIDED ON THIS DRAWING.
2. THE LEVEL DATUM FOR WORKS IS AHD (AUSTRALIAN HEIGHT DATUM). A SITE BENCHMARK HAS BEEN PROVIDED BY B & P SURVEYORS AND LEVEL BENCHMARK IS NOTED ON ATTACHED LAYOUT.

Rev	Date	Description	Drawn	App.
2	02/08/2013	SETOUT NOTE ADDED	BRS	EC
1	05/07/2013	ORIGINAL ISSUE	BRS	EC

Verified — Date 05-08-2013
Approved — RPEQ No. 13143 — Date 05-08-2013

walker

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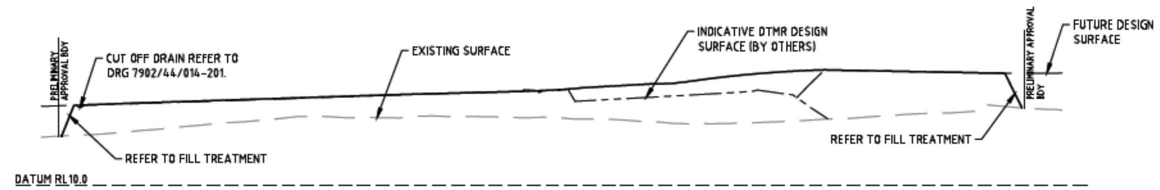
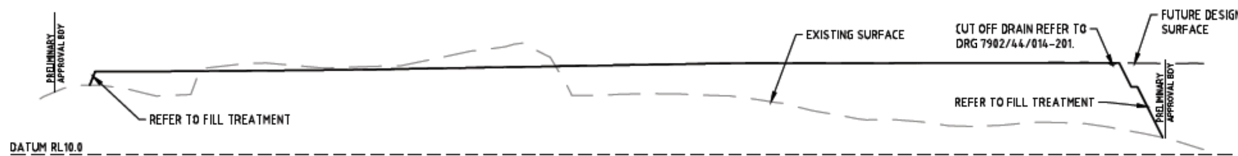
Drawn BRS	Date 05/07/2013	Client	WALKER CORPORATION PTY LTD
Checked FV	Date 05/07/2013	CITISWICH STAGE 7 PRELIMINARY BULK EARTHWORKS	Status FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION PURPOSES
Designed BRS	Date 05/07/2013	SETOUT TABLES	Datum A.H.D. / Grid / Scale AS SHOWN / Size A1
			Drawing Number 7902-44-014-107 / Revision 2

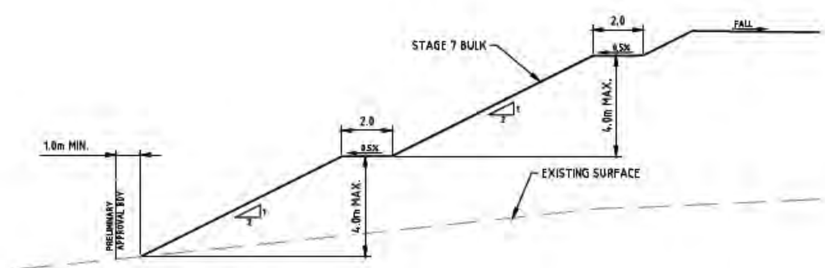
ON A1 ORIGINAL



SECTION 2/106
SCALE H1:1000 V1:250



SECTION 1/105
SCALE H1:1000 V1:250



TYPICAL FILL BATTER TREATMENT
1:100

NOTE:
DESIGN TO BE VERIFIED BY GEOTECHNICAL ENGINEER BASED ON ASSESSMENT OF EMBANKMENT AND FOUNDATION MATERIALS. FOUNDATION PREPARATION AND CONSTRUCTION TO BE SUPERVISED BY GEOTECHNICAL ENGINEER.

Pursuant to Section 336(b) of the Sustainable Planning Act 2009, this plan forms part of Council's approval for

Approval No: 3668/13

Signed:

Decision Date: 10 December 2013

NOTES:
1. FOR BULK EARTHWORKS NOTES REFER TO DRG 7902/44/014-101.
2. FOR SETOUT PLANS REFER TO DRGS 7902/44/014-(105-106).

1:100 - A1 | 1:200 - A3 | 1:250 - A1 | 1:500 - A3 | 1:1000 - A1 | 1:2000 - A3

Rev	Date	Description	Drawn	Appr.
1	05/07/2013	ORIGINAL ISSUE	BRS	

Verified — Date 05-07-2013
Approved — Date 05-07-2013
RPEQ No. 13143

walker

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Quality Endorsed Company

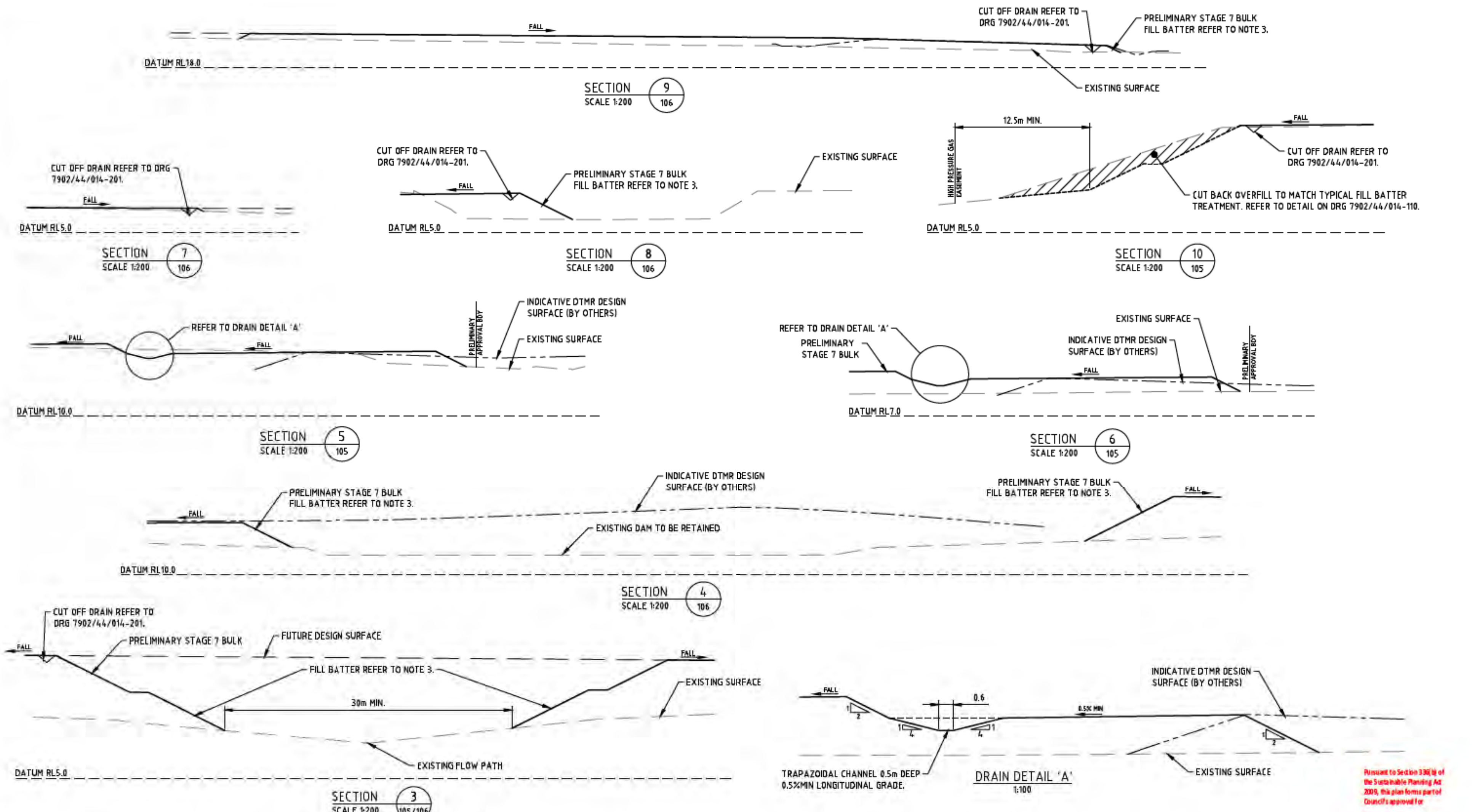
Drawn	BRS	Date 05/07/2013
Checked	FV	Date 05/07/2013
Designed	BRS	Date 05/07/2013

Client: WALKER CORPORATION PTY LTD
CITISWICH STAGE 7
PRELIMINARY BULK EARTHWORKS
SITE CROSS SECTIONS
SHEET 1 OF 2

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES
Datum: A.H.D. | Grid: | Scale: AS SHOWN | Size: A1
Drawing Number: 7902-44-014-110 | Revision: 1

ON A1 ORIGINAL

DATE PLOTTED: 5 July 2013 5:22 PM BY : BRENDAN SMITH (BRISBANE)
XREFS: X-GRP-A1-SHT; X-BNE-LOGO; X-7902-44-014-SECTIONS
CAD FILE: L:\7902-44 Citiswich\014-STAGE 7\Design and Documentation\Acad\Drawings\7902-44-14-110.dwg



NOTES:
1. FOR BULK EARTHWORKS NOTES REFER TO DRG 7902/44/014-101.
2. FOR SETOUT PLANS REFER TO DRGS 7902/44/014-(105-106).
3. FOR TYPICAL FILL BATTER TREATMENT REFER TO DETAIL ON DRG 7902/44/014-110.

Pursuant to Section 336(b) of the Sustainable Planning Act 2009, this plan forms part of Council's approval for
Approval No: 3468/13
Signed:
Decision Date: 10 December 2013

1:100 - A1 1:200 - A3
1:200 - A1 1:400 - A3

Rev	Date	Description	Drawn	Appr
1	05/07/2013	ORIGINAL ISSUE	BRS	

Verified Date 05-07-2013
Approved Date 05-07-2013
RPEQ No. 15143

walker

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Cardno (Qld) Pty Ltd

Drawn	Date
BRS	05/07/2013
Checked FV	05/07/2013
Designed BRS	05/07/2013

Client: WALKER CORPORATION PTY LTD

CITISWICH STAGE 7
PRELIMINARY BULK EARTHWORKS

SITE CROSS SECTIONS
SHEET 2 OF 2

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Datum: A.H.D. Scale: AS SHOWN Size: A1

Drawing Number: 7902-44-014-111 Revision: 1

ON A1 ORIGINAL

APPENDIX 2: DATABASE SEARCH RESULTS (3KM)

Queensland Government

Wildlife Online Extract

Search Criteria: Species List for a Specified Point
Species: All
Type: All
Status: All
Records: Confirmed
Date: Since 1980
Latitude: -27.5831
Longitude: 152.8222
Distance: 3
Email: joshua.arthy@litoria.com.au
Date submitted: Wednesday 30 Jun 2021 10:00:20
Date extracted: Wednesday 30 Jun 2021 10:10:02

The number of records retrieved = 322

Disclaimer

As the DSITIA is still in a process of collating and vetting data, it is possible the information given is not complete. The information provided should only be used for the project for which it was requested and it should be appropriately acknowledged as being derived from Wildlife Online when it is used.

The State of Queensland does not invite reliance upon, nor accept responsibility for this information. Persons should satisfy themselves through independent means as to the accuracy and completeness of this information.

No statements, representations or warranties are made about the accuracy or completeness of this information. The State of Queensland disclaims all responsibility for this information and all liability (including without limitation, liability in negligence) for all expenses, losses, damages and costs you may incur as a result of the information being inaccurate or incomplete in any way for any reason.

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	amphibians	Bufonidae	*Rhinella marina*	cane toad	Y			3
animals	amphibians	Hylidae	*Litoria dentata*	bleating treefrog		C		1
animals	amphibians	Hylidae	*Litoria rubella*	ruddy treefrog		C		1
animals	amphibians	Hylidae	*Litoria caerulea*	common green treefrog		C		7
animals	amphibians	Hylidae	*Litoria latopalmata*	broad palmed rocketfrog		C		1
animals	amphibians	Hylidae	*Litoria fallax*	eastern sedgefrog		C		8
animals	amphibians	Hylidae	*Litoria gracilenta*	graceful treefrog		C		2
animals	amphibians	Limnodynastidae	*Limnodynastes peronii*	striped marshfrog		C		1
animals	amphibians	Limnodynastidae	*Limnodynastes terraereginae*	scarlet sided pobblebonk		C		1
animals	birds	Acanthizidae	*Smicrornis brevirostris*	weebill		C		1
animals	birds	Acanthizidae	*Sericornis frontalis*	white-browed scrubwren		C		1
animals	birds	Acanthizidae	*Gerygone olivacea*	white-throated gerygone		C		1
animals	birds	Accipitridae	*Milvus migrans*	black kite		C		1
animals	birds	Accipitridae	*Haliaeetus leucogaster*	white-bellied sea-eagle		C		4
animals	birds	Accipitridae	*Elanus axillaris*	black-shouldered kite		C		1
animals	birds	Accipitridae	*Lophoictinia isura*	square-tailed kite		C		1
animals	birds	Aegothelidae	*Aegotheles cristatus*	Australian owlet-nightjar		C		1
animals	birds	Alcedinidae	*Ceyx azureus*	azure kingfisher		C		1
animals	birds	Anatidae	*Aythya australis*	hardhead		C		3
animals	birds	Anatidae	*Cygnus atratus*	black swan		C		5
animals	birds	Anatidae	*Anas gracilis*	grey teal		C		1
animals	birds	Anatidae	*Anas castanea*	chestnut teal		C		1
animals	birds	Anatidae	*Anas superciliosa*	Pacific black duck		C		8
animals	birds	Anatidae	*Nettapus coromandelianus*	cotton pygmy-goose		C		6
animals	birds	Anatidae	*Anas platyrhynchos*	northern mallard	Y			4
animals	birds	Anatidae	*Chenonetta jubata*	Australian wood duck		C		8
animals	birds	Anhingidae	*Anhinga novaehollandiae*	Australasian darter		C		8
animals	birds	Ardeidae	*Ardea pacifica*	white-necked heron		C		1
animals	birds	Ardeidae	*Butorides striata*	striated heron		C		1
animals	birds	Ardeidae	*Ardea alba modesta*	eastern great egret		C		3
animals	birds	Ardeidae	*Egretta novaehollandiae*	white-faced heron		C		4
animals	birds	Ardeidae	*Bubulcus ibis*	cattle egret		C		2
animals	birds	Ardeidae	*Nycticorax caledonicus*	nankeen night-heron		C		1
animals	birds	Artamidae	*Cracticus torquatus*	grey butcherbird		C		9
animals	birds	Artamidae	*Gymnorhina tibicen*	Australian magpie		C		13
animals	birds	Artamidae	*Cracticus nigrogularis*	pied butcherbird		C		6
animals	birds	Cacatuidae	*Cacatua galerita*	sulphur-crested cockatoo		C		6
animals	birds	Cacatuidae	*Cacatua sanguinea*	little corella		C		2
animals	birds	Cacatuidae	*Eolophus roseicapilla*	galah		C		7
animals	birds	Campephagidae	*Coracina papuensis*	white-bellied cuckoo-shrike		C		1
animals	birds	Campephagidae	*Coracina tenuirostris*	cicadabird		C		1
animals	birds	Campephagidae	*Coracina novaehollandiae*	black-faced cuckoo-shrike		C		7
animals	birds	Charadriidae	*Vanellus miles novaehollandiae*	masked lapwing (southern subspecies)		C		6
animals	birds	Cisticolidae	*Cisticola exilis*	golden-headed cisticola		C		6
animals	birds	Climacteridae	*Cormobates leucophaea metastasis*	white-throated treecreeper (southern)		C		1
animals	birds	Columbidae	*Columba livia*	rock dove	Y			3

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animals	birds	Columbidae	*Streptopelia chinensis*	spotted dove	Y			2
animals	birds	Columbidae	*Ocyphaps lophotes*	crested pigeon		C		5
animals	birds	Columbidae	*Geopelia humeralis*	bar-shouldered dove		C		3
animals	birds	Columbidae	*Lopholaimus antarcticus*	topknot pigeon		C		1
animals	birds	Columbidae	*Geopelia striata*	peaceful dove		C		1
animals	birds	Coraciidae	*Eurystomus orientalis*	dollarbird		C		2
animals	birds	Corcoracidae	*Struthidea cinerea*	apostlebird		C		2
animals	birds	Corvidae	*Corvus orru*	Torresian crow		C		12
animals	birds	Cuculidae	*Cacomantis flabelliformis*	fan-tailed cuckoo		C		1
animals	birds	Cuculidae	*Cacomantis variolosus*	brush cuckoo		C		1
animals	birds	Cuculidae	*Eudynamys orientalis*	eastern koel		C		2
animals	birds	Cuculidae	*Centropus phasianinus*	pheasant coucal		C		6
animals	birds	Dicruridae	*Dicrurus bracteatus*	spangled drongo		C		4
animals	birds	Estrildidae	*Taeniopygia bichenovii*	double-barred finch		C		1
animals	birds	Estrildidae	*Neochmia modesta*	plum-headed finch		C		1
animals	birds	Estrildidae	*Lonchura castaneothorax*	chestnut-breasted mannikin		C		2
animals	birds	Eurostopodidae	*Eurostopodus mystacalis*	white-throated nightjar		C		1
animals	birds	Falconidae	*Falco cenchroides*	nankeen kestrel		C		1
animals	birds	Halcyonidae	*Todiramphus sanctus*	sacred kingfisher		C		4
animals	birds	Halcyonidae	*Dacelo novaeguineae*	laughing kookaburra		C		11
animals	birds	Halcyonidae	*Todiramphus macleayii*	forest kingfisher		C		1
animals	birds	Hirundinidae	*Hirundo neoxena*	welcome swallow		C		11
animals	birds	Jacanidae	*Irediparra gallinacea*	comb-crested jacana		C		1
animals	birds	Maluridae	*Malurus melanocephalus*	red-backed fairy-wren		C		5
animals	birds	Maluridae	*Malurus lamberti*	variegated fairy-wren		C		1
animals	birds	Maluridae	*Malurus cyaneus*	superb fairy-wren		C		5
animals	birds	Meliphagidae	*Plectorhyncha lanceolata*	striped honeyeater		C		1
animals	birds	Meliphagidae	*Melithreptus albogularis*	white-throated honeyeater		C		2
animals	birds	Meliphagidae	*Philemon citreogularis*	little friarbird		C		2
animals	birds	Meliphagidae	*Manorina melanocephala*	noisy miner		C		10
animals	birds	Meliphagidae	*Philemon corniculatus*	noisy friarbird		C		1
animals	birds	Meliphagidae	*Lichmera indistincta*	brown honeyeater		C		5
animals	birds	Meliphagidae	*Entomyzon cyanotis*	blue-faced honeyeater		C		1
animals	birds	Meliphagidae	*Ptilotula fusca*	fuscous honeyeater		C		1
animals	birds	Meliphagidae	*Myzomela sanguinolenta*	scarlet honeyeater		C		2
animals	birds	Meropidae	*Merops ornatus*	rainbow bee-eater		C		3
animals	birds	Monarchidae	*Myiagra rubecula*	leaden flycatcher		C		1
animals	birds	Monarchidae	*Grallina cyanoleuca*	magpie-lark		C		10
animals	birds	Nectariniidae	*Dicaeum hirundinaceum*	mistletoebird		C		3
animals	birds	Oriolidae	*Sphecotheres vieilloti*	Australasian figbird		C		2
animals	birds	Oriolidae	*Oriolus sagittatus*	olive-backed oriole		C		4
animals	birds	Pachycephalidae	*Colluricincla harmonica*	grey shrike-thrush		C		1
animals	birds	Pachycephalidae	*Pachycephala rufiventris*	rufous whistler		C		1
animals	birds	Pardalotidae	*Pardalotus striatus*	striated pardalote		C		5
animals	birds	Pelecanidae	*Pelecanus conspicillatus*	Australian pelican		C		4
animals	birds	Phalacrocoracidae	*Phalacrocorax sulcirostris*	little black cormorant		C		3

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animals	birds	Phalacrocoracidae	*Microcarbo melanoleucos*	little pied cormorant		C		9
animals	birds	Phalacrocoracidae	*Phalacrocorax carbo*	great cormorant		C		4
animals	birds	Podargidae	*Podargus strigoides*	tawny frogmouth		C		3
animals	birds	Podicipedidae	*Tachybaptus novaehollandiae*	Australasian grebe		C		5
animals	birds	Psittacidae	*Trichoglossus moluccanus*	rainbow lorikeet		C		10
animals	birds	Psittacidae	*Trichoglossus chlorolepidotus*	scaly-breasted lorikeet		C		7
animals	birds	Psittacidae	*Parvipsitta pusilla*	little lorikeet		C		1
animals	birds	Psittacidae	*Alisterus scapularis*	Australian king-parrot		C		1
animals	birds	Psittacidae	*Platycercus adscitus*	pale-headed rosella		C		2
animals	birds	Psophodidae	*Psophodes olivaceus*	eastern whipbird		C		2
animals	birds	Rallidae	*Gallinula tenebrosa*	dusky moorhen		C		10
animals	birds	Rallidae	*Fulica atra*	Eurasian coot		C		3
animals	birds	Rallidae	*Lewinia pectoralis*	Lewin's rail		C		1
animals	birds	Rallidae	*Amaurornis moluccana*	pale-vented bush-hen		C		1
animals	birds	Rallidae	*Porphyrio melanotus*	purple swamphen		C		6
animals	birds	Rhipiduridae	*Rhipidura albiscapa*	grey fantail		C		4
animals	birds	Rhipiduridae	*Rhipidura rufifrons*	rufous fantail		SL		1
animals	birds	Rhipiduridae	*Rhipidura leucophrys*	willie wagtail		C		8
animals	birds	Strigidae	*Ninox boobook*	southern boobook		C		1
animals	birds	Sturnidae	*Acridotheres tristis*	common myna	Y			2
animals	birds	Threskiornithidae	*Platalea regia*	royal spoonbill		C		1
animals	birds	Threskiornithidae	*Threskiornis molucca*	Australian white ibis		C		2
animals	birds	Threskiornithidae	*Threskiornis spinicollis*	straw-necked ibis		C		1
animals	birds	Timaliidae	*Zosterops lateralis*	silvereye		C		3
animals	insects	Libellulidae	*Orthetrum caledonicum*	blue skimmer				1
animals	insects	Libellulidae	*Rhyothemis graphiptera*	graphic flutterer				1
animals	insects	Libellulidae	*Diplacodes haematodes*	scarlet percher				1
animals	insects	Libellulidae	*Crocothemis nigrifrons*	black-headed skimmer				1
animals	insects	Nymphalidae	*Junonia villida villida*	meadow argus				1
animals	insects	Nymphalidae	*Acraea andromacha andromacha*	glasswing				1
animals	insects	Nymphalidae	*Danaus plexippus*	monarch	Y			3
animals	insects	Nymphalidae	*Melanitis leda bankia*	evening brown				1
animals	insects	Nymphalidae	*Phaedyma shepherdi shepherdi*	white-banded plane (southern subspecies)				1
animals	insects	Papilionidae	*Papilio demoleus sthenelus*	chequered swallowtail				2
animals	insects	Pieridae	*Eurema hecabe*	large grass-yellow				1
animals	insects	Pieridae	*Belenois java teutonia*	caper white				1
animals	mammals	Leporidae	*Lepus europaeus*	European brown hare	Y			2
animals	mammals	Macropodidae	*Notamacropus rufogriseus*	red-necked wallaby		C		1
animals	mammals	Macropodidae	*Macropus giganteus*	eastern grey kangaroo		C		1
animals	mammals	Molossidae	*Mormopterus sp.*			C		1
animals	mammals	Molossidae	*Austronomus australis*	white-striped freetail bat		C		2
animals	mammals	Molossidae	*Mormopterus norfolkensis*	east coast freetail bat		C		1
animals	mammals	Muridae	*Mus musculus*	house mouse	Y			3
animals	mammals	Muridae	*Rattus rattus*	black rat	Y			2
animals	mammals	Muridae	*Rattus lutreolus*	swamp rat		C		2

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	mammals	Muridae	*Hydromys chrysogaster*	water rat		C		1
animals	mammals	Petauridae	*Petaurus norfolcensis*	squirrel glider		C		1
animals	mammals	Phalangeridae	*Trichosurus vulpecula*	common brushtail possum		C		3
animals	mammals	Phascolarctidae	*Phascolarctos cinereus*	koala		V	V	17
animals	mammals	Pseudocheiridae	*Petauroides armillatus*	central greater glider		V	V	1
animals	mammals	Pteropodidae	*Pteropus poliocephalus*	grey-headed flying-fox		C	V	2
animals	mammals	Pteropodidae	*Pteropus alecto*	black flying-fox		C		1
animals	mammals	Pteropodidae	*Pteropus scapulatus*	little red flying-fox		C		1
animals	mammals	Vespertilionidae	*Scotorepens greyii*	little broad-nosed bat		C		2
animals	mammals	Vespertilionidae	*Scotorepens orion*	south-eastern broad-nosed bat		C		1
animals	ray-finned fishes	Hemiramphidae	*Arrhamphus sclerolepis*	snubnose garfish				1
animals	ray-finned fishes	Mugilidae	*Mugil cephalus*	sea mullet				2
animals	ray-finned fishes	Mugilidae	*Trachystoma petardi*	pinkeye mullet				1
animals	ray-finned fishes	Sparidae	*Acanthopagrus australis*	yellowfin bream				2
animals	reptiles	Agamidae	*Intellagama lesueurii*	eastern water dragon		C		3
animals	reptiles	Boidae	*Morelia spilota*	carpet python		C		1
animals	reptiles	Chelidae	*Emydura macquarii macquarii*	Murray turtle		C		2
animals	reptiles	Elapidae	*Demansia psammophis*	yellow-faced whipsnake		C		1
animals	reptiles	Gekkonidae	*Gehyra dubia*	dubious dtella		C		1
animals	reptiles	Varanidae	*Varanus varius*	lace monitor		C		1
animals	uncertain	Indeterminate	*Indeterminate*	Unknown or Code Pending				1
bacteria	blue-green algae	Oscillatoriaceae	*Lyngbya wollei*			C		1/1
fungi	lecanoromycetes	Lecanoraceae	*Lecanora oreinoides*			C		1/1
plants	Charophyceae	Characeae	*Nitella*					1/1
plants	Ulvophyceae	Cladophoraceae	*Rhizoclonium hieroglyphicum*			C		1/1
plants	green algae	Hydrodictyaceae	*Hydrodictyon reticulatum*			C		1/1
plants	land plants	Acanthaceae	*Ruellia simplex*		Y			2/2
plants	land plants	Acanthaceae	*Thunbergia alata*	black-eyed Susan	Y			1/1
plants	land plants	Alliaceae	*Nothoscordum borbonicum*		Y			1/1
plants	land plants	Amaryllidaceae	*Crinum pedunculatum*	river lily		C		2/1
plants	land plants	Amaryllidaceae	*Zephyranthes carinata*		Y			1/1
plants	land plants	Anacardiaceae	*Schinus terebinthifolius*		Y			2/2
plants	land plants	Apiaceae	*Ammi majus*	bishop's weed	Y			2/2
plants	land plants	Apiaceae	*Platysace ericoides*	heath platysace		C		2/2
plants	land plants	Apiaceae	*Cyclospermum leptophyllum*		Y			1/1
plants	land plants	Apiaceae	*Lilaeopsis brisbanica*			E		1/1
plants	land plants	Apocynaceae	*Leichhardtia coronata*			V		5/5
plants	land plants	Apocynaceae	*Cascabela thevetia*	yellow oleander	Y			1/1
plants	land plants	Apocynaceae	*Araujia sericifera*	white moth vine	Y			1/1
plants	land plants	Apocynaceae	*Parsonsia brisbanensis*	broad-leaved monkey vine		C		2/2
plants	land plants	Araceae	*Pistia stratiotes*	water lettuce	Y			1/1
plants	land plants	Araceae	*Colocasia esculenta*	taro	Y			4/3
plants	land plants	Aristolochiaceae	*Aristolochia meridionalis subsp. meridionalis*			C		2/2
plants	land plants	Asparagaceae	*Asparagus africanus*	ornamental asparagus	Y			1/1
plants	land plants	Asparagaceae	*Asparagus virgatus*		Y			1/1
plants	land plants	Asphodelaceae	*x Gastrolea*					1/1

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plants	land plants	Aspleniaceae	*Asplenium attenuatum var. attenuatum*			C		1/1
plants	land plants	Asteraceae	*Olearia nernstii*	Ipswich daisy		C		2/2
plants	land plants	Asteraceae	*Camptacra barbata*			C		1/1
plants	land plants	Asteraceae	*Cichorium intybus*	chicory	Y			1/1
plants	land plants	Asteraceae	*Sonchus oleraceus*	common sowthistle	Y			2/2
plants	land plants	Asteraceae	*Calotis lappulacea*	yellow burr daisy		C		1/1
plants	land plants	Asteraceae	*Calyptocarpus vialis*	creeping cinderella weed	Y			1/1
plants	land plants	Asteraceae	*Hypochaeris radicata*	catsear	Y			1/1
plants	land plants	Asteraceae	*Vittadinia pustulata*			C		1/1
plants	land plants	Asteraceae	*Ageratum houstonianum*	blue billygoat weed	Y			1/1
plants	land plants	Asteraceae	*Brachyscome basaltica*			C		1/1
plants	land plants	Asteraceae	*Hypochaeris albiflora*		Y			1/1
plants	land plants	Asteraceae	*Solenogyne bellioides*			C		1/1
plants	land plants	Asteraceae	*Thymophylla tenuiloba*		Y			1/1
plants	land plants	Asteraceae	*Dimorphotheca ecklonis*		Y			1/1
plants	land plants	Asteraceae	*Gamochaeta pensylvanica*		Y			1/1
plants	land plants	Asteraceae	*Sphagneticola trilobata*		Y			1/1
plants	land plants	Asteraceae	*Lactuca serriola forma serriola*		Y			2/2
plants	land plants	Asteraceae	*Bidens pilosa*		Y			1/1
plants	land plants	Basellaceae	*Anredera cordifolia*	Madeira vine	Y			2/2
plants	land plants	Bignoniaceae	*Pandorea floribunda*			C		1/1
plants	land plants	Bignoniaceae	*Campsis radicans*		Y			1/1
plants	land plants	Bignoniaceae	*Tecoma stans var. stans*		Y			1/1
plants	land plants	Boraginaceae	*Echium plantagineum*	Paterson's curse	Y			1/1
plants	land plants	Brassicaceae	*Rorippa palustris*	marsh cress	Y			1/1
plants	land plants	Brassicaceae	*Raphanus raphanistrum*	wild radish	Y			2/2
plants	land plants	Brassicaceae	*Capsella bursa-pastoris*	shepherd's purse	Y			2/2
plants	land plants	Caesalpiniaceae	*Biancaea decapetala*		Y			3/3
plants	land plants	Campanulaceae	*Wahlenbergia gracilis*	sprawling bluebell		C		2/2
plants	land plants	Campanulaceae	*Wahlenbergia capillaris*			C		1/1
plants	land plants	Campanulaceae	*Lobelia browniana*			C		1/1
plants	land plants	Caryophyllaceae	*Sagina procumbens*	spreading pearlwort	Y			1/1
plants	land plants	Ceratophyllaceae	*Ceratophyllum demersum*	hornwort		C		1/1
plants	land plants	Commelinaceae	*Callisia fragrans*		Y			1/1
plants	land plants	Convolvulaceae	*Ipomoea alba*	moon flower	Y			1/1
plants	land plants	Convolvulaceae	*Ipomoea cairica*		Y			1/1
plants	land plants	Crassulaceae	*Crassula sieberiana*			C		1/1
plants	land plants	Crassulaceae	*Bryophyllum pinnatum*	resurrection plant	Y			1/1
plants	land plants	Crassulaceae	*Bryophyllum fedtschenkoi*		Y			1/1
plants	land plants	Dracaenaceae	*Sansevieria trifasciata 'Laurentii'*		Y			1/1
plants	land plants	Ericaceae	*Acrotriche aggregata*	red cluster heath		C		1/1
plants	land plants	Euphorbiaceae	*Euphorbia dallachyana*			C		1/1
plants	land plants	Euphorbiaceae	*Euphorbia peplus*	petty spurge	Y			1/1
plants	land plants	Euphorbiaceae	*Ricinus communis*	castor oil bush	Y			1/1
plants	land plants	Fabaceae	*Cullen tenax*	emu-foot		C		1/1
plants	land plants	Fabaceae	*Daviesia ulicifolia subsp. stenophylla*			C		1/1

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plants	land plants	Fabaceae	*Vigna luteola*	dalrymple vigna	Y			3/3
plants	land plants	Fabaceae	*Melilotus indicus*	hexham scent	Y			2/2
plants	land plants	Fabaceae	*Pultenaea euchila*	orange pultenaea		C		1/1
plants	land plants	Fabaceae	*Pultenaea villosa*	hairy bush pea		C		1/1
plants	land plants	Fabaceae	*Indigofera spicata*	creeping indigo	Y			1/1
plants	land plants	Fabaceae	*Desmodium triflorum*		Y			1/1
plants	land plants	Fabaceae	*Glycine microphylla*			C		1/1
plants	land plants	Fabaceae	*Medicago polymorpha*	burr medic	Y			1/1
plants	land plants	Fabaceae	*Stylosanthes humilis*	Townsville stylo	Y			1/1
plants	land plants	Fabaceae	*Chorizema parviflorum*	eastern flame pea		C		1/1
plants	land plants	Fabaceae	*Genista monspessulana*	Montpellier broom	Y			1/1
plants	land plants	Fabaceae	*Macroptilium lathyroides*		Y			1/1
plants	land plants	Fabaceae	*Galactia tenuiflora var. lucida*			C		1/1
plants	land plants	Fabaceae	*Neonotonia wightii var. wightii*		Y			2/2
plants	land plants	Fabaceae	*Vigna vexillata var. angustifolia*			C		1/1
plants	land plants	Fabaceae	*Zornia dyctiocarpa var. dyctiocarpa*			C		1/1
plants	land plants	Fabaceae	*Hovea lorata*			C		4/4
plants	land plants	Geraniaceae	*Geranium solanderi var. solanderi*	native geranium		C		2/2
plants	land plants	Haloragaceae	*Myriophyllum verrucosum*	water milfoil		C		1/1
plants	land plants	Haloragaceae	*Myriophyllum striatum*			C		1/1
plants	land plants	Hemerocallidaceae	*Dianella longifolia*			C		1/1
plants	land plants	Hemerocallidaceae	*Dianella brevipedunculata*			C		1/1
plants	land plants	Hemerocallidaceae	*Dianella longifolia var. stenophylla*			C		1/1
plants	land plants	Hydrocharitaceae	*Vallisneria nana*			C		1/1
plants	land plants	Hydrocharitaceae	*Egeria densa*	dense waterweed	Y			1/1
plants	land plants	Hypoxidaceae	*Hypoxis pratensis var. pratensis*			C		1/1
plants	land plants	Iridaceae	*Sisyrinchium rosulatum*		Y			1/1
plants	land plants	Lamiaceae	*Stachys arvensis*	stagger weed	Y			1/1
plants	land plants	Lamiaceae	*Plectranthus verticillatus*		Y			1/1
plants	land plants	Lamiaceae	*Leonotis nepetifolia*		Y			1/1
plants	land plants	Mimosaceae	*Leucaena leucocephala subsp. leucocephala*		Y			3/3
plants	land plants	Mimosaceae	*Acacia juncifolia*			C		1/1
plants	land plants	Moraceae	*Morus alba*	white mulberry	Y			4/3
plants	land plants	Myrsinaceae	*Lysimachia arvensis*		Y			1/1
plants	land plants	Myrtaceae	*Corymbia torelliana*	cadaghi		C		2/2
plants	land plants	Myrtaceae	*Eucalyptus fibrosa subsp. fibrosa*			C		2/2
plants	land plants	Myrtaceae	*Sannantha collina*			C		2/2
plants	land plants	Myrtaceae	*Melaleuca nodosa*			C		1/1
plants	land plants	Myrtaceae	*Corymbia citriodora x Corymbia torelliana*			C		1/1
plants	land plants	Myrtaceae	*Corymbia henryi*	large-leaved spotted gum		C		2/2
plants	land plants	Myrtaceae	*Eucalyptus dura*			C		1/1
plants	land plants	Najadaceae	*Najas tenuifolia*	water nymph		C		4/4
plants	land plants	Ochnaceae	*Ochna serrulata*	ochna	Y			1/1
plants	land plants	Oleaceae	*Notelaea*					1/1
plants	land plants	Oleaceae	*Jasminum dianthifolium*			C		1/1
plants	land plants	Oleaceae	*Notelaea ipsviciensis*	Cooneana olive		CR	CE	6/6

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	land plants	Oleaceae	*Notelaea lloydii*	Lloyd's native olive		V	V	5/5
plants	land plants	Oleaceae	*Notelaea ovata*	forest olive		C		6/6
plants	land plants	Onagraceae	*Ludwigia repens*		Y			1/1
plants	land plants	Onagraceae	*Oenothera indecora subsp. bonariensis*		Y			1/1
plants	land plants	Onagraceae	*Oenothera stricta subsp. stricta*		Y			1/1
plants	land plants	Onagraceae	*Oenothera rosea*	rose evening primrose	Y			1/1
plants	land plants	Orchidaceae	*Epidendrum x obrienianum*		Y			1/1
plants	land plants	Papaveraceae	*Fumaria officinalis subsp. officinalis*		Y			1/1
plants	land plants	Passifloraceae	*Passiflora subpeltata*	white passion flower	Y			1/1
plants	land plants	Passifloraceae	*Passiflora suberosa subsp. litoralis*		Y			1/1
plants	land plants	Plantaginaceae	*Plantago lanceolata*		Y			2/2
plants	land plants	Plantaginaceae	*Bacopa monnieri*			C		1/1
plants	land plants	Poaceae	*Urochloa decumbens*		Y			2/2
plants	land plants	Poaceae	*Cynodon nlemfuensis var. nlemfuensis*		Y			1/1
plants	land plants	Poaceae	*Urochloa mutica*		Y			2/2
plants	land plants	Poaceae	*Chloris gayana*	rhodes grass	Y			1/1
plants	land plants	Poaceae	*Dichelachne crinita*	longhair plumegrass		C		1/1
plants	land plants	Poaceae	*Lachnagrostis filiformis*			C		1/1
plants	land plants	Poaceae	*Dinebra decipiens var. decipiens*			C		1/1
plants	land plants	Poaceae	*Melinis repens*	red natal grass	Y			1/1
plants	land plants	Poaceae	*Megathyrsus maximus var. pubiglumis*		Y			1/1
plants	land plants	Poaceae	*Megathyrsus maximus var. coloratus*		Y			1/1
plants	land plants	Polygalaceae	*Polygala virgata*		Y			1/1
plants	land plants	Polygonaceae	*Persicaria lapathifolia*	pale knotweed		C		1/1
plants	land plants	Polygonaceae	*Persicaria decipiens*	slender knotweed		C		1/1
plants	land plants	Polygonaceae	*Persicaria strigosa*			C		1/1
plants	land plants	Polygonaceae	*Antigonon leptopus*		Y			1/1
plants	land plants	Polygonaceae	*Acetosa vesicaria*		Y			2/2
plants	land plants	Proteaceae	*Persoonia sericea*	silky geebung		C		1/1
plants	land plants	Pteridaceae	*Pteris vittata*	Chinese bracken		C		1/1
plants	land plants	Ranunculaceae	*Ranunculus sceleratus subsp. sceleratus*		Y			1/1
plants	land plants	Rosaceae	*Malus domestica*		Y			1/1
plants	land plants	Rubiaceae	*Asperula geminifolia*			C		1/1
plants	land plants	Rubiaceae	*Pomax umbellata*			C		1/1
plants	land plants	Rubiaceae	*Richardia stellaris*		Y			3/3
plants	land plants	Rutaceae	*Bergera koenigii*		Y			1/1
plants	land plants	Sapindaceae	*Dodonaea triangularis*			C		1/1
plants	land plants	Sapindaceae	*Cardiospermum grandiflorum*	heart seed vine	Y			3/3
plants	land plants	Solanaceae	*Solanum americanum*		Y			1/1
plants	land plants	Solanaceae	*Salpichroa origanifolia*	pampas lily of the valley	Y			1/1
plants	land plants	Solanaceae	*Nicotiana glauca*	tree tobacco	Y			1/1
plants	land plants	Solanaceae	*Cestrum parqui*	green cestrum	Y			2/2
plants	land plants	Solanaceae	*Solanum chrysotrichum*		Y			2/2
plants	land plants	Thelypteridaceae	*Cyclosorus interruptus*			C		1/1
plants	land plants	Tropaeolaceae	*Tropaeolum majus*	garden nasturtium	Y			1/1
plants	land plants	Ulmaceae	*Celtis sinensis*	Chinese elm	Y			1/1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	land plants	Verbenaceae	*Lantana montevidensis*	creeping lantana	Y			2/2

CODES

I - Y indicates that the taxon is introduced to Queensland and has naturalised.

Q - Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992.* The codes are Extinct in the Wild (PE), Endangered (E), Vulnerable (V), Near Threatened (NT), Least Concern (C) or Not Protected ( ).

A - 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) and Vulnerable (V).

Records – The first number indicates the total number of records of the taxon for the record option selected (i.e. All, Confirmed or Specimens).
This number is output as 99999 if it equals or exceeds this value. The second number located after the / indicates the number of specimen records for the taxon.
This number is output as 999 if it equals or exceeds this value.

APPENDIX 3: DATABASE SEARCH RESULTS (2KM)

Queensland Government

WildNet species list

Search Criteria: Species List for a Specified Point
Species: All
Type: All
Queensland status: All
Records: Confirmed
Date: Since 1980
Latitude: -27.5831
Longitude: 152.8222
Distance: 2
Email: kaleena.fry@litoria.com.au
Date submitted: Friday 16 Jul 2021 11:12:06
Date extracted: Friday 16 Jul 2021 11:20:01

The number of records retrieved = 97

Disclaimer
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The State of Queensland disclaims all responsibility for information contained in this product and all liability (including liability in negligence) for all expenses, losses, damages and costs you may incur as a result of the information being inaccurate or incomplete in any way for any reason.
Information about your Species lists request is logged for quality assurance, user support and product enhancement purposes only.
The information provided should be appropriately acknowledged as being derived from WildNet database when it is used. As the WildNet Program is still in a process of collating and vetting data, it is possible the information given is not complete. Go to the WildNet database webpage (https://www.qld.gov.au/environment/plants-animals/species-information/wildnet) to find out more about WildNet and where to access other WildNet information products approved for publication. Feedback about WildNet species lists should be emailed to wildlife.online@des.qld.gov.au.

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	amphibians	Hylidae	*Litoria caerulea*	common green treefrog		C		1
animals	amphibians	Hylidae	*Litoria fallax*	eastern sedgefrog		C		3
animals	birds	Acanthizidae	*Sericornis frontalis*	white-browed scrubwren		C		1
animals	birds	Anatidae	*Chenonetta jubata*	Australian wood duck		C		2
animals	birds	Anhingidae	*Anhinga novaehollandiae*	Australasian darter		C		2
animals	birds	Ardeidae	*Butorides striata*	striated heron		C		1
animals	birds	Artamidae	*Cracticus nigrogularis*	pied butcherbird		C		1
animals	birds	Artamidae	*Gymnorhina tibicen*	Australian magpie		C		1
animals	birds	Cacatuidae	*Cacatua galerita*	sulphur-crested cockatoo		C		1
animals	birds	Cacatuidae	*Eolophus roseicapilla*	galah		C		1
animals	birds	Campephagidae	*Coracina novaehollandiae*	black-faced cuckoo-shrike		C		1
animals	birds	Charadriidae	*Vanellus miles novaehollandiae*	masked lapwing (southern subspecies)		C		1
animals	birds	Cisticolidae	*Cisticola exilis*	golden-headed cisticola		C		2
animals	birds	Columbidae	*Columba livia*	rock dove	Y			1
animals	birds	Columbidae	*Geopelia humeralis*	bar-shouldered dove		C		1
animals	birds	Columbidae	*Ocyphaps lophotes*	crested pigeon		C		1
animals	birds	Columbidae	*Streptopelia chinensis*	spotted dove	Y			1
animals	birds	Coraciidae	*Eurystomus orientalis*	dollarbird		C		1
animals	birds	Corvidae	*Corvus orru*	Torresian crow		C		2
animals	birds	Cuculidae	*Centropus phasianinus*	pheasant coucal		C		1
animals	birds	Cuculidae	*Eudynamys orientalis*	eastern koel		C		1
animals	birds	Estrildidae	*Lonchura castaneothorax*	chestnut-breasted mannikin		C		1
animals	birds	Estrildidae	*Taeniopygia bichenovii*	double-barred finch		C		1
animals	birds	Falconidae	*Falco cenchroides*	nankeen kestrel		C		1
animals	birds	Halcyonidae	*Dacelo novaeguineae*	laughing kookaburra		C		2
animals	birds	Halcyonidae	*Todiramphus sanctus*	sacred kingfisher		C		1
animals	birds	Hirundinidae	*Hirundo neoxena*	welcome swallow		C		2
animals	birds	Maluridae	*Malurus cyaneus*	superb fairy-wren		C		1
animals	birds	Maluridae	*Malurus lamberti*	variegated fairy-wren		C		1
animals	birds	Maluridae	*Malurus melanocephalus*	red-backed fairy-wren		C		1
animals	birds	Meliphagidae	*Lichmera indistincta*	brown honeyeater		C		1
animals	birds	Meliphagidae	*Melithreptus albogularis*	white-throated honeyeater		C		1
animals	birds	Meliphagidae	*Myzomela sanguinolenta*	scarlet honeyeater		C		1
animals	birds	Meropidae	*Merops ornatus*	rainbow bee-eater		C		1
animals	birds	Monarchidae	*Grallina cyanoleuca*	magpie-lark		C		2
animals	birds	Nectariniidae	*Dicaeum hirundinaceum*	mistletoebird		C		1
animals	birds	Oriolidae	*Oriolus sagittatus*	olive-backed oriole		C		1
animals	birds	Pardalotidae	*Pardalotus striatus*	striated pardalote		C		1
animals	birds	Phalacrocoracidae	*Microcarbo melanoleucos*	little pied cormorant		C		1
animals	birds	Phalacrocoracidae	*Phalacrocorax sulcirostris*	little black cormorant		C		1
animals	birds	Podargidae	*Podargus strigoides*	tawny frogmouth		C		1
animals	birds	Psittacidae	*Trichoglossus chlorolepidotus*	scaly-breasted lorikeet		C		1
animals	birds	Psittacidae	*Trichoglossus moluccanus*	rainbow lorikeet		C		1
animals	birds	Rallidae	*Gallinula tenebrosa*	dusky moorhen		C		1
animals	birds	Rallidae	*Porphyrio melanotus*	purple swamphen		C		1
animals	birds	Rhipiduridae	*Rhipidura leucophrys*	willie wagtail		C		2

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Sturnidae	*Acridotheres tristis*	common myna	Y			1
animals	birds	Threskiornithidae	*Threskiornis molucca*	Australian white ibis		C		1
animals	birds	Threskiornithidae	*Threskiornis spinicollis*	straw-necked ibis		C		1
animals	birds	Timaliidae	*Zosterops lateralis*	silvereye		C		1
animals	insects	Nymphalidae	*Acraea andromacha andromacha*	glasswing				1
animals	insects	Nymphalidae	*Danaus plexippus*	monarch	Y			2
animals	insects	Nymphalidae	*Junonia villida villida*	meadow argus				1
animals	insects	Nymphalidae	*Melanitis leda bankia*	evening brown				1
animals	insects	Papilionidae	*Papilio demoleus sthenelus*	chequered swallowtail				2
animals	insects	Pieridae	*Belenois java teutonia*	caper white				1
animals	insects	Pieridae	*Eurema hecabe*	large grass-yellow				1
animals	mammals	Leporidae	*Lepus europaeus*	European brown hare	Y			2
animals	mammals	Molossidae	*Austronomus australis*	white-striped freetail bat		C		1
animals	mammals	Molossidae	*Mormopterus norfolkensis*	east coast freetail bat		C		1
animals	mammals	Muridae	*Hydromys chrysogaster*	water rat		C		1
animals	mammals	Muridae	*Mus musculus*	house mouse	Y			3
animals	mammals	Muridae	*Rattus lutreolus*	swamp rat		C		2
animals	mammals	Muridae	*Rattus rattus*	black rat	Y			1
animals	mammals	Phalangeridae	*Trichosurus vulpecula*	common brushtail possum		C		1
animals	mammals	Phascolarctidae	*Phascolarctos cinereus*	koala		V	V	5
animals	mammals	Pteropodidae	*Pteropus alecto*	black flying-fox		C		1
animals	mammals	Pteropodidae	*Pteropus poliocephalus*	grey-headed flying-fox		C	V	1
animals	mammals	Pteropodidae	*Pteropus scapulatus*	little red flying-fox		C		1
animals	mammals	Vespertilionidae	*Scotorepens greyii*	little broad-nosed bat		C		1
animals	mammals	Vespertilionidae	*Scotorepens orion*	south-eastern broad-nosed bat		C		1
animals	reptiles	Agamidae	*Intellagama lesueurii*	eastern water dragon		C		2
animals	reptiles	Boidae	*Morelia spilota*	carpet python		C		1
animals	reptiles	Elapidae	*Demansia psammophis*	yellow-faced whipsnake		C		1
animals	reptiles	Varanidae	*Varanus varius*	lace monitor		C		1
plants	land plants	Alliaceae	*Nothoscordum borbonicum*		Y			1/1
plants	land plants	Amaryllidaceae	*Crinum pedunculatum*	river lily		C		1/1
plants	land plants	Anacardiaceae	*Schinus terebinthifolius*		Y			1/1
plants	land plants	Apiaceae	*Lilaeopsis brisbanica*			E		1/1
plants	land plants	Apocynaceae	*Araujia sericifera*	white moth vine	Y			1/1
plants	land plants	Araceae	*Colocasia esculenta*	taro	Y			1/1
plants	land plants	Asteraceae	*Sonchus oleraceus*	common sowthistle	Y			1/1
plants	land plants	Basellaceae	*Anredera cordifolia*	Madeira vine	Y			1/1
plants	land plants	Brassicaceae	*Capsella bursa-pastoris*	shepherd's purse	Y			1/1
plants	land plants	Fabaceae	*Neonotonia wightii var. wightii*		Y			1/1
plants	land plants	Fabaceae	*Vigna luteola*	dalrymple vigna	Y			1/1
plants	land plants	Fabaceae	*Vigna vexillata var. angustifolia*			C		1/1
plants	land plants	Geraniaceae	*Geranium solanderi var. solanderi*	native geranium		C		1/1
plants	land plants	Mimosaceae	*Leucaena leucocephala subsp. leucocephala*		Y			1/1
plants	land plants	Moraceae	*Morus alba*	white mulberry	Y			1/1
plants	land plants	Myrtaceae	*Corymbia henryi*	large-leaved spotted gum		C		2/2
plants	land plants	Oleaceae	*Notelaea ovata*	forest olive		C		2/2

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	land plants	Poaceae	*Urochloa mutica*		Y			1/1
plants	land plants	Polygonaceae	*Acetosa vesicaria*		Y			2/2
plants	land plants	Sapindaceae	*Cardiospermum grandiflorum*	heart seed vine	Y			1/1
plants	land plants	Solanaceae	*Solanum chrysotrichum*		Y			1/1
plants	land plants	Ulmaceae	*Celtis sinensis*	Chinese elm	Y			1/1

CODES

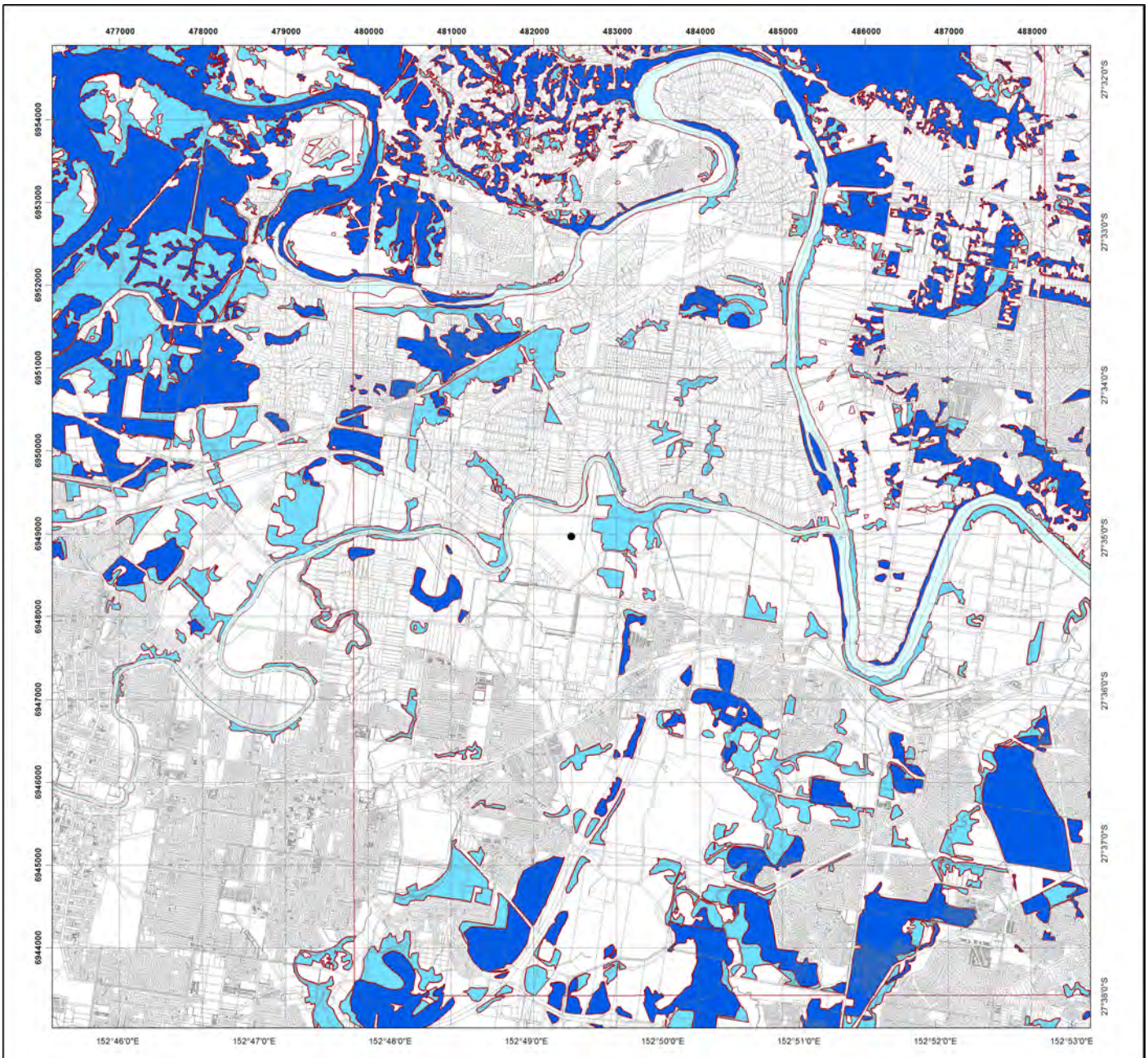
I - Y indicates that the taxon is introduced to Queensland and has naturalised.

Q - Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992.*
The codes are Extinct (EX), Extinct in the Wild (PE), Critically Endangered (CR), Endangered (E), Vulnerable (V), Near Threatened (NT), Special Least Concern (SL) and Least Concern (C).

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

Records - The first number indicates the total number of records of the taxon (wildlife records and species listings for selected areas).
This number is output as 99999 if it equals or exceeds this value. A second number located after a / indicates the number of specimen records for the taxon.
This number is output as 999 if it equals or exceeds this value.

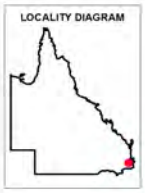
APPENDIX 4: STATE GOVERNMENT MAPPING

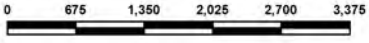


Regulated Vegetation Management Map

Legend

- Coordinates
- Category A area (Vegetation offsets/compliance notices/VDecs)
- Category B area (Remnant vegetation)
- Category C area (High-value regrowth vegetation)
- Category R area (Reef regrowth watercourse vegetation)
- Category X area (Exempt clearing work on Freehold, Indigenous and Leasehold land)
- Water
- Area not categorised
- Other land parcel boundaries





This product is projected into:
GDA 1994 MGA Zone 56

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Additional information required for the assessment of vegetation values is provided in the accompanying "Vegetation Management Supporting map". For further information go to the web site: www.resources.qld.gov.au or contact the Department of Resources.

Digital data for the regulated vegetation management map is available from the Queensland Spatial Portal at http://www.information.qld.gov.au/

Land parcel boundaries are provided as locational aid only.

This map is updated on a monthly basis to ensure new PMAVs are included as they are approved.

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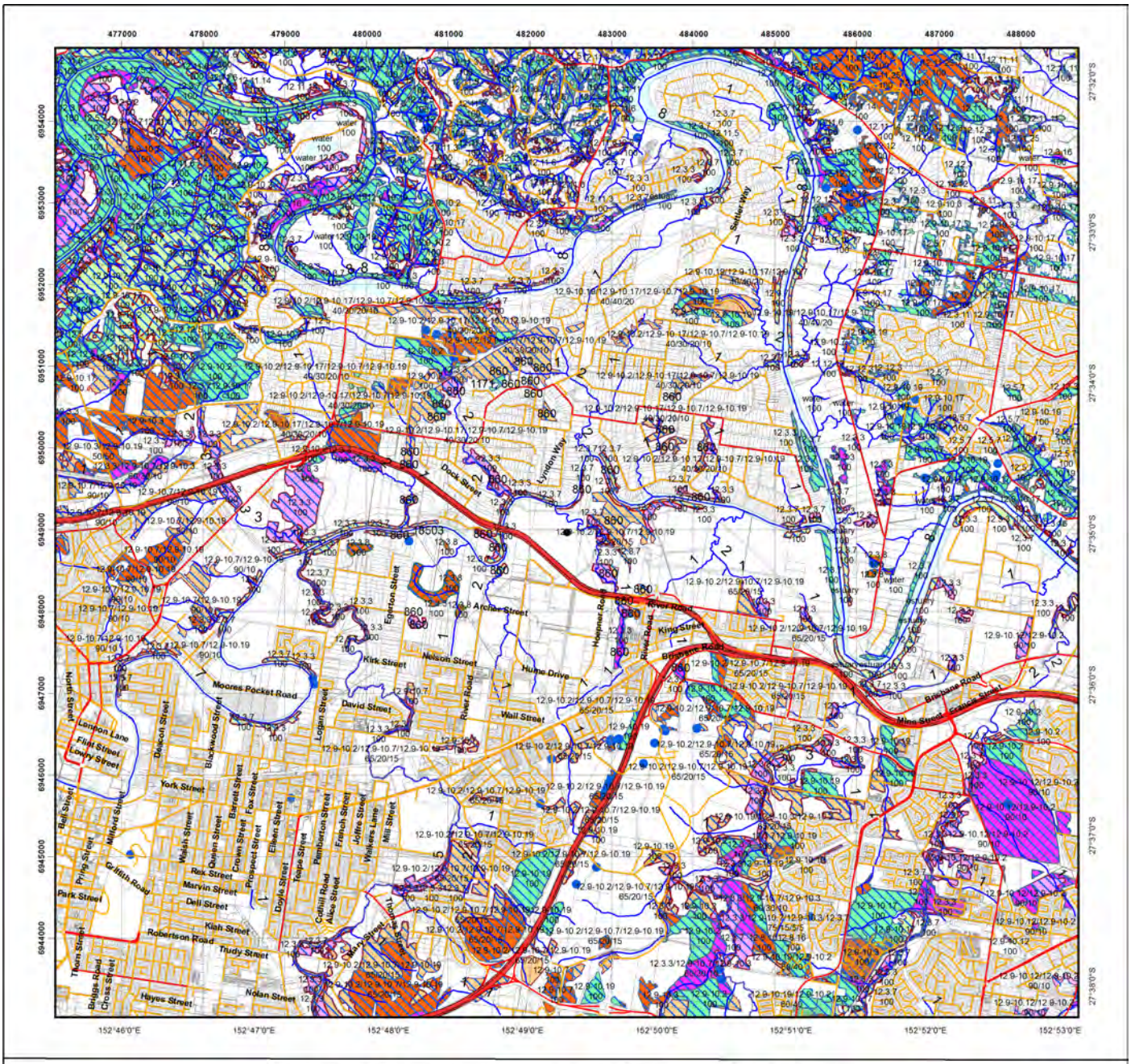

Vegetation Management Supporting Map

Legend

- Coordinates
- Category A or B area containing endangered regional ecosystems
- Category A or B area containing of concern regional ecosystems
- Category A or B area that is a least concern regional ecosystem
- Category C or R area containing endangered regional ecosystems
- Category C or R area containing of concern regional ecosystems
- Category C or R area that is a least concern regional ecosystem
- Category X area
- Water
- Wetland on the vegetation management wetlands map
- Essential habitat on the essential habitat map
- Essential habitat species record
- Watercourses and drainage features on the vegetation management watercourse and drainage features map
  (Stream order shown as black number against stream where available)
- Highway
- Connector
- Street/Local Road
- National Parks, State Forest and other reserves
- Other land parcel boundaries

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LOCALITY DIAGRAM

N

0 480 960 1,440 1,920 2,400 m

This product is projected into:
GDA 1994 MGA Zone 56

Labels for Essential Habitat are centred on the area of enquiry.

Regional ecosystem linework has been compiled at a scale of 1:100 000, except in designated areas where a compilation scale of 1:50 000 is available. Linework should be used as a guide only. The positional accuracy of RE data mapped at a scale of 1:100 000 is +/- 100 metres.

Disclaimer:
While every care is taken to ensure the accuracy of this product, the Department of Resources makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the product being inaccurate or incomplete in any way and for any reason.

Additional information may be required for the purposes of land clearing or assessment of a regional ecosystem map or PMAV applications. For further information go to the web site: www.resources.qld.gov.au or contact the Department of Resources.

Digital data for the vegetation management watercourse and drainage feature map, vegetation management wetlands map, essential habitat map and the vegetation management remnant and regional ecosystem map are available from the Queensland Spatial Portal at http://www.information.qld.gov.au/

Land parcel boundaries are provided as locational aid only.

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Vegetation Management Act 1999 - Extract from the essential habitat database

Essential habitat is required for assessment under the:

- State Development Assessment Provisions - State Code 16: Native vegetation clearing which sets out the matters of interest to the state for development assessment under the *Planning Act 2016*; and
- Accepted development vegetation clearing codes made under the *Vegetation Management Act 1999*

Essential habitat for one or more of the following species is found on and within 1.1 km of the identified subject lot/s on the accompanying essential habitat map.

This report identifies essential habitat in Category A, B and Category C areas.

The numeric labels on the essential habitat map can be cross referenced with the database below to determine which essential habitat factors might exist for a particular species.

Essential habitat is compiled from a combination of species habitat models and buffered species records.

The Department of Resources website (http://www.dnrme.qld.gov.au) has more information on how the layer is applied under the State Development Assessment Provisions - State Code 16: Native vegetation clearing and the *Vegetation Management Act 1999*.

Regional ecosystem is a mandatory essential habitat factor, unless otherwise stated.

Essential habitat, for protected wildlife, means a category A area, a category B area or category C area shown on the regulated vegetation management map-

1) that has at least 3 essential habitat factors for the protected wildlife that must include any essential habitat factors that are stated as mandatory for the protected wildlife in the essential habitat database; or

2) in which the protected wildlife, at any stage of its life cycle, is located.

Protected wildlife includes critically endangered, endangered, vulnerable or near-threatened native wildlife prescribed under the *Nature Conservation Act 1992*.

Essential habitat in Category A and/or Category B and/or Category C

Label	Scientific Name	Common Name	NCA Status	Vegetation Community	Altitude	Soils	Position in Landscape
860	Phascolarctos cinereus	koala	V	Open forests and woodlands containing Eucalyptus, Corymbia, Lophostemon or Melaleuca trees having a trunk of a diameter of more than 10cm at 1.3m above the ground. Tree species used for food and habitat varies across the state and can include: Corymbia citriodora, Corymbia henryi, Corymbia intermedia, Eucalyptus acmenoides, Eucalyptus bancroftii, Eucalyptus biturbinata, Eucalyptus blakelyi, Eucalyptus brownii, Eucalyptus camaldulensis, Eucalyptus carnea, Eucalyptus chloroclada, Eucalyptus coolabah, Eucalyptus crebra, Eucalyptus dealbata, Eucalyptus drepanophylla, Eucalyptus dunnii, Eucalyptus eugenioides, Eucalyptus exserta, Eucalyptus fibrosa, Eucalyptus grandis, Eucalyptus helidonica, Eucalyptus latisinensis, Eucalyptus longirostrata, Eucalyptus major, Eucalyptus melanophloia, Eucalyptus melliodora, Eucalyptus microcarpa, Eucalyptus microcorys, Eucalyptus microtheca, Eucalyptus moluccana, Eucalyptus montivaga, Eucalyptus orgadophila, Eucalyptus papuana, Eucalyptus pilularis, Eucalyptus platyphylla, Eucalyptus populnea, Eucalyptus portuensis, Eucalyptus propinqua, Eucalyptus racemosa, Eucalyptus resinifera, Eucalyptus robusta, Eucalyptus saligna, Eucalyptus seeana, Eucalyptus siderophloia, Eucalyptus sideroxylon, Eucalyptus tereticornis, Eucalyptus thozetiana, Eucalyptus tindaliae, Eucalyptus umbra, Lophostemon confertus, Melaleuca leucadendra, Melaleuca quinquenervia.	Sea level to 1000m.	None	Riparian areas, plains and hill/escarpment slopes.
1171	Calyptorhynchus lathami	glossy black-cockatoo	V	Lowland and highland eucalypt forest and woodland, including riparian, callitris and brigalow scrub areas, with Casuarina (C. glauca, C. cristata)/Allocasuarina spp. (A. torulosa, A. littoralis). Nest in large vertical hollow (1-2m deep, 25-50cm diameter) up to 28m above ground in tall slightly isolated tree usually near principal food source (Allocasuarina/Casuarina).	Sea level to 1200m.	None	None
18503	Lilaeopsis brisbanica	None	E	On edge of mangroves, dominated by Aegiceras corniculata, with some Avicennia, Excoecaria	0 to 10 m	Mud on river bank (Hydrosols)	tidal riverbank

Label	Regional Ecosystem (mandatory unless otherwise specified)
860	4.3.1, 4.3.2, 4.3.3, 4.3.4, 4.3.5, 4.3.6, 4.3.8, 4.3.10, 4.3.11, 4.5.3, 4.5.5, 4.5.6, 4.5.8, 4.5.9, 4.7.1, 4.7.7, 4.7.8, 4.9.6, 4.9.10, 4.9.12, 4.9.17, 6.3.1, 6.3.2, 6.3.3, 6.3.4, 6.3.5, 6.3.7, 6.3.8, 6.3.9, 6.3.11, 6.3.12, 6.3.17, 6.3.18, 6.3.22, 6.3.24, 6.3.25, 6.4.1, 6.4.2, 6.4.3, 6.4.4, 6.5.1, 6.5.2, 6.5.3, 6.5.5, 6.5.6, 6.5.7, 6.5.8, 6.5.9, 6.5.10, 6.5.11, 6.5.13, 6.5.14, 6.5.15, 6.5.16, 6.5.17, 6.5.18, 6.5.19, 6.6.2, 6.7.1, 6.7.2, 6.7.5, 6.7.6, 6.7.7, 6.7.9, 6.7.11, 6.7.12, 6.7.13, 6.7.14, 6.7.17, 6.9.3, 7.2.3, 7.2.4, 7.2.7, 7.2.11, 7.3.7, 7.3.8, 7.3.9, 7.3.12, 7.3.13, 7.3.14, 7.3.16, 7.3.19, 7.3.20, 7.3.21, 7.3.25, 7.3.26, 7.3.39, 7.3.40, 7.3.42, 7.3.43, 7.3.44, 7.3.45, 7.3.47, 7.3.48, 7.3.50, 7.5.1, 7.5.2, 7.5.3, 7.5.4, 7.8.7, 7.8.8, 7.8.10, 7.8.15, 7.8.16, 7.8.17, 7.8.18, 7.8.19, 7.11.5, 7.11.6, 7.11.13, 7.11.14, 7.11.16, 7.11.18, 7.11.19, 7.11.20, 7.11.21, 7.11.31, 7.11.32, 7.11.33, 7.11.34, 7.11.35, 7.11.37, 7.11.41, 7.11.42, 7.11.43, 7.11.44, 7.11.45, 7.11.46, 7.11.47, 7.11.48, 7.11.49, 7.11.50, 7.11.51, 7.12.4, 7.12.5, 7.12.17, 7.12.21, 7.12.22, 7.12.23, 7.12.24, 7.12.25, 7.12.26, 7.12.27, 7.12.28, 7.12.29, 7.12.30, 7.12.33, 7.12.34, 7.12.35, 7.12.51, 7.12.52, 7.12.53, 7.12.54, 7.12.55, 7.12.56, 7.12.57, 7.12.58, 7.12.59, 7.12.60, 7.12.61, 7.12.62, 7.12.63, 7.12.65, 7.12.66, 7.12.69, 8.1.5, 8.2.3, 8.2.6, 8.2.7, 8.2.8, 8.2.11, 8.2.12, 8.2.13, 8.2.14, 8.3.1, 8.3.2, 8.3.3, 8.3.5, 8.3.6, 8.3.8, 8.3.10, 8.3.11, 8.3.13, 8.5.1, 8.5.2, 8.5.3, 8.5.5, 8.5.6, 8.5.7, 8.9.1, 8.10.1, 8.11.1, 8.11.3, 8.11.4, 8.11.5, 8.11.6, 8.11.8, 8.11.10, 8.11.12, 8.12.4, 8.12.5, 8.12.6, 8.12.7, 8.12.8, 8.12.9, 8.12.12, 8.12.14, 8.12.20, 8.12.22, 8.12.23, 8.12.25, 8.12.26, 8.12.27, 8.12.29, 8.12.31, 8.12.32, 9.3.1, 9.3.2, 9.3.3, 9.3.4, 9.3.5, 9.3.6, 9.3.7, 9.3.8, 9.3.10, 9.3.11, 9.3.13, 9.3.14, 9.3.15, 9.3.16, 9.3.17, 9.3.19, 9.3.20, 9.3.21, 9.3.22, 9.3.27, 9.4.1, 9.4.2, 9.5.1, 9.5.3, 9.5.4, 9.5.5, 9.5.6, 9.5.7, 9.5.8, 9.5.9, 9.5.10, 9.5.11, 9.5.12, 9.5.15, 9.5.16, 9.5.17, 9.7.1, 9.7.2, 9.7.3, 9.7.4, 9.7.5, 9.7.6, 9.8.1, 9.8.2, 9.8.3, 9.8.4, 9.8.5, 9.8.9, 9.8.10, 9.8.11, 9.8.13, 9.10.1, 9.10.3, 9.10.4, 9.10.5, 9.10.7, 9.10.8, 9.11.1, 9.11.2, 9.11.3, 9.11.4, 9.11.5, 9.11.7, 9.11.10, 9.11.12, 9.11.13, 9.11.14, 9.11.15, 9.11.16, 9.11.17, 9.11.18, 9.11.19, 9.11.21, 9.11.22, 9.11.23, 9.11.24, 9.11.25, 9.11.26, 9.11.28, 9.11.29, 9.11.30, 9.11.31, 9.11.32, 9.12.1, 9.12.2, 9.12.3, 9.12.4, 9.12.5, 9.12.6, 9.12.7, 9.12.10, 9.12.11, 9.12.12, 9.12.13, 9.12.14, 9.12.15, 9.12.16, 9.12.17, 9.12.18, 9.12.19, 9.12.20, 9.12.21, 9.12.22, 9.12.23, 9.12.24, 9.12.25, 9.12.26, 9.12.27, 9.12.28, 9.12.29, 9.12.30, 9.12.31, 9.12.32, 9.12.33, 9.12.35, 9.12.36, 9.12.37, 9.12.38, 9.12.39, 9.12.44, 10.3.2, 10.3.3, 10.3.5, 10.3.6, 10.3.9, 10.3.10, 10.3.11, 10.3.12, 10.3.13, 10.3.14, 10.3.15, 10.3.17, 10.3.20, 10.3.27, 10.3.28, 10.4.3, 10.4.9, 10.5.1, 10.5.2, 10.5.4, 10.5.5, 10.5.7, 10.5.8, 10.5.9, 10.5.10, 10.5.11, 10.5.12, 10.7.1, 10.7.2, 10.7.3, 10.7.4, 10.7.5, 10.7.9, 10.7.10, 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12.12.9, 12.12.11, 12.12.12, 12.12.14, 12.12.15, 12.12.23, 12.12.24, 12.12.25, 12.12.28, 13.3.1, 13.3.2, 13.3.3, 13.3.4, 13.3.5, 13.3.7, 13.9.2, 13.11.1, 13.11.2, 13.11.3, 13.11.4, 13.11.5, 13.11.6, 13.11.8, 13.11.9, 13.12.1, 13.12.2, 13.12.3, 13.12.4, 13.12.5, 13.12.6, 13.12.8, 13.12.9, 13.12.10.

Label	Regional Ecosystem (mandatory unless otherwise specified)
1171	6.3.1, 6.3.2, 6.3.3, 6.3.4, 6.3.5, 6.3.8, 6.3.9, 6.3.16, 6.3.17, 6.3.18, 6.3.24, 6.3.25, 6.4.1, 6.4.2, 6.4.3, 6.5.1, 6.5.2, 6.5.3, 6.5.5, 6.5.17, 6.5.19, 6.7.2, 6.7.5, 6.7.6, 8.2.1, 8.2.3, 8.2.4, 8.2.6, 8.2.7, 8.2.8, 8.2.12, 8.2.13, 8.2.14, 8.3.2, 8.3.3, 8.3.5, 8.3.6, 8.3.8, 8.3.11, 8.3.13, 8.5.1, 8.5.2, 8.5.3, 8.5.5, 8.5.6, 8.9.1, 8.11.1, 8.11.3, 8.11.4, 8.11.5, 8.11.6, 8.11.8, 8.12.4, 8.12.5, 8.12.6, 8.12.7, 8.12.8, 8.12.9, 8.12.12, 8.12.14, 8.12.20, 8.12.22, 8.12.23, 8.12.25, 8.12.26, 8.12.27, 8.12.31, 8.12.32, 9.3.1, 9.3.2, 9.3.3, 9.3.4, 9.3.5, 9.3.6, 9.3.7, 9.3.8, 9.3.9, 9.3.11, 9.3.13, 9.3.14, 9.3.15, 9.3.16, 9.3.17, 9.3.18, 9.3.19, 9.3.20, 9.3.21, 9.3.22, 9.3.23, 9.4.1, 9.4.2, 9.4.3, 9.5.1, 9.5.3, 9.5.4, 9.5.5, 9.5.6, 9.5.7, 9.5.8, 9.5.9, 9.5.10, 9.5.11, 9.5.12, 9.5.16, 9.7.1, 9.7.2, 9.7.3, 9.7.5, 9.7.6, 9.8.1, 9.8.2, 9.8.4, 9.8.5, 9.8.6, 9.8.9, 9.8.10, 9.8.11, 9.10.1, 9.10.3, 9.10.4, 9.10.5, 9.10.6, 9.10.7, 9.10.8, 9.11.1, 9.11.2, 9.11.3, 9.11.4, 9.11.5, 9.11.7, 9.11.10, 9.11.11, 9.11.12, 9.11.13, 9.11.15, 9.11.16, 9.11.17, 9.11.18, 9.11.19, 9.11.23, 9.11.26, 9.11.28, 9.11.29, 9.11.31, 9.11.32, 9.12.1, 9.12.2, 9.12.3, 9.12.4, 9.12.5, 9.12.6, 9.12.7, 9.12.10, 9.12.11, 9.12.12, 9.12.13, 9.12.16, 9.12.17, 9.12.18, 9.12.19, 9.12.20, 9.12.21, 9.12.22, 9.12.23, 9.12.24, 9.12.26, 9.12.28, 9.12.30, 9.12.31, 9.12.33, 9.12.35, 9.12.37, 9.12.39, 11.2.1, 11.2.2, 11.2.5, 11.3.1, 11.3.2, 11.3.3, 11.3.4, 11.3.6, 11.3.7, 11.3.8, 11.3.9, 11.3.10, 11.3.12, 11.3.13, 11.3.14, 11.3.15, 11.3.16, 11.3.17, 11.3.18, 11.3.19, 11.3.23, 11.3.25, 11.3.26, 11.3.27, 11.3.28, 11.3.29, 11.3.30, 11.3.35, 11.3.36, 11.3.37, 11.3.38, 11.3.39, 11.4.2, 11.4.3, 11.4.5, 11.4.7, 11.4.8, 11.4.9, 11.4.10, 11.4.12, 11.4.13, 11.5.1, 11.5.2, 11.5.3, 11.5.4, 11.5.5, 11.5.7, 11.5.8, 11.5.9, 11.5.12, 11.5.13, 11.5.14, 11.5.16, 11.5.17, 11.5.20, 11.5.21, 11.7.1, 11.7.2, 11.7.4, 11.7.6, 11.8.1, 11.8.2, 11.8.4, 11.8.5, 11.8.8, 11.8.9, 11.8.11, 11.8.12, 11.8.14, 11.8.15, 11.9.1, 11.9.2, 11.9.3, 11.9.5, 11.9.6, 11.9.7, 11.9.9, 11.9.10, 11.9.13, 11.9.14, 11.10.1, 11.10.2, 11.10.3, 11.10.4, 11.10.5, 11.10.6, 11.10.7, 11.10.9, 11.10.11, 11.10.12, 11.10.13, 11.11.1, 11.11.3, 11.11.4, 11.11.6, 11.11.7, 11.11.8, 11.11.9, 11.11.10, 11.11.11, 11.11.13, 11.11.14, 11.11.15, 11.11.16, 11.11.19, 11.11.20, 11.12.1, 11.12.2, 11.12.3, 11.12.5, 11.12.6, 11.12.7, 11.12.8, 11.12.9, 11.12.10, 11.12.11, 11.12.12, 11.12.13, 11.12.14, 11.12.15, 11.12.17, 11.12.19, 11.12.20, 11.12.21, 12.2.5, 12.2.6, 12.2.13, 12.2.14, 12.3.11, 12.5.1, 12.5.2, 12.5.3, 12.5.4, 12.5.6, 12.8.1, 12.8.2, 12.8.8, 12.8.10, 12.8.11, 12.8.12, 12.8.14, 12.8.16, 12.8.19, 12.8.20, 12.8.23, 12.8.25, 12.9-10.2, 12.9-10.4, 12.9-10.5, 12.9-10.6, 12.9-10.9, 12.9-10.12, 12.9-10.14, 12.9-10.17, 12.9-10.19, 12.9-10.20, 12.11.2, 12.11.3, 12.11.5, 12.11.6, 12.11.9, 12.11.15, 12.11.23, 12.11.24, 12.11.25, 12.11.27, 12.12.2, 12.12.5, 12.12.6, 12.12.9, 12.12.11, 12.12.15, 12.12.19, 12.12.20, 12.12.23, 12.12.26, 13.3.1, 13.3.2, 13.3.3, 13.3.4, 13.3.5, 13.3.7, 13.9.2, 13.11.1, 13.11.2, 13.11.3, 13.11.4, 13.11.5, 13.11.6, 13.11.8, 13.12.1, 13.12.2, 13.12.3, 13.12.4, 13.12.5, 13.12.8, 13.12.9, 13.12.10
18503	12.1.3

APPENDIX 5: ASSESSMENT METHODS

Targeted field surveys were carried out by Litoria Consulting in in April-July 2019, December 2020 and January-March 2021 by up to three (3) tertiary-qualified Ecologists, as well as OWAD Environment in May 2021. The methods that were applied were consistent with relevant Commonwealth- and State-approved guidelines and are outlined in detail below.

THREATENED FAUNA

Terrestrial fauna on the subject site was assessed in accordance with the relevant survey guidelines via a combination of field investigations including:

- Targeted survey for Koala via koala detection dogs in accordance with *EPBC Act referral guidelines for the vulnerable koala* (Cth);
- Targeted survey for Grey-headed Flying-fox in accordance with *Survey guidelines for Australia's threatened bats* (Cth);
- Targeted survey for Rufous Fantail via unattended acoustic recording (UAR);
- Diurnal bird survey; and,
- Opportunistic or incidental fauna observations.

The following sections outline the various assessment methodologies.

KOALA DETECTION DOG SURVEY

A koala survey was undertaken by OWAD Environment with the assistance of two (2) purpose-bred professional detection dogs certified for the detection of koala evidence. The detection dogs are able to locate both live animals and indirect evidence (scats) of animals. The detection dogs surveyed over 12km across the subject site, covering all vegetated areas (Figure 1). The survey was undertaken in May 2021. Full details of the survey methodology can be seen in the Riverview Koala Detection Dog Survey Report (OWAD Environment, May 2021; Appendix 7).

Figure 1: Koala survey effort (OWAD Environment 2021).

NOCTURNAL SPOTLIGHT SEARCHES

Nocturnal spotlighting was undertaken over 12 evenings between December 2020 and March 2021 to identify any fauna utilising the survey area at night. Spotlighting survey areas were each surveyed twice. The survey began approximately two (2) to three (3) hours after sunset and lasted approximately 1 – 1.5 hours each night. Spotlighting was undertaken using a 12-volt 50-Watt spotlight with red coloured filter to minimise impacts on nocturnal species. The approximate location of the spotlighting surveys can be seen in Figure 2.

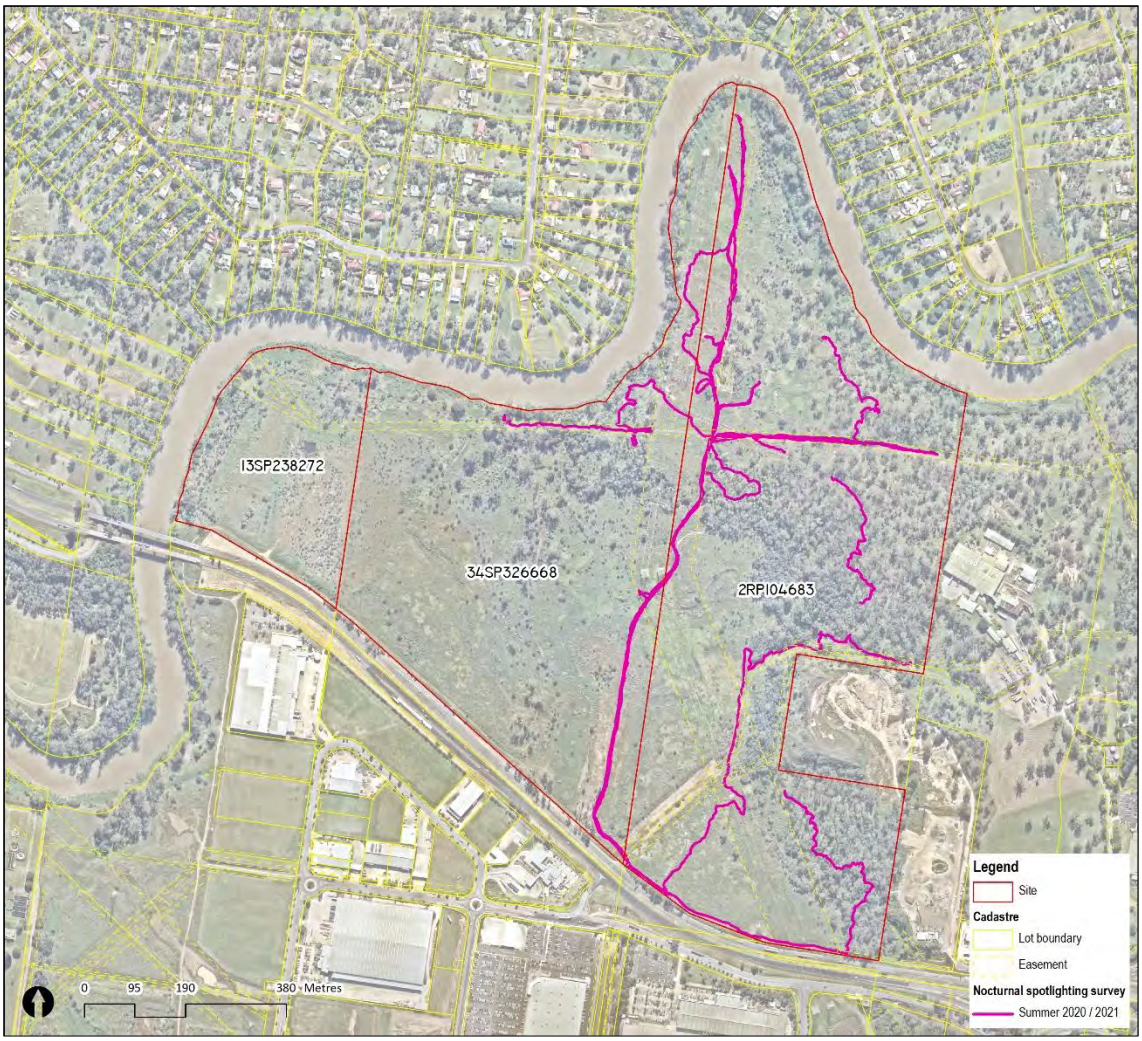

Figure 2: Nocturnal spotlighting effort (Nearmap 2021).

UNATTENDED ACOUSTIC RECORDINGS

Unattended Acoustic Recordings (UAR) were used to target identification of bird species, undertaken using two (2) 'Song Meter SM2' recording units (Wildlife Acoustics, Inc., USA) comprising a programmable recorder enclosed in a weatherproof case with external weatherproof microphones and internal power supply. The approximate location of the UAR units can be seen in Figure 3.

At each of the four (4) locations (two (2) in December 2020 and two (2) in January 2021), daily recordings were made for a period of four (4) days. Daily recordings consisted of 12 x 30 minute recordings, including four (4) sunrise recordings (commencing at 4am, 5am, 6am & 7am), four (4) sunset recording (commencing at 4pm, 5pm, 6pm & 7pm) and four (4) nocturnal recordings (commencing at 8pm, 9pm, 10pm & 11pm).

Recordings were analysed using the call recognition software 'Kaleidoscope' manufactured by Wildlife Acoustics, Inc. Audio recordings were analysed for species presence / absence. All recordings were assessed using the in-built cluster analysis tool within 'Kaleidoscope' and clusters were analysed for different sonograms.

Following the cluster analysis, clusters that exhibited a greater significant difference within clusters were analysed to determine any different species sonograms. After this time, the likelihood of detecting new species decreased significantly, thus new audio recordings were only analysed if they contained unfamiliar sonograms.

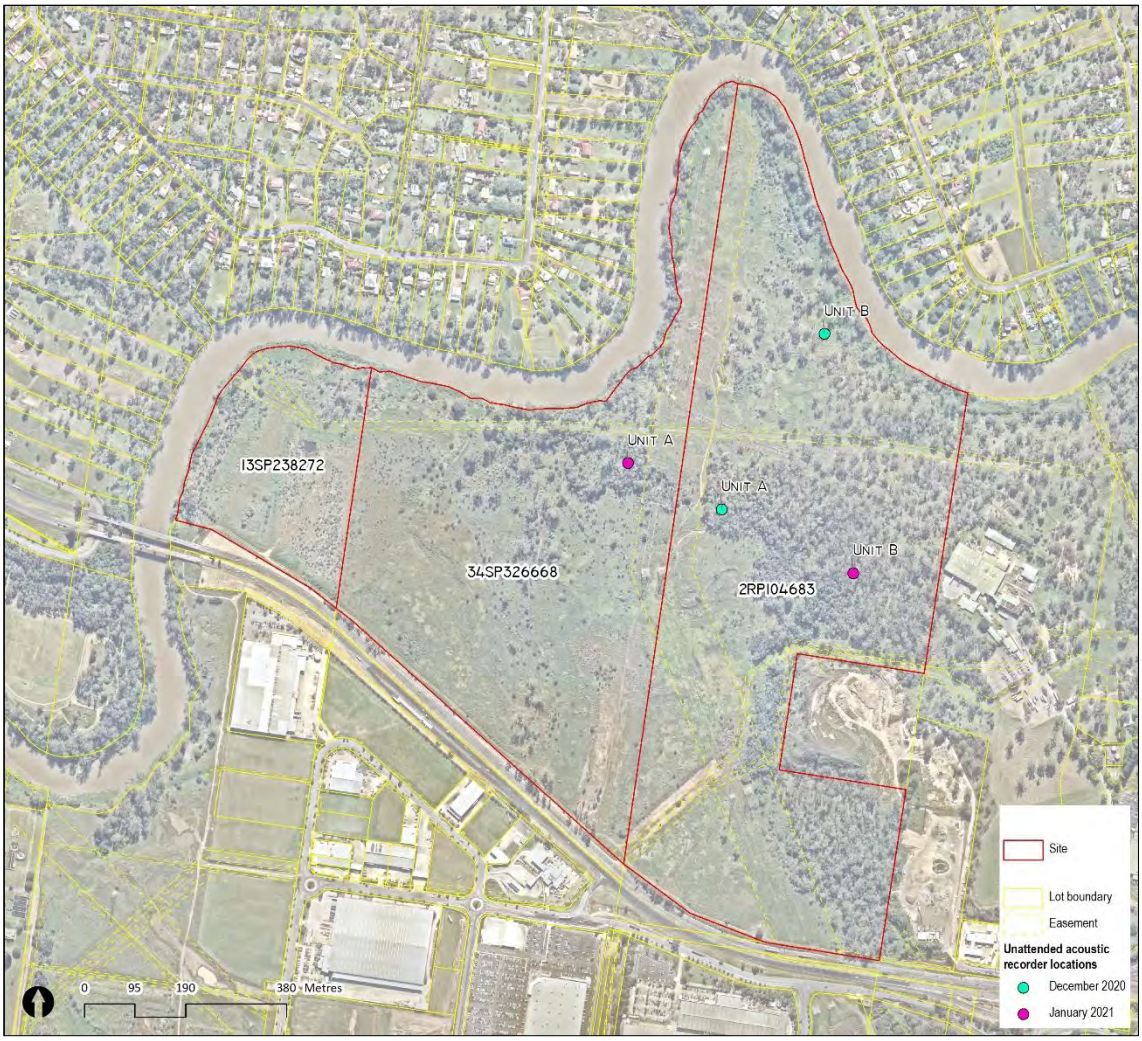

Figure 3: UAR survey locations (Nearmap 2021).

DIURNAL BIRD SURVEYS

Bird surveys were conducted on three (3) mornings and three (3) afternoons during the survey period. Morning surveys began 30 minutes before sunrise and afternoon surveys began 30 minutes before sunset. Bird survey locations were each surveyed twice All bird surveys were undertaken for approximately one hour. Birds were identified by sight or by sound. Birds were only identified by sound if the identity and location of the species was certain. The approximate location of the bird surveys can be seen in Figure 4.

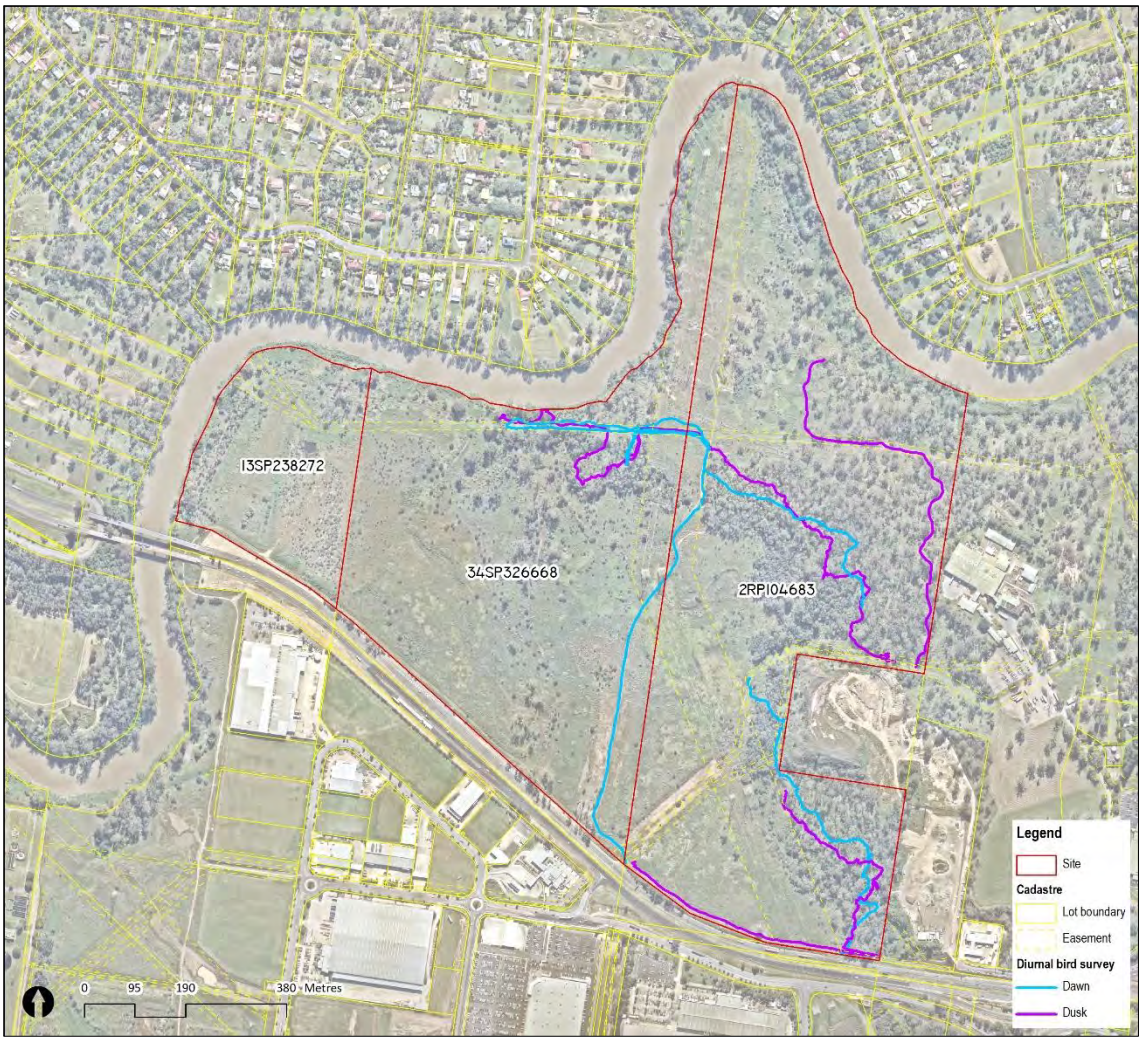

Figure 4: Diurnal bird surveys (Nearmap 2021).

OPPORTUNISTIC AND INCIDENTAL OBSERVATIONS

In addition to targeted surveys, opportunistic and incidental fauna observations were recorded whilst undertaking botanical and fauna assessments, including direct observations of fauna as well as fauna habitat features such as nests, hollows, fauna scratches and other fauna traces.

THREATENED FLORA

A flora survey of the site was carried out in April-July 2019 by two tertiary-qualified botanists[1] via a timed meander survey in accordance with the *Flora Survey Guidelines – Protected Plants* (Department of Environment and Science 2019). The flora survey

[1] Refer to Appendix 4 for the *curriculum vitae* of the lead botanist undertaking the flora survey.

targeted the identification of EVNT plant species within the *clearing impact area*[2], in particular those EVNT plant species identified from:

- Queensland DEHP Wildlife Online database (Department of Science Information Technology Innovation and the Arts 2019) as having been recorded within vicinity 3 km radius of the site since 1980; and,
- Atlas of Living Australia online database (National Research Infrastructure for Australia 2019) as having been recorded within vicinity 1 km radius of the site.

The timed meander survey involves surveying each habitat type within the impact area (not just those known to be habitat for threatened species). The habitat type is traversed in a random manner to maximise coverage. The traverse is continued until no new species are recorded for 30 minutes or when the entire area of habitat type has been surveyed. The approximate location of timed meanders is shown in Figure 5. Meanders are undertaken at the following rates for each habitat type:

- <2ha = 1 meander;
- Between 2ha and 10ha = 2 meanders;
- Between 10ha and 100 ha = 4 meanders; and,
- >100ha = 6 meanders.

Given the flora survey was undertaken within a short time frame, there is the potential for type II (ß) error; namely, failing to detect the presence of a threatened plant species that is actually present. This is especially prevalent for inconspicuous, non-showy species or species difficult to identify outside of flowering/fruiting seasons. Notwithstanding, the survey timing and methodology reduced the likelihood of ß error by:

- Conducting the survey over multiple seasons to incorporate seasonal variability;
- Surveying using a timed meander survey methodology;
- Surveying within all distinct vegetation communities within the *clearing impact area*; and,
- Utilising numerous text and online reference sources to identify inconspicuous plants encountered and/or collected in the field during the flora survey.

[2] Clearing impact area is defined under the *Flora Survey Guidelines – Protected Plants* as the area to be cleared (clearing footprint), including an additional area 100m in width around the development footprint.

Figure 5: Timed meander flora surveys (Nearmap 2021).

THREATENED ECOLOGICAL COMMUNITIES

Botanical assessments were carried out by two (2) tertiary-qualified ecologists in April-July 2019. The assessment was carried out according to tertiary and quaternary methods described in *Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland. Version 5.0* (Neldner, Wilson et al. 2019).

The purpose of the survey was to determine the ecological values of the existing vegetation according to the extent, type, diversity and integrity of vegetation communities present and the presence of any threatened ecological communities (TEC). Where present, the actual extents (boundaries) of vegetation communities were identified using survey and/or GPS location for GIS rectification with existing vegetation maps of the subject site.

Results of the botanical survey are described according to vegetation communities (Vegetation Survey Units = VSUs) observed within the survey extent. VSUs were

established and classified on the basis of tertiary and quaternary methods described in Neldner, Wilson *et al.* (2019) and included such criteria as:

- Strata (canopy, mid-storey, shrub or understorey);
- Relative species abundance in observed strata (dominant, co-dominant, common or associated);
- Landform;
- Aspect;
- Geology; and,
- Hydrology (where applicable).

APPENDIX 6: ASSESSMENT RESULTS

THREATENED FAUNA

A total of 82 species of fauna were observed as part of the assessment, including:

- Six (6) species of amphibians;
- 56 species of birds;
- 15 species of mammals;
- Three (3) species of reptiles; and,
- Two (2) species of insects.

Species observed within the survey area included those considered ubiquitous urban fauna (e.g. Australian Magpie, Cane Toad) as well as those normally associated with larger patches of vegetation (e.g. Eastern Yellow Robin). Table 1 summarises the results of the terrestrial fauna surveys.

A number of key fauna habitat features were also identified on the subject site. Identified key habitat features included:

- Arboreal termitaria;
- Hollow-bearing trees (a few small hollows only);
- Stags;
- Diggings;
- Various scats, including a range of Macropod scats;
- Stick nests; and,
- Course woody debris and other ground habitat suitable for ground-dwelling fauna.

Of the 56 species of birds observed during the field surveys, eight (8) of the observed species have an EPBC Act listing status of *Marine,* which are known as *Other Matters of Environmental Significance* under the *EPBC Act*. These species only require assessment if a project is within a Commonwealth Marine Area, and therefore are not assessable for the purposes of the subject site, as the subject site is not within a Commonwealth Marine Area. The Rufous Fantail was not observed as part of targeted surveys, incidental observations or acoustic recordings.

During the targeted fauna surveys, a single Grey-headed Flying-fox, listed as *vulnerable*, was seen flying over the subject site; however, there were no observations of Grey-headed Flying-fox feeding or roosting on the subject site.

The results of the Koala survey indicated no evidence of Koala present on the subject site. Given the comprehensive search and site conditions at the time of the survey, it was considered highly unlikely that this species was residing on the subject site. Further, it was also considered unlikely that the Koala would currently be able to access or utilise the subject site due to poor habitat connectivity and restrictive groundcover conditions on site (OWAD Environment, May 2021; Appendix 7).

Table 1: Fauna survey results.

Scientific Name	Common Name	Survey Methodology	EPBC Status
Amphibians			
Rhinella marina	Cane Toad	NS, IN	-
Litoria caerulea	Green Tree Frog	NS	-
Litoria fallax	Eastern Sedgefrog	NS, UAR	-
Litoria peronii	Peron's Tree Frog	NS	-
Litoria rubella	Naked Tree Frog	UAR	-
Limnodynastes peronii	Striped Marsh Frog	NS, IN, UAR	-
Birds			
Alectura lathami	Australian Brush-turkey	BS	-
Anas superciliosa	Pacific Black Duck	BS, IN, UAR	-
Cacatua galerita	Sulphur-crested Cockatoo	BS, UAR	-
Cacatua sanguinea	Little Corella	IN, UAR	-
Centropus phasianinus	Pheasant Coucal	IN, BS, UAR	-
Chenonetta jubata	Australian Wood Duck	BS, UAR	-
Cisticola exilis	Golden-headed Cisticola	IN, BS	-
Coracina novaehollandiae	Black-faced Cuckoo-shrike	IN, BS, UAR	Marine
Corvus orru	Torresian Crow	IN, BS, UAR	-
Coturnix ypsilophora	Brown Quail	IN, BS, NS, UAR	-
Cracticus nigrogularis	Pied Butcherbird	UAR	-
Cracticus torquatus	Grey Butcherbird	BS, UAR	-
Dacelo novaeguineae	Laughing Kookaburra	IN, BS, NS, UAR	-
Eolophus roseicapillus	Galah	BS, UAR	-
Eopsaltria australis	Eastern Yellow Robin	IN, BS, UAR	-
Eudynamys scolopacea	Pacific Koel	IN, BS, UAR	-
Eurystomus orientalis	Dollarbird	IN, BS, UAR	Marine
Gallus gallus	Rooster (off site)	UAR	-
Geopelia humeralis	Bar-shouldered Dove	IN, BS, UAR	-
Geopelia striata	Peaceful Dove	IN, UAR	-
Glossopsitta pusilla	Little Lorikeet	IN, BS	-
Grallina cyanoleuca	Magpie-lark	BS	Marine
Gymnorhina tibicen	Australian Magpie	IN, BS, UAR	-
Hirundo nigricans	Tree Martin	IN, BS	-
Lichmera indistincta	Brown Honeyeater	IN, BS, UAR	-
Lonchura castaneothorax	Chestnut-breasted Mannikin	IN	-
Malurus cyaneus	Superb fairywren	IN, BS, UAR	-
Malurus melanocephalus	Red-backed Fairywren	IN, BS, UAR	-
Manorina melanocephala	Noisy Miner	IN, BS, NS, UAR	-
Megalurus timoriensis	Tawny Grassbird	IN, BS, NS, UAR	-
Meliphaga lewinii	Lewin's Honeyeater	UAR	-
Melithreptus albogularis	White-throated Honeyeater	BS, UAR	-
Merops ornatus	Rainbow Bee-eater	IN, BS, UAR	Marine
Milvus migrans	Black Kite	IN, BS, UAR	-
Neochmia temporalis	Red-browed Finch	IN, BS	-
Ninox novaeseelandiae	Southern Boobook	NS, UAR	-
Ocyphaps lophotes	Crested Pigeon	UAR	-
Oriolus sagittatus	Olive-backed Oriole	UAR	-
Pardalotus striatus	Striated Pardalote	BS	-
Phalacrocorax sulcirostris	Little Black Cormorant	BS	-

Scientific Name	Common Name	Survey Methodology	EPBC Status
Philemon argenticeps	Noisy Friarbird	BS, UAR	-
Philemon citreogularis	Little Friarbird	BS	-
Platycercus adscitus	Pale-headed Rosella	IN, UAR	-
Podargus strigoides	Tawny Frogmouth	NS	-
Porphyrio porphyrio	Purple Swamphen	UAR	Marine
Psophodes olivaceus	Eastern Whipbird	BS, UAR	-
Rhipidura leucophrys	Willy Wagtail	IN, BS	-
Scythrops novaehollandiae	Channel-billed Cuckoo	IN, UAR	Marine
Sericornis frontalis	White-browed Scrubwren	BS	-
Sphecotheres vieilloti	Figbird	BS, UAR	-
Strepera graculina	Pied Currawong	IN, UAR	-
Taeniopygia bichenovii	Double-barred finch	IN, BS	-
Todiramphus sanctus	Sacred Kingfisher	IN, BS, UAR	Marine
Trichoglossus moluccanus	Rainbow Lorikeet	IN, BS, UAR	-
Vanellus miles	Masked Lapwing	IN, UAR	-
Zosterops lateralis	Silvereye	IN, BS, UAR	Marine
Mammals			
Canis familiaris	Dog (off site)	UAR	-
Equus sp.	Horses (off site)	NS	-
Hydromys chrysogaster	Water Rat	IN	-
Isoodon sp.	Bandicoot	NS	-
Macropus giganteus	Eastern Grey Kangaroo	NS	-
Petaurus norfolcensis	Squirrel Glider	NS	-
Pseudocheirus peregrinus	Ringtail Possum	NS	-
Pteropus alecto	Black Flying-fox	IN, NS	-
Pteropus poliocephalus	Grey-headed Flying-fox	NS	V
Pteropus scapulatus	Little Red Flying-fox	IN, NS	-
Trichosurus vulpecula	Brushtail Possum	NS, UAR	-
Unidentified	Wallaby	IN	-
Unidentified	Flying-fox	UAR	-
Unidentified	Microbat	IN, NS	-
Vulpes vulpes	Fox	NS	-
Reptiles			
Hemidactylus frenatus	Asian House Gecko	NS	-
Intellagama lesueurii	Eastern Water Dragon	IN	-
Tropidonophis mairii	Keelback Snake	NS	-
Insecta			
Danaus plexippus	Monarch Butterfly	IN	-
Ephippitytha trigintiduoguttata	Spotted Katydid	IN	-

Table codes:

- Survey methodology: KS = Koala survey, BS = bird survey, NS = nocturnal spotlight searches, IN = incidental, UAR = unattended acoustic recordings.
- EPBC Status: Indicates the Commonwealth conservation status of each taxon under the EPBC Act, coded as Extinct in the wild (XW), Critically Endangered (CE), Endangered (E), Vulnerable (V) or Conservation Dependent (CD), along with Marine or Migratory listings.

THREATENED FLORA & THREATENED ECOLOGICAL COMMUNITIES

The flora survey and botanical assessment indicated that the subject site was characterised by six (6) distinct vegetation survey units (VSUs):

- VSU 1: Open grassland, dominated by exotic species, generally devoid of native trees or with few scattered, native trees.
- VSU 2: Woodland to open forest on sandstone. Canopy (~15-25m) species included *Corymbia citriodora*, *C. intermedia* and *Angophora leiocarpa*. Shrub layer (~2-6m) and understorey (~0-2m) vegetation was varied, with some patches containing a sparse native shrub layer and native understorey species and other areas dominated by invasive and weed species.
- VSU 3: Eucalypt forest dominated by *Eucalyptus tereticornis*, *E. siderophloia* and *Corymbia intermedia* to ~25m. Sub-canopy (~10-15m), shrub (~2-6m) and understorey (~0-2m) vegetation contained a mixture of native and exotic species. As with VSU 2, some areas were dominated by invasive and weed species in the shrub and understorey layers.
- VSU 4: Patchy open woodland of eucalypt species (*Eucalyptus tereticornis, E. tessellaris*) (¬10-25m) with patchy a shrub (¬2-8m) layer and weedy understorey (¬0-1m) along the Bremer River. Understorey vegetation was observed to contain similar invasive and weed species as those recorded in adjacent VSUs.
- VSU 5: Patches of vegetation with a canopy (¬12-22m) dominated by *Casuarina cunninghamiana* and scattered *Eucalyptus tereticornis* and *Lophostemon suaveolens* associated with river and creek banks. Shrub (¬1-10m) vegetation comprised a mix of native and exotic species, while understorey (¬0-1m) was dominated by invasive and weed species.
- VSU 6: Eucalypt woodland (¬15-20m) of *Eucalyptus tereticornis*, *E. tessellaris* and *Casuarina cunninghamiana* grading to various ironbarks (*E. melanophloia, E. crebra, E. siderophloia*) away from Bremer River. Shrub (¬2-8m) and understorey (¬0-1m) vegetation contained a mix of native and invasive/weed species; however, invasive/weed species were less dominant than in surrounding VSUs.

Figure 6 shows the approximate extent of VSUs across the subject site.

No threatened species or threatened ecological communities were positively identified as part of the survey. Full results of the flora survey are contained in Appendix 7.

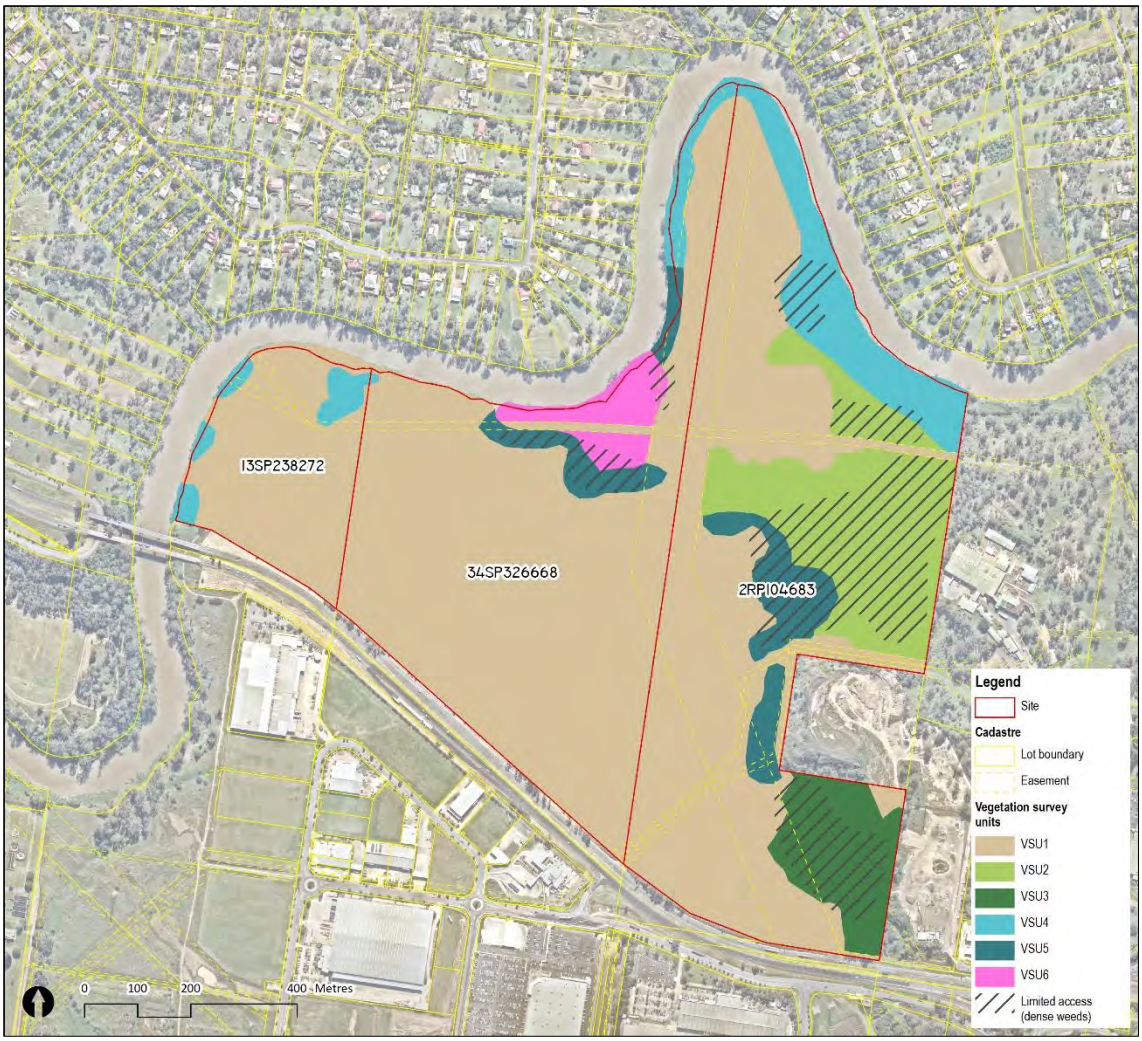

Figure 6: Observed VSUs (Nearmap 2021).

APPENDIX 7: BOTANICAL SURVEY RESULTS

litoria consulting VEGETATION SURVEY

FILE REF: 1131 **Date:** 12/07/2019

Address: Warrego Highway, Riverview **RPD / Location:**

VSU: 1 **RE:** Cleared

Strata	Min Height (m)	Max. Height (m)	Abundance	Family	Botanical Name	Common Name	Con. Status	Weed Class
Canopy	6	16	Associated	Arecaceae	*Syagrus romanzoffiana*	Queen Palm	Q	4
				Fabaceae	*Tipuana tipu*	Tipuana	Q	4
				Moraceae	*Ficus rubiginosa*		C	
				Myrtaceae	*Corymbia tessellaris*	Moreton Bay Ash	C	
				Myrtaceae	*Corymbia torelliana*	Cadaghi	C	4
				Myrtaceae	*Eucalyptus fibrosa*		C	
				Myrtaceae	*Eucalyptus siderophloia*	Grey Ironbark	C	
				Myrtaceae	*Eucalyptus tereticornis*	Queensland Blue Gum	C	
Shrub	2	6		Anacardiaceae	*Schinus terebinthifolius*	Broad-leafed Pepper Tree	Q	2c, 4
				Arecaceae	*Syagrus romanzoffiana*	Queen Palm	Q	4
				Asteraceae	*Baccharis halimifolia*	Groundsel Bush	Q	2b, 4

Con. Status: C = Of Least Concern F = Formerly Naturalised in Qld Q = Naturalised in Queensland D = Doubtfully Naturalised in Qld E = Endangered (Sched. 2 NCA) N = Near Threatened (Sched. 5 NCA)R = Rare (Sched. 4 NCA) U = Unknown Provenance in Qld V = Vulnerable (Sched. 3 NCA) X = Presumed Extinct (Sched.1 NCA)

Weed Class: 1. Weed of national significance 2a. Class 1 declared pest (Land Protection (Pest and Stock Route Management) Act 2002) 2b. Class 2 declared pest (Land Protection (Pest and Stock Route Management) Act 2002) 2c. Class 3 declared pest (Land Protection (Pest and Stock Route Management) Act 2002) 3. Local government declared pest 4. Environmental weed U. Unknown

Strata	Min Height (m)	Max. Height (m)	Abundance	Family	Botanical Name	Common Name	Con. Status	Weed Class
Shrub	2	6	Associated	Bignoniaceae	*Jacaranda mimosifolia*	Jacaranda	Q	4
				Bignoniaceae	*Tecoma stans*	Yellow Bells	Q	2c, 4
				Caesalpiniaceae	*Libidibia ferrea*	Leopard Tree	Q	
				Euphorbiaceae	*Ricinus communis*	Castor Oil Bush	Q	4
				Fabaceae	*Tipuana tipu*	Tipuana	Q	4
				Malvaceae	*Hibiscus sp.*		U	
				Mimosaceae	*Acacia disparrima*	Hickory Wattle	C	
				Mimosaceae	*Acacia fimbriata*	Brisbane Golden Wattle	C	
				Mimosaceae	*Acacia leiocalyx*		C	
				Mimosaceae	*Acacia nilotica*		Q	1, 2b, 4
				Mimosaceae	*Leucaena leucocephala*		Q	4
				Myrtaceae	*Corymbia tessellaris*	Moreton Bay Ash	C	
				Myrtaceae	*Corymbia torelliana*	Cadaghi	C	4
				Myrtaceae	*Eucalyptus sp.*		U	
				Myrtaceae	*Eucalyptus tereticornis*	Queensland Blue Gum	C	
				Myrtaceae	*Melaleuca viminalis*		C	

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Strata	Min Height (m)	Max. Height (m)	Abundance	Family	Botanical Name	Common Name	Con. Status	Weed Class
Shrub	2	6	Associated	Proteaceae	*Grevillea robusta*	Silky Oak	C	
				Rhamnaceae	*Alphitonia excelsa*	Soap Tree	C	
				Sapindaceae	*Jagera pseudorhus*	Foambark	C	
				Solanaceae	*Solanum mauritianum*	Wild Tobacco	Q	4
				Ulmaceae	*Celtis sinensis*	Chinese Elm	Q	2c, 4
				Verbenaceae	*Lantana camara*	Lantana	Q	1, 2c, 4
Understorey	0	1		Acanthaceae	*Thunbergia grandiflora*	Sky Flower	Q	2b, 4
				Apocynaceae	*Gomphocarpus physocarpus*	Balloon Cottonbush	Q	4
				Asparagaceae	*Asparagus aethiopicus*		Q	4
				Asparagaceae	*Asparagus officinalis*	Asparagus	Q	4
				Asteraceae	*Ageratum houstonianum*	Blue Billygoat Weed	Q	4
				Asteraceae	*Ambrosia confertiflora*	Burr Ragweed	F	
				Asteraceae	*Baccharis halimifolia*	Groundsel Bush	Q	2b, 4
				Asteraceae	*Bidens pilosa*	Cobbler's Pegs	Q	4
				Asteraceae	*Chrysocephalum apiculatum*	Yellow Buttons	C	
				Asteraceae	*Cirsium vulgare*	Spear Thistle	Q	4

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Strata	Min Height (m)	Max. Height (m)	Abundance	Family	Botanical Name	Common Name	Con. Status	Weed Class
Understorey	0	1	Associated	Asteraceae	*Conyza bonariensis*		Q	4
				Asteraceae	*Parthenium hysterophorus*	Parthenium Weed	Q	1, 2b, 4
				Asteraceae	*Senecio madagascariensis*	Fireweed	Q	2b, 4
				Asteraceae	*Sphagneticola trilobata*	Singapore Daisy	Q	2c, 4
				Bignoniaceae	*Jacaranda mimosifolia*	Jacaranda	Q	4
				Brassicaceae	*Brassica rapa*		Q	4
				Cactaceae	*Harrisia martini*		Q	2b, 4
				Cactaceae	*Opuntia sp.*		U	
				Chenopodiaceae	*Atriplex nummularia*		C	
				Convolvulaceae	*Ipomoea cairica*	Mile-a-minute	Q	4
				Cyperaceae	*Cyperus polystachyos*		C	
				Cyperaceae	*Cyperus rotundus*	Nutgrass	Q	4
				Cyperaceae	*Lepironia articulata*		C	
				Euphorbiaceae	*Ricinus communis*	Castor Oil Bush	Q	4
				Fabaceae	*Crotalaria pallida*		Q	4
				Fabaceae	*Glycine microphylla*		C	

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Strata	Min Height (m)	Max. Height (m)	Abundance	Family	Botanical Name	Common Name	Con. Status	Weed Class
Understorey	0	1	Associated	Fabaceae	*Macroptilium atropurpureum*	Siratro	Q	4
				Fabaceae	*Neonotonia wightii*		Q	4
				Fabaceae	*Tephrosia glomeruliflora*	Pink Tephrosia	Q	4
				Fabaceae	*Trifolium repens*		Q	4
				Mimosaceae	*Acacia nilotica*		Q	1, 2b, 4
				Mimosaceae	*Acacia sp.*		U	
				Mimosaceae	*Leucaena leucocephala*		Q	4
				Myoporaceae	*Eremophila debilis*	Winter Apple	C	
				Nymphaeaceae	*Nymphaea sp.*	Water Lily	U	U
				Ochnaceae	*Ochna serrulata*	Ochna	Q	4
				Oxalidaceae	*Oxalis sp.*		U	U
				Plantaginaceae	*Plantago sp.*		U	U
				Poaceae	*Chloris gayana*	Rhodes Grass	Q	4
				Poaceae	*Chloris virgata*	Feathertop Rhodes Grass	Q	4
				Poaceae	*Cynodon dactylon*		Q	4
				Poaceae	*Megathyrsus maximus*	Guinea Grass	Q	4

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Strata	Min Height (m)	Max. Height (m)	Abundance	Family	Botanical Name	Common Name	Con. Status	Weed Class
Understorey	0	1	Associated	Poaceae	*Melinis repens*	Red Natal Grass	Q	4
				Poaceae	*Panicum sp.*		U	
				Poaceae	*Paspalum notatum*	Bahia Grass	Q	4
				Poaceae	*Setaria sphacelata*		Q	4
				Poaceae	*Sorghum leiocladum*	Wild Sorghum	C	
				Poaceae	*Themeda triandra*	Kangaroo Grass	C	
				Sapindaceae	*Cardiospermum grandiflorum*	Heart Seed Vine	Q	2c, 4
				Solanaceae	*Solanum lycopersicum*		Q	4
				Solanaceae	*Solanum nigrum*		Q	4
				Solanaceae	*Solanum seaforthianum*	Brazilian Nightshade	Q	4
				Typhaceae	*Typha orientalis*	Broad-leaved Cumbungi	C	
				Verbenaceae	*Lantana camara*	Lantana	Q	1, 2c, 4
				Verbenaceae	*Lantana montevidensis*	Creeping Lantana	Q	1, 2c, 4
				Verbenaceae	*Verbena bonariensis*	Purpletop	Q	4
				Vitaceae	*Cissus antarctica*		C	

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litoria consulting VEGETATION SURVEY

FILE REF: 1131 **Date:** 12/07/2019

Address: Warrego Highway, Riverview **RPD / Location:**

VSU: 2 **RE:** Non-Remnant

Strata	Min Height (m)	Max. Height (m)	Abundance	Family	Botanical Name	Common Name	Con. Status	Weed Class
Canopy	15	25	Associated	Myrtaceae	*Angophora leiocarpa*	Smooth-barked Apple	C	
				Myrtaceae	*Corymbia citriodora*	Spotted Gum	C	
				Myrtaceae	*Corymbia intermedia*	Pink Bloodwood	C	
				Myrtaceae	*Corymbia tessellaris*	Moreton Bay Ash	C	
				Myrtaceae	*Eucalyptus siderophloia*	Grey Ironbark	C	
				Myrtaceae	*Eucalyptus tereticornis*	Queensland Blue Gum	C	
Mid-Stratum	10	15		Mimosaceae	*Acacia disparrima*	Hickory Wattle	C	
				Myrtaceae	*Lophostemon suaveolens*	Swamp Box	C	
				Rhamnaceae	*Alphitonia excelsa*	Soap Tree	C	
Shrub	2	6		Anacardiaceae	*Schinus terebinthifolius*	Broad-leafed Pepper Tree	Q	2c, 4
				Cactaceae	*Opuntia sp.*		U	

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Strata	Min Height (m)	Max. Height (m)	Abundance	Family	Botanical Name	Common Name	Con. Status	Weed Class
Shrub	2	6	Associated	Mimosaceae	*Acacia disparrima*	Hickory Wattle	C	
				Mimosaceae	*Acacia fimbriata*	Brisbane Golden Wattle	C	
				Mimosaceae	*Acacia leiocalyx*		C	
				Rhamnaceae	*Alphitonia excelsa*	Soap Tree	C	
				Ulmaceae	*Celtis sinensis*	Chinese Elm	Q	2c, 4
				Verbenaceae	*Lantana camara*	Lantana	Q	1, 2c, 4
Understorey	0	2		Apocynaceae	*Gomphocarpus physocarpus*	Balloon Cottonbush	Q	4
				Asteraceae	*Ageratum houstonianum*	Blue Billygoat Weed	Q	4
				Asteraceae	*Ambrosia artemisiifolia*	Annual Ragweed	Q	2b, 4
				Asteraceae	*Bidens pilosa*	Cobbler's Pegs	Q	4
				Asteraceae	*Chrysocephalum apiculatum*	Yellow Buttons	C	
				Asteraceae	*Crassocephalum crepidioides*	Thickhead	Q	4
				Bignoniaceae	*Jacaranda mimosifolia*	Jacaranda	Q	4
				Cactaceae	*Harrisia martini*		Q	2b, 4
				Cactaceae	*Opuntia sp.*		U	
				Fabaceae	*Neonotonia wightii*		Q	4

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Strata	Min Height (m)	Max. Height (m)	Abundance	Family	Botanical Name	Common Name	Con. Status	Weed Class
Understorey	0	2	Associated	Goodeniaceae	*Goodenia rotundifolia*		C	
				Laxmanniaceae	*Lomandra multiflora*		C	
				Malvaceae	*Sida rhombifolia*		Q	4
				Myoporaceae	*Eremophila debilis*	Winter Apple	C	
				Myrtaceae	*Eucalyptus sp.*		U	
				Passifloraceae	*Passiflora herbertiana*		C	
				Poaceae	*Megathyrsus maximus*	Guinea Grass	Q	4
				Poaceae	*Melinis repens*	Red Natal Grass	Q	4
				Poaceae	*Panicum sp.*		U	
				Solanaceae	*Solanum mauritianum*	Wild Tobacco	Q	4
				Verbenaceae	*Lantana camara*	Lantana	Q	1, 2c, 4
				Verbenaceae	*Lantana montevidensis*	Creeping Lantana	Q	1, 2c, 4
				Verbenaceae	*Verbena bonariensis*	Purpletop	Q	4

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litoria consulting VEGETATION SURVEY

FILE REF: 1131 **Date:** 12/07/2019

Address: Warrego Highway, Riverview **RPD / Location:**

VSU: 3 **RE:** Non-Remnant

Strata	Min Height (m)	Max. Height (m)	Abundance	Family	Botanical Name	Common Name	Con. Status	Weed Class
Canopy	20	25	Associated	Myrtaceae	*Corymbia intermedia*	Pink Bloodwood	C	
				Myrtaceae	*Eucalyptus siderophloia*	Grey Ironbark	C	
				Myrtaceae	*Eucalyptus tereticornis*	Queensland Blue Gum	C	
Mid-Stratum	10	15		Fabaceae	*Erythina crista-galli*	Cockspur Coral	U	
				Mimosaceae	*Acacia disparrima*	Hickory Wattle	C	
				Mimosaceae	*Acacia glaucocarpa*	Hickory Wattle	C	
				Myrtaceae	*Corymbia torelliana*	Cadaghi	C	4
				Myrtaceae	*Eucalyptus tereticornis*	Queensland Blue Gum	C	
				Myrtaceae	*Lophostemon suaveolens*	Swamp Box	C	
				Proteaceae	*Grevillea robusta*	Silky Oak	C	
				Rhamnaceae	*Alphitonia excelsa*	Soap Tree	C	

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Weed Class: 1. Weed of national significance 2a. Class 1 declared pest (Land Protection (Pest and Stock Route Management) Act 2002) 2b. Class 2 declared pest (Land Protection (Pest and Stock Route Management) Act 2002) 2c. Class 3 declared pest (Land Protection (Pest and Stock Route Management) Act 2002) 3. Local government declared pest 4. Environmental weed U. Unknown

Strata	Min Height (m)	Max. Height (m)	Abundance	Family	Botanical Name	Common Name	Con. Status	Weed Class
Mid-Stratum	10	15	Associated	Ulmaceae	*Celtis sinensis*	Chinese Elm	Q	2c, 4
Shrub	2	6		Anacardiaceae	*Schinus terebinthifolius*	Broad-leafed Pepper Tree	Q	2c, 4
				Bignoniaceae	*Jacaranda mimosifolia*	Jacaranda	Q	4
				Caesalpiniaceae	*Caesalpinia decapetala*	Wait-a-while	Q	4
				Caesalpiniaceae	*Senna pendula*	Easter Cassia	Q	4
				Mimosaceae	*Acacia leiocalyx*		C	
				Moraceae	*Maclura cochinchinensis*	Cockspur Thorn	C	
				Rhamnaceae	*Alphitonia excelsa*	Soap Tree	C	
				Solanaceae	*Solanum mauritianum*	Wild Tobacco	Q	4
				Ulmaceae	*Celtis sinensis*	Chinese Elm	Q	2c, 4
				Verbenaceae	*Lantana camara*	Lantana	Q	1, 2c, 4
Understorey	0	2		Apocynaceae	*Gomphocarpus physocarpus*	Balloon Cottonbush	Q	4
				Apocynaceae	*Parsonsia straminea*	Monkey Rope	C	
				Asparagaceae	*Asparagus aethiopicus*		Q	4
				Asteraceae	*Ageratum houstonianum*	Blue Billygoat Weed	Q	4
				Asteraceae	*Chrysocephalum apiculatum*	Yellow Buttons	C	

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Strata	Min Height (m)	Max. Height (m)	Abundance	Family	Botanical Name	Common Name	Con. Status	Weed Class
Understorey	0	2	Associated	Asteraceae	*Crassocephalum crepidioides*	Thickhead	Q	4
				Cactaceae	*Harrisia martini*		Q	2b, 4
				Goodeniaceae	*Goodenia rotundifolia*		C	
				Laxmanniaceae	*Eustrephus latifolius*	Wombat Berry	C	
				Laxmanniaceae	*Lomandra multiflora*		C	
				Passifloraceae	*Passiflora suberosa*	Corky Passion Flower	Q	4
				Poaceae	*Chloris gayana*	Rhodes Grass	Q	4
				Poaceae	*Megathyrsus maximus*	Guinea Grass	Q	4
				Poaceae	*Oplismenus aemulus*	Creeping Shade Grass	C	
				Poaceae	*Panicum sp.*		U	
				Poaceae	*Paspalum dilatatum*	Paspalum	Q	4
				Verbenaceae	*Duranta erecta*	Duranta	Q	4

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litoria consulting VEGETATION SURVEY

FILE REF: 1131 **Date:** 12/07/2019

Address: Warrego Highway, Riverview **RPD / Location:**

VSU: 4 **RE:** Non-Remnant

Strata	Min Height (m)	Max. Height (m)	Abundance	Family	Botanical Name	Common Name	Con. Status	Weed Class
Canopy	10	25	Associated	Casuarinaceae	*Casuarina cunninghamiana*	River She-oak	C	
				Moraceae	*Ficus benjamina*	Weeping Fig	C	
				Moraceae	*Ficus obliqua*		C	
				Myrtaceae	*Corymbia intermedia*	Pink Bloodwood	C	
				Myrtaceae	*Corymbia tessellaris*	Moreton Bay Ash	C	
				Myrtaceae	*Eucalyptus crebra*	Narrow-leaved Red Ironbark	C	
				Myrtaceae	*Eucalyptus fibrosa*		C	
				Myrtaceae	*Eucalyptus siderophloia*	Grey Ironbark	C	
				Myrtaceae	*Eucalyptus tereticornis*	Queensland Blue Gum	C	
				Myrtaceae	*Lophostemon suaveolens*	Swamp Box	C	
				Myrtaceae	*Melaleuca viminalis*		C	

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Strata	Min Height (m)	Max. Height (m)	Abundance	Family	Botanical Name	Common Name	Con. Status	Weed Class
Canopy	10	25	Associated	Ulmaceae	*Celtis sinensis*	Chinese Elm	Q	2c, 4
Shrub	2	8		Bromeliaceae	*Tillandsia usneoides*		Q	4
				Euphorbiaceae	*Croton stigmatosus*	White Croton	C	
				Mimosaceae	*Acacia disparrima*	Hickory Wattle	C	
				Mimosaceae	*Acacia nilotica*		Q	1, 2b, 4
				Mimosaceae	*Acacia sp.*		U	
				Mimosaceae	*Leucaena leucocephala*		Q	4
				Moraceae	*Ficus coronata*	Creek Sandpaper Fig	C	
				Moraceae	*Maclura cochinchinensis*	Cockspur Thorn	C	
				Myrsinaceae	*Myrsine variabilis*		C	
				Myrtaceae	*Corymbia torelliana*	Cadaghi	C	4
				Myrtaceae	*Eucalyptus sp.*		U	
				Myrtaceae	*Melaleuca viminalis*		C	
				Ochnaceae	*Ochna serrulata*	Ochna	Q	4
				Rhamnaceae	*Alphitonia excelsa*	Soap Tree	C	
				Solanaceae	*Solanum chrysotrichum*		Q	4

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Strata	Min Height (m)	Max. Height (m)	Abundance	Family	Botanical Name	Common Name	Con. Status	Weed Class
Shrub	2	8	Associated	Solanaceae	*Solanum mauritianum*	Wild Tobacco	Q	4
				Ulmaceae	*Celtis sinensis*	Chinese Elm	Q	2c, 4
				Verbenaceae	*Lantana camara*	Lantana	Q	1, 2c, 4
Understorey	0	1		Adiantaceae	*Cheilanthes distans*	Bristly Cloak Fern	C	
				Apocynaceae	*Gomphocarpus physocarpus*	Balloon Cottonbush	Q	4
				Apocynaceae	*Parsonsia straminea*	Monkey Rope	C	
				Asparagaceae	*Asparagus aethiopicus*		Q	4
				Asparagaceae	*Asparagus officinalis*	Asparagus	Q	4
				Asteraceae	*Ageratum houstonianum*	Blue Billygoat Weed	Q	4
				Asteraceae	*Ambrosia confertiflora*	Burr Ragweed	F	
				Asteraceae	*Bidens pilosa*	Cobbler's Pegs	Q	4
				Asteraceae	*Cirsium vulgare*	Spear Thistle	Q	4
				Asteraceae	*Conyza sumatrensis*	Tall Fleabane	Q	4
				Asteraceae	*Crassocephalum crepidioides*	Thickhead	Q	4
				Asteraceae	*Senecio madagascariensis*	Fireweed	Q	2b, 4
				Asteraceae	*Sphagneticola trilobata*	Singapore Daisy	Q	2c, 4

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Strata	Min Height (m)	Max. Height (m)	Abundance	Family	Botanical Name	Common Name	Con. Status	Weed Class
Understorey	0	1	Associated	Cactaceae	*Opuntia sp.*		U	
				Commelinaceae	*Tradescantia fluminensis*		Q	4
				Convolvulaceae	*Ipomoea cairica*	Mile-a-minute	Q	4
				Cyperaceae	*Cyperus polystachyos*		C	
				Cyperaceae	*Cyperus rotundus*	Nutgrass	Q	4
				Fabaceae	*Macroptilium atropurpureum*	Siratro	Q	4
				Fabaceae	*Neonotonia wightii*		Q	4
				Laxmanniaceae	*Eustrephus latifolius*	Wombat Berry	C	
				Laxmanniaceae	*Lomandra multiflora*		C	
				Malvaceae	*Sida rhombifolia*		Q	4
				Mimosaceae	*Leucaena leucocephala*		Q	4
				Oxalidaceae	*Oxalis sp.*		U	U
				Passifloraceae	*Passiflora sp.*		U	
				Passifloraceae	*Passiflora suberosa*	Corky Passion Flower	Q	4
				Poaceae	*Chloris gayana*	Rhodes Grass	Q	4
				Poaceae	*Cynodon dactylon*		Q	4

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Strata	Min Height (m)	Max. Height (m)	Abundance	Family	Botanical Name	Common Name	Con. Status	Weed Class
Understorey	0	1	Associated	Poaceae	*Megathyrsus maximus*	Guinea Grass	Q	4
				Poaceae	*Melinis repens*	Red Natal Grass	Q	4
				Poaceae	*Setaria sphacelata*		Q	4
				Rutaceae	*Murraya paniculata*		Q	4
				Sapindaceae	*Cardiospermum grandiflorum*	Heart Seed Vine	Q	2c, 4
				Solanaceae	*Solanum nigrum*		Q	4
				Solanaceae	*Solanum seaforthianum*	Brazilian Nightshade	Q	4
				Typhaceae	*Typha orientalis*	Broad-leaved Cumbungi	C	
				Verbenaceae	*Duranta erecta*	Duranta	Q	4
				Verbenaceae	*Lantana camara*	Lantana	Q	1, 2c, 4
				Verbenaceae	*Verbena sp.*		U	

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litoria consulting VEGETATION SURVEY

FILE REF: 1131 **Date:** 12/07/2019

Address: Warrego Highway, Riverview **RPD / Location:**

VSU: 5 **RE:** Non-Remnant

Strata	Min Height (m)	Max. Height (m)	Abundance	Family	Botanical Name	Common Name	Con. Status	Weed Class
Canopy	12	22	Associated	Casuarinaceae	*Casuarina cunninghamiana*	River She-oak	C	
				Myrtaceae	*Angophora leiocarpa*	Smooth-barked Apple	C	
				Myrtaceae	*Corymbia tessellaris*	Moreton Bay Ash	C	
				Myrtaceae	*Eucalyptus crebra*	Narrow-leaved Red Ironbark	C	
				Myrtaceae	*Eucalyptus tereticornis*	Queensland Blue Gum	C	
				Myrtaceae	*Melaleuca quinquenervia*	Swamp Paperbark	C	
				Ulmaceae	*Celtis sinensis*	Chinese Elm	Q	2c, 4
Shrub	1	10		Anacardiaceae	*Schinus terebinthifolius*	Broad-leafed Pepper Tree	Q	2c, 4
				Casuarinaceae	*Casuarina cunninghamiana*	River She-oak	C	
				Fabaceae	*Tipuana tipu*	Tipuana	Q	4
				Mimosaceae	*Acacia disparrima*	Hickory Wattle	C	

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Strata	Min Height (m)	Max. Height (m)	Abundance	Family	Botanical Name	Common Name	Con. Status	Weed Class
Shrub	1	10	Associated	Mimosaceae	*Acacia fimbriata*	Brisbane Golden Wattle	C	
				Mimosaceae	*Acacia leiocalyx*		C	
				Mimosaceae	*Leucaena leucocephala*		Q	4
				Moraceae	*Morus alba*	White Mulberry	Q	4
				Myrtaceae	*Lophostemon suaveolens*	Swamp Box	C	
				Myrtaceae	*Melaleuca quinquenervia*	Swamp Paperbark	C	
				Phyllanthaceae	*Glochidion ferdinandi*	Cheese Tree	C	
				Rhamnaceae	*Alphitonia excelsa*	Soap Tree	C	
				Sapindaceae	*Cupaniopsis anacardioides*	Tuckeroo	C	
				Solanaceae	*Solanum chrysotrichum*		Q	4
				Solanaceae	*Solanum hispidum*	Giant Devils Fig	C	
				Verbenaceae	*Lantana camara*	Lantana	Q	1, 2c, 4
Understorey	0	1		Apocynaceae	*Gomphocarpus physocarpus*	Balloon Cottonbush	Q	4
				Apocynaceae	*Parsonsia straminea*	Monkey Rope	C	
				Asparagaceae	*Asparagus aethiopicus*		Q	4
				Asparagaceae	*Asparagus officinalis*	Asparagus	Q	4

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Weed Class: **1. Weed of national significance 2a. Class 1 declared pest (Land Protection (Pest and Stock Route Management) Act 2002) 2b. Class 2 declared pest (Land Protection (Pest and Stock Route Management) Act 2002) 2c. Class 3 declared pest (Land Protection (Pest and Stock Route Management) Act 2002) 3. Local government declared pest 4. Environmental weed U. Unknown**

Strata	Min Height (m)	Max. Height (m)	Abundance	Family	Botanical Name	Common Name	Con. Status	Weed Class
Understorey	0	1	Associated	Asteraceae	*Ageratum houstonianum*	Blue Billygoat Weed	Q	4
				Asteraceae	*Bidens pilosa*	Cobbler's Pegs	Q	4
				Asteraceae	*Conyza sumatrensis*	Tall Fleabane	Q	4
				Cactaceae	*Harrisia martini*		Q	2b, 4
				Caesalpiniaceae	*Caesalpinia decapetala*	Wait-a-while	Q	4
				Commelinaceae	*Tradescantia fluminensis*		Q	4
				Convolvulaceae	*Ipomoea cairica*	Mile-a-minute	Q	4
				Cyperaceae	*Cyperus difformis*	Rice Sedge	C	
				Cyperaceae	*Cyperus involucratus*		Q	4
				Euphorbiaceae	*Mallotus ficifolius*		C	
				Fabaceae	*Desmodium uncinatum*		Q	4
				Fabaceae	*Trifolium repens*		Q	4
				Laxmanniaceae	*Eustrephus latifolius*	Wombat Berry	C	
				Moraceae	*Maclura cochinchinensis*	Cockspur Thorn	C	
				Myrtaceae	*Eucalyptus sp.*		U	
				Passifloraceae	*Passiflora sp.*		U	

Con. Status: C = Of Least Concern F = Formerly Naturalised in Qld Q = Naturalised in Queensland D = Doubtfully Naturalised in Qld E = Endangered (Sched. 2 NCA) N = Near Threatened (Sched. 5 NCA)R = Rare (Sched. 4 NCA) U = Unknown Provenance in Qld V = Vulnerable (Sched. 3 NCA) X = Presumed Extinct (Sched.1 NCA)

Weed Class: 1. Weed of national significance 2a. Class 1 declared pest (Land Protection (Pest and Stock Route Management) Act 2002) 2b. Class 2 declared pest (Land Protection (Pest and Stock Route Management) Act 2002) 2c. Class 3 declared pest (Land Protection (Pest and Stock Route Management) Act 2002) 3. Local government declared pest 4. Environmental weed U. Unknown

Strata	Min Height (m)	Max. Height (m)	Abundance	Family	Botanical Name	Common Name	Con. Status	Weed Class
Understorey	0	1	Associated	Poaceae	*Chloris gayana*	Rhodes Grass	Q	4
				Poaceae	*Megathyrsus maximus*	Guinea Grass	Q	4
				Poaceae	*Setaria sphacelata*		Q	4
				Polygonaceae	*Persicaria lapathifolia*	Pale Knotweed	C	
				Solanaceae	*Solanum nigrum*		Q	4
				Thelypteridaceae	*Christella dentata*	Creek Fern	C	
				Typhaceae	*Typha orientalis*	Broad-leaved Cumbungi	C	
				Verbenaceae	*Duranta erecta*	Duranta	Q	4
				Verbenaceae	*Lantana montevidensis*	Creeping Lantana	Q	1, 2c, 4
				Verbenaceae	*Verbena bonariensis*	Purpletop	Q	4

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litoria consulting VEGETATION SURVEY

FILE REF: 1131 **Date:** 12/07/2019

Address: Warrego Highway, Riverview **RPD / Location:**

VSU: 6 **RE:** Non-Remnant

Strata	Min Height (m)	Max. Height (m)	Abundance	Family	Botanical Name	Common Name	Con. Status	Weed Class
Canopy	15	20	Associated	Casuarinaceae	*Casuarina cunninghamiana*	River She-oak	C	
				Myrtaceae	*Corymbia tessellaris*	Moreton Bay Ash	C	
				Myrtaceae	*Corymbia torelliana*	Cadaghi	C	4
				Myrtaceae	*Eucalyptus crebra*	Narrow-leaved Red Ironbark	C	
				Myrtaceae	*Eucalyptus melanophloia*		C	
				Myrtaceae	*Eucalyptus tereticornis*	Queensland Blue Gum	C	
Shrub	2	8		Casuarinaceae	*Casuarina glauca*	Swamp She-oak	C	
				Euphorbiaceae	*Croton stigmatosus*	White Croton	C	
				Euphorbiaceae	*Mallotus philippensis*	Red Kamala	C	
				Mimosaceae	*Acacia disparrima*	Hickory Wattle	C	
				Mimosaceae	*Acacia sp.*		U	

Con. Status: C = Of Least Concern F = Formerly Naturalised in Qld Q = Naturalised in Queensland D = Doubtfully Naturalised in Qld E = Endangered (Sched. 2 NCA) N = Near Threatened (Sched. 5 NCA)R = Rare (Sched. 4 NCA) U = Unknown Provenance in Qld V = Vulnerable (Sched. 3 NCA) X = Presumed Extinct (Sched.1 NCA)

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Strata	Min Height (m)	Max. Height (m)	Abundance	Family	Botanical Name	Common Name	Con. Status	Weed Class
Shrub	2	8	Associated	Mimosaceae	*Leucaena leucocephala*		Q	4
				Moraceae	*Ficus coronata*	Creek Sandpaper Fig	C	
				Myrtaceae	*Lophostemon suaveolens*	Swamp Box	C	
				Myrtaceae	*Melaleuca salicina*		C	
				Rhamnaceae	*Alphitonia excelsa*	Soap Tree	C	
				Ulmaceae	*Celtis sinensis*	Chinese Elm	Q	2c, 4
				Verbenaceae	*Lantana camara*	Lantana	Q	1, 2c, 4
Understorey	0	1		Apocynaceae	*Gomphocarpus physocarpus*	Balloon Cottonbush	Q	4
				Asparagaceae	*Asparagus aethiopicus*		Q	4
				Asteraceae	*Ageratum houstonianum*	Blue Billygoat Weed	Q	4
				Asteraceae	*Bidens pilosa*	Cobbler's Pegs	Q	4
				Asteraceae	*Cirsium vulgare*	Spear Thistle	Q	4
				Asteraceae	*Conyza sumatrensis*	Tall Fleabane	Q	4
				Asteraceae	*Pseudognaphalium luteoalbum*	Jersey Cudweed	C	
				Boraginaceae	*Heliotropium amplexicaule*	Blue Heliotrope	Q	4
				Cactaceae	*Harrisia martini*		Q	2b, 4

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Strata	Min Height (m)	Max. Height (m)	Abundance	Family	Botanical Name	Common Name	Con. Status	Weed Class
Understorey	0	1	Associated	Cactaceae	*Opuntia sp.*		U	
				Convolvulaceae	*Convolvulus erubescens*	Australian Bindweed	C	
				Cucurbitaceae	*Cucumis myriocarpus*		Q	4
				Haemodoraceae	*Haemodorum austroqueenslandicum*		C	
				Lamiaceae	*Westringia eremicola*	Slender Westringia	C	
				Laxmanniaceae	*Eustrephus latifolius*	Wombat Berry	C	
				Malvaceae	*Sida rhombifolia*		Q	4
				Meliaceae	*Melia azedarach*	White Cedar	C	
				Oxalidaceae	*Oxalis sp.*		U	U
				Passifloraceae	*Passiflora suberosa*	Corky Passion Flower	Q	4
				Poaceae	*Chloris gayana*	Rhodes Grass	Q	4
				Poaceae	*Entolasia stricta*	Wiry Panic	C	
				Poaceae	*Megathyrsus maximus*	Guinea Grass	Q	4
				Poaceae	*Melinis repens*	Red Natal Grass	Q	4
				Poaceae	*Sorghum leiocladum*	Wild Sorghum	C	
				Sapindaceae	*Cardiospermum grandiflorum*	Heart Seed Vine	Q	2c, 4

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Strata	Min Height (m)	Max. Height (m)	Abundance	Family	Botanical Name	Common Name	Con. Status	Weed Class
Understorey	0	1	Associated	Solanaceae	*Solanum seaforthianum*	Brazilian Nightshade	Q	4
				Verbenaceae	*Lantana montevidensis*	Creeping Lantana	Q	1, 2c, 4
				Verbenaceae	*Verbena aristigera*	Mayne's Pest	Q	4
				Verbenaceae	*Verbena sp.*		U	

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APPENDIX 8: RIVERVIEW KOALA DETECTION DOG SURVEY REPORT (OWAD ENVIRONMENT)

RIVERVIEW KOALA DETECTION DOG SURVEY REPORT

Prepared by
OWAD Environment

For
Litoria Consulting

DOCUMENT CONTROL SHEET

Project Number: 210504

Client: Litoria Consulting

Report Title: Riverview Koala detection dog survey report

Report Author: Olivia Woosnam

Report Reviewer: Alex Dudkowski

Project Summary: This report presents the results of a field survey conducted in May 2021 on a site located in Riverview, Ipswich City Council Local Government Area, with certified Koala detection dogs.

Document preparation and distribution history

Report version	Date completed	Prepared by	Reviewed by	Sent to client on
Version 1	19/05/2021	Olivia Woosnam	Alex Dudkowski	19/05/2021

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Signed on behalf of OWAD Environment

Olivia Woosnam, Director
Date: 19 May 2021

RIVERVIEW
KOALA DETECTION DOG SURVEY REPORT

Table of Contents

FIGURES

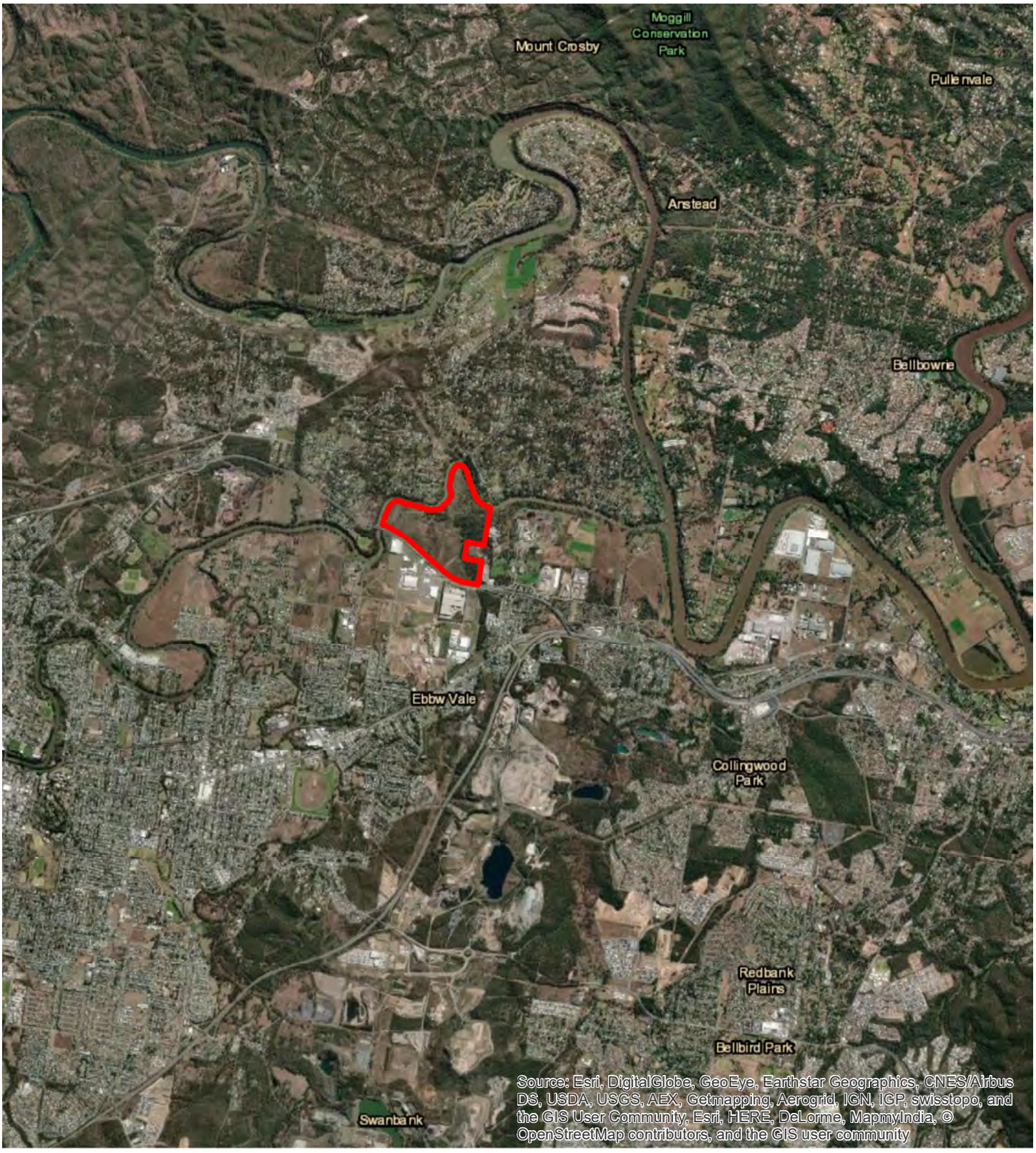
1.0 INTRODUCTION

This report presents the results of a Koala *Phascolarctos cinereus* presence/absence assessment conducted on a site located in Riverview, Ipswich City Council Local Government Area in South East Queensland (**Figure 1**).

The field survey was performed in May 2021 with the assistance of two purpose-bred professional field detection dogs certified for the detection of Koala scats.

The subject site includes three parcels described as Lot 34/SP288488, Lot 2/RP104683 and Lot 13/SP238272. The site is approximately 115ha in size, of which approximately 75ha is cleared land supporting no forest. The field survey focused on the parts of the site that are forested.

This report may by used by Litoria Consulting to inform the overall assessment of the site's ecological values.



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Project No.: 210504
Created by: OW
On: 16/05/2021

LEGEND

Subject site (total 115ha)

FIGURE 1: SITE LOCATION

Riverview
Koala detection dog survey report
For Litoria Consulting

2.0 STUDY TEAM, CERTIFICATIONS AND PERMITS

The field assessment was conducted by the OWAD Environment (OWAD) team, comprised of:

- Olivia Woosnam – Lead ecologist, Certified Environmental Practitioner[1], Certified Detection Dog Handler;
- Alex Dudkowski – Field ecologist, Certified Environmental Practitioner[2], Certified Detection Dog Handler;
- Wrangham Pink Knockout (aka 'Taz') – Purpose-bred professional detection canine certified for the detection of Koala, three Quoll species and two Underground Orchid species; and
- Wrangham Mistral Bowscale (aka 'Missy') – Purpose-bred professional detection canine certified for the detection of Koala, three species of Quolls and two species of Underground Orchids.

Both canines and their handlers were professionally trained by expert scent detection canine trainer Steve Austin CCPDT[3], and are certified by the CCDCA[4] for Koala detection.

OWAD's detection canines are Working English Springer Spaniels. Taz is famous for being Australia's very first dog to obtain professional certification for Koala detection in 2015. Her cousin Missy joined OWAD in 2017. In the last five years, OWAD's detection dogs have completed >5,000km of searches on applied Koala studies in Queensland and New South Wales.

Each time OWAD acquires a new dog from the expert trainer, the dog is thoroughly tested before it is deployed on its first applied study. A new dog is not deployed for project work until it consistently performs to 100% target detection rate (i.e. does not miss a single Koala scat location in a controlled environment) and 100% discrimination rate (i.e. never indicates on non-Koala scats in both controlled and uncontrolled environments). Extensive field trials are performed over several consecutive full days to replicate the demanding conditions of project work, and to test the dog's physical endurance and mental focus to ensure it is able to work long hours over long consecutive days while maintaining 100% target detection rate and 100% discrimination rate.

OWAD has to date submitted over 4,000 Koala scat or pap samples found by their detection dogs to a specialist laboratory for genetic testing. To date 100% of samples submitted have been confirmed by genetic analysis as originating from Koala. These samples regularly include some pap or scats that would not typically be associated with Koala. The origin of some of these samples has on several occasions been questioned by the laboratory geneticists upon receiving these, and understandably so: OWAD staff themselves can occasionally be surprised at the highly unusual appearance or even atypical smell of some of the material indicated on by their dogs. However, what better way to scientifically measure the scent discrimination rates of their dogs, than to subject the material they indicate on to genetic testing by an external laboratory that has no vested interest in the performance of OWAD's detection dogs. Moreover, if any such material were ever found to not originate from Koala, OWAD would want to know immediately so as to address and remediate the issue via targeted training sessions. However, to date 100% of all

[1] Olivia Woosnam – CEnvP № 742

[2] Alex Dudkowski – CEnvP № 495

[3] Certification Council of Professional Dog Trainers

[4] Canine Conservation Detection Certification of Australia

samples found by OWAD's detection dogs and submitted for genetic testing, have been confirmed as originating from Koala. The discrimination rate of OWAD's detection dogs is therefore maintained at 100% accuracy not only via ongoing training and reinforcement, but is also scientifically proven to be 100% correct via extensive and ongoing genetic testing undertaken by a third party.

This field assessment was conducted under OWAD's Animal Ethics Committee Approval number CA 2021/01/1446 for 'targeted species surveys using professional detection dogs' and OWAD's Scientific Use Registration Certificate number SUR000554 issued by the Queensland Government Department of Agriculture and Fisheries.

3.0 SURVEY METHODS

3.1 SAMPLING DESIGN

For this survey, convenience sampling was selected as the most appropriate design in order to maximise the search effort in the two days allocated for fieldwork while enabling the survey team to navigate their way safely around the Harrisia cactus known to be present on the site.

3.2 FIELD ASSESSMENT

3.2.1 Detection dog searches

One detection dog was handled at a time. The dog was led out of the work vehicle and walked on leash to the starting point of a search. Once ready to begin a search, the dog was taken off the leash and prompted by the handler to start working using specific cues. The dog scanned the environment by 'tracking' as well as 'air scenting', in search for targets that may be located on the ground (i.e. Koala scats fallen to the ground) or above the ground (i.e. live Koalas, or Koala scats located above the ground e.g. stuck in branches or on top of bushes).

The dogs worked independently and searched non-discriminatorily, following their trained search pattern. They were purposely not directed to any specific trees or tree species, nor to any specific feature so as to avoid 'handler bias'. The handler only gave the dog the initial general direction of the search. During searches the dog was redirected, recalled or stopped at a distance using a dog whistle (model Acme 210.5) as needed to keep the dog within the subject site as well as for safety reasons (e.g. to prevent the dog from running into barbed wire or to navigate it around Harrisia cactus). The handler kept the dog within immediate sight at all times to ensure the dog's safety. In areas where the grass was too dense to see where Harrisia plants may be located, the dog was worked on a long lead where possible. Areas where the cactus was omnipresent and presented too high a risk were avoided.

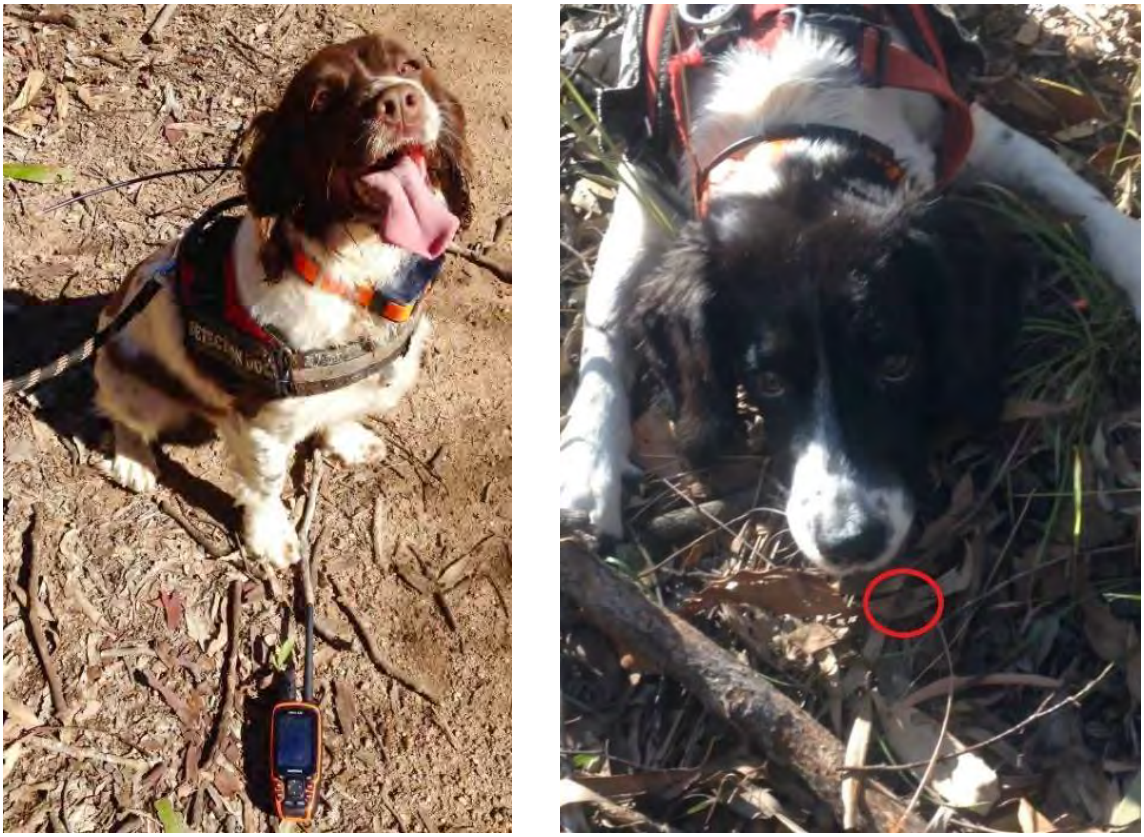
The detection dogs' search tracks were recorded with two Garmin T5 dog tracking collars (one for each dog) paired with the handler's Alpha100 handheld GPS unit, and recorded the detection dogs' position at a rate of one waypoint every 2.5 seconds. In order to minimise the risk of data loss in case of handheld GPS unit malfunction, the study team recorded all data with two handheld GPS units (the handler's Garmin Alpha100 unit, and a Garmin GPSMap78 unit). In order to further minimise the risk of data loss in case of equipment malfunction, OWAD carried one spare T5 collar and one additional handheld GPS unit (model Garmin Astro320) that is paired with all three tracking collars. While working, the detection dogs wore a red 'detection dog' jacket with reflective stripe at all times.

When OWAD's detection dogs find a target that is located on the ground, they lie down with their nose on it and hold the indication until the handler give them a 'bridging cue'. When a dog indicates on a target, the handler may either:

- Move in close immediately – The dog holds the indication while the handler comes close. Once the handler is close, the dog assists the handler recover the target. Once the handler has recovered and confirmed the target, the handler bridges and rewards the dog; or
- Give the dog a 'blind reward' – The handler does not move close immediately, but instead gives the dog the bridging cue from a distance and rewards the dog. Once the dog has been rewarded, the handler then asks the dog to 'show me'. This prompts the dog to return to the location and indicate on the target again. This time the handler follows the dog and once the

handler has recovered and confirmed the target, the handler bridges and rewards the dog again.

If a target is visually obstructed by leaf litter and/or dense ground vegetation, the dogs are specifically trained to use their paws and/or nose to expose the target. In instances where the leaf litter or the low-lying vegetation is particularly thick, the handler prompts the dog to physically retrieve the target with a 'soft mouth'. This is a frequent occurrence especially with Koala scats, in which case the dog shuffles through the debris or vegetation and picks up a scat in its mouth, then deposits it at the surface or spits it out in the handler's hands. In the case of Underground Orchids, the dog may dig in an attempt to reach the plant. If the dog cannot quickly expose a plant and starts digging too frantically, the handler removes the dog from the area (and e.g. ties it to a tree further away); the handler and assistant then carefully search the exact location by hand so as to minimise the risk of damaging the plant.



Left: 'Taz' in work gear − jacket, tracking collar and paired handheld GPS unit
Right: 'Missy' indicating on a Koala scat

Koalas typically produce 100 to 150 scats in each 24 hour period (Ellis *et al* 1998). Depending on factors such as local weather events, ecosystems, microbacterial activity, insect predation, geography and moisture, Koala scats in Eastern Australia can maintain some structural integrity for up to 12 months or more (Witt and Pahl 1995, Rhodes *et al* 2011).

3.2.2 Opportunistic searches

When the detection dogs were not actively searching (e.g. study team walking or driving between areas), the study team continued to pay attention to the leaf litter and/or tree canopies in case any live Koalas or their scats may be opportunistically spotted.

3.2.3 Quality Assurance

Field Quality Assurance procedures

In all studies undertaken by OWAD, field quality assurance (FQA) procedures are undertaken to ensure that the data collected in the field is representative of the true site conditions and is therefore valid for interpretation. OWAD's FQA procedures include the use of experienced ecology expert staff, Certified Environmental Practitioners, purpose-bred field detection dogs professionally raised and trained for the task, certification of both the dogs and their handlers for each target, extensive field trials conducted over several consecutive full days for each new dog and/or each new target prior to the canine being deployed on project work for said target, the use of appropriate study designs and survey protocols, and the implementation of daily field quality control (FQC) searches.

FQC searches are performed each day on all applied projects performed by OWAD. Either the detection dog finds a naturally occurring target within the first few minutes or hours of working each day, in which case there is no need for a third party to deposit a target for FQC purposes. Or, if no naturally occurring target is found within the first few minutes or hours of commencing work each day, then a third party (if available an accompanying staff external to OWAD; or if not available, then the OWAD assistant / the OWAD staff that is not handling a dog) randomly deposits a target, ensuring the handler does not know when or where an FQC target has been placed. When a target is placed for FQC purposes, the assistant starts a chronometer (without the handler knowing) when the dog/handler team is within approximately 100 metres from the FQC target, and records the time it takes the dog/handler team to find a target (whether the FQC target or naturally occurring target, whichever is found first).

An FQC search enables the assessment of the dog/handler team's ability to find a target in the specific conditions of a particular site at a particular time, within a maximum time of 5 minutes. This enables to ensure that there are no exceptional circumstances or factors that may be disabling or impeding the dog/handler team's ability to find targets (e.g. a scent that may be obscuring target odours for the dog; handler fatigue or distraction which may affect the handler's ability to correctly handle the dog, etc.). Crucially, the handler is never informed in advance where or when a target has been placed for FQC purposes. Not disclosing this information is crucial to ensuring there is no bias in how the handler handles the dog. It is only after the dog/handler team has found a target during an FQC search that the third party/or the assistant discloses that this was an FQC search. On projects where no or very few naturally occurring targets are found, a target is placed for FQC purposes at least once per day; however the third party/or field assistant may choose to perform more than one FQC search on any given day.

Field Quality Control search interpretation

- Should the dog/handler team find a deposited FQC target within 5 minutes, the FQC search is marked as successful, the time is recorded for record-keeping purposes and work continues. The coordinates of the FQC target are recorded for reporting purposes.

- Should the dog/handler team find a naturally occurring target within 5 minutes after an FQC search has started, the FQC search is marked as successful, the time is recorded for record-keeping purposes and work continues. The coordinates of the naturally occurring target are recorded for reporting purposes.

- Should the dog/handler team fail to find a target within 5 minutes after an FQC search has commenced[5] (whether the deposited FQC target or a naturally occurring target), the field assistant would immediately stop the handler and disclose that an FQC search has failed. In the event that an FQC search were to fail, the survey team would cease work immediately to try and identify the reason for failure. Upon identification of the potential cause, a 'controlled search' would be immediately conducted to confirm the reason for initial failure. Should the controlled search also fail, the study team would reassess the site conditions / the environmental conditions / the detection dog(s) / the handler(s) / the search protocol etc. If the cause for failure cannot be quickly identified and remediated, the study team would liaise with the client. No further survey work would be conducted until the reason(s) for failure is or are identified and remediated.

3.3 FIELD DATA ENTRY

At completion of each survey day, the detection dogs' search tracks and all relevant coordinates were saved electronically. In order to minimise the risk of data loss, a copy of this data was saved daily in at least three devices (e.g. computer, external hard drive and USB key), with at least one of these devices kept in a different physical place to the other devices (e.g. USB key kept in the work vehicle, computer and external hard drive kept in the office).

[5] This instance has never occurred to date.

4.0 SURVEY RESULTS

The site was surveyed over two days on 4 and 5 May 2021.

The detection dogs searched a total of 12.3km.

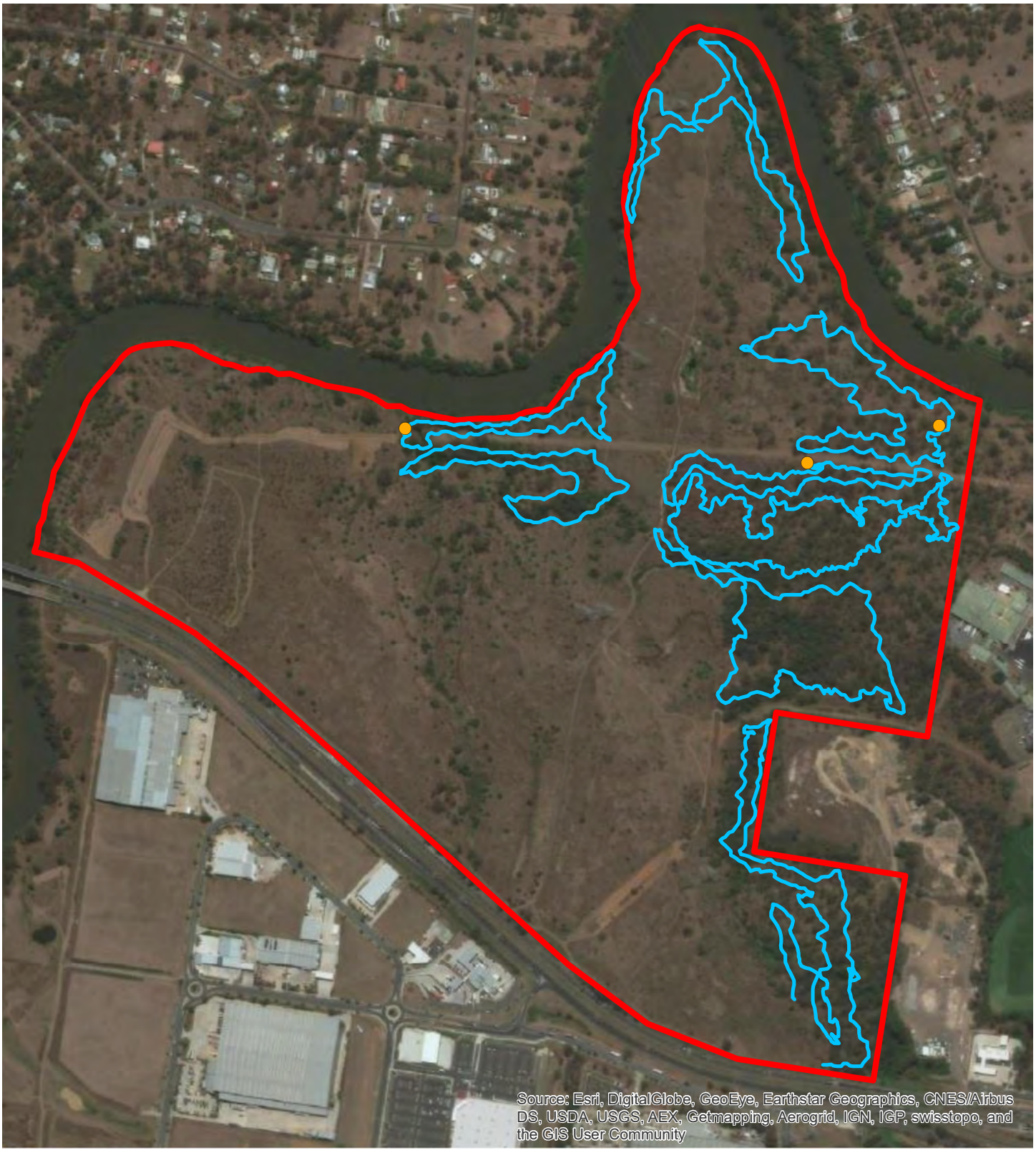
No Koala was found, and no naturally occurring Koala scats were detected during this survey. No tree was observed to have any potential Koala scratch marks.

Field Quality Assurance was successful, with all three Field Quality Control searches performed resulting in the dog/handler team finding the FQC target scat in well under 5 minutes. The results of this survey are therefore guaranteed to be a true and accurate reflection of Koala scat presence/absence in the areas searched within the subject site, at the time this survey was conducted.

Figure 2 shows the detection dog search tracks and the locations of the targets placed for FQC purposes.

The video below shows footage of one of the three FQC searches performed during this survey.

Video – click on image to play
(internet connection required)



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Project No.: 210504
Created by: OW
On: 10/05/2021

LEGEND

- Subject site (total 115ha)
- Detection dog search tracks (total 12.3km)
- FQC scats

FIGURE 2: SURVEY RESULTS

Riverview
Koala detection dog survey report
For Litoria Consulting

OWAD ENVIRONMENT

5.0 OBSERVATIONS AND DISCUSSION

Not only did the detection dogs not find any naturally deposited Koala scats, but the survey team also saw no tree bearing potential Koala scratch marks during this survey. The team also noted that there were unusually few signs of any native mammals; the only sign seen were a handful of old Brushtail Possum scats observed at only one location. This is not surprising, however, because there is a combination of poor canopy connectivity and a significant amount of Harrisia cactus on the ground in most forested areas (see representative photo below). As a result tree-dependent mammals would find it very difficult move through the site, let alone access the site.

Harrisia cactus infestation observed in large portions of the site's forested areas

After completing the field survey and given that no evidence of Koala presence was detected, the Atlas of Living Australia was consulted[6] to investigate whether the database had any evidence of the species' continued presence in the local landscape. Even though databases such as the ALA do have limitations and are not necessarily a reliable source to determine a species' presence/absence with any high degree confidence, in regions well inhabited by humans where the Koala persists, this is typically reflected on the ALA to a certain extent at least.

However, upon consulting the ALA on 17 May 2021, there are no records of Koala within 2km of the site. The nearest record is located approximately 2.5km to the northeast of the site, on the other side of the Bremer River; that observation dates from September 2015 (see **Figure 3**).

In order to further investigate the apparent lack of Koala records in the local landscape, Queensland Government QImagery historical aerials were consulted. The oldest aerial photography available, taken in 1944 (see photo below), reveals that in 1944 the site and immediate surroundings had already been largely cleared of native forest.

1944 aerial imagery of the subject site and immediate surrounds
(source: QImagery https://qimagery.information.qld.gov.au/)

[6] OWAD purposely never consults any kind of database prior to any survey so as not to be biased either way while handling the detection dogs during fieldwork.

0 0.5 1 2 Kilometers

N

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While every care is taken to ensure the accuracy of this data, OWAD Environment makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all resposibility and liability (including without limitation liability in negligence) for all expenses, losses, damages (including indirect consequential damage) and costs which might be incurred as a result of the data being inaccurate or incomplete in any way and for any reason.

Project No.: 210504
Created by: OW
On: 17/05/2021

LEGEND

Subject site (total 115ha)

Koala record extracted from the Atlas of Living Australia (2015 = year the sighting was made)

FIGURE 3: NEAREST KOALA RECORD ON THE ALA

Riverview
Koala detection dog survey report
For Litoria Consulting

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6.0 CONCLUSION

The subject site was assessed on 4 and 5 May 2021 with two professional Koala detection dogs.

The canines searched 12.3km in search for any sign of Koala presence (scats or live Koalas).

No evidence of Koala presence was detected.

No trees bearing potential Koala scratch marks was observed by the survey team during this assessment.

Large portions of the forest floor were infested with Harrisia cactus. Given that canopy connectivity is poor on the site, the cactus would be acting as a significant deterrent to any tree dependent mammal – including the Koala – that would attempt to access the site or move through the site.

The Atlas of Living Australia has no Koala records within 2km of the site. The nearest record is approximately 2.5km away from the site, on the other side of the Bremer River, and dates from 2015.

A review of historical imageries reveals that in 1944, the site and immediate surroundings had already been largely cleared of native forest. The local landscape has been subjected to severe habitat loss and fragmentation for a number of decades, which has likely resulted in the species becoming locally extirpated some time ago.

We note that dispersing individuals can occasionally explore areas where the species had previously become locally extinct. Young males in particular, are known to travel some distance from their natal grounds when establishing their own territory; process by which the species can gradually recolonise some landscapes over time. However the subject site is poorly connected to the local landscape, so the likelihood of there being dispersing individuals in the local landscape is considered to be very low. In the unlikely case that a dispersing individual were to reach the site, it would find only a limited amount of forest with poor canopy connectivity. As a result, a dispersing Koala would have to go to the ground in order to explore the site. However the Harrisia cactus which is omnipresent in large portions of the site's forested areas, would be acting a significant deterrent and make it very difficult to impossible for a Koala to move within the site.

Based on the above findings and observations, it is considered highly unlikely that any Koala would currently be able to access or utilise the subject site.

This report may be used by Litoria Consulting to inform the overall assessment of the site's ecological values.

7.0 STUDY LIMITATIONS

7.1 TARGET SPECIES DETECTABILITY

The use of purpose-bred, expertly raised and expertly trained professional detection dogs minimises the risk of not detecting signs of Koala presence when the species is in fact present. Professional detection dogs and their handlers are extensively trained by a professional detection canine expert. The dogs are then continuously trained and developed by their designated handlers, and the handlers and the dogs obtain professional certification once fully operational. Before deploying a detection dog in the field, OWAD thoroughly tests each dog. A dog is not deployed for project work until it consistently performs to 100% target detection rate and 100% scent discrimination rate (i.e. never indicates on non-targets) in field trials performed over several consecutive full days in the field. Moreover, OWAD has developed Field Quality Assurance procedures to ensure the accuracy of their field findings.

Even though the professional detection dogs used in this study can perceive the scent of Koala scat long after these have decomposed (up to several years), they are purposely trained to not indicate on target *scent* alone. Instead, they are intentionally trained to indicate on and retrieve target *objects*. This ensures that they do not indicate on the scent of Koala scats that are so old that the scats have lost all structural integrity (hence no longer recognisable by humans). This methods ensures that the detection dogs inform only about current or recent Koala presence; not historical distribution.

7.2 LIMITATIONS OF DATA INTERPRETATION

The findings of this survey are only reflective of the Koala's presence/absence for the subject site, at the time the site was assessed. Here no evidence of Koala presence was detected; this does not preclude the possibility of the species being present on the site in the future.

The results included in this report, and interpretation thereof, are limited to the site that is the subject of this study. The results included in this report cannot be extrapolated to any other site or any other geographic area not investigated as part of this study.

8.0 REFERENCES

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9.0 DATABASES CONSULTED

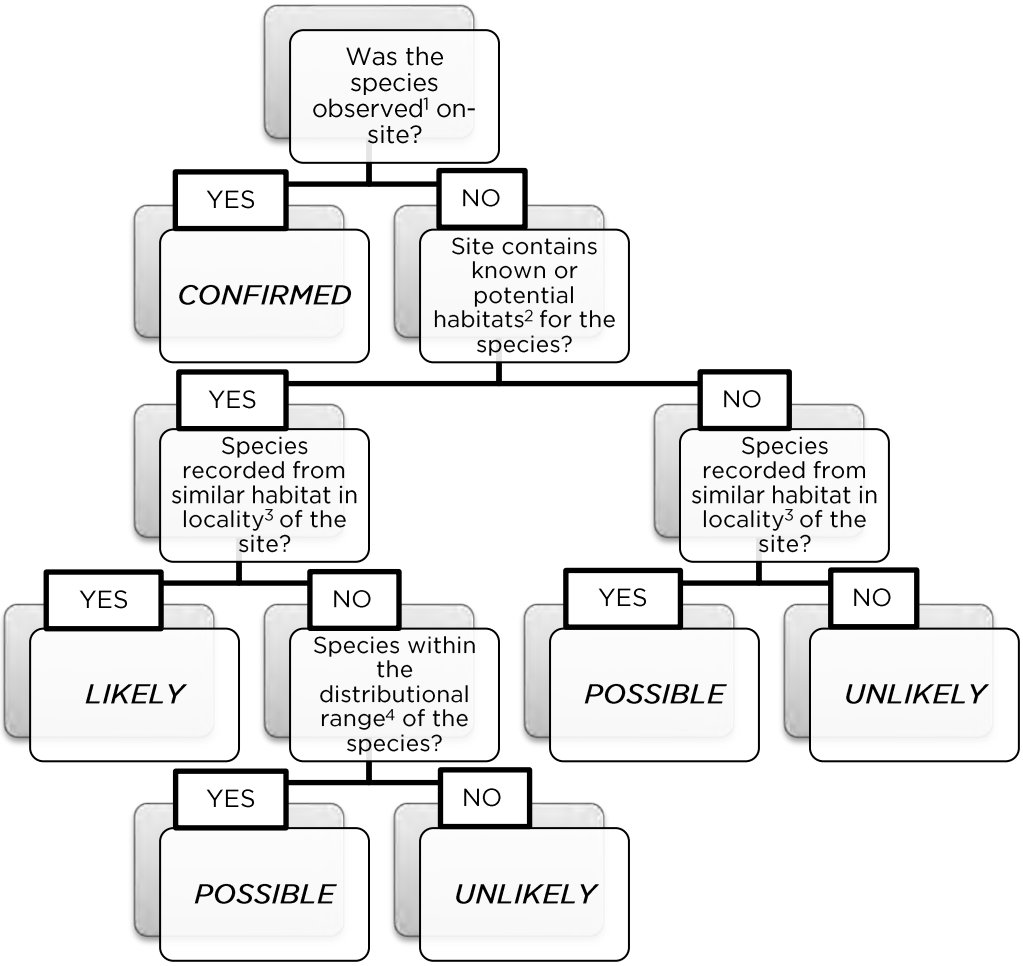
Atlas of Living Australia: https://ala.org.au

Queensland Government QImagery: https://qimagery.information.qld.gov.au

APPENDIX 9: HEURISTIC MODEL OF LIKELIHOOD

FAUNA AND FLORA HABITAT LIKELIHOOD ASSESSMENT – HEURISTIC APPROACH

The following represents a heuristic decision tree for use in habitat likelihood assessment to determine the likelihood of species occupying or utilising a subject site. While this heuristic tree was designed for use in the assessment of fauna habitat likelihood, there is nothing precluding its use for flora habitat likelihood assessment. The definitions underlying the likelihood assessment, predicating outcomes of the decision tree, are shown below, with *p*(x) representing the probability (0% - 100%) that a given species (x) will be occupying or utilising the site:



- *Confirmed* – observed or recorded on the site[1] (*p*(x) = 100%);
- *Likely* – site contains known or potential habitats for the species[2] and species recorded from similar habitats in locality of the site[3] (*p*(x) > 50%);
- *Possible* – site contains known or potential habitats for the species[2]; however species not recorded from locality of the site[3], or vice versa (*p*(x) ≅ 50%);
- *Unlikely* – site does not contain known or potential habitats for the species[2] and/or species not recorded from locality of the site[3] (*p*(x) < 50%).

[1] Based on systematic survey or incidental observation by Litoria Consulting ecologists, or based on anecdotal observations by credible source.
[2] According to expert knowledge by Litoria ecologists and published accounts of each species.
[3] Based on credible, local database searches (i.e., DEHP Wildlife Online), conservation advice documentation or site-specific consultant reports <2 years old.
[4] Based on inclusion of species flagged in EPBC PMST reports, yet are outside their known/accepted distributional range.

APPENDIX 10: LIKELIHOOD ASSESSMENT

The following table comprises an assessment of the likelihood of threatened ecological communities and threatened and migratory species utilising or occupying the site (confirmed, likely, possible or unlikely) based on known habitat associations and preferences of species. See base of table for a key to the column headings.

Class	Family	Scientific name	Common name	EPBC - Listed Threatened	EPBC - Migratory	Confirmed	Likely	Possible	Unlikely
Threatened Ecological Communities									
-	-	-	Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community	E	-				◆
-	-	-	Lowland Rainforest of Subtropical Australia	CE	-				◆
-	-	-	Poplar Box Grassy Woodland on Alluvial Plains	E	-				◆
-	-	-	White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	CE	-				◆
Threatened Flora									
Asparagales	Orchidaceae	*Phaius australis*	Lesser Swamp-orchid	E	-				◆
Lamiales	Oleaceae	*Notelaea ipsviciensis*	Cooneana Olive	CE	-		◆		
Lamiales	Oleaceae	*Notelaea lloydii*	Lloyd's Olive	V	-		◆		
Magnoliopsida	Proteaceae	*Macadamia integrifolia*	Macadamia Nut	V	-				◆
Magnoliopsida	Proteaceae	*Macadamia ternifolia*	Small-fruited Queensland Nut	V	-				◆
Magnoliopsida	Proteaceae	*Macadamia tetraphylla*	Rough-shelled Bush Nut	V	-				◆
Malpighiales	Euphorbiaceae	*Fontainea venosa*	-	V	-				◆
Malvales	Tiliaceae	*Corchorus cunninghamii*	Native Jute	E	-				◆
Myrtales	Myrtaceae	*Rhodamnia rubescens*	Scrub Turpentine	CE	-				◆
Myrtales	Myrtaceae	*Rhodomyrtus psidioides*	Native Guava	CE	-				◆
Poales	Poaceae	*Arthraxon hispidus*	Hairy-jointed Grass	V	-				◆
Poales	Poaceae	*Dichanthium setosum*	Bluegrass	V	-				◆
Sapindales	Rutaceae	*Bosistoa transversa*	Three-leaved Bosistoa	V	-				◆
Santalales	Santalaceae	*Thesium australe*	Austral Toadflax	V	-				◆

Class	Family	Scientific name	Common name	EPBC - Listed Threatened	EPBC - Migratory	Confirmed	Likely	Possible	Unlikely
Sapindales	Sapindaceae	*Cupaniopsis shirleyana*	Wedge-leaf Tuckeroo	V	-				◆
Sapindales	Simaroubaceae	*Samadera bidwillii*	Quassia	V	-				◆
Threatened and Migratory Fauna									
Aves	Accipitridae	*Erythrotriorchis radiatus*	Red Goshawk	V	-				◆
Aves	Accipitridae	*Pandion haliaetus*	Osprey	-	Yes				◆
Aves	Apodidae	*Apus pacificus*	Fork-tailed Swift	-	-				◆
Aves	Apodidae	*Hirundapus caudacutus*	White-throated Needletail	V	Yes			◆	
Aves	Ardeidae	*Botaurus poiciloptilus*	Australasian Bittern	E	-				◆
Aves	Columbidae	*Geophaps scripta scripta*	Squatter Pigeon	V	-				◆
Aves	Cuculidae	*Cuculus optatus*	Oriental Cuckoo	-	Yes				◆
Aves	Falconidae	*Falco hypoleucos*	Grey Falcon	V	-				◆
Aves	Meliphagidae	*Anthochaera phrygia*	Regent Honeyeater	CE	-				◆
Aves	Meliphagidae	*Grantiella picta*	Painted Honeyeater	V	-				◆
Aves	Monarchidae	*Monarcha melanopsis*	Black-faced Monarch	-	Yes				◆
Aves	Monarchidae	*Monarcha trivirgatus*	Spectacled Monarch	-	Yes				◆
Aves	Monarchidae	*Myiagra cyanoleuca*	Satin Flycatcher	-	Yes				◆
Aves	Motacillidae	*Motacilla flava*	Yellow Wagtail	-	Yes				◆
Aves	Procellariidae	*Pachyptila turtur subantarctica*	Fairy Prion	V	-				◆
Aves	Psittacidae	*Lathamus discolor*	Swift Parrot	CE	-				◆
Aves	Rhipiduridae	*Rhipidura rufifrons*	Rufous Fantail	-	Yes			◆	
Aves	Rostratulidae	*Rostratula australis*	Australian Painted-snipe	E	-				◆
Aves	Scolopacidae	*Actitis hypoleucos*	Common Sandpiper	-	Yes				◆
Aves	Scolopacidae	*Calidris acuminata*	Sharp-tailed Sandpiper	-	Yes				◆
Aves	Scolopacidae	*Calidris ferruginea*	Curlew Sandpiper	CE	Yes				◆
Aves	Scolopacidae	*Calidris melanotos*	Pectoral Sandpiper	-	Yes				◆
Aves	Scolopacidae	*Gallinago hardwickii*	Latham's Snipe	-	Yes				◆
Aves	Scolopacidae	*Numenius madagascariensis*	Eastern curlew	CE	Yes				◆
Aves	Scolopacidae	*Numenius madagascariensis*	Eastern curlew	CE	-				◆

Class	Family	Scientific name	Common name	EPBC – Listed Threatened	EPBC – Migratory	Confirmed	Likely	Possible	Unlikely
Aves	Scolopacidae	*Tringa nebularia*	Common Greenshank	-	Yes				◆
Aves	Turnicidae	*Turnix melanogaster*	Black-breasted Button-quail	V	-				◆
Mammalia	Dasyuridae	*Dasyurus hallucatus*	Northern Quoll	E	-				◆
Mammalia	Petauridae	*Petauroides volans*	Greater Glider	V	-			◆	
Mammalia	Phascolarctidae	*Phascolarctos cinereus*	Koala	V	-			◆	
Mammalia	Potoroidae	*Potorous tridactylus tridactylus*	Long-nosed Potoroo	V	-				◆
Mammalia	Pteropodidae	*Pteropus poliocephalus*	Grey-headed Flying-fox	V	-	◆			
Mammalia	Vespertilionidae	*Chalinolobus dwyeri*	Large-eared Pied Bat	V	-				◆
Reptilia	Elapidae	*Furina dunmalli*	Dunmall's Snake	V	-			◆	
Reptilia	Pygopodidae	*Delma torquata*	Adorned Delma	V	-				◆
Amphibia	**Myobatrachidae**	*Mixophyes fleayi*	Fleay's Frog	E	-				◆
Insecta	Nymphalidae	*Argynnis hyperbius inconstans*	Australian Fritillary	CE	-				◆
Sarcopterygii	Neoceratodontidae	*Neoceratodus forsteri*	Queensland Lungfish	V	-				◆

TABLE CODES:

- EPBC – Listed Threatened: Refers to the Commonwealth conservation status of each taxon under the EPBC Act, coded as Extinct in the wild (XW), Critically Endangered (CE), Endangered (E), Vulnerable (V) or Conservation Dependent (CD).
- EPBC – Migratory: Refers to EPBC Act listing as a migratory species under various migratory species conventions.
- Likelihood: – Refers to the likelihood (◆) of the species utilising or occupying the site as determined by the likelihood assessment.

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