PREPARED FOR:

INVESTA RESIDENTIAL GROUP PTY LTD

30 OCTOBER 2015

FAUNA MANAGEMENT PLAN

BRENTWOOD ESTATE (LOTS 912 & 913 ON SP257089 AND LOTS 1 & 2 ON SP257089)

NEWGROUND

NEW GROUND | Suite 6, Ground Floor, Eastside, 6 Waterfront Place, Robina QLD 4226

TELEPHONE 07 5575 7308 **ABN** 31 146 671 481 NEWGROUND.COM.AU

REPORT TITLE	FAUNA MANAGEMENT PLAN
PROJECT	BRENTWOOD ESTATE (LOTS 912 & 913 ON SP257089 AND LOTS 1 & 2 ON SP257089)
CLIENT	INVESTA RESIDENTIAL GROUP PTY LTD
REPORT NO.	2105-R-02
DRAFT/FINAL	FINAL

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The preparation of this report has been in accordance with the project brief provided by the client and has relied upon the information, data and results provided or collected from the sources and under the conditions outlined in the report.

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REVIEWED BY	NELSON WILLS	PREPARED BY	DR. DAN ROLLINSON
POSITION	PROJECT DIRECTOR	POSITION	PROJECT MANAGER
SIGNED		SIGNED	
DATE	30/10/2015	DATE	11/08/2014

DOCUMENT DISTRIBUTION: 2105-R-02

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STUDY TEAM

Nelson Wills Project Director	Project Direction
Dr. Dan Rollinson Senior Project Manager	Project Management, Reporting

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Chapter 1: Introduction

1.1 Background

New Ground Environmental Pty Ltd (New Ground) was engaged by Investa Residential Group Pty Ltd (the client) to prepare a Fauna Management Plan (FMP) relating to the proposed development of the 'Balance Area' of Brentwood Estate ('the project'). The balance area occurs within Lots 912 & 913 on SP257089 and Lots 1 & 2 on SP257089 and relates to development stages 8 – 32 of the master plan pertaining to the Brentwood Estate residential development. Brentwood Estate is located at Jones Road and Columbia Drive, in the suburb of Bellbird Park within the Ipswich City Council area. This comprises the 'site', as referred to within this report. The site is approximately 12 km east of the Ipswich central business district (CBD) and approximately 23 km South West of Brisbane's CBD (**APPENDIX A**).

This fauna management plan is intended to address the fauna management requirements of Ipswich City Council, (ICC) in particular the management of significant fauna which includes threatened species protected by the *Nature Conservation Act 1992* (NC Act) and *Environment Protection Biodiversity Conservation Act 1999* (EPBC Act) and known to occur within the site. This plan outlines a strategic framework to provide both the development proponent and Ipswich City Council with an aligned approach to the management of fauna related matters of regulatory significance. It is intended that the framework outlined within this report will be used to inform detailed management planning that is responsive to the site conditions, legislation and regulatory provisions that exist immediately prior to the commencement of operational works for each stage of development.

1.2 Objectives of the Study

The objectives of this report are to:

- Outline the project background and development outcomes envisaged for the site;
- Summarise the results of previous ecological studies, with a particular focus on fauna and fauna habitat values occurring within the site;
- Provide a strategic framework to ensure that the fauna values within the site are managed throughout the development process in accordance with relevant legislation, policy, and industry best practice standards;
- Provide management strategies to ensure that ecological values associated with significant fauna are retained and enhanced to the greatest practicable extent; and
- Allow for a periodic review of the plan to ensure that management outcomes remain relevant and compliant with any future amendments to legislation, policy and industry standards.

1.3 Outline of the Report

This Fauna Management Plan has been structured to provide relevant background information and context about the project and ecological values of the site, as well as outline a strategic framework for the management of fauna values within the site. The FMP will act as a tool to assist with achieving compliance with the regulations and guidelines applicable to the development of Brentwood Estate. This report is structured as follows:

- Chapter 1 provides an introduction to the project, the subject study and the report;
- Chapter 2 describes the site and summarises the project background and future outcomes;
- Chapter 3 provides a summary of the results of previous studies in relation to fauna values within the site;
- Chapter 4 describes the development process framework and identifies management strategies within this context; and
- Chapter 5 incorporates the report conclusions and discusses the parameters to guide any future report reviews.

Chapter 2: Development Context

2.1 Site Description

Brentwood Estate is located at Jones Road and Columbia Drive in the suburb of Bellbird Park within the Ipswich City Council (ICC) area, approximately 12 km East of Ipswich CBD and approximately 23 km South West of Brisbane's CBD (**APPENDIX A**). The site occurs within the Southeast Queensland Bioregion and Lower Brisbane River Catchment.

The balance area of Brentwood estate, the subject of this fauna management plan, occurs within Lots 912 & 913 on SP257089 and Lots 1 & 2 on SP257089 and relates to development stages 8 – 32 as per the 'Proposed Master Plan' (**APPENDIX B**) in relation to the Brentwood Estate residential development.

The Brentwood Estate development is located within the greater Springfield area, part of the ICC strategic planning for the western growth corridor. The site has been subject to comprehensive environmental and town planning assessment since initial planning approvals were obtained in 2005. All development approvals for the proposed development are currently assessed under the current Ipswich City Council Planning Scheme 2006, in accordance with the state planning and development framework the *Sustainable Planning Act 2009*.

A portion of the site is identified as hosting remnant vegetation by the regional ecosystem maps prepared under the *Vegetation Management Act 1999* (DNRM, 2013), however, clearing of this vegetation for the development is subject to an exemption under the *Sustainable Planning Act 2009* and the *Vegetation Management Act 1999* as a result of the Ipswich Eastern Corridor Development Control Plan. This exemption was designed to ensure that designated future development areas critical to residential growth, such as within the western corridor of South East Queensland were not prevented from producing master planned communities essential to the state's future housing requirements.

2.2 Development Summary

The Brentwood Estate balance area development site is approximately 110 ha in size. Of this overall land parcel, the Brentwood Master Plan (**APPENDIX B**) shows that 56.37 ha is to be dedicated as public as open space areas, stormwater wetlands and a fauna movement corridor for both recreational and conservation purposes. An ecological corridor varying in width from approximately 50 – 200 m is provided along Happy Jack Gully and Woogaroo Creek which borders the Northern and Eastern boundary of the site (**APPENDIX B**).

With the Brentwood Master Plan agreed in principal by the local authority (ICC), the development assessment for each of the remaining stages is ongoing. Once each stage is approved for subdivision, detailed engineering design and Operational Works approvals are obtained. During civil construction works, environmental impacts and water quality are monitored to ensure detrimental effects are mitigated. Once completed in accordance with the operational works approvals, Ipswich City Council then has the opportunity to scrutinise all works for quality and provide their acceptance of the infrastructure provided "on maintenance". The developer at this point is obligated to maintain all works and dedicated open space areas for a period of time to ensure all infrastructure performs to acceptable standards and all vegetation areas are suitably established and maintained. Lots will then be sold to a wide variety of purchasers including first home buyers, owner occupiers, property investors and defence personnel from nearby Greenbank Army and Amberley Air Force Bases with the expectation they will be used for residential purposes.

Chapter 3: Native Fauna Values

3.1 Summary of Previous Studies

The balance area of Brentwood Estate has been subject to previous ecological assessment works as part of the ongoing ecological assessment requirements for the development of the subject area. A detailed ecological assessment was undertaken by Orogen (2011). The Orogen (2011) assessment included a comprehensive desktop review complemented by detailed field assessment. This study aimed to identify the suitability of the habitats within the site for terrestrial flora and fauna, including Threatened species and ecological communities listed by the *Nature Conservation (Wildlife) Regulation 2006 (*NC Reg) and EPBC Act. The results are presented in the "Ecological Impact Assessment Report – 'Balance Area' Brentwood Estate (EIAR)" (Orogen, 2011). The ecological assessment of the site resulted in the identification of the vegetation communities within the site, identification of habitat values within the site as well as known records of fauna species occurring within the site, the latter being detailed further in **Section 3.2** of this report.

Subsequent to the Orogen (2011) study, further assessment of the site's potential to host threatened fauna species was undertaken as part of an EPBC Act referral process, a process that was being undertaken to meet the proponent's obligations under the EPBC Act. In particular, the EPBC Act referral process required the proponent to undertake an impact assessment of the proposed activity in relation to Matters of National Environmental Significance (MNES) that may occur or are known to occur within the site (refer **Section 3.2**).

More recently, further targeted ecological assessment works have been undertaken within defined development stages of the balance area. As part of the ICC's ecological assessment requirements a pre-clearance survey was conducted (New Ground, 2013) within stage 18 – 24 of the balance area (Refer **APPENDIX B** for staging locality). The pre-clearance survey was undertaken to allow for certain habitat features and items of ecological significance to be recorded prior to future approved clearance of vegetation. Further details of the management intent relating to pre-clearance surveys is detailed within this management plan, it is expected that pre-clearance surveys are to form a key component of the fauna management strategy for the ongoing development of balance area over the lifetime of the project.

Finally, as part of the proponent's wider land use planning, particularly around open space and areas of retained vegetation, field verification of an area of low microphyll vine forest (considered analogous to Endangered RE 12.9-10.15) was undertaken in December 2013 (New Ground, 2013). This vegetation assessment resulted in the boundaries of the vegetation community being defined. It is expected that this targeted survey will assist the client in fine scale amendments to the master plan design as it relates to the relevant development stage.

3.2 Fauna Results

The previous ecological assessment works undertaken within the balance area, both at a desktop and field-based level noted that the site has the potential to host a number of common and to a lesser extent threatened fauna species. At the time of field assessment (Orogen, 2011) the desktop searches of the Wildlife Online Database (DEHP, 2013) indicated 23 threatened fauna species listed under the NC Act were potentially occurring within the site, furthermore a search of Protected Matters (as defined by the EPBC Act) (refer Orogen, 2011) indicated 15 fauna species may occur within the site.

The desktop based assessments described above were undertaken to provide an indication of potential occurrence of fauna species within the site at the time of survey and were subsequently used to refine the field survey effort. It is of note that the listing advice and conservation status of species presented within historic reports is subject to change, with the potential for some species previously considered of lower conservation status being added to the threatened species databases and also some species being removed from the aforementioned threatened species databases. As such, it is recommended that a periodic review of the relevant databases is undertaken as part of the ongoing fauna management process for the site (refer **Section 5.1**). **APPENDIX C** and **APPENDIX D** provide the current (as of January, 2014) threatened species search results pertinent to the site (DEHP, 2014; DOE, 2014).

Further to the desktop assessment undertaken as part of the ecological assessment works (Orogen, 2011), field based assessments have also been undertaken to examine the fauna habitat values within the site, in particular relating to threatened fauna. The surveys undertaken by Orogen (2011) employed a variety of survey techniques

including: fauna traverse searches, koala scat searches, bird surveys, call playbacks and spotlighting surveys. The resulting site-based data recorded the presence of 59 vertebrate fauna species from within the site during the survey period, this was comprised of 39 bird species, ten mammal species, five reptiles, four amphibians and one fish species. Of these 59 species recorded three were considered threatened species under either the NC Act and/or EPBC Act. **Section 3.3** includes further discussion of threatened species found within the balance areas of Brentwood Estate.

In addition to the common and threatened fauna species recorded onsite, migratory fauna species were also recorded during the field assessment of the site, these included two (2) bird species, rufous fantail (*Rhipidura rufifrons*) and rainbow bee-eater (*Merops ornatus*)) (as per DOE, 2013 migratory species listing definitions). Furthermore, seven (7) species of introduced fauna were recorded, including: mosquito fish (*Gambusia* sp.), cane toad (*Rhinella marina*), fox (*Vulpes vulpes*), black rat (*Rattus rattus*), hare (*Lepus europaeus*), goat (*Capra hircus*) and dog (*Canis familiaris*). The goat, fox and dog are all Class 2 pests, pursuant to the Queensland *Land Protection (Pest and Stock Route Management) Act 2002* (LP Act).

3.3 Significant Fauna

For the purpose of this fauna management plan, certain fauna species and/or taxonomic groups were deemed significant fauna. Whilst the fauna mitigation and management measures presented in subsequent sections of this report are applicable to a multitude of fauna species potentially utilising the site, the significant fauna introduced within this section are designated as such because they have been deemed to warrant a tailored suite of management measures specific to the species and/or fauna group.

The designation of significant fauna was largely limited to NC Act and/or EPBC Act listed threatened species known to occur within the site (refer to **TABLE 3.1** for a summary of threatened species recorded within the site). However, in addition to threatened species detailed in **TABLE 3.1**, native bees were also included within this significant fauna designation. Through discussions between the proponent and ICC it was determined that the management and mitigation of impact to native bees was of importance to ICC and as such required a defined suite of management and mitigation measures.

The following sub sections (**3.3.1 – 3.3.4**) are provided to present further details relating to significant fauna, in particular (where available) further information relating to site specific records derived from previous ecological surveys.

TABLE 3.1: THREATENED FAUNA RECORDED WITHIN THE SITE

SPECIES	COMMON NAME	EPBC ACT STATUS	NC ACT STATUS
Phascolarctos cinereus)	koala	Vulnerable*	Vulnerable#
Ninox strenua	powerful owl	Not listed	Vulnerable
Pteropus poliocephalus)	grey headed flying fox	Vulnerable	Not listed

*The EPBC Act listed of Vulnerable relates to the combined populations of Qld, NSW and the ACT
The NC Act listing of Vulnerable relates to South East Queensland Bioregion.

3.3.1 Koala

Koala activity (KSAT) and habitat surveys undertaken by Orogen (2011) identified koala usage on site to be indicative of sedentary ranging patterns. The Orogen (2011) survey recorded the presence of koala via nocturnal spotlighting surveys and scats obtained from dedicated scat searches. Furthermore, the vegetation communities identified during the ecological assessment of the site were also considered to be suitable koala habitat, either in terms of provision of food and/or refuge resources. As such, given the nature of the site's vegetation and distribution of koala records within the site, it is feasible to infer that koala may occur throughout the site.

Further examination of known koala records within the vicinity of the site (via Wildlife Online database search) also confirmed that koalas have been recorded within a 10 km radius from a central point within the site. It is thought that the site is within an area of 'major koala activity' (Phillips and Callaghan, 2011).

At the time of the detailed ecological assessment of the site, the Koala population of the South east Queensland bioregion was listed under the NC Act only. Subsequent to this in July 2012, the status of koala under the EPBC Act was changed to Vulnerable, it is noted this status relates to the combined populations of Queensland (QLD), New South Wales (NSW) and the Australian Capital Territory (ACT) and not the species as a whole, notwithstanding the koala known to occur within and adjacent to the site are within the combined population and are therefore protected under the EPBC Act.

3.3.2 Grey Headed Flying Fox

The grey-headed flying fox (*Pteropus poliocephalus*) is listed as Vulnerable under the EPBC Act. Grey-headed flying-fox individuals have been observed within the site in particular they were recorded foraging and flying overhead during spotlighting surveys, furthermore flying-fox scats were observed during habitat assessment and opportunistic searches. No roosting sites (camps) were detected within the site during the Orogen (2011) ecological assessment. A review of the DEHP flying fox roost locality map (DEHP, 2013b) identified that the closest known flying fox roost locations occur within approximately 3.5 km to the east of the site near Camira and approximately 4.5 km to the north near Goodna (DEHP, 2013).

Whilst the site is not known to provide roosting habitat for this species it was noted that the site contained flora species and vegetation communities (e.g. open eucalypt forests and vine forest communities) that provide foraging resources. Due to the highly mobile nature of the species, it was determined that the impact of the proposed development would be limited to a localised reduction in foraging habitat. As such, the mitigation and management measures presented herein consider this impact. Notwithstanding, the proposed development will occur over an extended timeframe (10+ years) and therefore use of the site by this species may potentially change over this timeframe. As such, the management and mitigation strategies proposed are cognisant of this and adaptable to ensure impact mitigation is reflective of the species' current use of the site at the time of operational works activities.

3.3.3 Powerful Owl

The powerful owl (*Ninox strenua*) is listed as Vulnerable under the NC Reg. Powerful owl was detected during both diurnal and spotlighting surveys undertaken during the Orogen (2011) surveys. The records included both adult owls in flight and two juveniles found roosting in a tree (Orogen, 2011). These records were confined to riparian areas associated with the site's permanent waterways. The retention and rehabilitation of a site's riparian corridors will assist in reducing the impact to this species.

It is expected that the habitat within the proposed development footprint represents a relatively small area of habitat in comparison to the typical foraging range of the Powerful Owl (DECCW, 2005). Notwithstanding the proposed activity will remove some habitat for this species. The Orogen (2011) survey found that the site was largely devoid of large hollow bearing trees, in particular hollows of the appropriate diameter and depth to facilitate breeding by this species. As such, it is expected that the key resource the site provides for this species relates to foraging resources and roosting opportunities. Accordingly, mitigation measures presented by this report are tailored to address this impact.

3.3.4 Native Bees

Consideration and assessment of the site in relation to native bees (and their associated hives) was not included within the previous ecological assessments (Orogen, 2011). Subsequent to this earlier ecological assessment, the impact mitigation and management of native bees and their hives during land development activities has been included as matter of conservation consideration by ICC. It has been acknowledged that native bee populations play a crucial role in the pollination of native vegetation, and therefore are a key taxonomic group that will ensure the ecological heath and viability of retained native vegetation within the wider Ipswich region. This fauna management plan provides recommendations and management measures aimed at maintaining the viability of this key ecosystem function.

Chapter 4: Fauna Management Strategies

4.1 Development Process Framework

The following sections provide an overview of the development process framework associated with the Brentwood Estate 'balance area'. Specifically, Section 4.1 details the development phases to guide the timing of management and mitigation measures to be undertaken throughout the life of the project, from design phase to post-construction phase. Management and mitigation measures are outlined in **Sections 4.2 - 4.6**.

4.1.1 Design Phase

Considerable work has been undertaken during the development of the Brentwood Estate master plan (**APPENDIX B**). The master plan has been prepared at a conceptual resolution and is intended to guide the future development of the site on a staged basis.

As development of Brentwood Estate progresses, the design phase for a particular stage(s) will be defined by the time required to secure all applicable land use and operational works development approvals. Where applicable, this may include all design reports and plans, as well as management plans that are required to demonstrate that the development will comply with relevant Local, State and Federal Government planning regulations.

The design phase for each stage or group of stages will incorporate a pre-clearance survey as a condition of the relevant Reconfiguring a Lot approval. The pre-clearance survey will consist of fine scale ecological investigations in accordance applicable best practice industry standards, and will aim to identify the distribution and extent of any:

- Potential and/or active fauna breeding places;
- Threatened flora and fauna records;
- Type A Restricted flora; and
- Pest flora and fauna.

The results of the pre-clearance survey will be used to inform any design and management solutions for the above features. The management measures will be responsive to the level of ecological significance associated with the ecological feature.

4.1.2 Construction Phase

Once the development proponent has obtained the necessary statutory approvals from all relevant levels of government, the construction phase will commence. The construction phase will involve two sub-phases – pre-construction and active construction. The requirements of each sub-phase are outlined below.

4.1.2.1 Pre-construction

The pre-construction sub-phase will consist of all construction-related activities that are required to be completed prior to the commencement of operational works on-site. Typically, these will involve actions associated with site setup, undertaken in accordance with relevant approved construction management plans and development conditions of approval. Site inspections, sign-offs or other forms of verification may be required from various government representatives to confirm that all necessary statutory requirements have been met prior to the commencement of operational works. Where applicable, these requirements will be outlined in statutory approvals that are applicable to the stage(s) of development.

4.1.2.2 Active Construction

The active construction sub-phase will begin once operational works commence on the site. Typically, this sub-phase will include all works and construction activities associated with vegetation clearing, earthworks/changes to ground level, construction of civil infrastructure, and landscaping. The active construction sub-phase will continue until the completion of operational works and deactivation of the construction site for the applicable stage(s).

4.1.2.3 Post-construction

The post-construction phase will commence once construction activities have been completed, the construction site has been deactivated and is safe for use by the public. The post-construction phase will occur for the duration of time necessary to complete all post-construction activities that are required of the development proponent. Such activities will be prescribed by development permits and associated statutory approvals, and will typically consist of defined maintenance requirements associated with developer-contributed assets (e.g. civil infrastructure, environmental areas, recreation parks and associated embellishments).

4.2 General Fauna Management Measures

4.2.1 Design Phase

The master plan design for the site has been developed in consideration of the key ecological values identified within the site. The ecological assessment undertaken by Orogen (2011) provided a baseline data set of site utilisation by fauna and also the habitat values provided by the site. The master plan design aims to reduce ecological impact to these known fauna species and associated habitats wherever possible. Examples of general design phase measures that have been incorporated into the development include:

- Approximately 56 ha will consist of land that will be dedicated as public open space for conservation, stormwater management and recreational purposes;
- An ecological corridor will be provided along Happy Jack Gully and Woogaroo Creek, with a width ranging from approximately 50 – 200 m;
- Areas of retained and rehabilitated vegetation will function a potential habitat and foraging resource for fauna utilising the site post-development;
- Koala refuge trees are to be retained within the proposed development footprint (**APPENDIX E**);
- The canopy stratum planting palette associated with landscaping and streetscape treatments is to predominately consist of koala sheltering trees (namely *Lophostemon confertus*) for the provision of refuge resources (**APPENDIX F**);
- Native flora species will be used in landscape and streetscape treatments to enhance the native flora values and provide resources to fauna utilising the site (**APPENDIX F**); and
- Individual allotments are to be fenced with koala exclusion/dog containment fencing as specified by pages 16, 18 and 24 (Covenant Approval Application Form) of the *Design Guidelines & Landscaping Packages* pertaining to the proposed activity as enforced by covenant (**APPENDIX G**).

A key decision that was incorporated into the master plan design was the provision of a significant and ecologically valuable fauna corridor to the east of the development area within the site. Whilst enhancement of fauna habitat within the main development area will be a fauna management aim, the retained vegetation to the east of the development area will be the main focus of fauna management and mitigation measures, both for common fauna and threatened fauna known to occur within the site. Design-phase planning also ensures that areas of retained vegetation are positioned in a location that will facilitate direct connectivity to existing offsite areas of forest directly adjacent to the site.

As part of the site's initial design phase, the ecological data provided by the Orogen (2011) study was incorporated into the design of retained and open space areas within the site. For example, the Orogen (2011) study noted the presence of an Endangered Remnant Low Microphyll Vine Forest (RE 12.9-10.15) within the bounds of the site. The occurrence of this vegetation was limited to one area and as such it was deemed that this area of vegetation would provide a unique suite of habitat features for fauna potentially utilising such vegetation. The master plan design is to include the protection and management of this vegetation.

Scheduling for the design and implementation of fauna management measures presented herein will be responsive to the stage(s) that are undergoing development at a particular time. It is considered that this approach will allow for a higher level of detail and resolution in terms of investigation and evaluation of fauna values, as well as specificity of management measures and solutions to ensure that these values are effectively managed. Further, this approach will enable management strategies to be prepared in accordance with future advances in legislation, regulation, standards and best practice methodologies. In accordance with **Section 4.1.1**, the design phase will also include a pre-clearance survey (described below in **Section 4.2.1.1**) undertaken subsequent to the RaL approval for the particular stage(s) of the development. The pre-clearance survey will identify any specific fauna and fauna habitat

management issues that are pertinent to the applicable stage(s). To guide the management of ongoing development within the site, it is expected a variety of construction-level management plans will be developed during the design and operational works application phases of development for each of the stages subject to development.

4.2.1.1 Pre-clearance Surveys

A key action of the design phase is the undertaking of pre-clearance surveys. A pre-clearance survey will be undertaken for each stage or group of stages prior to any Operational Works activities. The aims of the pre-clearance surveys include;

- Provide information on fauna and/or fauna habitat that may ultimately inform fine scale design changes to the master plan design.
- The identification of the fauna and fauna habitat features to allow for refinement of management measures to be employed during subsequent phases of the development. For example, identification of certain fauna features such as hollow bearing trees would inform the actions of fauna spotter catchers during the construction phase of the development.

The pre-clearance survey will consider ecological values associated with both fauna and flora. Within the context of this fauna management plan only the survey requirements associated with fauna and fauna habitat are described herein.

The required focus of pre-clearance surveys was initially discussed between Jane Kilgour and Ben Walker of ICC, Peter Macleod of Investa and Nelson Wills of New Ground on 14 November 2013. As such, the resulting survey protocol includes the agreed provisions of Ipswich City Council's (ICC) requirements. The pre-clearance survey aimed to record data from the defined disturbance footprint in relation to the following ecological features and survey protocol;

- Assessment of active and/or potential fauna breeding places- this involves searches for fauna breeding places such as hollow bearing trees, hollow logs, bird nests, and permanent aquatic habitats;
- Identification of native bee hives within the disturbance footprint, an indication of suitability for relocation is also to be made when native bee hives are identified;
- When a potential breeding place is encountered, it is searched for evidence of utilisation by fauna which includes searches for scats, scratches, white wash and regurgitation pellets, listening and call identification (e.g. amphibians), and visual searches of tree canopies; and
- Searches for threatened fauna species in particular those known to occur within the site. For example, searches of suitable koala feed trees are to be undertaken in search of visual indicators of use such as scratches and scats.

4.2.1.2 Landscape and Rehabilitation Design

At the design phase of the development consideration is to be given to landscaping design and rehabilitation in the context of fauna management. The key objective of site-wide fauna management is to maintain and enhance the retained areas of vegetation for the purpose of providing fauna habitat to both common and threatened fauna potentially utilising the site. Rehabilitation will be required within areas of retained vegetation, in particular the areas associated with Woogaroo Creek and Happy Jack Gully drainage lines. The rehabilitation works undertaken within the site will be in accordance with the approved Rehabilitation Management Plan, in particular a rehabilitation plan that is aligned with the fauna management intent for the site.

Whilst the main focus of ecological rehabilitation will be the retained areas of vegetation and open space to the east of the development area, landscape design will enhance the fauna habitat values within these areas as well as open space areas located within the more urbanised and developed parts of the site.

As such, landscaping of the site's open space and parkland will be undertaken in accordance with an approved landscaping plan that is cognisant of the fauna management vision and intent for the site. For example, locally sourced native flora comparable to the site's Regional Ecosystem designation will be utilised within the landscaping palate for open space areas both within the consolidated areas of retained/open space and also areas within the development footprint. It is acknowledged that loss of foraging resources is an impact that will occur within the site as a result of vegetation clearance. This loss can be mitigated to some degree by ecologically focused landscape planning that incorporates compensatory flora resources and habitat features within the urban landscape design.

4.2.2 Construction Phase

The construction phase of the development relates primarily to post operational works approval activities and in the context of general fauna management, it is expected that the measures presented below are applicable to a diverse range of fauna groups known to occur and/or potentially occur within the site. For species identified as significant fauna (primarily state and federally listed fauna known to occur on site) a tailored suite of measures are provide in addition to the general measures presented below (refer **Section 4.3**).

4.2.2.1 Pre-construction

The general fauna management measures for this sub-phase are to be implemented prior to commencement of any construction activities within the development footprint. The key objectives of the pre-construction management measures are to;

- Ensure that any fauna and/or fauna habitat features of significance (fauna habitat features identified during pre-clearance surveys for example) are identified and demarcated prior to undertaking of construction activities, in particular vegetation removal.
- Ensure any significant or sensitive areas, such as designated fauna corridors identified during design phase works are demarcated and protected from impact during construction phase activities.
- Ensure that any compensatory habitat features (nest boxes) are installed prior to disturbance to so they are available to fauna during and following site disturbance.
- Ensure all contractors and people involved with the construction activities are aware of their obligations responsibilities and ecological features present on site.

The general fauna management measures for this sub-phase will primarily consist of:

- Engaging relevant suitably quailed professionals and contractors to supervise and undertake clearing works; and
- Implementation of site setup protocols in accordance with relevant construction management plans, statutory approval requirements and industry standards.

To enhance the effectiveness of general fauna management measures, the development proponent will consider the following criteria during the contractor selection process:

- Previous project experience with construction in sensitive environmental areas;
- Contractor's reputation for sensitive site work and/or low impact construction; and
- Penalty provisions within construction contracts for non-compliant site activities (e.g. a damage clause requiring the contractor to pay a specified financial penalty to the proponent in the event that unapproved or non-compliant damage occurs to retained ecological values).

Pre-construction protocols associated with general fauna management measures will typically include the following;

- Prior to site entry, all site personnel including contractors must take part in a site induction, detailing their responsibilities in regards to the environmental management procedures.
- A suitably qualified spotter-catcher(s) will undertake a site walk through to identify any fauna habitat features of significance as identified during pre-clearance surveys.
- Where practical and safe, the spotter-catcher deemed will clearly mark any features to be retained or relocated, for example, hollow bearing trees. Flagging markers or protective fencing is to be installed around such features.
- Area of significance (vegetation, specific areas of habitat) as identified during the design phase are to be clearly distinguished from the disturbance/clearance areas using appropriate flagging markers, fencing or similar.
- When areas are to be demarcated prior to construction the temporary fencing layout should not restrict fauna movement.
- Erection of signage indicating that no entry is permitted within 'no-go' areas.
- Signage should contain contact details for the contractor, and any suitably qualified professionals associated with the site disturbance (e.g. spotter-catcher).
- Inspection and certification of fencing and signage by a suitably qualified person to ensure that they are suitable for the intended function.
- Fencing and signage should be installed before any machinery or materials are brought onto the site.
- Where the pre-clearance survey identifies and recommends habitat features are to be replaced by compensatory features (e.g. nest boxes), the relevant feature is to be installed prior to any site disturbance. This will ensure the compensatory feature is immediately available post disturbance. The ratio of natural

feature to compensatory features is to be as per recommendation detailed with the pre-clearance survey or relevant regulatory approval conditions. Furthermore the design and focus for compensatory features will be guided by the recommendations within the pre-clearance survey undertaken within a specific stage(s) of the development.

Note: Site inductions will include training in relation to flora and fauna values within the stage(s) that is/are being developed. All contractors and sub-contractors are to be aware of their roles and responsibilities relating to fauna management during construction. A register will be maintained by the development proponent for the purposes of confirming that construction contractors and sub-contractors have completed site inductions and undertaken site setup in accordance with relevant management plans and statutory requirements.

4.2.2.2 Active Construction

The active construction sub-phase will be undertaken in accordance with all relevant construction management plan provisions and statutory approval requirements. Furthermore, a suite of additional management measures to be undertaken in relation to fauna and fauna habitat are presented herein. The primary aim of fauna management measures undertaken during the construction phase is to minimise risk of injury and/or death to fauna located within the proposed disturbance footprint. This will be largely focused around the activity and engagement of suitably qualified fauna spotter-catchers. The construction phase will also involve the establishment of fauna protection measures (permanent fencing for example) that will facilitate longer term management of fauna post construction. The establishment of such features will be included in a construction management plan associated with the relevant stage subject to development. The following section provides detail around construction phase management measures.

Fauna Spotter-Catcher Requirements During Active Construction

A suitably qualified spotter-catcher(s) must be engaged to implement fauna management measures for the duration of clearing activities. One (1) spotter-catcher is required per machine directly involved with vegetation clearing. Each spotter-catcher would be responsible for communicating the requirements of this management plan to machinery operators to ensure respective duties are understood. Throughout the duration of clearing activities, the Spotter-catcher(s) will be responsible for:

- Inspecting habitats for fauna throughout the clearing and earthworks operations, including hollow logs, hollow trees, tree canopies and excavations;
- Identifying which habitat resources would be suitable for salvaging and directing machinery operators to locations for relocation in adjoining habitats;
- Relocating any uninjured fauna into adjoining habitats at the discretion of the Spotter-catcher;
- Daily recording of;
  - the number of hollow logs collected and relocation details;
  - details of any fauna species identified during the clearing; and
  - details of any fauna species captured during the clearing.
- Transporting any injured fauna captured during clearing to a qualified veterinarian for treatment;
- Recording details of any injured fauna and documenting subsequent actions such as:
  - contact details of veterinarian and treatment determined including termination if necessary; and
  - contact details of wildlife carer and expected recovery period prior to re-release.
- Identifying and recording release locations for any fauna captured, including future release sites for any rehabilitated fauna; and
- Releasing any rehabilitated fauna.

Management of Hollow- Bearing Trees During Active Construction

Intact hollows are to be relocated into retained bushland areas, where practicable. Prior to relocation the ends of the hollow are to be capped. The feature would then be relocated and attached to a suitable tree as determined by a suitably qualified spotter-catcher. Ideally host trees would be of a similar age and size class to the tree from which the hollow was harvested. Any remaining or partial hollows can be used to provide hollow log habitats and may be placed into nearby vegetated areas at the direction of the Spotter-catcher.

Management of Hollow Logs and Log Piles During Active Construction

Hollow logs and/or log piles within the disturbance footprint are to be relocated into retained bushland areas where deemed suitable by a qualified spotter-catcher. Relocated log piles should be placed in a mixture of locations and in piles of varying sizes from single logs to small piles (1 to 6 logs), medium piles (7 to 15 logs), and large piles (16 to >25). These structures are potential habitat locations for amphibians, reptiles and ground-dwelling mammals.

Management of Aquatic Habitat During Active Construction

If present within the particular stage of development, aquatic habitat will be highlighted within pre-clearance surveys undertaken during the design phase of the project. For the purpose of this management plan, aquatic habitat is taken to include wetlands, creeks, ponds and vegetated swamps. A suitably qualified spotter-catcher must be present where there is direct interference with any of the aquatic habitats identified during pre-clearance surveys.

General Management Measures to be Undertaken During Active Construction

- All vegetation is to be directionally felled back into the cleared areas, away from retained bushland areas to minimise potential for further damage to fauna and fauna habitat.
- Sequential clearing is to be implemented to stage disturbance and to provide time for fauna to relocate themselves into adjacent habitats. Where practical, clearing is to be undertaken in an easterly direction such that fauna have the opportunity to move away from the clearing interface into retained bushland habitat occurring to the east of the site (refer **APPENDIX E**).
- No more than 3 ha of habitat is to be cleared per day such that fauna may gradually move northward towards adjoining bushland.
- Where fauna, other than a koala, has not evacuated on its own accord, a suitably qualified spotter-catcher must remove the individual into an adjacent and suitable habitat structure.
- If an individual is injured or orphaned, it must be handed to a veterinary surgery for assessment and forwarded to a suitably experienced wildlife carer for rehabilitation or hand-raising. Rehabilitated fauna should be released back into suitable habitat within 5 km of the location of collection. A suitable local veterinary surgery and wildlife carers should be identified prior to disturbance works in the event that they are required by the Spotter-catcher(s).
- Relocated habitat features such as hollow logs should be placed into adjacent areas outside the disturbance footprint (recipient location) that resemble the source location, or be located into suitably intact vegetated areas. Recipient locations will be identified by a suitably qualified spotter-catcher.
- Where safe to do so, hollow-bearing trees should be gently knocked by suitable machinery such as an excavator arm to assess the presence of hollow-dependant arboreal fauna such as; birds and mammals that may evacuate the hollow prior to felling of the tree.
- Partial hollows unsuitable for tree attachment can be placed into adjoining stands of vegetation as log piles and for larger sections, as single logs.
- Inspect hollow logs and log piles prior to relocation by a suitably qualified spotter-catcher. Hollow logs and log piles can be relocated to nearby suitable and similar habitat as directed by a suitably qualified spotter-catcher. Locations should be selected to reduce any further environmental damage to the surrounding area.
- No excavated trenches or pits are to be left uncovered overnight. The Spotter-catcher is to inspect any excavated areas for trapped fauna prior to back filling.

Implementation/installation Of Fauna Management Features

Fauna management measures encompassing the entire development of the Brentwood Estate 'balance area' include the establishment and installation of features aimed at managing fauna and fauna habitat values post construction. The key objective of such actions is to ensure the site, in particular the retained vegetation and open space areas facilitate the safe and continued use by fauna, both common and threatened. The final location of proposed fauna management features will be incorporated within ICC approved Construction Management Plans that will accompany each stage of development. It should be noted that the installation of fauna management features described here are largely aimed at the management of significant fauna (notably koala), notwithstanding these features in many cases will also have wider management benefits to common fauna utilising the site, as such a summary of recommended fauna management features to be installed during the active construction phase is provided below;

- Establishment 'Caution wildlife' warning signs along key roads within the site. Such signs are to be in accordance with the current specifications and technical standards in place at the time of installation (e.g. AS 1743—2001) (**APPENDIX H**).
- Should the direct linkage offsite to the north of the site be bisected by proposed roads (refer **APPENDIX E** for potential locality), the installation of an appropriate fauna crossing structure will be required. Potential cost effective design solutions include a culvert or underpass associated with a bridge. Either of these two options can be 'furnished' with additional features such as ledges to improve fauna movement efficacy, in particular in relation to threatened fauna such as koala (refer **Section 4.3.1**).
- Inclusion of traffic calming devices within proposed road network in order to reduce incidence of vehicles exceeding posted speed limit as a measure of koala strike risk reduction (**APPENDIX H**).

- Installation of wildlife education signage within the retained vegetated areas and applicable open space areas.
- Installation of dog management signage adjacent to retained vegetated areas and applicable open space areas.
- Requirement (by covenant) that allotment purchasers fence back and side yards to a koala exclusion/dog containment standard which complies with *Koala-sensitive Design Guideline: A guide to koala-sensitive design measures for planning and development activities* (EHP, 2012) (refer pages 16, 18 and Covenant Approval and Application form of **APPENDIX G**).

4.2.3 Post-construction

At the completion of construction activities the site is to be deactivated and left in a safe and well-maintained condition. Where applicable, suitably qualified professionals are to prepare a brief report detailing their involvement with construction activities. This will include certification that construction works were undertaken in accordance with relevant management plan provisions and statutory requirements.

Post-construction a series of additional fauna management measures are to be initiated. The objectives of these measures are to further manage and limit injury and/or death to fauna utilising the site and to increase the ecological value of retained areas of vegetation and habitat within the site. The post-construction measures applicable to fauna utilising the site are;

- Provision of an information sheet/brochure presenting ways in which residents can contribute to koala conservation via koala-friendly behaviours. This information sheet will be provided to purchasers of allotments at time of sale and will be distributed through the estate upon release of new stages of development.
- Regular maintenance of fauna crossing(s) (as applicable). It is noted that ultimate placement and design of any onsite fauna crossing is subject to change and is dependant of wider engineering considerations, including future road linkage design between the site and its surrounds which are beyond the control of the proponent. However, should a fauna crossing be required at the site's east (refer **APPENDIX B** and **APPENDIX E**), it is expected to be either a culvert or underpass associated with a bridge.
- Ongoing maintenance of rehabilitated areas of the site to ensure effectiveness in terms of provision of fauna habitat, with vegetation management and maintenance schedules to be included within landscape and rehabilitation management plans. Following completion of the development phase of the Brentwood Estate balance area, the area of retained and rehabilitated vegetation is to be dedicated to local Council (ICC) to ensure ongoing protection and management of fauna habitat.
- Where compensatory nest boxes have been installed at the pre-construction phase, a period of post construction monitoring is recommended for a period to be determined by a suitably qualified ecologist. Should the nest boxes be found to be proliferating the establishment of non-native pest fauna such as the common myna (*Acridotheres tristis*) remedial action should be taken to exclude such species (e.g. modification of nest boxes).

4.3 Koala Management and Mitigation Measures

Field investigations have confirmed that the site has been utilised by koala (Orogen, 2011). The key impacts identified in relation to koala involve the direct removal of habitat and potential impact resulting from clearance of vegetation. Subsequent to this initial disturbance, the urbanised nature of the site (post construction) may expose any koala utilising the site to key threatening process, such as traffic and dogs. As such, the mitigation measures presented by this section address residual impacts through the implementation of customised management measures.

The koala mitigation and management measures presented herein have been formulated in consideration of relevant koala plans and management guidelines such as the koala sensitive design guidelines (DEHP, 2006; DEHP 2012). Furthermore, advice and input into the efficacy of the measures proposed was sought from relevant academic experts, notably Assoc. Professor Darryl Jones and Cathryn Dexter of Griffith University's Environmental Futures Centre. Darryl and Cathryn have been key drivers in a koala road kill mitigation project funded by the Queensland State Government. As such, it was felt their input would be valuable in terms of providing proven and technically rigorous mitigation measures for koala management within the context of the proposed activity. The following section provides an overview of the koala specific mitigation and management measures followed by details of when certain actions will occur in relation to the various phases of the development.

4.3.1 Overview of Koala Mitigation Measures

4.3.1.2 Strategic Koala Feed/Refuge Tree Retention within Open Space Areas/Parkland.

The objective of tree retention and replanting is to provide refugia for koalas that wander into developed area. As such, retention and refuge tree planting will occur in areas of potentially high risk (i.e. road reserves, active open space) and adjacent to protected and more extensive areas of habitat. The location of areas suitable for retention is identified within **APPENDIX E**. Refer to **APPENDIX F** for detail on replanting works. Of particular interest is that streetscape plantings are to be dominated by *Lophostemon confertus*, a tree species used by koalas for sheltering as well as feeding.

4.3.1.3 Road Management

Impact to koala from road accidents is considered a key threatening process. As such, mitigation measures are proposed to reduce this risk. These measures include the installation of traffic calming devices, specifically speed control devices (e.g. central median islands) as well as signage to indicate the presence of koala and wildlife. The location of these features is shown on **APPENDIX E**. The design of motorist warning signs will be in accordance with the current and relevant Australian Standard pertaining to wildlife sign design.

4.3.1.4 Koala Safe Internal Fencing

The key aim of koala management within the site is to reduce hazards to koala within the development area whilst maintaining free movement through retained areas of contiguous vegetation. Where fencing is to be installed within open space areas (within the development footprint), the design of such fencing will facilitate the safe movement of koala. Examples of koala safe fencing include post and rail design (**Figure 1**) typically employed within open space areas of residential development. Additional design options are provided within relevant guidelines, notably the Koala-sensitive Design Guideline (DEHP, 2012).

FIGURE 1 EXAMPLE OF KOALA SAFE FENCING (SOURCE: DEHP, 2012)

4.3.1.5 Domestic Dog Management Measures

Injury to koala from dogs is a known key threatening process, as such domestic dog management measures will be implemented at allotment level to reduce incidence of koalas interacting with dogs kept by Brentwood residents. Accordingly, the Brentwood Forest Design Guideline (as enforced by covenant) will specify that the side and backyards of allotments are to be fenced to a koala exclusion/dog containment standard which complies with the *Koala-sensitive Design Guideline: A guide to koala-sensitive design measures for planning and development activities* (EHP, 2012) (**APPENDIX G**). Other impact mitigation measures discussed in this report including retention/planting of refuge trees and provision of koala information material to residents will also assist in managing dog impacts. It is also noted that the residents and users of the site's open space and conservation areas will be informed of the dog management measures via information boards at strategic locations within the site (entry to bush trails for example).

4.3.1.6 Provision of Koala Education Material

To engage and educate residents of Brentwood Estate on matters that may assist in the management and mitigation of harm to koala, an educational package will be provided to residents of Brentwood Estate. The initial purchasers of each residential lot created by the development will be provided with literature that provides information on how residents can reduce their impact to koala potentially occurring within the development area.

Typical inclusion in such literature will be suggestions to install of ropes in swimming pools to help prevent koala drowning's and management of pets, notably dogs. This information will also be distributed across the estate upon release of a new stage of the development for sale and will be available at the site office. In addition to this material, educational signage will be placed at strategic locations within the site (entry to bush trails for example).

4.3.1.7 Maintenance of Offsite Linkage

The current master plan design (THG, 2013) maintains offsite linkage to allow koala (and other terrestrial fauna) to move from the onsite corridor of retained vegetation to areas of comparable vegetation, notably to the north and east of the site. It is understood that the future road network may restrict offsite access at the north of the site. **APPENDIX E** indicates an indicative location for this potential future road. Where offsite linkage is to be restricted, measures should be implemented to maintain connectivity. Design suggestions include the use of culvert and/or bridge underpasses. The efficacy of both these options has been shown to be increase (in relation to koala movement) by 'furnishing' the structures with walkways (D. Jones pers comm). Koalas have been shown to resist movement though a culvert and/or bridge underpasses if the ground is wet and subject to inundation. **Figure 2** and **Figure 3** show examples of culvert and underpass design that includes walkways to facilitate koala movement.

FIGURE 2 EXAMPLE OF KOALA/FAUNA WALKWAY ADDITION TO CULVERT (SOURCE: D. JONES 2013)

FIGURE 3 EXAMPLE OF KOALA/FAUNA WALKWAY ADDITION TO ROAD BRIDGE UNDERPASS (SOURCE: D. JONES 2013)

4.3.2 Design Phase Requirements

The design phase in relation to koala management and koala impact mitigation will largely incorporate the management measures proposed within **Section 4.2.1.** At the design phase a key activity will be to refine the design of management features and refine the spatial location for such features. **APPENDIX E** provides indicative locations of the proposed fauna management features in relation to the balance area master plan design current at the time of writing.

The design of suggested management features presented herein are expected to be subject to change given the overall time frame of the development. For example, more effective fauna management devices/designs may eventuate over the life of the project. Furthermore, the spatial location of management features may be revised

subject to potential future amendments of the site design. Design-phase impact mitigation measures specific to koala include;

- Pre-clearance survey to be undertaken as per details provided within **Section 4.2.1.1**. In relation to koala, the preclearance survey will indicate the presence of koala or evidence of koala utilisation (scats and scratches).
- Landscape and rehabilitation design within the main area of development is to allow for provision of koala refuge resources (**APPENDIX F**).
- The eastern portion of the site is to be established as a koala movement corridor. As per the landscape and rehabilitation details provided in **Section 4.2.1.2,** the design and planning around site-wide landscaping and rehabilitation will be cognisant of the intent to maintain retained vegetation for koala movement.

4.3.3 Construction Phase Requirements

4.3.3.1 Pre-construction

The pre-construction provisions specified in **Section 4.2.2.1** are directly applicable and transferable to the pre-construction management intent for koala.

4.3.3.2 Active Construction

The Active construction provisions specified in **Section 4.2.2.2** are directly applicable to the Active construction phase of works in relation to koala management. The additional action required in relation to koala management is as follows;

- Installation of koala management features as per design phase works and approved construction management plan(s), for example installation of koala exclusion/dog containment fencing around side and back yards of created allotments is to occur as part of the Active construction phase (**APPENDIX G**).

4.3.4 Post-construction Requirements

The post-construction provisions specified in **Section 4.2.3** are directly applicable to post-construction phase works in relation to koala. The additional actions are also required in relation to koala management are as follows;

- Where koala movement structures (e.g. bridge underpass) have been installed, the efficacy will be monitored to ensure they are functioning as intended.
- Provision of educational material to new residents is expected to occur post construction. It is recommended that this material is prepared by a suitably qualified person with an understanding of the vision and intent for such material.

4.4 Grey Headed Flying Fox

The remnant and non-remnant vegetation communities identified across the site during the Orogen (2011) ecological assessment represent suitable foraging habitat for the Grey-headed flying fox (*Pteropus poliocephalus*). In particular, the remnant and non-remnant vegetation communities analogous to regional ecosystems (RE) 12.9-10.12, 12.9-10.3, 12.9-10.2, 12.9-10.7a and 12.8.16 contain a variety of *Eucalyptus*, *Corymbia* and *Angophora* species of which, during flowering periods, provide seasonal nectar resources for the Grey-headed flying fox. In addition, these communities contain a variety of other flowering and/or fruit producing trees and/or shrubs that represent suitable foraging resources for the Grey-headed flying fox. These species include *Acacia spp*, *Ficus spp*, *Melaleuca viminalis*, *Syzygium australe*, *Alphitonia excelsa*, *Denhamia pittosporoides*, *Grevillea robusta*, *Psydrax odorata*, *Flindersia spp, Cupaniopsis* parvifolia, and *Jagera pseudorhus*. Both the remnant and non-remnant communities recorded onsite were found to support exotic tree species that also represent suitable foraging resources for the Grey-headed flying fox in the form of nectar and/or fruit resources. These trees include*: Celtis sinensis*, *Cinnamomum camphora*, *Schinus terebinthifolius* and *Jacaranda mimosifolia*.

It is therefore likely that utilisation of the site by the Grey-headed flying fox occurs opportunistically throughout the year, corresponding to the flowering and fruiting seasons of the variety of trees and shrubs within the site that offer a foraging resource. Foraging activity by the Grey-headed flying-fox was recorded on site during the Orogen (2011) ecological assessment; however, no roost sites (camps) were recorded within the site. The closest known flying fox roost locations occur within approximately 3.5 km to the east of the site near Camira and approximately 4.5 km to the north near Goodna (DEHP, 2013).

The expected impact to this species from the proposed removal of vegetation within the balance areas will be a loss of seasonal foraging resources. As such, the key mitigation measure proposed in response to this expected impact will be to enhance and supplement the foraging opportunities within retained areas of vegetation and also within open space areas via strategic landscaping and rehabilitation works. Specifically key measures are proposed throughout the project phases and are presented below.

4.4.1 Design Phase Requirements

- Pre clearance surveys are to be undertaken as per details provided within **Section 4.2.1.1**. Specifically, in relation to grey-headed flying foxes, a requirement of the pre-clearance survey will be to indicate whether the species occurs within the specific development stage subject to disturbance. A key detail to be recorded and presented within the pre-clearance survey is the occurrence of roost sites. As discussed above, the site is not known to be used as a roosting resource and such, this report addresses impact mitigation relative to loss of foraging habitat only. In the event that grey-headed flying fox be recorded roosting on the site, the proponent will need to reassess the likely impact (and associated regulatory requirements and mitigation measures) to this species.
- The occurrence of grey-headed flying foxes (limited to foraging) during pre-clearance surveys is not deemed to warrant refinement to master plan design.
- During the design phase, detailed landscape and rehabilitation plans will be formulated. These plans are to include the planting of flora species known to provide food resources for the grey-headed flying fox. The aforementioned plans will focus compensatory planting within the retained open space areas to the east of the development area (refer **APPENDIX E**). Given the highly mobile nature of the species, compensatory planting within the development area would also assist in mitigating the loss of foraging resources. This could be in the form of street scaping and landscaping of urban parks/open space.

4.4.2 Construction Phase Requirements

4.4.2.1 Pre-construction

- No additional pre-construction fauna management and mitigation measures are required over and above those presented with **Section 4.2.2.1** (general fauna management).

4.4.2.2 Active Construction

- The mitigation and management measures to be undertaken during construction in relation to grey-headed flying fox will relate to those presented within **Section 4.2.2.2** (general fauna management).
- If at the time of vegetation clearance and/or site disturbance a grey-headed flying fox roost site is encountered, any construction activities that may impact the roost should cease. The proponent will need to seek advice from a suitably qualified ecologist given potential regulatory controls around disturbance of such a feature as well as the need to formulate a management strategy particular to the circumstances.
- During the active construction phase it is expected that the landscape and rehabilitation plans detailed in the design phase will be initiated. As noted above, the key outcome in relation to this species is around the provision of compensatory food resources.

4.4.3 Post-construction Requirements

- The relevant post construction measures detailed within **Section 4.2.3** (general fauna management) are to be implemented in relation to this species. In particular, the ongoing maintenance of rehabilitated areas and landscaped open space of the site to ensure effectiveness in terms of provision of compensatory food resources for this species.

4.5 Powerful Owl

Powerful owls (*Ninox strenua*) were detected during ecological assessment of the site (Orogen, 2011). The locality of these records were primarily confined to riparian areas associated with the site's permanent waterways. The retention and rehabilitation of riparian corridors within the site (notably Woogaroo Creek) is a key mitigation measure aimed to minimise the impact to this species in terms of maintenance of known habitat.

The availability of large hollow bearing trees, in particular hollows of the appropriate diameter and depth to facilitate breeding by this species were uncommon within the site. Notwithstanding, the installation of compensatory hollows

is a mitigation measure to be implemented as part of the management strategy for this species. The following section provides further details around key actions and requirements at each project phase.

4.5.1 Design Phase Requirements

- The design phase requirements detailed within **Section 4.2.1** are applicable and transferable to the management intent for powerful owl.
- The pre-clearance surveys to be undertaken as per details provided within **Section 4.2.1.1** will make note of any powerful owl sightings and/or evidence of presence. Furthermore, the pre-clearance surveys will make record of hollow bearing trees hosting hollows of a size suitable for this species.

4.5.2 Construction Phase Requirements

4.5.2.1 Pre-construction

- The pre-construction phase requirements detailed within **Section 4.2.2.1** are applicable and transferable to the management intent for Powerful Owl.
- Where suitably sized hollows are identified during pre-clearance surveys, compensatory nest boxes (artificial hollows) are to be established and installed by a suitably qualified ecologist/spotter-catcher. Three (3) nest boxes are to be installed for every one potential Powerful Owl hollow identified during pre-clearance surveys within the disturbance footprint.

4.5.2.2 Active Construction

- The Active construction phase requirements detailed within **Section 4.2.2.2** are applicable and transferable to the management intent for Powerful Owl. No additional requirements are suggested for this species.

4.5.3 Post-construction Requirements

- The post construction phase requirements detailed within **Section 4.2.3** are applicable and transferable to the management intent for powerful owl.
- Monitoring of installed nest boxes (artificial hollows) is required to ensure usage by the target species. If monitoring deems this mitigation measure unsuccessful, a revision of the management strategy for the species will be required.

4.6 Native Bees

Native bee populations are known to play a crucial role in the pollination of native vegetation. The management and impact mitigation of native bees and their hives forms a fauna management requirement. The key mitigation strategy proposed herein is to avoid disturbance of hives where practicable. Where disturbance is unavoidable within the context of the master plan design, relocation and salvaging of hives is considered an acceptable management measure. The implementation of this management intent and strategy occurs across all the phases of the development and are discussed further below.

4.6.1 Design Phase Requirements

- Pre-clearance surveys are to be undertaken as per survey protocol provided within **Section 4.2.1.1** and will incorporate an assessment of the disturbance footprint for native bee hives. The pre-clearance survey will also provide GIS spatial data relating to individual hives. The ecologist undertaking the pre-clearance survey will provide information on the physical location of the hive for example '1m from the ground within a *Eucalyptus crebra*'. This information will assist in determining the feasibility and practicality of salvaging and relocating hives.

4.6.2 Construction Phase Requirements

4.6.2.1 Pre-construction

- Prior to any construction activities the suitably qualified spotter catcher engaged to supervise the site clearance will examine any hives identified during the pre-clearance survey. In particular the assessment will focus on hives that based on pre-clearance data may be relocatable.
- The Spotter Catcher is to coordinate relocation/re-housing of native bee hives (prior to disturbance) when deemed safe and practicable.

4.6.2.2 Active Construction

- If native bee hives, in addition to those identified during preclearance works, are encountered during clearing activities the Spotter-catcher will be required to determine whether hives are salvageable and if so coordinate relocation/re-housing.

4.6.3 Post-construction Requirements

- Where native bee hives have been relocated to locations within the site, it is recommended that a suitably qualified ecologist undertakes post relocation monitoring to assess the efficacy of relocation.

Chapter 5: Conclusion

This Fauna Management Plan has been prepared to function as a strategic framework to guide management of fauna values during development of the Brentwood Estate balance area. This FMP outlines provisions for the management of fauna during the design, construction and post-construction phases of the development. Strategies and commitments have been provided for the management of significant fauna found on site, notably EPBC Act and/or NC Act listed fauna and as well as native bees and their hives. Following completion of development of the Brentwood Estate balance area, the area of retained and rehabilitated vegetation will be dedicated to local Council (ICC) for ongoing protection and management of fauna habitat.

5.1 Review of Fauna Management Plan

This Fauna Management Plan is intended to be applicable for the duration of the development of the site. At the time of publishing this document, the development is anticipated to be completed incrementally over a 10+ year period. Given the expected completion timeframe, it is possible that there may be amendments to, or changes in legislation, planning regulations, and environmental management and construction standards and practices that are applicable to this plan. It is also possible that such amendments or changes may invalidate, or materially change the management intent of the provisions outlined within this plan at the date of publication.

To ensure that this management plan is able to fulfil its intended function, it includes a provision for periodic review and amendment in response to relevant changes to legislation, regulations and standards. A request to undertake a review may be made by either a regulatory authority or the development proponent, and a review process may be initiated at the agreement of both parties.

Any future review of this Fauna Management Plan will be undertaken by an independent, suitably qualified ecologist appointed by the development proponent. The review process will allow for feedback to be incorporated by both the regulatory authority and the development proponent, and will aim to ensure that the plan is amended to the satisfaction of both parties. The effect of any changes made during the review process should be to reflect and preserve the management intent of this plan as at the date of publication.

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APPENDIX A

Site Locality Plan

SITE LOCALITY - 'BALANCE AREA' BRENTWOOD ESTATE (LOT 2 ON RP47420 & LOT 907 ON SP234775)

0 0.25 0.5 Kilometers

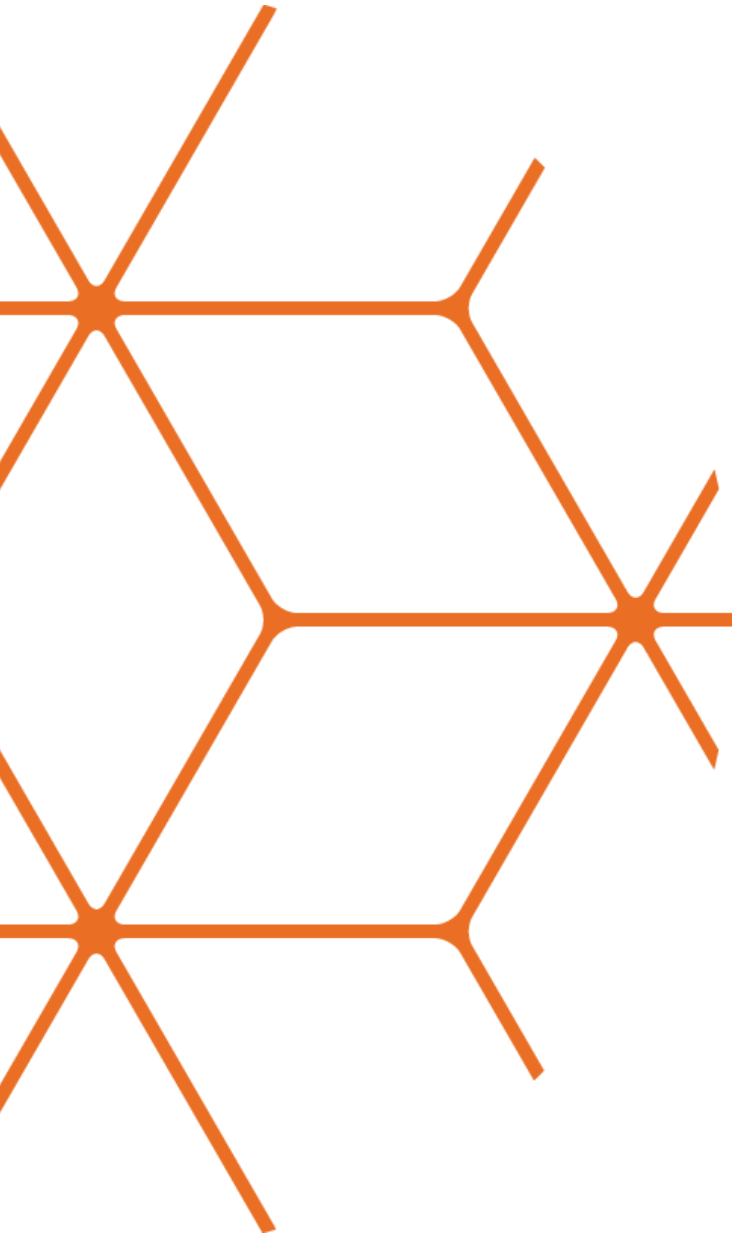
A3 Scale 1:6,000

File: 2105-Brentwood-MP-R3-131219v10
Date: 19/12/2013

Source:
Roads:Geoscience Australia 2007
Cadastral Boundaries: State of Queensland (Department of Natural Resources and Mines) 2012

APPENDIX B

Proposed Plan of Development



SITE BOUNDARY	
UNDEVELOPED AREA (Approx. 112.3ha)	
NET DEVELOPABLE AREA (Approx. 66.3ha)	

DEVELOPMENT SUMMARY NORTH

	AREA	%	NO. OF LOTS
DEVELOPED LOTS	29.22ha	18.0%	393
UNDEVELOPED LOTS (including roads)	60.06ha	37.0%	1001
PARK (including detention)	56.37ha	34.6%	n/a
PROPOSED SCHOOL SITE	12.0ha	7.4%	n/a
FUTURE DEVELOPMENT	4.85ha	3.0%	n/a
TOTAL	162.5ha	100%	1394
TOTAL UNDEVELOPED	64.91ha	40.0%	1001

BRENTWOOD RISE

BRENTWOOD FOREST

FOR

INVESTA

IMPORTANT NOTES:

This plan has been prepared for Investa. It is not to be used by any other person or corporation or for any other purposes.
The contours, boundaries, creek line, flood lines, building locations have all been scaled and should not have any relevance based on them, as they are only intended as a general guide. Any comments contained on this plan should be confirmed by relevant authorities.
The dimensions, areas and total number of lots shown hereon are subject to field survey, and lot calcs & also to the requirements of council & any other authority which may have requirements under any relevant legislation. In particular, no relevance should be placed on the information on this plan for any financial dealings involving the land.

Areas are approximate only and subject to change without notice.

Data Sources
Cadastral Boundaries 30251-GP02-B
Contours / Topographic 30251-GP01-B

No	Revisions	Date	Chkd
B	Amend Lot Boundaries and Summaries	03.04.2014	KS/CF
B	Amend Lot Boundaries and Summaries	02.04.2014	KS/CF
A	Original Base Source: 30251-GP01-E	25.02.2013	KS

Local Authority: IPSWICH CITY COUNCIL
1:2,000@A0
Drawn: KS
Checked: KS/AN
Plot Date: 03 Apr, 2014
Computer File Ref: 30251-GP02-C.dwg

BRENTWOOD ESTATE
For
INVESTA

THG
BRISBANE (07) 3666 4700
MACKAY (07) 4951 2911
PROSERPINE (07) 4945 1722
Email mail@thg.com.au www.thg.com.au
ABN 55156210052 THG WSG Pty Ltd t/a THG Resource Strategists

Drawing No 30251-GP02
Issue C

APPENDIX C

Wildlife Online Search Results

Queensland Government

Wildlife Online Extract

Search Criteria: Species List for a Specified Point
Species: All
Type: Native
Status: Rare and threatened species
Records: All
Date: All
Latitude: -27.6382
Longitude: 152.8888
Distance: 10
Email: nwills@newground.com.au
Date submitted: Monday 11 Aug 2014 08:55:35
Date extracted: Monday 11 Aug 2014 09:00:03

The number of records retrieved = 34

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	amphibians	Hylidae	*Litoria brevipalmata*	green thighed frog		NT		15
animals	amphibians	Limnodynastidae	*Adelotus brevis*	tusked frog		V		11
animals	birds	Accipitridae	*Erythrotriorchis radiatus*	red goshawk		E	V	1
animals	birds	Accipitridae	*Accipiter novaehollandiae*	grey goshawk		NT		13
animals	birds	Accipitridae	*Lophoictinia isura*	square-tailed kite		NT		19
animals	birds	Anatidae	*Nettapus coromandelianus*	cotton pygmy-goose		NT		11
animals	birds	Anatidae	*Stictonetta naevosa*	freckled duck		NT		1
animals	birds	Cacatuidae	*Calyptorhynchus lathami*	glossy black-cockatoo		V		20
animals	birds	Ciconiidae	*Ephippiorhynchus asiaticus*	black-necked stork		NT		9
animals	birds	Falconidae	*Falco hypoleucos*	grey falcon		NT		1
animals	birds	Laridae	*Sternula albifrons*	little tern		E		1
animals	birds	Meliphagidae	*Melithreptus gularis*	black-chinned honeyeater		NT		14
animals	birds	Psittacidae	*Neophema pulchella*	turquoise parrot		NT		1
animals	birds	Psittacidae	*Lathamus discolor*	swift parrot		E	E	3
animals	birds	Rallidae	*Lewinia pectoralis*	Lewin's rail		NT		6
animals	birds	Rostratulidae	*Rostratula australis*	Australian painted snipe		V	E	7
animals	birds	Scolopacidae	*Numenius madagascariensis*	eastern curlew		NT		1
animals	birds	Strigidae	*Ninox strenua*	powerful owl		V		16
animals	birds	Turnicidae	*Turnix melanogaster*	black-breasted button-quail		V	V	2
animals	mammals	Dasyuridae	*Dasyurus maculatus maculatus*	spotted-tailed quoll (southern subspecies)		V	E	2
animals	mammals	Delphinidae	*Orcaella heinsohni*	Australian snubfin dolphin		NT		3
animals	mammals	Phascolarctidae	*Phascolarctos cinereus (southeast Queensland bioregion)*	koala (southeast Queensland bioregion)		V	V	639
animals	mammals	Vombatidae	*Vombatus ursinus*	common wombat		NT		1
animals	reptiles	Elapidae	*Acanthophis antarcticus*	common death adder		NT		1
plants	conifers	Cupressaceae	*Callitris baileyi*	Bailey's cypress		NT		1
plants	higher dicots	Apiaceae	*Lilaeopsis brisbanica*			E		1/1
plants	higher dicots	Apocynaceae	*Marsdenia coronata*	slender milkvine		V		19/19
plants	higher dicots	Lamiaceae	*Plectranthus habrophyllus*			E	E	9/9
plants	higher dicots	Moraceae	*Fatoua villosa*			NT		1/1
plants	higher dicots	Myrtaceae	*Eucalyptus curtisii*	Plunkett mallee		NT		25/23
plants	higher dicots	Oleaceae	*Notelaea ipsviciensis*			E	CE	12/12
plants	higher dicots	Oleaceae	*Notelaea lloydii*	Lloyd's native olive		V	V	8/8
plants	higher dicots	Symplocaceae	*Symplocos harroldii*	hairy hazelwood		NT		1/1
plants	lower dicots	Hernandiaceae	*Hernandia bivalvis*	cudgerie		NT		2/1

CODES

I - Y indicates that the taxon is introduced to Queensland and has naturalised.

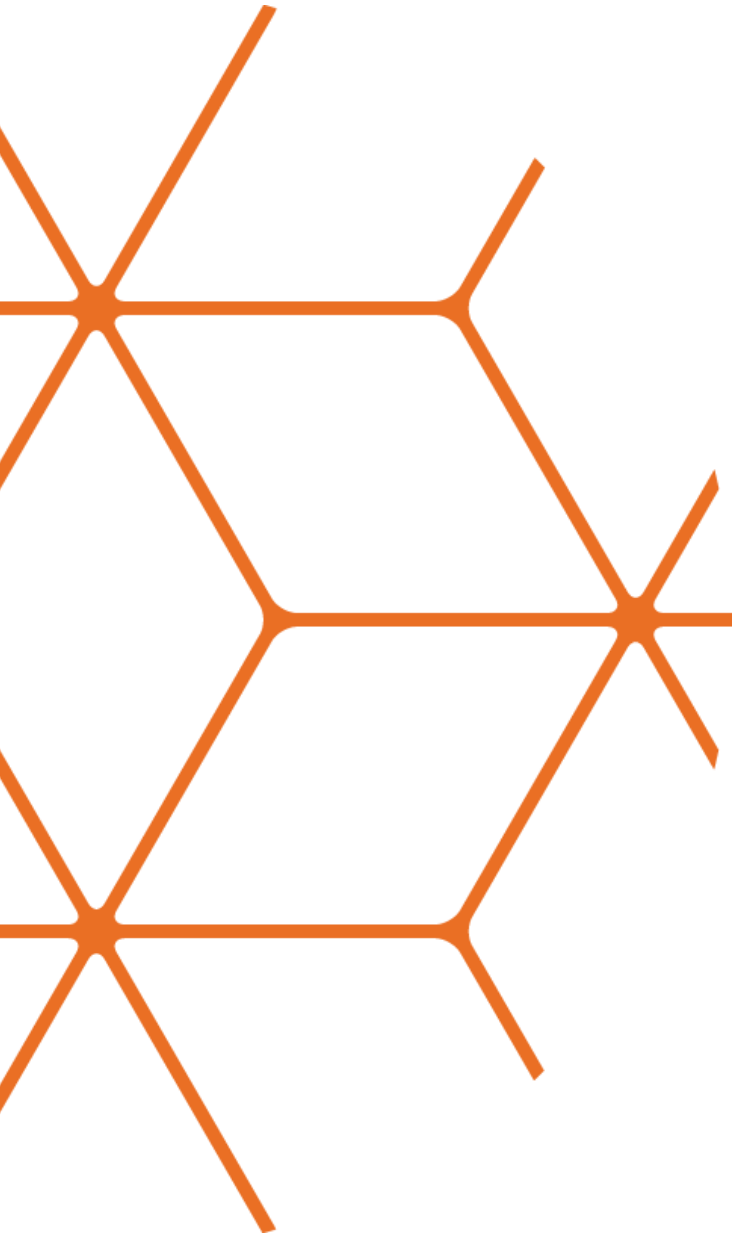
Q - Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992.* The codes are Extinct in the Wild (PE), Endangered (E), Vulnerable (V), Near Threatened (NT), Least Concern (C) or Not Protected ( ).

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 D

Protected Matters Search Results



Australian Government

Department of the Environment

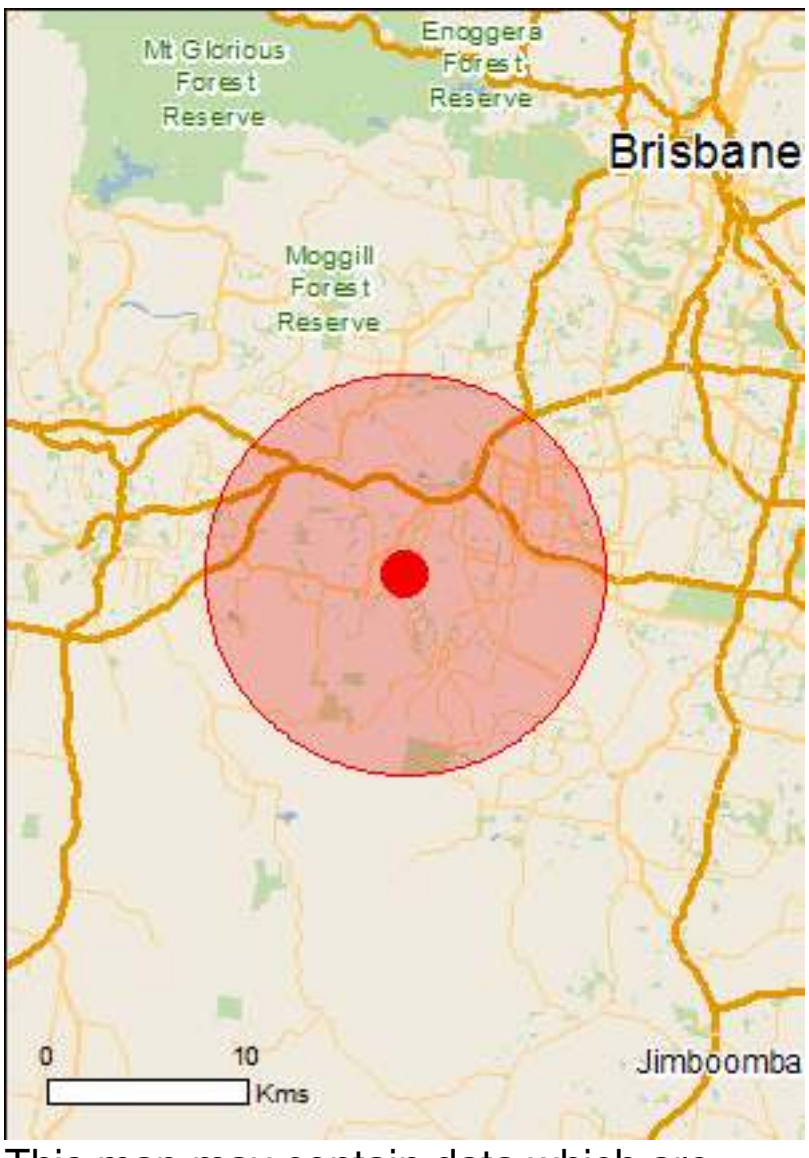
EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about Environment Assessments and the EPBC Act including significance guidelines, forms and application process details.

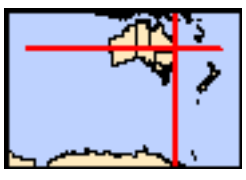
Report created: 11/08/14 08:59:23



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010

Coordinates

Buffer: 10.0Km



Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Areas:	None
Listed Threatened Ecological Communities:	2
Listed Threatened Species:	54
Listed Migratory Species:	32

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place and the heritage values of a place on the Register of the National Estate.

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Land:	2
Commonwealth Heritage Places:	1
Listed Marine Species:	33
Whales and Other Cetaceans:	1
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Commonwealth Reserves Marine	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

Place on the RNE:	6
State and Territory Reserves:	1
Regional Forest Agreements:	None
Invasive Species:	43
Nationally Important Wetlands:	1
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (RAMSAR) [Resource Information]

Name	Proximity
Moreton bay	Upstream from Ramsar

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Name	Status	Type of Presence
Lowland Rainforest of Subtropical Australia	Critically Endangered	Community may occur within area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community likely to occur within area

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
Anthochaera phrygia Regent Honeyeater [82338]	Endangered	Species or species habitat likely to occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area
Cyclopsitta diophthalma coxeni Coxen's Fig-Parrot [59714]	Endangered	Species or species habitat may occur within area
Dasyornis brachypterus Eastern Bristlebird [533]	Endangered	Species or species habitat likely to occur within area
Diomedea exulans antipodensis Antipodean Albatross [82269]	Vulnerable	Species or species habitat may occur within area
Diomedea exulans exulans Tristan Albatross [82337]	Endangered	Species or species habitat may occur within area
Diomedea exulans gibsoni Gibson's Albatross [82271]	Vulnerable	Species or species

Name	Status	Type of Presence
		habitat may occur within area
Diomedea exulans (sensu lato) Wandering Albatross [1073]	Vulnerable	Species or species habitat may occur within area
Erythrotriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat known to occur within area
Geophaps scripta scripta Squatter Pigeon (southern) [64440]	Vulnerable	Species or species habitat may occur within area
Lathamus discolor Swift Parrot [744]	Endangered	Species or species habitat likely to occur within area
Macronectes giganteus Southern Giant-Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant-Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Poephila cincta cincta Black-throated Finch (southern) [64447]	Endangered	Species or species habitat may occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Thalassarche cauta cauta Shy Albatross, Tasmanian Shy Albatross [82345]	Vulnerable	Species or species habitat may occur within area
Thalassarche cauta salvini Salvin's Albatross [82343]	Vulnerable	Species or species habitat may occur within area
Thalassarche cauta steadi White-capped Albatross [82344]	Vulnerable	Species or species habitat likely to occur within area
Thalassarche eremita Chatham Albatross [64457]	Endangered	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris impavida Campbell Albatross [82449]	Vulnerable	Species or species habitat may occur within area
Turnix melanogaster Black-breasted Button-quail [923]	Vulnerable	Species or species habitat likely to occur within area
Fish		
Epinephelus daemelii Black Rockcod, Black Cod, Saddled Rockcod [68449]	Vulnerable	Species or species habitat may occur within area
Neoceratodus forsteri Australian Lungfish, Queensland Lungfish [67620]	Vulnerable	Species or species habitat known to occur within area
Insects		

Name	Status	Type of Presence
Phyllodes imperialis smithersi		
Pink Underwing Moth [86084]	Endangered	Species or species habitat likely to occur within area
Mammals		
Chalinolobus dwyeri		
Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat likely to occur within area
Dasyurus hallucatus		
Northern Quoll [331]	Endangered	Species or species habitat may occur within area
Dasyurus maculatus maculatus (SE mainland population)		
Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat known to occur within area
Petrogale penicillata		
Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat likely to occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)		
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat known to occur within area
Potorous tridactylus tridactylus		
Long-nosed Potoroo (SE mainland) [66645]	Vulnerable	Species or species habitat may occur within area
Pteropus poliocephalus		
Grey-headed Flying-fox [186]	Vulnerable	Roosting known to occur within area
Other		
Cycas ophiolitica		
[55797]	Endangered	Species or species habitat likely to occur within area
Plants		
Arthraxon hispidus		
Hairy-joint Grass [9338]	Vulnerable	Species or species habitat may occur within area
Bosistoa selwynii		
Heart-leaved Bosistoa [13702]	Vulnerable	Species or species habitat likely to occur within area
Bosistoa transversa		
Three-leaved Bosistoa [16091]	Vulnerable	Species or species habitat likely to occur within area
Corchorus cunninghamii		
Native Jute [14659]	Endangered	Species or species habitat likely to occur within area
Gossia gonoclada		
Angle-stemmed Myrtle [78866]	Endangered	Species or species habitat likely to occur within area
Notelaea ipsviciensis		
Cooneana Olive [81858]	Critically Endangered	Species or species habitat known to occur within area
Notelaea lloydii		
Lloyd's Olive [15002]	Vulnerable	Species or species habitat likely to occur within area
Phaius australis		
Lesser Swamp-orchid [5872]	Endangered	Species or species habitat likely to occur within area
Phebalium distans		
Mt Berryman Phebalium [81869]	Critically Endangered	Species or species habitat may occur within

Name	Status	Type of Presence
		area
Plectranthus habrophyllus [64589]	Endangered	Species or species habitat likely to occur within area
Sophora fraseri [8836]	Vulnerable	Species or species habitat likely to occur within area
Streblus pendulinus Siah's Backbone, Sia's Backbone, Isaac Wood [21618]	Endangered	Species or species habitat likely to occur within area
Reptiles		
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area
Coeranoscincus reticulatus Three-toed Snake-tooth Skink [59628]	Vulnerable	Species or species habitat may occur within area
Delma torquata Collared Delma [1656]	Vulnerable	Species or species habitat known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
Furina dunmalli Dunmall's Snake [59254]	Vulnerable	Species or species habitat may occur within area
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Species or species habitat known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area

Listed Migratory Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable*	Species or species habitat may occur within area
Diomedea dabbenena Tristan Albatross [66471]	Endangered*	Species or species habitat may occur within area
Diomedea exulans (sensu lato) Wandering Albatross [1073]	Vulnerable	Species or species habitat may occur within area

Name	Threatened	Type of Presence
Diomedea gibsoni		
Gibson's Albatross [64466]	Vulnerable*	Species or species habitat may occur within area
Macronectes giganteus		
Southern Giant-Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli		
Northern Giant-Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Thalassarche cauta (sensu stricto)		
Shy Albatross, Tasmanian Shy Albatross [64697]	Vulnerable*	Species or species habitat may occur within area
Thalassarche eremita		
Chatham Albatross [64457]	Endangered	Species or species habitat may occur within area
Thalassarche impavida		
Campbell Albatross [64459]	Vulnerable*	Species or species habitat may occur within area
Thalassarche melanophris		
Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche salvini		
Salvin's Albatross [64463]	Vulnerable*	Species or species habitat may occur within area
Thalassarche steadi		
White-capped Albatross [64462]	Vulnerable*	Species or species habitat likely to occur within area
Migratory Marine Species		
Caretta caretta		
Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
Chelonia mydas		
Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area
Dermochelys coriacea		
Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Eretmochelys imbricata		
Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
Lepidochelys olivacea		
Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Species or species habitat known to occur within area
Manta birostris		
Giant Manta Ray, Chevron Manta Ray, Pacific Manta Ray, Pelagic Manta Ray, Oceanic Manta Ray [84995]		Species or species habitat may occur within area
Natator depressus		
Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area
Orcaella brevirostris		
Irrawaddy Dolphin [45]		Species or species habitat known to occur within area
Migratory Terrestrial Species		
Haliaeetus leucogaster		
White-bellied Sea-Eagle [943]		Species or species habitat known to occur

Name	Threatened	Type of Presence
		within area
[Hirundapus caudacutus](#) White-throated Needletail [682]		Species or species habitat known to occur within area
[Merops ornatus](#) Rainbow Bee-eater [670]		Species or species habitat may occur within area
[Monarcha melanopsis](#) Black-faced Monarch [609]		Species or species habitat known to occur within area
[Monarcha trivirgatus](#) Spectacled Monarch [610]		Species or species habitat known to occur within area
[Myiagra cyanoleuca](#) Satin Flycatcher [612]		Species or species habitat known to occur within area
[Rhipidura rufifrons](#) Rufous Fantail [592]		Species or species habitat known to occur within area
Migratory Wetlands Species		
[Ardea alba](#) Great Egret, White Egret [59541]		Breeding known to occur within area
[Ardea ibis](#) Cattle Egret [59542]		Breeding likely to occur within area
[Gallinago hardwickii](#) Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
[Rostratula benghalensis (sensu lato)](#) Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area

Other Matters Protected by the EPBC Act

Commonwealth Land [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Name
Defence - GREENBANK TRAINING AREA
Defence - SANANANDA BARRACKS - WACOL

Commonwealth Heritage Places [Resource Information]

Name	State	Status
Natural		
[Greenbank Military Training Area (part)](#)	QLD	Listed place

Listed Marine Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Birds		
[Anseranas semipalmata](#) Magpie Goose [978]		Species or species habitat may occur within area
[Apus pacificus](#) Fork-tailed Swift [678]		Species or species habitat likely to occur within area
[Ardea alba](#) Great Egret, White Egret [59541]		Breeding known to occur

Name	Threatened	Type of Presence within area
Ardea ibis Cattle Egret [59542]		Breeding likely to occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable*	Species or species habitat may occur within area
Diomedea dabbenena Tristan Albatross [66471]	Endangered*	Species or species habitat may occur within area
Diomedea exulans (sensu lato) Wandering Albatross [1073]	Vulnerable	Species or species habitat may occur within area
Diomedea gibsoni Gibson's Albatross [64466]	Vulnerable*	Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat known to occur within area
Lathamus discolor Swift Parrot [744]	Endangered	Species or species habitat likely to occur within area
Macronectes giganteus Southern Giant-Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant-Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat known to occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area

Name	Threatened	Type of Presence
Thalassarche cauta (sensu stricto)		
Shy Albatross, Tasmanian Shy Albatross [64697]	Vulnerable*	Species or species habitat may occur within area
Thalassarche eremita		
Chatham Albatross [64457]	Endangered	Species or species habitat may occur within area
Thalassarche impavida		
Campbell Albatross [64459]	Vulnerable*	Species or species habitat may occur within area
Thalassarche melanophris		
Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche salvini		
Salvin's Albatross [64463]	Vulnerable*	Species or species habitat may occur within area
Thalassarche steadi		
White-capped Albatross [64462]	Vulnerable*	Species or species habitat likely to occur within area
Reptiles		
Caretta caretta		
Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
Chelonia mydas		
Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area
Dermochelys coriacea		
Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Eretmochelys imbricata		
Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
Lepidochelys olivacea		
Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Species or species habitat known to occur within area
Natator depressus		
Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area

Whales and other Cetaceans		[Resource Information]
Name	Status	Type of Presence
Mammals		
Orcaella brevirostris		
Irrawaddy Dolphin [45]		Species or species habitat known to occur within area

Extra Information

Places on the RNE [Resource Information]

Note that not all Indigenous sites may be listed.

Name	State	Status
Natural		
Redbank Plains Fossil Site	QLD	Indicative Place
Woogaroo Creek Environmental Park	QLD	Indicative Place
Greenbank Military Training Area (part)	QLD	Registered
Historic		
Wolston Park Hospital Cricket Pavillion	QLD	Indicative Place
St Francis Xavier Church	QLD	Registered
Wolston House	QLD	Registered

State and Territory Reserves [Resource Information]

Name	State
White Rock	QLD

Invasive Species [Resource Information]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.

Name	Status	Type of Presence
Birds		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Lonchura punctulata Nutmeg Mannikin [399]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Frogs		
Bufo marinus Cane Toad [1772]		Species or species habitat likely to occur within area
Rhinella marina Cane Toad [83218]		Species or species habitat likely to occur within area
Mammals		

Name	Status	Type of Presence
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Equus caballus Horse [5]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Feral deer Feral deer species in Australia [85733]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus norvegicus Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Sus scrofa Pig [6]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Anredera cordifolia Madeira Vine, Jalap, Lamb's-tail, Mignonette Vine, Anredera, Gulf Madeiravine, Heartleaf Madeiravine, Potato Vine [2643]		Species or species habitat likely to occur within area
Asparagus aethiopicus Asparagus Fern, Ground Asparagus, Basket Fern, Sprengi's Fern, Bushy Asparagus, Emerald Asparagus [62425]		Species or species habitat likely to occur within area
Asparagus africanus Climbing Asparagus, Climbing Asparagus Fern [66907]		Species or species habitat likely to occur within area
Asparagus plumosus Climbing Asparagus-fern [48993]		Species or species habitat likely to occur within area
Cabomba caroliniana Cabomba, Fanwort, Carolina Watershield, Fish Grass, Washington Grass, Watershield, Carolina Fanwort, Common Cabomba [5171]		Species or species habitat likely to occur within area
Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat may occur within area

Name	Status	Type of Presence
Dolichandra unguis-cati		
Cat's Claw Vine, Yellow Trumpet Vine, Cat's Claw Creeper, Funnel Creeper [85119]		Species or species habitat likely to occur within area
Eichhornia crassipes		
Water Hyacinth, Water Orchid, Nile Lily [13466]		Species or species habitat likely to occur within area
Genista monspessulana		
Montpellier Broom, Cape Broom, Canary Broom, Common Broom, French Broom, Soft Broom [20126]		Species or species habitat likely to occur within area
Lantana camara		
Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]		Species or species habitat likely to occur within area
Lycium ferocissimum		
African Boxthorn, Boxthorn [19235]		Species or species habitat likely to occur within area
Opuntia spp.		
Prickly Pears [82753]		Species or species habitat likely to occur within area
Parkinsonia aculeata		
Parkinsonia, Jerusalem Thorn, Jelly Bean Tree, Horse Bean [12301]		Species or species habitat likely to occur within area
Parthenium hysterophorus		
Parthenium Weed, Bitter Weed, Carrot Grass, False Ragweed [19566]		Species or species habitat likely to occur within area
Protasparagus plumosus		
Climbing Asparagus-fern, Ferny Asparagus [11747]		Species or species habitat likely to occur within area
Sagittaria platyphylla		
Delta Arrowhead, Arrowhead, Slender Arrowhead [68483]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii		
Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Salvinia molesta		
Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area
Senecio madagascariensis		
Fireweed, Madagascar Ragwort, Madagascar Groundsel [2624]		Species or species habitat likely to occur within area
Solanum elaeagnifolium		
Silver Nightshade, Silver-leaved Nightshade, White Horse Nettle, Silver-leaf Nightshade, Tomato Weed, White Nightshade, Bull-nettle, Prairie-berry, Satansbos, Silver-leaf Bitter-apple, Silverleaf-nettle, Trompillo [12323]		Species or species habitat likely to occur within area
Reptiles		
Hemidactylus frenatus		
Asian House Gecko [1708]		Species or species habitat likely to occur within area

Nationally Important Wetlands	[Resource Information]
Name	State
Greenbank Army Training Area C	QLD

Coordinates

-27.63912 152.88997

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World Heritage and Register of National Estate properties, Wetlands of International Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

For species where the distributions are well known, maps are digitised from sources such as recovery plans and detailed habitat studies. Where appropriate, core breeding, foraging and roosting areas are indicated under 'type of presence'. For species whose distributions are less well known, point locations are collated from government wildlife authorities, museums, and non-government organisations; bioclimatic distribution models are generated and these validated by experts. In some cases, the distribution maps are based solely on expert knowledge.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Department of Environment, Climate Change and Water, New South Wales
-Department of Sustainability and Environment, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment and Natural Resources, South Australia
-Parks and Wildlife Service NT, NT Dept of Natural Resources, Environment and the Arts
-Environmental and Resource Management, Queensland
-Department of Environment and Conservation, Western Australia
-Department of the Environment, Climate Change, Energy and Water
-Birds Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-SA Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Atherton and Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
-State Forests of NSW
-Geoscience Australia
-CSIRO
-Other groups and individuals

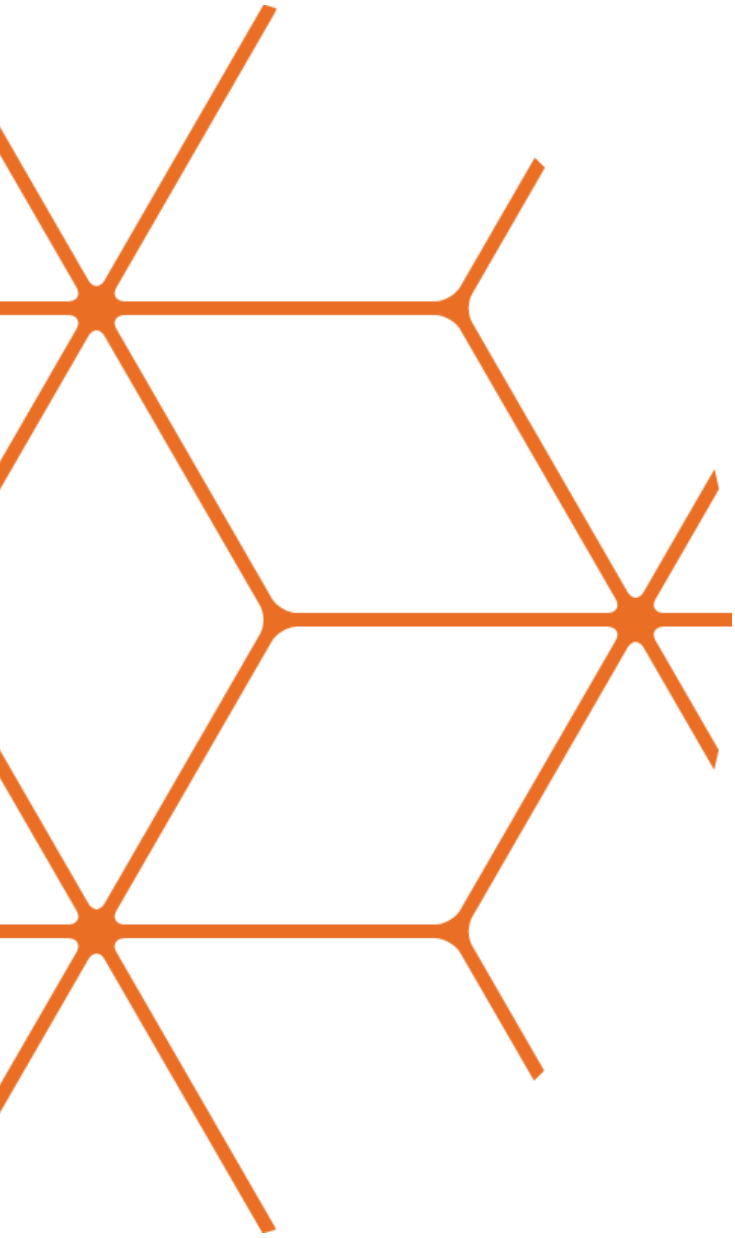
The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

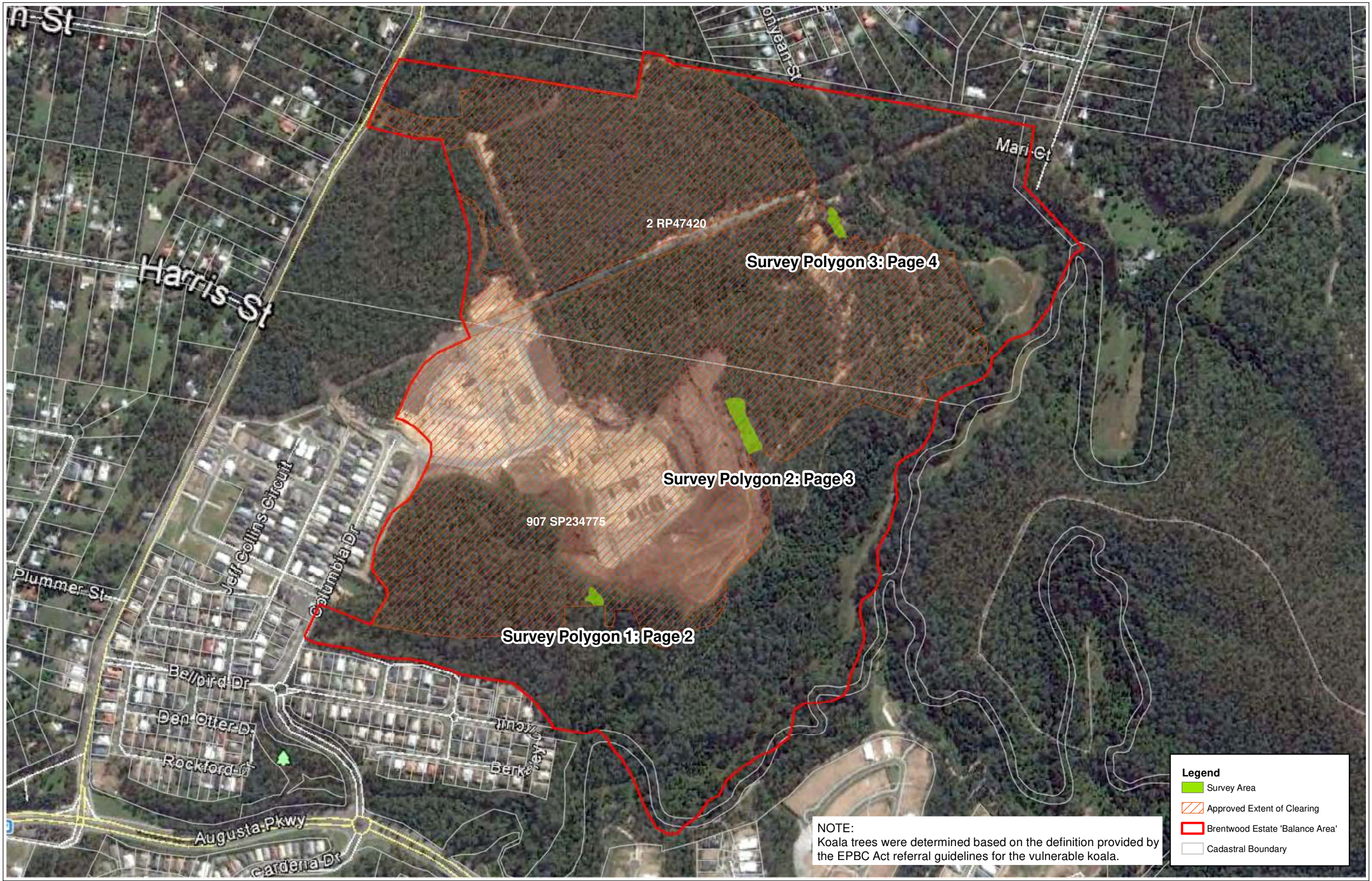
Please feel free to provide feedback via the Contact Us page.

Department of the Environment
GPO Box 787
Canberra ACT 2601 Australia
+61 2 6274 1111

APPENDIX E

Additional Tree Retention Areas Plan





KOALA HABITAT TREE PLAN
PAGE 1 OF 9

0 100 200 300 400 500 Metres

A3 Scale 1:6,000

File: 2105-R-02-AE-P1
Date: 29/10/2015

Source:
Approved Extent of Clearing: "Additional Tree Retention Areas" (Hyder Consulting Pty Ltd) 2015
Roads:Geoscience Australia 2007
Cadastral Boundaries: State of Queensland (Department of Natural Resources and Mines) 2012

907 SP234775

NOTE:
Koala trees were determined based on the definition provided by the EPBC Act referral guidelines for the vulnerable koala.
Refer to pp. 5-9 for tree data.

Legend
- Individual Tree Point
- Survey Polygon 1
- Approved Extent of Clearing
- Brentwood Estate 'Balance Area'
- Cadastral Boundary

KOALA HABITAT TREE PLAN
PAGE 2 OF 9

4.5 2.25 0 4.5 9 13.5 18 Meters

A3 Scale 1:200

File: 2105-R-02-AE-P2
Date: 29/10/2015

Source:
Approved Extent of Clearing: "Additional Tree Retention Areas" (Hyder Consulting Pty Ltd) 2015
Roads:Geoscience Australia 2007
Cadastral Boundaries: State of Queensland (Department of Natural Resources and Mines) 2012

907 SP234775

NOTE:
Koala trees were determined based on the definition provided by the EPBC Act referral guidelines for the vulnerable koala.
Refer to pp. 5-9 for tree data.

Legend

- Individual Tree Point
- Survey Polygon 2
- Approved Extent of Clearing
- Brentwood Estate 'Balance Area'
- DCDB Cadastral Boundary

KOALA HABITAT TREE PLAN
PAGE 3 OF 9

6 3 0 6 12 Metres

A3 Scale 1:309

File: 2105-R-02-AE-P3
Date: 29/10/2015

Source:
Approved Extent of Clearing: "Additional Tree Retention Areas" (Hyder Consulting Pty Ltd) 2015
Cadastral Boundaries: "Property Boundaries Queensland" Department of Natural Resources and Mines 2014
Aerial Imagery: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

KOALA HABITAT TREE PLAN
PAGE 4 OF 9

6.5 3.25 0 6.5 13 19.5 26 Meters

A3 Scale 1:275

File: 2105-R-02-AE-P4
Date: 29/10/2015

Source:
Approved Extent of Clearing: "Additional Tree Retention Areas" (Hyder Consulting Pty Ltd) 2015
Roads:Geoscience Australia 2007
Cadastral Boundaries: State of Queensland (Department of Natural Resources and Mines) 2012

Tree Number	Scientific Name	Common Name	DBH (cm)	Height (m)	Canopy Spread (m)	Additional Notes
1	*Angophora leiocarpa*	smooth barked apple	5, 8	7	3	-
2	*Angophora leiocarpa*	smooth barked apple	27	15	4	-
3	*Angophora leiocarpa*	smooth barked apple	25	15	3	-
4	*Angophora leiocarpa*	smooth barked apple	12	8	1.5	-
5	*Angophora leiocarpa*	smooth barked apple	6	4	1	-
6	*Lophostemon confertus*	brush box	4	4	1	-
7	*Lophostemon confertus*	brush box	4, 3	5	1	-
8	*Angophora leiocarpa*	smooth barked apple	24	15	2	-
9	*Angophora leiocarpa*	smooth barked apple	10	8	1	-
10	*Angophora leiocarpa*	smooth barked apple	25	12	3	-
11	*Eucalyptus moluccana*	gum-topped box	38	16	3	-
12	*Corymbia citriodora*	spotted gum	3	4	1	-
13	*Corymbia citriodora*	spotted gum	3	5	1	-
14	*Angophora leiocarpa*	smooth barked apple	9	10	1.5	-
15	*Angophora leiocarpa*	smooth barked apple	6	6	1.5	-
16	*Angophora leiocarpa*	smooth barked apple	8	6	1	-
17	*Lophostemon confertus*	brush box	3, 4, 4, 2	5	3	-
18	*Angophora leiocarpa*	smooth barked apple	9	9	1	-
19	*Angophora leiocarpa*	smooth barked apple	29	12	4	hollow branch
20	*Corymbia trachyphloia*	white bloodwood	7.5	8	2	-
21	*Lophostemon confertus*	brush box	8, 6	7	2	-
22	*Lophostemon confertus*	brush box	2, 3, 1.5, 4.5	3.5	3	-
23	*Lophostemon confertus*	brush box	8, 6	8	2	-
24	*Lophostemon confertus*	brush box	3, 4, 6	6	2	-
25	*Corymbia citriodora*	spotted gum	5	6	1.5	-
26	*Corymbia citriodora*	spotted gum	13, 8	11	2	-
27	*Angophora leiocarpa*	smooth barked apple	9	7	1	-
28	*Corymbia trachyphloia*	white bloodwood	6	6	1	-
29	*Eucalyptus moluccana*	gum-topped box	3	3.5	<1	signs of senescence
30	*Angophora leiocarpa*	smooth barked apple	11	14	1	-
31	*Lophostemon confertus*	brush box	6	6	1.5	-
32	*Lophostemon confertus*	brush box	3	4	1	-
33	*Lophostemon confertus*	brush box	2.5	4	<1	-
34	*Corymbia trachyphloia*	white bloodwood	6	7	<1	-
35	*Corymbia trachyphloia*	white bloodwood	4	4	<1	-
36	*Lophostemon confertus*	brush box	3, 3, 5, 5, 3	6	3	-
37	*Eucalyptus siderophloia*	grey ironbark	45	15	6	-
38	*Corymbia trachyphloia*	white bloodwood	5	5	<1	-
39	*Corymbia trachyphloia*	white bloodwood	7	7	<1	-
40	*Eucalyptus siderophloia*	grey ironbark	47.5	14	7	-
41	*Eucalyptus moluccana*	gum-topped box	6	7	1	-
42	*Eucalyptus moluccana*	gum-topped box	7	7	1	-
43	*Angophora leiocarpa*	smooth barked apple	4	5	<1	-
44	*Corymbia trachyphloia*	white bloodwood	7.5	5	1	-
45	*Corymbia trachyphloia*	white bloodwood	5.5	4.5	1	-
46	*Lophostemon confertus*	brush box	7, 8	9	2	-
47	*Eucalyptus moluccana*	gum-topped box	28.5	10	2	-
48	*Corymbia citriodora*	spotted gum	5	6	1	-
49	*Corymbia citriodora*	spotted gum	10	8	2	-
50	*Corymbia citriodora*	spotted gum	<1	1.9	<1	-
51	*Corymbia citriodora*	spotted gum	<1	2	<1	-
52	*Corymbia citriodora*	spotted gum	8	7	2	-
53	*Corymbia citriodora*	spotted gum	8	10	1.5	-
54	*Corymbia citriodora*	spotted gum	4	6	<1	-
55	*Corymbia citriodora*	spotted gum	7	8	1	-
56	*Corymbia citriodora*	spotted gum	8	9	1	-
57	*Corymbia citriodora*	spotted gum	4.5	7	<1	-
58	*Corymbia citriodora*	spotted gum	7	8	1	-
59	*Corymbia citriodora*	spotted gum	11, 9	10	2	-
60	*Corymbia citriodora*	spotted gum	1	2	<1	-
61	*Corymbia citriodora*	spotted gum	11	12	1	-
62	*Corymbia citriodora*	spotted gum	8	10	1.5	-
63	*Corymbia citriodora*	spotted gum	6, 8	12	2	-
64	*Corymbia citriodora*	spotted gum	4, 5, 10	7	1	-
65	*Corymbia citriodora*	spotted gum	9, 6	12	1	-
66	*Corymbia citriodora*	spotted gum	5, 9	13	1.5	-
67	*Corymbia citriodora*	spotted gum	25.5	15	6	-
68	*Corymbia citriodora*	spotted gum	6, 7	8	1	-
69	*Corymbia citriodora*	spotted gum	6, 7.5	10	1	-
70	*Corymbia citriodora*	spotted gum	4.5, 9	9	1	-

Tree Number	Scientific Name	Common Name	DBH (cm)	Height (m)	Canopy Spread (m)	Additional Notes
72	*Eucalyptus moluccana*	gum-topped box	2	2	<1	-
73	*Corymbia citriodora*	spotted gum	15	10	2	-
74	*Eucalyptus moluccana*	gum-topped box	2.5	4	<1	-
75	*Corymbia citriodora*	spotted gum	3	5	<1	-
76	*Corymbia citriodora*	spotted gum	<1	1.5	<1	-
77	*Corymbia citriodora*	spotted gum	<1	1	<1	-
78	*Angophora leiocarpa*	smooth barked apple	2.5	3	<1	-
79	*Eucalyptus moluccana*	gum-topped box	27	12	4	-
80	*Eucalyptus siderophloia*	grey ironbark	24	12	4	-
81	*Corymbia citriodora*	spotted gum	6	7	1	-
82	*Eucalyptus siderophloia*	grey ironbark	23	11	2	-
83	*Angophora leiocarpa*	smooth barked apple	3.5	5	<1	-
84	*Corymbia citriodora*	spotted gum	2.5	5	<1	-
85	*Eucalyptus siderophloia*	grey ironbark	12	8	2	-
86	*Corymbia citriodora*	spotted gum	2	4	<1	-
87	*Angophora leiocarpa*	smooth barked apple	18.5	9	2	-
88	*Eucalyptus moluccana*	gum-topped box	<1	1.8	<1	-
89	*Eucalyptus moluccana*	gum-topped box	<1	<2	<1	-
90	*Eucalyptus siderophloia*	grey ironbark	26	l12	5	-
91	*Eucalyptus siderophloia*	grey ironbark	22	10	2	-
92	*Corymbia citriodora*	spotted gum	4	6	1	-
93	*Eucalyptus siderophloia*	grey ironbark	4	4	<1	-
94	*Eucalyptus moluccana*	gum-topped box	33	13	6	-
95	*Angophora leiocarpa*	smooth barked apple	6	8	1.5	-
96	*Corymbia citriodora*	spotted gum	8, 7	8	4	-
97	*Corymbia citriodora*	spotted gum	4	6	1.5	-
98	*Eucalyptus moluccana*	gum-topped box	18	15	5	-
99	*Corymbia trachyphloia*	white bloodwood	4	4	<1	-
100	*Corymbia citriodora*	spotted gum	3	4	<1	signs of senescence
101	*Corymbia citriodora*	spotted gum	4	6	<1	signs of senescence
102	*Angophora leiocarpa*	smooth barked apple	21	12	6	-
103	*Corymbia trachyphloia*	white bloodwood	3	3	<1	-
104	*Corymbia trachyphloia*	white bloodwood	9	9	<1	-
105	*Corymbia citriodora*	spotted gum	29.5	15	8	-
106	*Corymbia citriodora*	spotted gum	4	5	1	-
107	*Corymbia citriodora*	spotted gum	26.5	12	5	-
108	*Corymbia trachyphloia*	white bloodwood	9	9	1	-
109	*Eucalyptus siderophloia*	grey ironbark	8.5	7	1	-
110	*Corymbia citriodora*	spotted gum	5.5	9	<1	signs of senescence
111	*Corymbia trachyphloia*	white bloodwood	5	5	<1	-
112	*Corymbia citriodora*	spotted gum	4, 5	9	<1	-
113	*Corymbia citriodora*	spotted gum	33	12	5	-
114	*Corymbia citriodora*	spotted gum	8	8	1	-
115	*Corymbia citriodora*	spotted gum	32	13	6	-
116	*Corymbia citriodora*	spotted gum	4	2	<1	signs of senescence
117	*Eucalyptus siderophloia*	grey ironbark	9	8	<1	-
118	*Eucalyptus moluccana*	gum-topped box	42	13	5	-
119	*Corymbia citriodora*	spotted gum	28	13	5	-
120	*Corymbia citriodora*	spotted gum	10	11	<1	-
121	*Corymbia citriodora*	spotted gum	5.5	6	<1	-
122	*Lophostemon confertus*	brush box	2	2	<1	-
123	*Lophostemon confertus*	brush box	<1	1	<1	-
124	*Eucalyptus siderophloia*	grey ironbark	20	9	2	-
125	*Corymbia citriodora*	spotted gum	34, 5, 5, 13	14	3	-
126	*Lophostemon suaveolens*	swamp box	9, 11, 22	8	2	-
127	*Eucalyptus siderophloia*	grey ironbark	16, 16	11	2	-
128	*Lophostemon suaveolens*	swamp box	10, 9	8	1	-
129	*Lophostemon suaveolens*	swamp box	16, 17	8	3	-
130	*Eucalyptus siderophloia*	grey ironbark	11, 13	10	2	-
131	*Lophostemon suaveolens*	swamp box	14	6	1	-
132	*Eucalyptus siderophloia*	grey ironbark	6	9	1	-
133	*Eucalyptus siderophloia*	grey ironbark	6	9	1	-
134	*Lophostemon suaveolens*	swamp box	5	6	1	-
135	*Lophostemon suaveolens*	swamp box	5	5	1	-
136	*Lophostemon suaveolens*	swamp box	5	6	1	-
137	*Lophostemon suaveolens*	swamp box	27	10	2	-
138	*Lophostemon suaveolens*	swamp box	1	2	<1	-
139	*Lophostemon suaveolens*	swamp box	1	1.5	<1	-
140	*Lophostemon suaveolens*	swamp box	3	3	<1	-
141	*Lophostemon suaveolens*	swamp box	2	2.5	<1	-

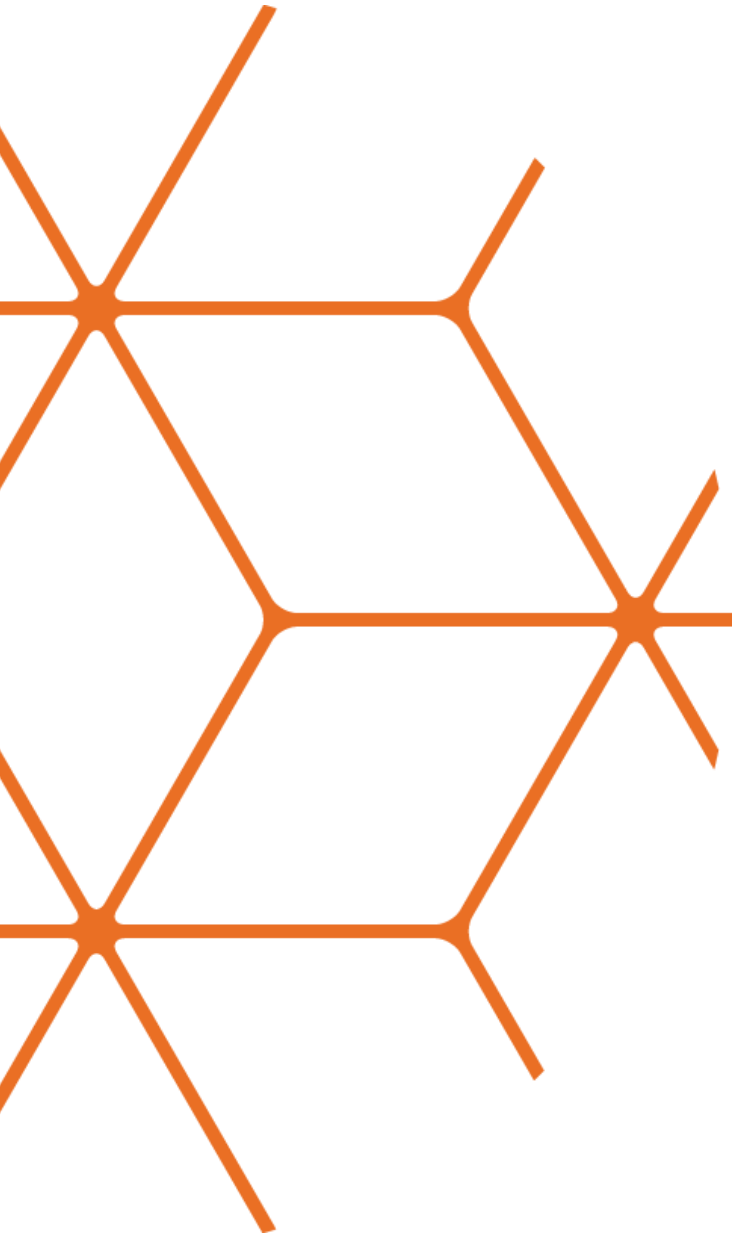
Tree Number	Scientific Name	Common Name	DBH (cm)	Height (m)	Canopy Spread (m)	Additional Notes
142	*Lophostemon suaveolens*	swamp box	5	5	<1	-
143	*Lophostemon suaveolens*	swamp box	3	4	<1	-
144	*Lophostemon suaveolens*	swamp box	16	6	2	-
145	*Eucalyptus siderophloia*	grey ironbark	11.5	7	2	-
146	*Eucalyptus siderophloia*	grey ironbark	11.5	7	2	-
147	*Corymbia trachyphloia*	white bloodwood	5	6	1	-
148	*Eucalyptus siderophloia*	grey ironbark	26	12	6	signs of senescence
149	*Lophostemon confertus*	brush box	7, 6, 6	7	3	-
150	*Eucalyptus moluccana*	gum-topped box	3	2	<2	-
151	*Lophostemon confertus*	brush box	5, 5, 5, 5, 2	8	4	-
152	*Lophostemon suaveolens*	swamp box	5	4	<2	-
153	*Eucalyptus moluccana*	gum-topped box	2	3	<2	-
154	*Angophora leiocarpa*	smooth barked apple	25	13	6	-
155	*Eucalyptus moluccana*	gum-topped box	4	5	<2	-
156	*Lophostemon confertus*	brush box	6	8	<2	-
157	*Eucalyptus moluccana*	gum-topped box	5	6	<2	-
158	*Eucalyptus moluccana*	gum-topped box	1	2	<2	-
159	*Lophostemon confertus*	brush box	7, 8	8	2	-
160	*Angophora leiocarpa*	smooth barked apple	2	3	<2	-
161	*Eucalyptus moluccana*	gum-topped box	3	4	<2	-
162	*Angophora leiocarpa*	smooth barked apple	12	10	4	-
163	*Eucalyptus moluccana*	gum-topped box	3	4	<2	-
164	*Lophostemon confertus*	brush box	2	2	<2	-
165	*Corymbia trachyphloia*	white bloodwood	10	5	2	-
166	*Eucalyptus siderophloia*	grey ironbark	50	16	8	-
167	*Eucalyptus moluccana*	gum-topped box	7	7	2	-
168	*Corymbia trachyphloia*	white bloodwood	6	5	<2	-
169	*Angophora leiocarpa*	smooth barked apple	13	11	2	-
170	*Corymbia trachyphloia*	white bloodwood	3	2	<2	-
171	*Lophostemon confertus*	brush box	6, 7	5	2	-
172	*Lophostemon confertus*	brush box	5, 4, 7, 2, 4	5	2	-
173	*Angophora leiocarpa*	smooth barked apple	11	13	2	-
174	*Angophora leiocarpa*	smooth barked apple	45	16	8	-
175	*Eucalyptus moluccana*	gum-topped box	2	4	<2	-
176	*Lophostemon confertus*	brush box	5, 5, 3, 4	5	2	-
177	*Lophostemon confertus*	brush box	5, 5, 3, 7	5	2	-
178	*Corymbia trachyphloia*	white bloodwood	5	5	<2	-
179	*Lophostemon confertus*	brush box	8, 9, 7, 4	6	2	-
180	*Corymbia trachyphloia*	white bloodwood	4	5	<2	-
181	*Lophostemon confertus*	brush box	7, 2, 8	8	4	-
182	*Angophora leiocarpa*	smooth barked apple	32	13	6	-
183	*Angophora leiocarpa*	smooth barked apple	30	11	4	-
184	*Angophora leiocarpa*	smooth barked apple	8	12	2	-
185	*Corymbia trachyphloia*	white bloodwood	6	3	<2	-
186	*Lophostemon confertus*	brush box	7, 5, 6, 4	4	2	-
187	*Eucalyptus moluccana*	gum-topped box	8	7	2	-
188	*Eucalyptus moluccana*	gum-topped box	77	13	6	-
189	*Eucalyptus moluccana*	gum-topped box	65	19	8	-
190	*Angophora leiocarpa*	smooth barked apple	45	17	6	-
191	*Corymbia trachyphloia*	white bloodwood	7	6	2	-
192	*Eucalyptus moluccana*	gum-topped box	2	2	<2	-
193	*Eucalyptus moluccana*	gum-topped box	3	2	<2	-
194	*Lophostemon confertus*	brush box	10, 9, 7, 6	7	2	-
195	*Lophostemon confertus*	brush box	9, 2, 2	6	2	-
196	*Corymbia citriodora*	spotted gum	7	6	2	-
197	*Angophora leiocarpa*	smooth barked apple	12	8	2	-
198	*Corymbia citriodora*	spotted gum	4	5	<2	-
199	*Corymbia citriodora*	spotted gum	14	10	2	-
200	*Corymbia citriodora*	spotted gum	8	8	<2	-
201	*Angophora leiocarpa*	smooth barked apple	13	12	2	-
202	*Corymbia citriodora*	spotted gum	4	4	<2	-
203	*Corymbia citriodora*	spotted gum	10	8	2	-
204	*Corymbia citriodora*	spotted gum	11	9	2	-
205	*Corymbia citriodora*	spotted gum	12	8	2	-
206	*Corymbia citriodora*	spotted gum	3	3	<2	-
207	*Corymbia citriodora*	spotted gum	15	11	2	-
208	*Corymbia citriodora*	spotted gum	14	11	2	-
209	*Corymbia citriodora*	spotted gum	4	4	<2	-
210	*Eucalyptus moluccana*	gum-topped box	40	15	6	-
211	*Eucalyptus moluccana*	gum-topped box	38	12	6	-

Tree Number	Scientific Name	Common Name	DBH (cm)	Height (m)	Canopy Spread (m)	Additional Notes
212	*Eucalyptus moluccana*	gum-topped box	53	13	10	-
213	*Corymbia citriodora*	spotted gum	4	4	<2	-
214	*Corymbia citriodora*	spotted gum	16	7	4	-
215	*Corymbia citriodora*	spotted gum	25	13	4	-
216	*Angophora leiocarpa*	smooth barked apple	8, 9	7	2	-
217	*Angophora leiocarpa*	smooth barked apple	17	7	2	-
218	*Angophora leiocarpa*	smooth barked apple	8	6	2	-
219	*Angophora leiocarpa*	smooth barked apple	8	6	2	-
220	*Corymbia citriodora*	spotted gum	1	2	<2	-
221	*Corymbia citriodora*	spotted gum	10	8	2	-
222	*Corymbia citriodora*	spotted gum	40	12	8	-
223	*Eucalyptus moluccana*	gum-topped box	35	13	6	-
224	*Corymbia citriodora*	spotted gum	25	11	2	-
225	*Eucalyptus moluccana*	gum-topped box	40	12	6	-
226	*Angophora leiocarpa*	smooth barked apple	2	1	<2	-
227	*Angophora leiocarpa*	smooth barked apple	35	14	8	-
228	*Corymbia citriodora*	spotted gum	6	5	2	-
229	*Angophora leiocarpa*	smooth barked apple	30	7	2	-
230	*Eucalyptus moluccana*	gum-topped box	40	15	8	-
231	*Angophora leiocarpa*	smooth barked apple	20	11	2	-
232	*Corymbia trachyphloia*	white bloodwood	6	4	<2	-
233	*Corymbia citriodora*	spotted gum	30	12	4	-
234	*Corymbia citriodora*	spotted gum	30	12	4	-
235	*Angophora leiocarpa*	smooth barked apple	3	3	<2	-
236	*Corymbia citriodora*	spotted gum	4	4	<2	-
237	*Eucalyptus moluccana*	gum-topped box	4	4	<2	-
238	*Corymbia trachyphloia*	white bloodwood	3	2	<2	-
239	*Corymbia citriodora*	spotted gum	25	11	4	-
240	*Corymbia trachyphloia*	white bloodwood	28	13	4	-
241	*Angophora leiocarpa*	smooth barked apple	35	14	4	-
242	*Corymbia trachyphloia*	white bloodwood	5	3	<2	-
243	*Corymbia citriodora*	spotted gum	40	13	4	-
244	*Corymbia citriodora*	spotted gum	40	13	4	-
245	*Corymbia trachyphloia*	white bloodwood	4	3	<2	-
246	*Corymbia citriodora*	spotted gum	40, 35, 30	13	6	-
247	*Corymbia citriodora*	spotted gum	30	13	4	-
248	*Corymbia trachyphloia*	white bloodwood	10	3	<2	signs of senescence
249	*Eucalyptus moluccana*	gum-topped box	3	2	<2	-
250	*Eucalyptus moluccana*	gum-topped box	7	6	<2	-
251	*Corymbia trachyphloia*	white bloodwood	8	4	<2	-
252	*Eucalyptus siderophloia*	grey ironbark	7	4	<2	-
253	*Corymbia trachyphloia*	white bloodwood	4	3	<2	-
254	*Corymbia citriodora*	spotted gum	7	5	<2	-
255	*Corymbia citriodora*	spotted gum	7	5	<2	-
256	*Corymbia trachyphloia*	white bloodwood	3	3	<2	-
257	*Angophora leiocarpa*	smooth barked apple	70	16	10	-
258	*Corymbia citriodora*	spotted gum	35	14	6	-
259	*Corymbia citriodora*	spotted gum	3	3	<2	-
260	*Corymbia trachyphloia*	white bloodwood	7	6	2	-
261	*Corymbia citriodora*	spotted gum	15	8	2	-
262	*Corymbia trachyphloia*	white bloodwood	5	4	<2	-
263	*Corymbia trachyphloia*	white bloodwood	5	4	<2	-
264	*Corymbia trachyphloia*	white bloodwood	5	4	<2	-
265	*Corymbia trachyphloia*	white bloodwood	9	4	<2	-
266	*Corymbia trachyphloia*	white bloodwood	5	4	<2	-
267	*Eucalyptus siderophloia*	grey ironbark	15	9	2	-
268	*Corymbia trachyphloia*	white bloodwood	8	4	<2	-
269	*Corymbia citriodora*	spotted gum	20	10	6	-
270	*Corymbia citriodora*	spotted gum	3	3	<2	-
271	*Corymbia citriodora*	spotted gum	3	3	<2	-
272	*Corymbia citriodora*	spotted gum	3	3	<2	-
273	*Corymbia citriodora*	spotted gum	12	8	2	-
274	*Corymbia citriodora*	spotted gum	3	3	<2	-
275	*Corymbia citriodora*	spotted gum	4	3	<2	-
276	*Corymbia citriodora*	spotted gum	3	3	<2	-
277	*Corymbia citriodora*	spotted gum	6	5	<2	-
278	*Eucalyptus siderophloia*	grey ironbark	25	10	4	-
279	*Corymbia citriodora*	spotted gum	7	5	<2	-
280	*Corymbia citriodora*	spotted gum	3	4	<2	-
281	*Corymbia citriodora*	spotted gum	3	3	<2	-

Tree Number	Scientific Name	Common Name	DBH (cm)	Height (m)	Canopy Spread (m)	Additional Notes
282	*Eucalyptus siderophloia*	grey ironbark	30	9	4	-
283	*Corymbia citriodora*	spotted gum	35	10	6	-
284	*Corymbia citriodora*	spotted gum	35	10	6	-
285	*Corymbia citriodora*	spotted gum	25	9	4	-
286	*Corymbia citriodora*	spotted gum	35	10	6	-
287	*Corymbia citriodora*	spotted gum	5	3	<2	-
288	*Corymbia citriodora*	spotted gum	5	3	<2	-
289	*Corymbia citriodora*	spotted gum	5	3	<2	-
290	*Corymbia citriodora*	spotted gum	5	3	<2	-
291	*Corymbia citriodora*	spotted gum	6	5	<2	-
292	*Corymbia citriodora*	spotted gum	8	5	<2	-
293	*Corymbia citriodora*	spotted gum	5	6	<2	-
294	*Corymbia trachyphloia*	white bloodwood	30	7	2	-
295	*Eucalyptus moluccana*	gum-topped box	40	12	6	-
296	*Corymbia trachyphloia*	white bloodwood	4	3	<2	-
297	*Angophora leiocarpa*	smooth barked apple	30	14	4	-
298	*Angophora leiocarpa*	smooth barked apple	28	13	4	-
299	*Angophora leiocarpa*	smooth barked apple	5	5	<2	-
300	*Corymbia citriodora*	spotted gum	45	13	6	-
301	*Eucalyptus siderophloia*	grey ironbark	20, 20	6	4	-
302	*Lophostemon suaveolens*	swamp box	8, 9	6	2	-
303	*Lophostemon suaveolens*	swamp box	25, 10	6	2	-
304	*Lophostemon suaveolens*	swamp box	5	3	<2	-
305	*Lophostemon suaveolens*	swamp box	25	8	4	-
306	*Lophostemon suaveolens*	swamp box	1	1	<2	-
307	*Lophostemon suaveolens*	swamp box	1	1	<2	-
308	*Lophostemon suaveolens*	swamp box	1	1	<2	-
309	*Lophostemon suaveolens*	swamp box	1	1	<2	-
310	*Eucalyptus siderophloia*	grey ironbark	60	15	8	-
311	*Lophostemon suaveolens*	swamp box	11	6	2	-
312	*Lophostemon suaveolens*	swamp box	1	1	<2	-
313	*Lophostemon suaveolens*	swamp box	6, 4, 3, 3	3	<2	-
314	*Lophostemon suaveolens*	swamp box	5	3	<2	-
315	*Lophostemon suaveolens*	swamp box	5	3	<2	-
316	*Lophostemon suaveolens*	swamp box	5	3	<2	-
317	*Lophostemon suaveolens*	swamp box	5	3	<2	-
318	*Lophostemon suaveolens*	swamp box	5	3	<2	-
319	*Lophostemon suaveolens*	swamp box	5	3	<2	-
320	*Lophostemon suaveolens*	swamp box	3	3	<2	-
321	*Lophostemon suaveolens*	swamp box	5	3	<2	-
322	*Lophostemon suaveolens*	swamp box	8	3	<2	-
323	*Lophostemon suaveolens*	swamp box	25	7	4	-
324	*Lophostemon suaveolens*	swamp box	25	4	2	-
325	*Eucalyptus siderophloia*	grey ironbark	20	7	2	-
326	*Lophostemon suaveolens*	swamp box	5	3	<2	-
327	*Lophostemon suaveolens*	swamp box	5	3	<2	-
328	*Lophostemon suaveolens*	swamp box	2	2	<2	-
329	*Lophostemon suaveolens*	swamp box	9	3	<2	-
330	*Lophostemon suaveolens*	swamp box	5	3	<2	-
331	*Lophostemon suaveolens*	swamp box	5	3	<2	-
332	*Lophostemon suaveolens*	swamp box	2	2	<2	-
333	*Lophostemon suaveolens*	swamp box	2	2	<2	-
334	*Lophostemon suaveolens*	swamp box	2	2	<2	-
335	*Lophostemon suaveolens*	swamp box	2	2	<2	-
336	*Eucalyptus siderophloia*	grey ironbark	40	10	4	-
337	*Eucalyptus siderophloia*	grey ironbark	30	9	4	-
338	*Lophostemon suaveolens*	swamp box	15	4	2	-
339	*Lophostemon suaveolens*	swamp box	30, 10	4	4	-
340	*Lophostemon suaveolens*	swamp box	15	4	2	-
341	*Lophostemon suaveolens*	swamp box	5, 5	3	<2	-
342	*Lophostemon suaveolens*	swamp box	15	4	2	-
343	*Lophostemon suaveolens*	swamp box	25	4	2	-
344	*Lophostemon suaveolens*	swamp box	5	3	<2	-
345	*Lophostemon suaveolens*	swamp box	5	3	<2	-
346	*Lophostemon suaveolens*	swamp box	5	3	<2	-
347	*Lophostemon suaveolens*	swamp box	5	3	<2	-
348	*Lophostemon suaveolens*	swamp box	20, 11, 8	4	2	-

APPENDIX F

Brentwood Forest Landscape Intent



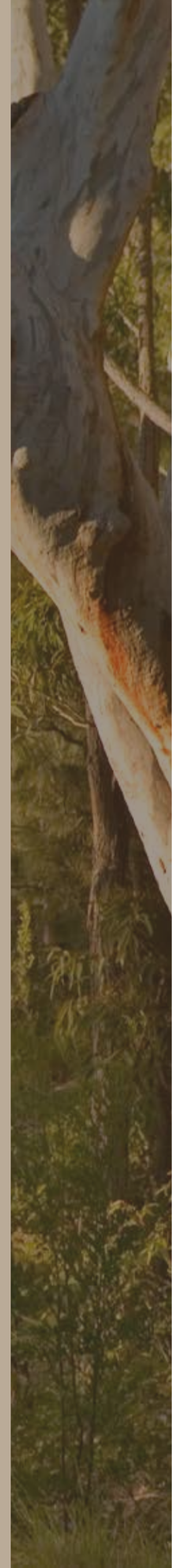
BRENTWOOD FOREST
BELLBIRD PARK

Stages 20-33 Landscape Intent

Issue A, 26th February 2014

AECOM

the key design principles are derived from the site topography, context and ecosystems.



BRENTWOOD FOREST
BELLBIRD PARK

Ecological Flow

The proposed design for Brentwood is largely sympathetic to the ecosystems that currently exists on the site. This section outlines the basic principles used to drive the design layout and species selection for street and park plantings.

Key Principles:

- Significant vegetation communities to be retained where possible, with edge reduction encouraged by coupling open-space corridors and parks.
- Connectivity of vegetation communities through reducing road / pedestrian crossings, increasing density of planting along edge treatments and extending vegetation into open space areas.
- Concentration of vegetation retention and enhancement along Happy Jack Creek and Woogaroo Creek.
- Build upon habitat opportunities through selection of appropriate local street trees.

People & Movement

Movement throughout the landscape is a key factor in determining the structure of the development. The landscape design outcomes for Brentwood are strongly influenced by people and circulation patterns .

Key Principles:

» Pedestrian paths largely retained within streetscape areas to reduce impacts on retained vegetation communities and extend vegetation into the street edges.

» Concise pathway networks throughout open space areas to concentrate movement of people to the development areas and reduce impacts upon vegetation edges.

» Pathways to edges of vegetation communities in appropriate locations to encourage visual exposure to the natural environment while providing visual boundary to prevent intrusion.

Landscape Character

The dry eucalypt forest of Brentwood is a valuable asset of the site. Another design layer is to elevate the status of the woodland character and expose to the community the benefits such a site has to offer.

Key Principles:

» Augment the planting of native trees with understory planting beds using accents of colour and contrast to achieve a formalized display.

» Formalizing high impact planting to streetscape / development areas and diffusing into endemic planting / revegetation in open space areas.

supplementary plantings will strengthen food sources and habitat for endemic fauna

Endemic Vegetation

The proposed planting to Brentwood is informed by the local regional ecosystems and their vegetation types. The local eucalypts which dominate the site will be supplemented by additional plantings of endemic stock to disturbed open space areas.

Utilising endemic trees throughout the development according to their regional ecosystem will strengthen the value of retained vegetation areas. This will also provide an additional food source for local fauna.

Streetscape Planting

The streetscape planting areas will incorporate a formal planting arrangement using mass plantings at key intersections to create impact. A small number of hardy ornamental native shrubs and grasses will provide accents of colour to the street tree species.

Feature Tree

Brachychiton rupestris Bottle Tree

Street Trees

Corymbia tessellaris Moreton Bay Ash

Lophostemon confertus Brush Box

Melaleuca viridiflora red flowering paperbark Elaeocarpus eumundi Eumundi Quandong

Accents

Anigozanthos Kangaroo Paw Grevillea Cooroora Cascade Leptospermum Pink Cascade Leptospermum Candwell Lomandra hystrix Melaleuca Claret Tops Austromyrtus tenuifolia copper tops Samantha bidwillii Twiggy Leaf Myrtle

Open Space Planting

Planting to open space will be complementary to the retained vegetation areas through continuous revegetation style planting beds. These beds will provide additional fauna movement opportunities wherever possible and reduce the edge effect of many smaller planting beds.

The regional ecosystems of the site are generally Eucalypt forest with low grasses and shrubs amongst the trees. In keeping with this form, planting beds to open space areas will be be predominately comprised of grasses and low shrubs, with only the occasional middle story species. This will maintain an open view through the trees in most open space corridors.

Plant species to these areas will be sourced from seed harvesting operations to ensure the integrety of local species is maintained. The plant species available to install at construction will vary depending on seasonal availability. A significantly diverse list of species will be proposed for use throughout these areas.

Angophora leiocarpa Rusty Gum Cou
intermedia Pink Bloodwood Eucalyptus
Silver Leaf Ironbark Eucalyptus mollu
Eucalyptus tereticornis Forest Red Gu
Swamp Box Alloteropsis semialata Arist
Cymbopogen refractus Dianella caerule
bimaculata Ficinea nodosa Knobby Clu
gracilis Leptosperma laterale variable
Matrush Lomandra longifolia 'Fine L
Panicum effusum var. effusum Penni
Grass Allocasuarina littoralis Forest S
cuninghamina River Oak Corymbia ci
tessellaris Moreton bay Ash Eucalyptu
topped Box Eucalyptus seeana Narrow
teriticornis Blue Gum Lophostemon sau
Black Wattle Acacia disparrima Hick
Wattle Acacia glaucocarpa Hickory w
Persoonia sericea Silky geebung Allot
Yellow Buttons Cleistochloa subjuncea Cy
Entolasia stricta Eremochloa bimacu
Laxmannia gracilis Leptosperma later
filliformis Fine leaved Matrush Loman
alopecuroides Fountain Grass Themeda

rymbia citriodora subsp. Variegata Spotted Gum Corymbia
erebra Narrow Leafed Iron Bark Eucalyptus melanophloia
rrana Gum-topped Box Eucalyptus siderphloia Grey Ironbark
m Lophostemon confertus Brush Box Lophostemon suaveolens
tida queenslandica Carex appressa Tall sedge Cleistochloa subjuncea
a Blue Flax lilly Dianella longifolia Entolasia stricta Eremochloa
b Rush *formerly Isolepsis Gahnia aspera Razor Grass Laxmannia
swordsedge Lomandra confertifolia Lomandra filliformis Fine leaved
eaf Form' Fine Leaf form of Matt Rush Lomandra multiflora
setum alopecuroides Fountain Grass Themeda 'mingo' Peppermint
he Oak Angophora leiocarpa Smooth bark Apple Casuarina
triodora Spotted Gum Corymbia intermedia Pink Bloodwood Corymbia
s erebra Narrow leaved Ironbark Eucalyptus molluccanna Gum
Leaved red Gum Eucalyotus siderophlia Grey Ironbark Eucalyptus
weolens Swamp Box Bursaria spinosa Blackthorn Acacia concurrens
ory wattle Acacia falcata Sickle wattle Acacia fimbriata Brisbane
attle Acacia leicolyx Black Wattle Pultenaea euchila Bush Pea
eropsis semialata Aristida queenslandica Chrysocephalum apiculatum
mbopogen refractus Dianella caerulea Blue Flax lilly Dianella longifolia
lata Gahnia aspera Razor Grass Hibbertia aspera Guinea Flower
rale Variable Swordsedge Lomandra confertifolia Lomandra
ndra multiflora Panicum effusum var. effusum Pennisetum
triandra Westringia eremicola Mint bush

Landscape Intent

Legend

1. 21m Collector Road - Large Street Trees & Feature Planting Beds at Intersections
2. 16m Residential Street - Street Trees and Turf
3. 16m Avenue Street - Street Trees and Turf to lots, Planted Median to Open Space
4. Bioretention Basin
5. Adjacent Open Space Corridor

1:2,000 metres

0 10 20 40 60 80 100 120

BRENTWOOD FOREST
BELLBIRD PARK

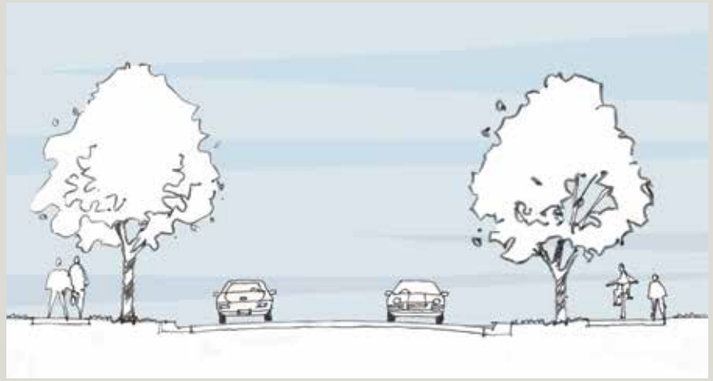
Streetscapes

21m Collector Rd

Formal avenue planting of large container tree species with turfed verges and feature plantings at intersections.

Tree species consist of:

Lophostemon confertus (Brushbox) as Street Trees
Brachychiton rupestris (Bottle tree) at Roundabouts

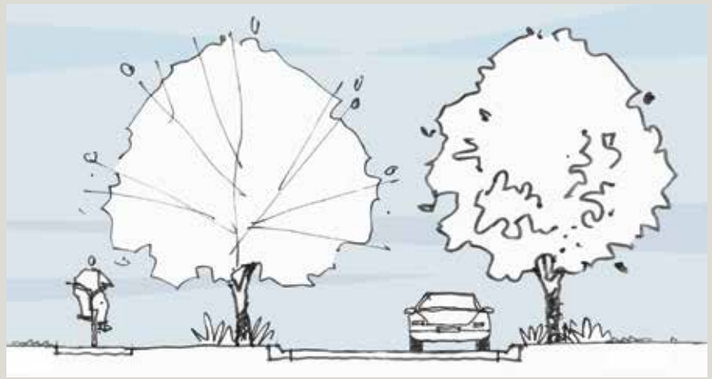


16m Residential & Avenue Streets

Informal planting of tree species with turfed verges.

Tree species consist of:

Lophostemon confertus (Brushbox)
Corymbia tesselaris (Moreton Bay Ash)
Elaeocarpus eumundi (Eumundi Quandong)
Melaleuca viridiflora (Red Flower Weeping Paperbark)

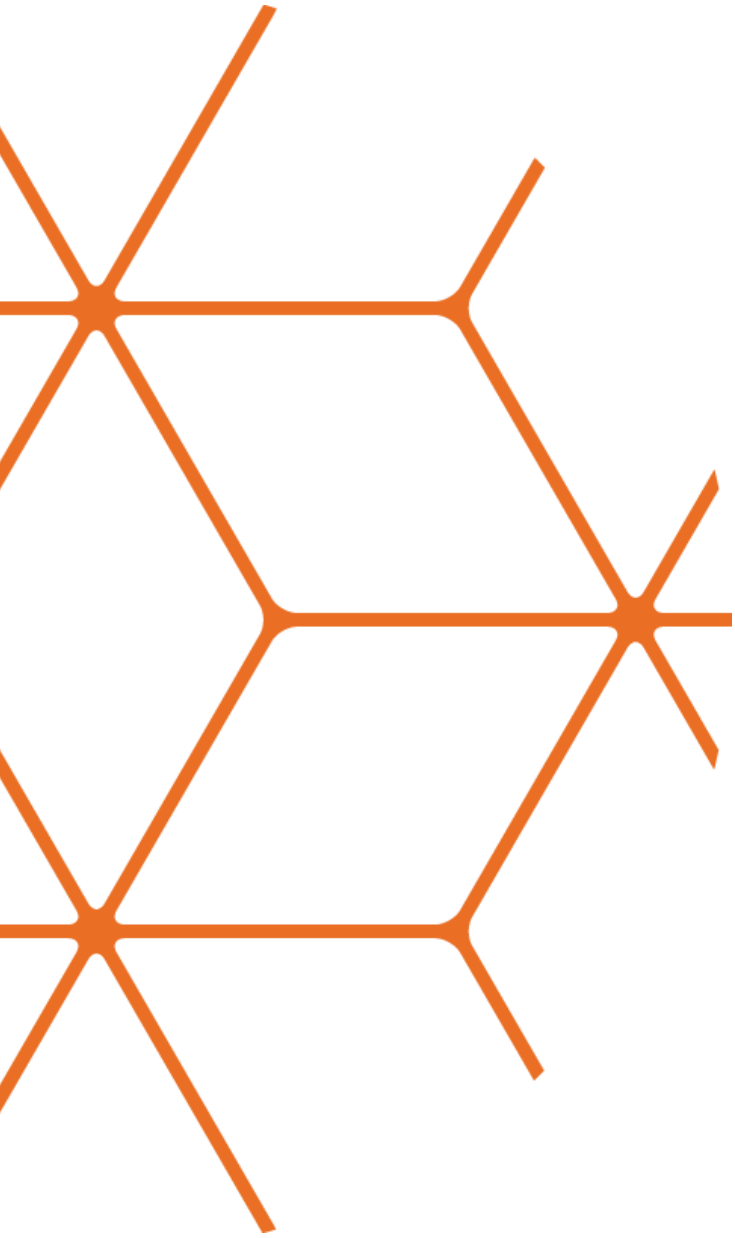


BRENTWOOD FOREST
BELLBIRD PARK

20-23 Landscape Intent

APPENDIX G

Design Guidelines and Landscaping Packages



Design Guidelines & Landscaping Packages

STAGES 20–24

BRENTWOOD FOREST

CONTENTS

VISION

Brentwood Forest is a quality residential development designed to create a sense of community that complements the natural bushland surroundings while enhancing both the climatic environment and the lifestyle aspirations of residents.

Brentwood Forest has been designed to create a community with a variety of building types, tree lined streets, footpaths, public spaces, playgrounds and parks.

These Design Guidelines have been prepared to enhance the quality and livability of the Brentwood Forest community by encouraging and promoting a consistent and high standard of building design whilst maintaining the quality of the environment.

WELCOME TO BRENTWOOD FOREST

INTRODUCTION

The Design Guidelines document has been prepared to assist Owners, Designers and Builders by guiding the design of the built environment within the Rosella, Lorikeet and Fantail Releases of Brentwood Forest. It is in the interests of all residents to ensure a high standard of innovative, contemporary and environmentally compatible design and construction techniques. Homes are to be designed to address the local climatic conditions and Brentwood Forest's own unique character.

The Design Guidelines consist of five parts:

- Outline of Approval Process
- **Step 1** – Design your Home (Brentwood Forest Design Guidelines)
- **Step 2** – Design Approval (Application Form/Compliance Checklist)
- **Step 3** – Building Approval and Construction
- **Step 4** – Compliance Assessment (Performance Bond Release)

All care has been taken to ensure that the Design Guidelines comply with current building legislation. However, the Owner is responsible for ensuring compliance with all statutory requirements including the Sustainable Planning Act 2009, the Ipswich City Plan and the Queensland Development Code.

The receipt of documents, including building plans, colour and materials specifications, any assessment of compliance by Investa or the Covenant Administrator, their review, assessment or comment on the those documents or any other documents prepared by or on behalf of or provided by the Owner, does not result in the assumption of any obligation or liability by Investa or the Covenant Administrator and does not affect the Owner's obligations or absolve the Owner from its obligations and its responsibility to comply with these Design Guidelines. Owners, Designers and Builders should review these Design Guidelines in conjunction with the land sales contract.

In this document, "Investa" means Investa Residential Group Pty Ltd, the developer of the land.

APPROVAL PROCESS

Owners will need to obtain written approval for the design of their home including fencing heights, colour and materials from Investa before making a formal application for Building Approval to Ipswich City Council and prior to works commencing upon the land. A simple process is in place to ensure you can start to build your home and garden as soon as possible.

STEP 1: DESIGN YOUR HOME

- Review Brentwood Forest Design Guidelines;
- Seek clarification from Covenant Administration regarding interpretation of Design Guidelines (if required); and
- Prepare building plans in accordance with the Design Guidelines.

STEP 2: SEEK DESIGN APPROVAL

- Submit building plans to Covenant Administrator for approval;
- Plans are assessed by the Covenant Administrator for compliance with the Design Guidelines, any items requiring attention are discussed with you, and amended plans are to be resubmitted; and
- Design Approval issued.

STEP 3: BUILDING APPROVAL AND CONSTRUCTION

- Building Approval must be sought from Ipswich City Council or an accredited building certifier;
- Building and landscaping works are undertaken in accordance with approved designs.

STEP 4: COMPLIANCE ASSESSMENT

- Contact Covenant Administrator for performance bond compliance assessment;
- Compliance assessments undertaken for the property, any items requiring attention are discussed with you;
- Notice of Compliance for Performance Bond release is issued to enable bond release;
- If the property is sold, the new Owner signs the Deed of Covenant enforcing the Design Guidelines.

DESIGN YOUR HOME

When designing your home please ensure that you have read and understand the following sections of the Design Guidelines:

- General Guidelines;
- Building Design;
- Earthworks;
- Hard Landscaping;
- Soft Landscaping;
- Existing Developer Infrastructure;
- Corner Properties;
- Maintenance;
- Performance Bond; and the
- Setbacks Plan.

Design Approval will be issued when the proposed building, colours, materials and landscaping works are considered compliant with the intent of the Design Guidelines as outlined within these sections.

The intent of the Design Guidelines is to ensure a consistently high standard of development throughout Brentwood Forest – creativity and diversity of design is encouraged. Alternative design solutions may be presented to the Covenant Administrator and will be assessed on individual architectural merit and will be approved where it is considered that they achieve the overall intent and desired outcomes of the Design Guidelines.

A compliance checklist has been provided within the Design Guidelines to assist with this process. (Appendix A).

STEP 2 – DESIGN APPROVAL

DESIGN APPROVAL

Prior to lodging your application for Design Approval, please take the time to fill in the Application Form, including contact details and compliance checklist, and post or e-mail (PDF) together with a full set of A3 Proposal Plans (Site Plan, Floor Plan, Elevations and Fencing Plans and a Colour Sample) to the Covenant Administrator.

Ensure that the following key compliance measures are identified on Proposal Plans:

- Specifications of setbacks, site cover, proposed fencing, all external building materials colours and finishes;
- Location of all proposed ancillary structures e.g. rainwater tank, antennae, solar panels;
- Eaves;
- Roof pitch and material;
- Driveway location and materials;
- Letter box;
- Proposed cut and fill; and
- Retaining walls (location, extent, colour and height).

DESIGN APPROVAL

Where any item is missing, Investa may withhold commencement of the review process until all requested information is supplied.

Process for Approval

The Covenant Administrator will be in contact via phone or e-mail to confirm receipt of the application for Design Approval and will advise of the anticipated timeframe and process for approval.

Design Approval will be issued when the proposal plans are considered compliant with the intent of the Design Guidelines. When Design Approval is issued, Owners will receive an official Covenant Approval Letter and a stamped copy of the approved proposal plans.

Owners presenting plans that vary from the solutions outlined within the Design Guidelines will receive a list of items that require further consideration and/or amendment. Where amendments are deemed necessary, the altered plans will be required to be re-submitted to Investa until Design Approval is granted.

Investa may from time to time allow variations to the Design Guidelines based on outstanding architectural and urban design merit. This is at the absolute discretion of Investa. In the event that Investa allows a variation from the Design Guidelines, the variation will not set a precedent nor imply that the approval will be repeated.

Please do not hesitate to contact Covenant Administration via phone or e-mail should you require further clarification on any of the requirements within this document on details provided below.

Covenant Administration for Brentwood Forest

Phone: 07 3837 0735

Fax: 07 3837 0799

E-mail: PMacleod@investa.com.au

STEP 3 – BUILDING APPROVAL AND CONSTRUCTION

BUILDING APPROVAL AND CONSTRUCTION

Once Design Approval has been issued, an application may be made to an accredited building certifier or Ipswich City Council for Building Approval. The accredited building certifier must be identified in the Covenant Approval Letter prior to approving any proposal plans.

Prior to the establishment of buildings, the property must be maintained to an acceptable standard. It is the Owners' responsibility to ensure that the property is free of excessive weeds, rubbish or garbage. Should Investa notify the Owner that slashing, maintaining or clearing of the property is required to maintain tidy presentation of the Estate, the Owner shall carry out the works within 14 days.

At completion of works continuing maintenance must be undertaken to ensure that a presentable streetscape is maintained at all times.

STEP 4 – COMPLIANCE ASSESSMENT

COMPLIANCE ASSESSMENT

At completion of all building and landscaping works the Owner must contact the Covenant Administrator to arrange a Performance Bond Compliance Assessment.

The Covenant Administrator will undertake a compliance assessment of the building and landscaping works based on the approved building, fencing and landscaping design and general compliance with the Design Guidelines.

When the Covenant Administrator is satisfied that the property complies with the Design Guidelines, a Notice of Compliance will be issued to the Owner.

GENERAL GUIDELINES

These general requirements apply to all property within Brentwood Forest:

Use of Building and Land:

Caravans, boats and trailers of any kind, including commercial vehicles, must not be parked in the front yard of the property or on the roadway adjacent. No building may be used as a display home without Investa's written consent.

Existing or Temporary Structures:

The Owner shall not erect, bring upon or permit to remain upon the property any structure previously erected on another property or any caravan, tent or living shelter of any kind.

Completion of Works:

Building construction is to commence within 12 months of settlement of the purchase of the property and is to be completed within 12 months of commencement of construction.

Ancillary Structures:

Bins, storage areas, garden sheds, rainwater tanks, clothesline, hot water and gas systems, air conditioners, satellite dishes and antennae should not be visible from the street frontage. Where possible it is requested that designs submitted for approval show locations and treatment for these various elements.

Signage:

Signs and hoarding advertising products, services or businesses will not be permitted on residential allotments with the exception of approved display homes. Builder tradesperson's identification signs are permitted (up to 0.6m^2 – for example 20cm x 30cm) where they are required on the property during construction. These signs MUST be removed at completion of construction. It is not intended to prevent placement of signage on completed and occupied buildings for the purpose of a home-based business, and carried out in accordance with council requirements.

Letter Boxes:

The design of letter boxes must be complementary to the building and located adjacent to the pedestrian entry. Letter boxes are to be installed prior to occupation of the main building.

BUILDING DESIGN

Buildings

- Only one (1) building/dwelling is permitted per property.
- No ancillary dwellings or duplexes are permitted.
- All buildings are new and of a high quality.

Site Planning and Location

- Your Builder will be able to provide advice on the design and the siting of your building to maximise the efficiency in energy saving and livability with regard to the specific characteristics of your property.

Height

- The building height must **NOT exceed 8.5m** above the natural ground level.
- The building is a **maximum** of two **(2) storeys**.

Setbacks, Site Coverage and Access

- In addition to the Design Guidelines, development is also subject to the requirements of the Setbacks Plan approved by Ipswich City Council. The Setback Plan details the specific design requirements conditioned for Brentwood Forest. Please refer to Appendix B – Setbacks Plan for the specific requirements of your property for setbacks, site coverage and driveway location.

Built to Boundary Designations

- Built to Boundary walls are only permitted in locations as nominated on the Setbacks Plan.
- Built to Boundary walls:
  - Are a maximum height of not more than 4.5m and the mean height is no more than 3.5m;
  - The total length shall not exceed 9.0m; and
  - Is at least 1.5m from the window of each habitable room in an existing building on an adjoining property.

Architectural Character

- Architectural features such as verandahs, porticos, feature windows, facade detailing, roof features and articulated building forms are required.
- Heritage replica, Federation adaptations and a themed approach to building design is not acceptable, such as Mediterranean, French Provincial or Tuscan.
- No two (2) homes within the same streetscape (assessed as within 4 - 5 buildings either side of the proposed building) are to be approved with the same front elevation design, colour scheme or landscape design.

BUILDING DESIGN

Entry example

Entry

- Each building must incorporate a clearly defined entry point visible from the street.

External Walls and Finishes

- Walls to primary and secondary street frontages step in plan no less than once every 8.0m and include a minimum of 10% glazing.
- All elevations visible from the street or parks must comprise a variety of building materials. Acceptable materials include:
  - Concrete or masonry **rendered brick work** to **a maximum of 70%** of the total facade area (bagged and painted brick work is NOT an acceptable design solution);
  - **Custom orb** where used as a feature element on the front elevation and comprising **no more than 10%** of the total facade area;
  - **Stone facing** to a **maximum of 10%** of the total facade area;
  - **Facebrick** as a feature material to a **maximum of 20%** of the total facade area;
  - **Timber battening** as a feature element on the front elevation (e.g. timber posts on a portico or a gable infill feature detail) to a **maximum of 10%** of the total facade area;
  - **Weatherboard** (or similar profiled claddings), plywood or fibre cement wall sheeting with timber battened joins, all with a paint or stained finish to a **maximum of 20%** of the total facade area.
- All **side** (excluding secondary road frontage elevations) and **rear elevations** must be of a rendered or bagged and painted brick finish. 100% render to these elevations is also an acceptable design solution. Facebrick is not acceptable.

External wall example 1

External wall example 2

Example 3

External wall example 4

External wall example 5

External wall example 6

BUILDING DESIGN

External Colours

- An external colour scheme is to be submitted for approval.
- A palette of colours has been selected to guide colours for new homes, outbuildings and fences. The colours are selected from the Dulux Weathershield Range (Colorbond). Refer image below.
- Colour samples (not words) of the proposed external colour scheme are to be submitted for approval if an external colour scheme differs from the selection of External Colours and Trim Colours shown.

Trim Colours

External Colours

Garage

- Enclosed garage accommodation for a **minimum of two (2) cars** for lots with frontages of 12.5 metres or more.
- Enclosed garage accommodation for a **minimum of one (1) car** for lots with frontages of less than 12.5 metres.
- Garages should be set back behind the front building line.
- The garage may only protrude forward of the front building line of the home where a significant architectural feature such as a porch, portico or verandah sits in line with or forward of the garage.
- Garages should be designed and constructed in a manner which is consistent with building design and consistent elements of building materials, roof pitch and colour.
- Carports are NOT permitted.

Roof example

BUILDING DESIGN

Roofs

- Pitched roofs and Skillion roofs are acceptable design solutions.
- The minimum pitch for pitched roofs will be 22.5 degrees.
- Alternative roof forms and pitch will be considered and assessed on architectural merit. It must be demonstrated that the architectural intent of the design reflects the character of the area.
- Eaves or roof overhang is provided on all elevations at a minimum of 450mm except where a zero lot setback is utilised.
- Buildings without eaves or overhang are NOT an acceptable design solution unless outstanding architectural merit and sufficient climate comfort can be demonstrated.

Roof Materials

- Acceptable roof materials include metal corrugated roof sheeting with matt finish Colorbond non-reflective or concrete roof tiles.
- Copper and zinc roof sheeting is NOT an acceptable design solution. This type of material is often reflective and is considered inefficient for energy control.

Outdoor Areas

- Primary covered outdoor living areas have a minimum dimension of 9m^2.
- The structure, roof style and colour scheme of the outdoor living area is:
  - Integrated into the overall design of the main building;
  - Consistent with the roof pitch of the building;
  - Incorporated into the roof structure of the main building; and
  - Constructed at the same time as the building.
- Detached outdoor living areas are NOT an acceptable design solution unless outstanding architectural merit can be demonstrated.
- Flat steel roof styles are NOT an acceptable design solution.

Screening

- Screening must be provided to upper floor windows that overlook windows of adjacent buildings.
- Suggested screening may include:
  - Obscure glazing; or
  - Sill heights greater than 1600mm above floor levels; or
  - Fixed external screens to windows and openings.

CORNER PROPERTIES

In addition to the outcomes outlined in the Design Guidelines, the secondary frontage on corner properties is also subject to the following:

External Walls and Finishes

- All elevations visible from the street must comprise a variety of building materials. Acceptable materials include:
  - Concrete or masonry **rendered brick work** to **a maximum of 70%** of the total facade area (bagged and painted brick work is NOT an acceptable design solution);
  - **Custom orb** where used as a feature element on the front elevation and comprising **no more than 10%** of the total facade area;
  - **Stone facing** to a **maximum of 10%** of the total facade area;
  - **Facebrick** as a feature material to a **maximum of 20%** of the total facade area;
  - **Timber battening** as a feature element on the front elevation (e.g. timber posts on a portico or a gable infill feature detail) to a **maximum of 10%** of the total facade area;
  - **Weatherboard** (or similar profiled claddings), plywood or fibre cement wall sheeting with timber battened joins, all with a paint or stained finish to a **maximum of 20%** of the total facade area.

Corner property fencing example

Corner property fencing example

Fencing

- Fencing to secondary street frontages is a maximum of 1.8m high and constructed as quality fencing that complements the building design. Acceptable designs include:
  - Lapped and capped timber paling fences with expressed posts and painted finish; or
  - High quality designs incorporating masonry piers with timber or tubular metal infill panels.
- Untreated side by side timber paling fencing is NOT an acceptable design solution on primary or secondary street frontages.
- Fencing must be constructed from a material that is unclimbable to koalas such as timber fencing without gaps between palings or must be fitted with a smooth surface (e.g. perspex) along the top 600mm of the fence including posts and supports.

EARTHWORKS

All Properties

- Any works associated with any building construction on any property **must** limit earthworks **to a maximum of 0.5m cut and 0.5m fill**.
- Earthworks and additional Retaining Walls must be setback in accordance with engineering specifications Appendix E, and must not impact on the structural integrity of existing retaining walls.

Retaining Walls

- Retaining Walls installed by Investa must be retained in their original form and maintained to present a high quality finish.
- Retaining **walls must NOT exceed 0.5m** in height.

HARD LANDSCAPING

Retaining Walls

- Retaining walls **must NOT exceed 0.5m** in height.
- Additional Retaining walls must be setback in accordance with engineering specifications Appendix E and must not impact on the structural integrity of existing retaining walls.
- **Timber Sleeper or untextured Concrete Sleeper Retaining** walls are **NOT acceptable** design solutions in the **front yard** forward of the side fence returns or visible from the street or parks.
- Timber Sleeper or untextured Concrete Sleeper Retaining walls are acceptable design solutions in the rear yard and rear of the side fence returns and not visible from the street or parks.
- Retaining wall materials, colours and heights must be submitted to the Covenant Administrator for approval. Retaining wall design will be assessed on design merit.

Retaining wall example 1

Retaining wall example 2

Retaining wall example 3

HARD LANDSCAPING

Retaining wall example 4

Retaining wall example 5

Retaining wall example 6

Fencing

- Side Boundary (excluding secondary road frontage elevations), Side Returns and Rear Fencing:
  - Fencing is built to a **maximum height of 1.8m and a minimum of 1.5m high**;
  - Fencing must be a minimum of a side by side timber paling fence design without gaps between palings;
  - Fibro-sheeting, metal or Colorbond sheeting products are **NOT** acceptable design solutions;
  - Side boundary fencing does not extend beyond the front building line of the building into the front yard;
  - Fencing must be constructed from a material that is unclimbable to koalas such as timber fencing without gaps between palings. Alternatively, fencing must be fitted with a smooth surface (e.g. perspex) along the top 600mm of the fence including posts and supports. Vertical Paling spacings must be less than 75mm.
  - The bottom of the fence must be no more than 75mm from the ground.
  - Fencing must be erected on the fencing brackets (where provided) on top of the retaining wall; and

HARD LANDSCAPING

Fencing continued

- Forward of the Front Building Line:
  - Built to a **maximum height of 1.2m** and maintains at least **30% transparency**; and
  - Materials, colours and heights must be submitted to the Covenant Administrator for approval. Fencing design will be assessed on design merit.

Driveways

- Driveway grades must not exceed 1:4 and be located in accordance with the Setbacks Plan in Appendix B.
- Driveways are no wider than 5m.
- Appropriate materials may include pavers, exposed aggregate and stamped, stencilled and coloured concrete. Undecorated grey and broom finished concrete driveways are **NOT** an acceptable design solution.
- Driveway colour is to complement the building and landscape design.

Driveway example 1

Driveway example 2

Driveway example 3

Driveway example 4

Driveway example 5

SOFT LANDSCAPING

A number of Landscape Designs for the front yard have been designed for your convenience by a Landscape Architect for Investa. Appendix C provides a selection of Landscape Designs that you can choose from.

Upon practical completion of your new home you must submit your Landscape Design Application Form (Appendix D) with your option marked. This must then be submitted to Brentwood Forest Land Sales and Information Centre and the Covenant Administrator.

EXISTING DEVELOPER INFRASTRUCTURE

Retaining Walls

- **Retaining Walls** installed **by Investa must be retained in their original form** and maintained to present a high quality finish.
- Additional Retaining walls must be setback in accordance with Retaining Wall / Zone of Influence Detail Appendix E and must not impact on the structural integrity of existing Investa retaining walls.

Fencing

- Fencing constructed by Investa must be retained in its original form and maintained to present a high quality finish.
- Additional fencing adjacent to existing fencing by Investa is NOT allowed.

Pathways/Driveway Crossover

- All driveway crossovers and pathways installed by Investa must be maintained in their original condition.
- Any damage to pathways and driveway crossovers must be replaced and/or restored to their original condition to the satisfaction of Investa and Ipswich City Council. All associated costs and works are the sole responsibility of the Builder and/or Owner.

Street Tree Removal

- **Removal of street trees is not permitted** unless prior consent has been obtained from Investa.
- All street trees must be replaced with the same species, height and quality as per the removed street tree.
- Street tree removal and replacement and all associated costs and works are the sole responsibility of the Builder and/or Owner.
- If species cannot be replaced as per the original planting, species must be chosen in accordance with the Ipswich City Council Street Tree Strategy. The Owner must liaise with the Council's Health, Parks and Recreation Department prior to any planting for determination of species selection.

MAINTENANCE

- All properties must be maintained free of excessive weeds, rubbish or garbage and all turfed and garden areas must be presentable;
- After completion of building and landscaping works all properties must maintain the landscaping within the land and that part of the landscaping which extends from the street alignment to the kerb;
- Vehicles are not to be parked on any adjoining land, other than the designated driveway locations;
- Should Investa notify any Owner that slashing, maintaining or clearing of the property is necessary to maintain the tidy presentation of the Estate, the property Owner shall carry out the works within 14 days; and
- If the Owner fails to comply with the request to slash, maintain or clean the property, Investa may engage the services of a contractor to carry out the work and the property Owner shall pay Investa for the associated cost incurred.

PERFORMANCE BOND

A Performance Bond of $1,000.00 has been incorporated into the land sales contracts for all properties within Brentwood Forest. The Performance Bond serves to ensure built form compliance with the Design Guidelines is achieved and to enhance the quality and livability of the Brentwood Forest community. Upon completion of all building and landscaping works (including fencing) a Compliance Assessment will be undertaken by Investa.

When Investa is satisfied that the building and landscaping complies with the Design Guidelines, the Performance Bond will be refunded to the Owner in full.

Any damage as to Existing Developer Infrastructure must be replaced and/or restored to their original condition to the satisfaction of Investa and Ipswich City Council or the Performance Bond will be forfeited.

It is the responsibility of the Owner to submit a request to the Covenant Administrator for a Performance Bond Inspection. A Performance Bond Inspection Request can be forwarded to PMacleod@investa.com.au

APPENDIX A BRENTWOOD FOREST COVENANT APPROVAL APPLICATION FORM

Property Address			
Property Description			
	Name & Postal Address	**Phone**	**E-mail**
Owner			
Builder			
Building Designer			
Person to Contact			

Details to be provided on the proposal plans include the following compliance measures		
Streetscape variety is provided through inclusion of covered balconies, verandahs, decks, porticos and/or walkways.	Yes	
Walls and rooflines have been designed, so as to minimise impacts to neighbouring properties and retain aesthetic amenity.	Yes	
Building height is identified and is a maximum of 8.5m and two storeys.	Yes	
Buildings are designed and sited to minimise overshadowing and overlooking of existing or proposed adjacent and adjoining buildings.	Yes	
Screening to upper floor windows that overlook windows of adjacent building.	Yes	
Walls to the secondary street frontages step in plan no less than once every 8.0m and include a minimum of 10% glazing.	Yes	
All external building materials are shown and comprise acceptable finishes, including render to all facades as outlined in the Design Guidelines.	Yes	
Roof eaves or acceptable alternative shade devices have been provided.	Yes	
Roof materials are shown and are either non-reflective (Matt finish) corrugated Colorbond or concrete roof tiles.	Yes	
All gutter and downpipe materials and colours complement the building design.	Yes	
Roof pitch is identified and is 22.5 degrees for conventional hipped roofs, or where modern and contemporary roof forms have been utilised reduced roof pitches are provided.	Yes	
Enclosed garage accommodation provided for a minimum of two cars.	Yes	
Garage doors do not dominate the appearance of the building from the street.	Yes	

APPENDIX A BRENTWOOD FOREST COVENANT APPROVAL APPLICATION FORM

Where a third parking space is provided for storage of boats, caravans or similar, this area is concealed from the primary access street.	Yes	
Outdoor Living Areas compliment the main building, have a minimum area of 9m², are integrated into the overall design of the main building and are constructed of appropriate materials.	Yes	
All ancillary structures are not visible from the street or are suitably screened from public view.	Yes	
Front fencing is a maximum 1.2m in height and is at least 30% transparent.	Yes	
maximum of 1.8m high and a minimum of 1.5m high and is koala exclusive/dog containing	Yes	
All fencing proposed is shown and has a finished appearance that compliments the building, contributes to privacy, security and amenity and does not dominate the streetscape.	Yes	
The home and any other buildings are sited in accordance with the Setbacks Plan and built to Boundary provisions.	Yes	
The maximum site cover requirement is in accordance with the Setbacks Plan.	Yes	
Earthworks and retaining walls comply with the provisions as outlined in the Design Guidelines.	Yes	
An external colour selection complies with the provisions as outlined in the Design Guidelines with colour samples submitted for approval.	Yes	

Please sign below to indicate that you have read through the Brentwood Forest Design Guidelines, understand all the requirements and will comply with this document.

Property: .....

Stage: .....

Name: .....

Signature: .....

Date: .....

If you have any further queries please do not hesitate to contact the Covenant Administrator on 07 3837 0735 or at PMacleod@investa.com.au

Please forward Application Form with required documents to:

Brentwood Forest Development Manager
Investa Property Group
GPO Box 217
Brisbane QLD 4001

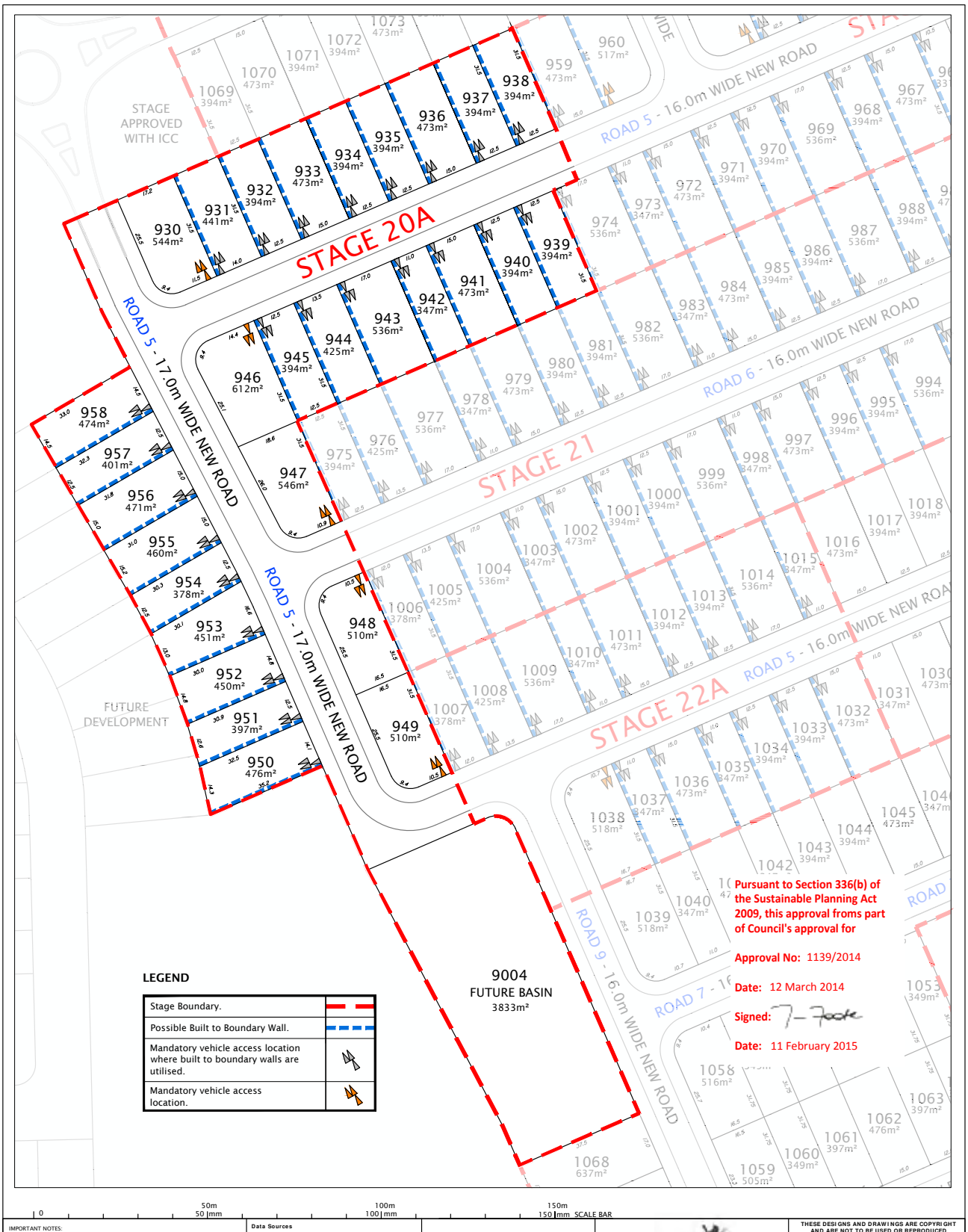
Office Use:

Date Received:

Date Approval Issued:

Issuing officer:

APPENDIX B SETBACKS PLAN



IMPORTANT NOTES:
This plan was prepared for the land situated at Bellbird Park. The Contours, boundaries, creek line, flood lines, building locations have all been scaled and should not have any reliance based on them as they are only intended as a general guide. The configuration of allotments shown on this plan is subject to Local Authority (and relevant State Government Authority) approvals, detailed design, final survey, and registration of survey plans. Any comments contained on this plan should be confirmed by the relevant authorities. The dimensions, areas and total number of lots shown hereon are subject to field survey and also to the requirements of Council and any other authority which may have requirements under any relevant legislation. In particular, no relevance should be placed on the information on this plan for any financial dealings involving the land.

Data Sources

Cadastral Boundaries	30220-PP20A-B & 30218-BLE01-A
Contours / Topographic	30220-PP20A-B & 30218-BLE01-A

No	Revisions	Date	Chkd
A	Original	20.01.2015	KS

Parish:	Goodna
County:	Stanley
Locality:	Bellbird Park
Local Authority:	ICC
Scale:	1:1,000@A3
Drawn:	KS
Checked:	KS/CF
Plot Date:	21 Jan, 2015
Computer File Ref:	30220-BLE20A-22A-A.dwg

FOR INVESTA

STAGE 20A
Setback Plan
Lot 914
SP260951

THG
BRISBANE (07) 3666 4700 MACKAY (07) 4951 2911 PROSERPINE (07) 4945 1722
Email mail@thg.com.au www.thg.com.au
ABN 55156210052 THG WSC Pty Ltd t/a THG Resource Strategists

Drawing No 30220-BLE20A (Sheet 1 of 2)
Issue A

LEGEND

Stage Boundary.	
Possible Built to Boundary Wall.	
Mandatory vehicle access location where built to boundary walls are utilised.	
Mandatory vehicle access location.	

SETBACKS

Road Frontage (in metres)	Side and Rear Boundary Clearances (in metres)		From Boundary Clearances (in metres)		Garage Boundary Clearance (in metres)		Secondary Road Boundary Clearances (in metres)	
	4.5 or less	4.5 to 7.5	4.5 or less	4.5 to 7.5	4.5 or less	4.5 to 7.5	4.5 or less	4.5 to 7.5
15.001+	1.5000	1.5000	4.500	4.500	5.500	n/a	3.000	3.000
14.501-15.000	1.425	1.900	4.500	4.500	5.500	n/a	3.000	3.000
14.001-14.500	1.350	1.800	4.500	4.500	5.500	n/a	3.000	3.000
13.501-14.000	1.275	1.700	4.500	4.500	5.500	n/a	3.000	3.000
13.001-13.500	1.200	1.600	4.500	4.500	5.500	n/a	3.000	3.000
12.501-13.000	1.125	1.500	4.500	4.500	5.500	n/a	3.000	3.000
12.001-12.500	1.050	1.400	4.500	4.500	5.500	n/a	3.000	3.000
11.501-12.000	0.975	1.300	4.500	4.500	5.500	n/a	3.000	3.000
11.001-11.500	0.900	1.200	4.500	4.500	5.500	n/a	3.000	3.000
10.501-11.000	0.825	1.100	4.500	4.500	5.500	n/a	3.000	3.000
10.500 or less	0.750	1.000	4.500	4.500	5.500	n/a	3.000	3.000

SETBACK RELAXATION NOTES

1. Built to Boundary walls:
   - are a maximum height of not more than 4.5m and the mean height is not more than 3.5 metres; and
   - the total length shall not exceed 9.0 metres; and
   - is at least 1.5 metres from the window of each habitable room in an existing building on an adjoining lot.

   If 'built to boundary' is not required then the setback dimension will be as per the side boundary setback for that lot type.
2. **All setbacks are to be measured to the OMP.**
3. Where the lot has more than one street frontage, the front setback is dictated by: (a) Location of the front door (b) postal address. If the primary frontage is different to what is on the plan, refer to table for setback.
4. All garages to the secondary frontage of corner lots are required to be a minimum of 5.5m from the property boundary, unless otherwise shown.
5. Side and rear setbacks are in accordance with the Qld Development Code (QDC) and Councils Planning Scheme.
6. For reduced setbacks from those shown heron ICC approval is required.
7. **BUILDING LOCATION ENVELOPE SETBACKS SHOWN HEREON DO NOT NECESSARILY TAKE INTO ACCOUNT EXISTING OR PROPOSED EASEMENTS AND/OR OTHER SERVICES. ALL SERVICE LOCATIONS SHOULD BE CONFIRMED ON SITE PRIOR TO DESIGN AND CONSTRUCTION OF NEW DWELLINGS.**

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

Approval No: 1139/2014

Date: 12 March 2014

Signed:

Date: 11 February 2015

FOR INVESTA

IMPORTANT NOTES:
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Data Sources
Notes 30218-BLE01-A - Sheet 2 of 2

No	Revisions	Date	Chkd
A	Original	20.01.2015	KS

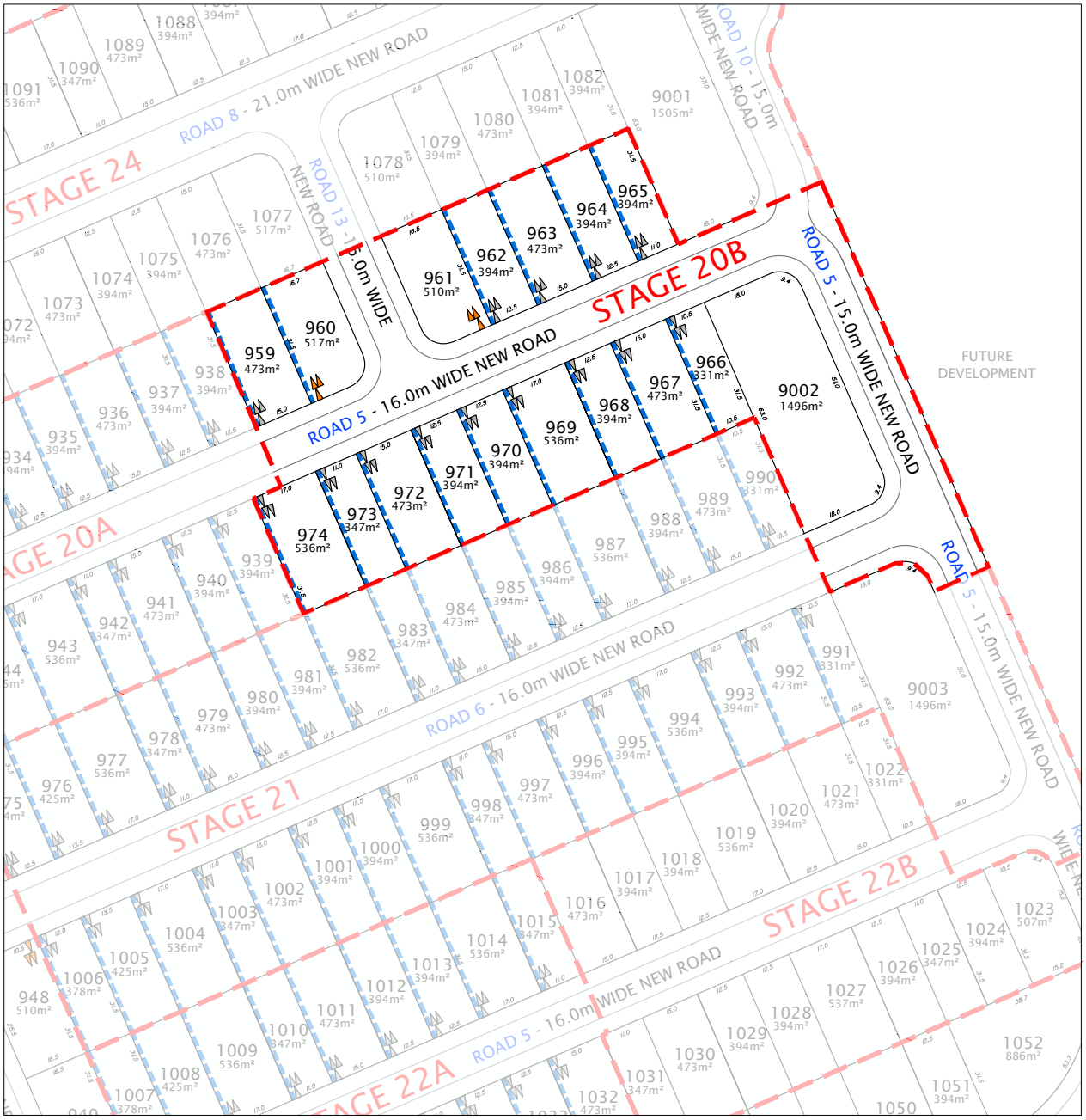
Drawn: KS
Checked: KS/CF
Plot Date: 20 Jan, 2015
Computer File Ref: 30220-BLE20A-22A-A.dwg

STAGE 20A
Setback Plan
Lot 914
SP260951

THG
BRISBANE (07) 3666 4700
MACKAY (07) 4951 2911
PROSERPINE (07) 4945 1722
Email mail@thg.com.au www.thg.com.au
ABN 55156210052 THG WSG Pty Ltd t/a THG Resource Strategists

Drawing No 30220-BLE20A (Sheet 2 of 2)
Issue A

APPENDIX B SETBACKS PLAN



LEGEND

Stage Boundary.	
Possible Built to Boundary Wall.	
Mandatory vehicle access location where built to boundary walls are utilised.	
Mandatory vehicle access location.	

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

Approval No: 1139/2014

Date: 12 March 2014

Signed: J. Foote

Date: 11 February 2015

0 50m 100m 150m SCALE BAR

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Data Sources

Cadastral Boundaries	30220-PP20A-B & 30218-BLE01-A
Contours / Topographic	30220-PP20A-B & 30218-BLE01-A

No	Revisions	Date	Chkd
A	Original	20.01.2015	KS

Parish:	Goodna
County:	Stanley
Locality:	Bellbird Park
Local Authority:	ICC
Scale:	1:1,000@A3
Drawn:	KS
Checked:	KS/CF
Plot Date:	20 Jan, 2015
Computer File Ref:	30220-BLE20A-22A-A.dwg

FOR INVESTA

STAGE 20B
Setback Plan
Lot 914
SP260951

THG
BRISBANE (07) 3666 4700 MACKAY (07) 4951 2911 PROSERPINE (07) 4945 1722
Email mail@thg.com.au www.thg.com.au
ABN 55156210052 THG WSC Pty Ltd t/a THG Resource Strategists

Drawing No 30220-BLE20B (Sheet 1 of 2) Issue A

LEGEND

Stage Boundary.	
Possible Built to Boundary Wall.	
Mandatory vehicle access location where built to boundary walls are utilised.	
Mandatory vehicle access location.	

SETBACKS

Road Frontage (in metres)	Side and Rear Boundary Clearances (in metres)		Front Boundary Clearances (in metres)		Garage Boundary Clearance (in metres)		Secondary Road Boundary Clearances (in metres)	
	4.5 or less	4.5 to 7.5	4.5 or less	4.5 to 7.5	4.5 or less	4.5 to 7.5	4.5 or less	4.5 to 7.5
15.001+	1.5000	1.5000	4.500	4.500	5.500	n/a	3.000	3.000
14.501-15.000	1.425	1.900	4.500	4.500	5.500	n/a	3.000	3.000
14.001-14.500	1.350	1.800	4.500	4.500	5.500	n/a	3.000	3.000
13.501-14.000	1.275	1.700	4.500	4.500	5.500	n/a	3.000	3.000
13.001-13.500	1.200	1.600	4.500	4.500	5.500	n/a	3.000	3.000
12.501-13.000	1.125	1.500	4.500	4.500	5.500	n/a	3.000	3.000
12.001-12.500	1.050	1.400	4.500	4.500	5.500	n/a	3.000	3.000
11.501-12.000	0.975	1.300	4.500	4.500	5.500	n/a	3.000	3.000
11.001-11.500	0.900	1.200	4.500	4.500	5.500	n/a	3.000	3.000
10.501-11.000	0.825	1.100	4.500	4.500	5.500	n/a	3.000	3.000
10.500 or less	0.750	1.000	4.500	4.500	5.500	n/a	3.000	3.000

SETBACK RELAXATION NOTES

1. Built to Boundary walls:
   - are a maximum height of not more than 4.5m and the mean height is not more than 3.5 metres; and
   - the total length shall not exceed 9.0 metres; and
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5. Side and rear setbacks are in accordance with the Qld Development Code (QDC) and Councils Planning Scheme.
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7. **BUILDING LOCATION ENVELOPE SETBACKS SHOWN HEREON DO NOT NECESSARILY TAKE INTO ACCOUNT EXISTING OR PROPOSED EASEMENTS AND/OR OTHER SERVICES. ALL SERVICE LOCATIONS SHOULD BE CONFIRMED ON SITE PRIOR TO DESIGN AND CONSTRUCTION OF NEW DWELLINGS.**

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

Approval No: 1139/2014

Date: 12 March 2014

Signed:

Date: 11 February 2015

FOR INVESTA

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Data Sources
Notes 30218-BLE01-A - Sheet 2 of 2

No	Revisions	Date	Chkd
A	Original	20.01.2015	KS

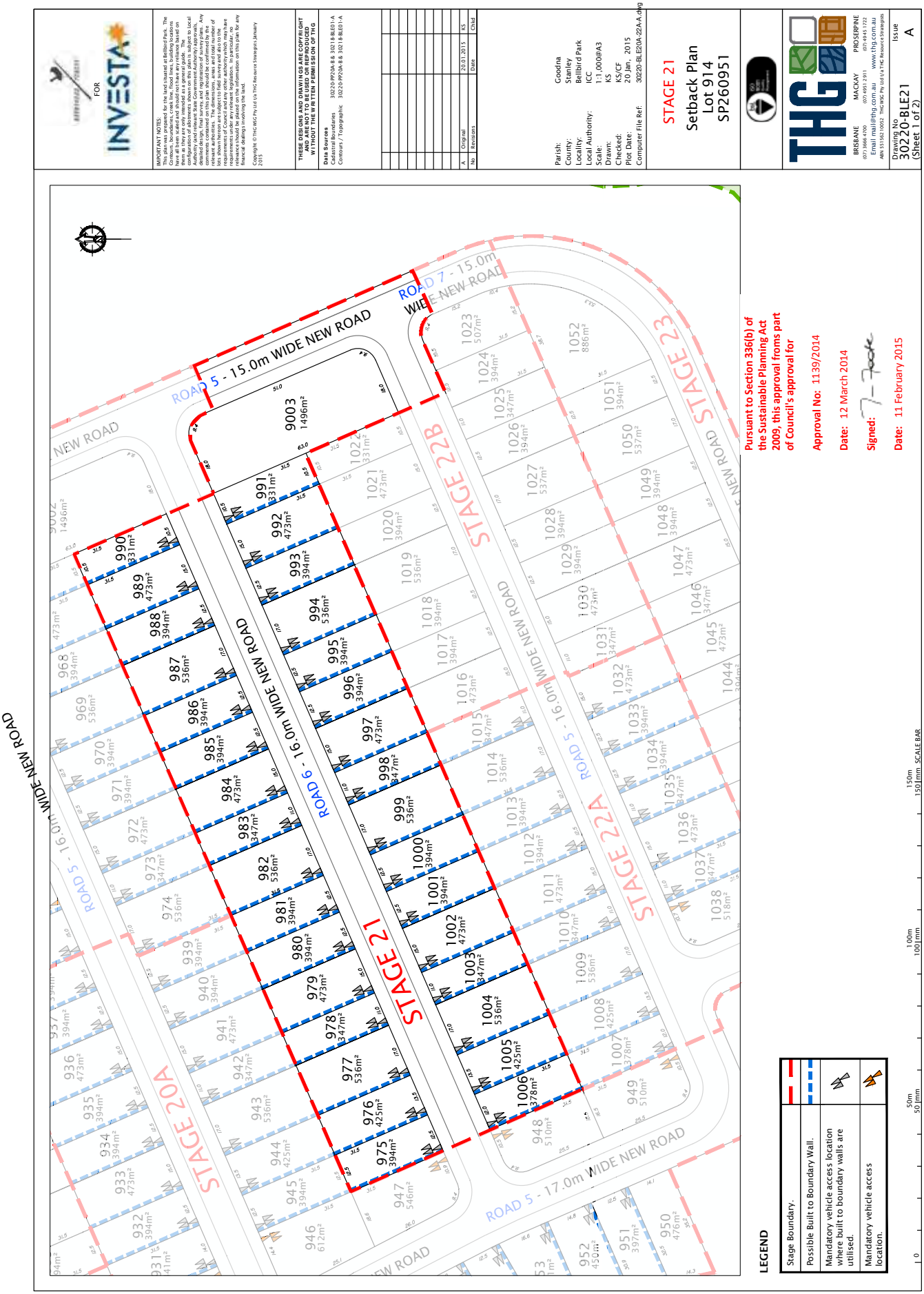
Drawn: KS
Checked: KS/CF
Plot Date: 20 Jan, 2015
Computer File Ref: 30220-BLE20A-22A-A.dwg

STAGE 20B
Setback Plan
Lot 914
SP260951

THG
BRISBANE (07) 3666 4700 MACKAY (07) 4951 2911 PROSERPINE (07) 4945 1722
Email mail@thg.com.au www.thg.com.au
ABN 55156210052 THG WSG Pty Ltd t/a THG Resource Strategists

Drawing No 30220-BLE20B (Sheet 2 of 2)
Issue A

APPENDIX B SETBACKS PLAN



LEGEND

Stage Boundary.	
Possible Built to Boundary Wall.	
Mandatory vehicle access location where built to boundary walls are utilised.	
Mandatory vehicle access location.	

SETBACKS

Road Frontage (in metres)	Side and Rear Boundary Clearances (in metres)		Front Boundary Clearances (in metres)		Garage Boundary Clearance (in metres)		Secondary Road Boundary Clearances (in metres)	
	4.5 or less	4.5 to 7.5	4.5 or less	4.5 to 7.5	4.5 or less	4.5 to 7.5	4.5 or less	4.5 to 7.5
15.001+	1.5000	1.5000	4.500	4.500	5.500	n/a	3.000	3.000
14.501-15.000	1.425	1.900	4.500	4.500	5.500	n/a	3.000	3.000
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13.001-13.500	1.200	1.600	4.500	4.500	5.500	n/a	3.000	3.000
12.501-13.000	1.125	1.500	4.500	4.500	5.500	n/a	3.000	3.000
12.001-12.500	1.050	1.400	4.500	4.500	5.500	n/a	3.000	3.000
11.501-12.000	0.975	1.300	4.500	4.500	5.500	n/a	3.000	3.000
11.001-11.500	0.900	1.200	4.500	4.500	5.500	n/a	3.000	3.000
10.501-11.000	0.825	1.100	4.500	4.500	5.500	n/a	3.000	3.000
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Approval No: 1139/2014

Date: 12 March 2014

Signed: J. Foote

Date: 11 February 2015

FOR INVESTA

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Data Sources
Cadastral Boundaries 30218-BLE01-A - Sheet 2 of 2

No	Revisions	Date	Chkd
A	Original	20.01.2015	KS

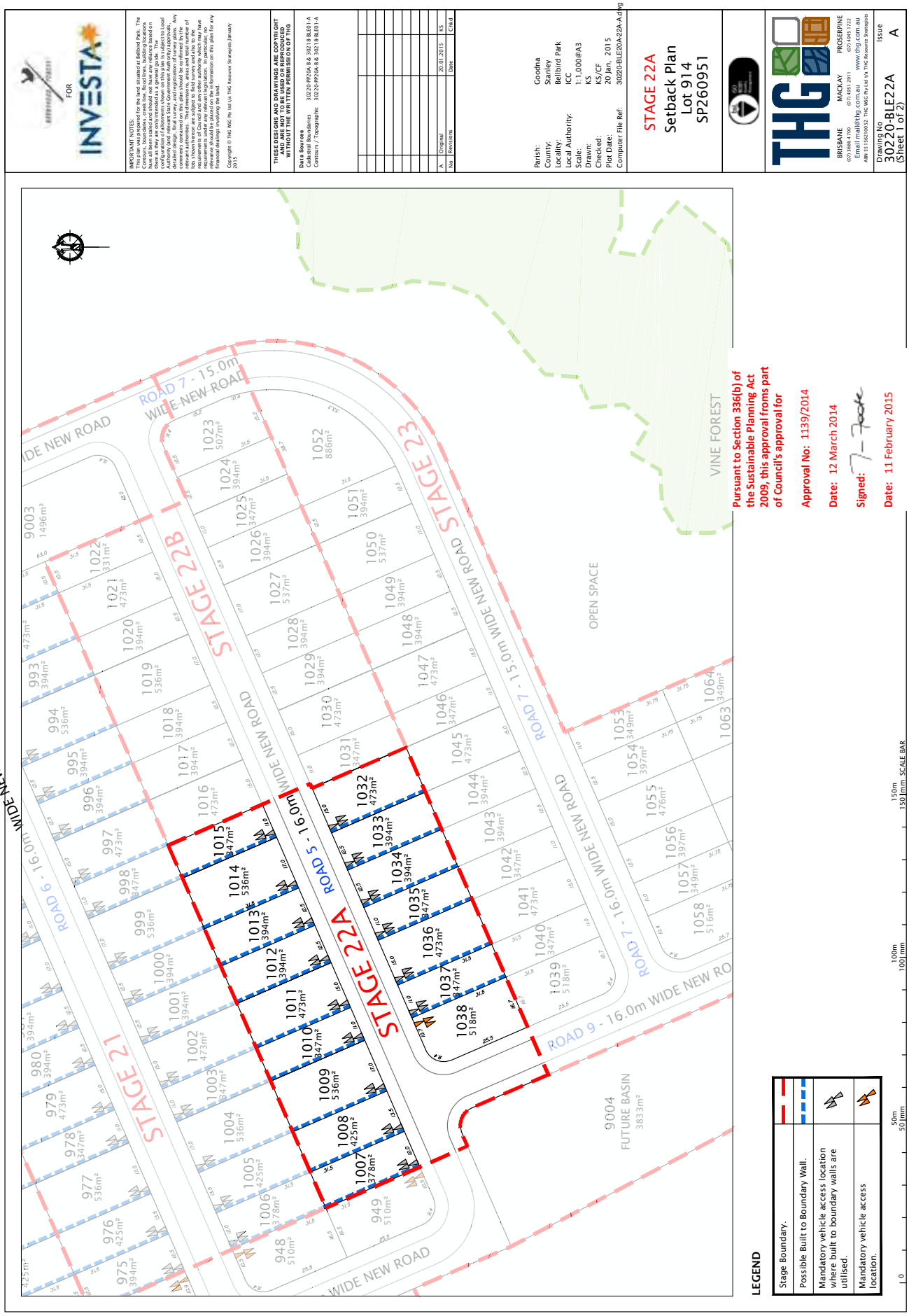
Drawn: KS
Checked: KS/CF
Plot Date: 20 Jan, 2015
Computer File Ref: 30220-BLE20A-22A-A.dwg

STAGE 21
Setback Plan
Lot 914
SP260951

THG
BRISBANE (07) 3666 4700
MACKAY (07) 4951 2911
PROSERPINE (07) 4945 1722
Email mail@thg.com.au www.thg.com.au
ABN 55156210052 THG WSG Pty Ltd t/a THG Resource Strategists

Drawing No 30220-BLE21 (Sheet 2 of 2)
Issue A

APPENDIX B SETBACKS PLAN



LEGEND

Stage Boundary.	
Possible Built to Boundary Wall.	
Mandatory vehicle access location where built to boundary walls are utilised.	
Mandatory vehicle access location.	

SETBACKS

Road Frontage (in metres)	Side and Rear Boundary Clearances (in metres)		From Boundary Clearances (in metres)		Garage Boundary Clearance (in metres)		Secondary Road Boundary Clearances (in metres)	
	4.5 or less	4.5 to 7.5	4.5 or less	4.5 to 7.5	4.5 or less	4.5 to 7.5	4.5 or less	4.5 to 7.5
15.001+	1.5000	1.5000	4.500	4.500	5.500	n/a	3.000	3.000
14.501-15.000	1.425	1.900	4.500	4.500	5.500	n/a	3.000	3.000
14.001-14.500	1.350	1.800	4.500	4.500	5.500	n/a	3.000	3.000
13.501-14.000	1.275	1.700	4.500	4.500	5.500	n/a	3.000	3.000
13.001-13.500	1.200	1.600	4.500	4.500	5.500	n/a	3.000	3.000
12.501-13.000	1.125	1.500	4.500	4.500	5.500	n/a	3.000	3.000
12.001-12.500	1.050	1.400	4.500	4.500	5.500	n/a	3.000	3.000
11.501-12.000	0.975	1.300	4.500	4.500	5.500	n/a	3.000	3.000
11.001-11.500	0.900	1.200	4.500	4.500	5.500	n/a	3.000	3.000
10.501-11.000	0.825	1.100	4.500	4.500	5.500	n/a	3.000	3.000
10.500 or less	0.750	1.000	4.500	4.500	5.500	n/a	3.000	3.000

SETBACK RELAXATION NOTES

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Approval No: 1139/2014

Date: 12 March 2014

Signed:

Date: 11 February 2015

FOR INVESTA

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Data Sources
Cadastral Boundaries 30218-BLE01-A - Sheet 2 of 2

No	Revisions	Date	Chkd
A	Original	20.01.2015	KS

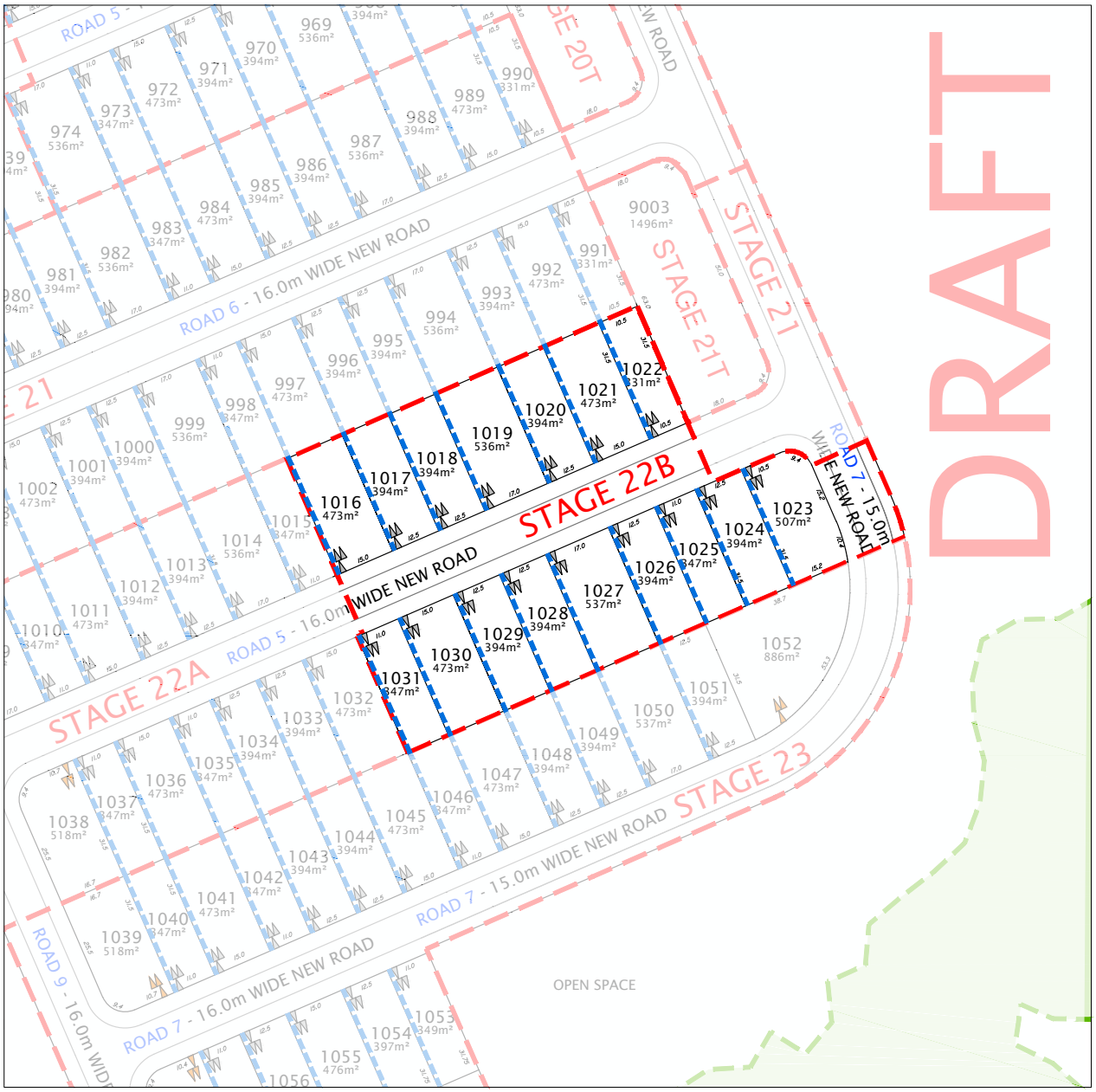
Drawn: KS
Checked: KS/CF
Plot Date: 20 Jan, 2015
Computer File Ref: 30220-BLE20A-22A-A.dwg

STAGE 22A

Setback Plan
Lot 914
SP260951

THG
BRISBANE (07) 3666 4700
MACKAY (07) 4951 2911
PROSERPINE (07) 4945 1722
Email mail@thg.com.au www.thg.com.au
ABN 55156210052 THG WSG Pty Ltd t/a THG Resource Strategists

Drawing No: 30220-BLE22 (Sheet 2 of 2)
Issue: A



LEGEND

Stage Boundary.	
Possible Built to Boundary Wall.	
Mandatory vehicle access location where built to boundary walls are utilised.	
Mandatory vehicle access location.	

Draft subject to Council Approval

0 50m 100m 150m SCALE BAR

IMPORTANT NOTES:
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Data Sources
Cadastral Boundaries 30220-PP20A-B & 30218-BLE01-A
Contours / Topographic 30220-PP20A-B & 30218-BLE01-A

No	Revisions	Date	Chkd
A	Original	29.09.2015	KS

Parish: Goodna
County: Stanley
Locality: Bellbird Park
Local Authority: ICC
Scale: 1:1,000@A3
Drawn: KS
Checked: KS/CF
Plot Date: 13 Oct, 2015
Computer File Ref: 30220-BLE22B-24-A.dwg

FOR INVESTA

STAGE 22B
Setback Plan

THG
BRISBANE (07) 3668 4700 MACKAY (07) 4951 2911 PROSERPINE (07) 4945 1722
BOWEN (07) 4786 1050 CAIRNS (07) 4051 6722
Email mail@thg.com.au www.thg.com.au
ABN 25 604 671 374
Queensland Surveying Pty Ltd t/a THG Resource Strategists

Drawing No 30220-BLE22B (Sheet 1 of 2)
Issue A

LEGEND

Stage Boundary.	
Possible Built to Boundary Wall.	
Mandatory vehicle access location where built to boundary walls are utilised.	
Mandatory vehicle access location.	

Draft subject to Council Approval

SETBACKS

Road Frontage (in metres)	Side and Rear Boundary Clearances (in metres)		Front Boundary Clearances (in metres)		Garage Boundary Clearance (in metres)		Secondary Road Boundary Clearances (in metres)	
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15.001+	1.5000	2.0000	4.500	4.500	5.500	n/a	3.000	3.000
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13.501-14.000	1.275	1.700	4.500	4.500	5.500	n/a	3.000	3.000
13.001-13.500	1.200	1.600	4.500	4.500	5.500	n/a	3.000	3.000
12.501-13.000	1.125	1.500	4.500	4.500	5.500	n/a	3.000	3.000
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11.501-12.000	0.975	1.300	4.500	4.500	5.500	n/a	3.000	3.000
11.001-11.500	0.900	1.200	4.500	4.500	5.500	n/a	3.000	3.000
10.501-11.000	0.825	1.100	4.500	4.500	5.500	n/a	3.000	3.000
10.500 or less	0.750	1.000	4.500	4.500	5.500	n/a	3.000	3.000

SETBACK RELAXATION NOTES

1. Built to Boundary walls:
   - are a maximum height of not more than 4.5m and the mean height is not more than 3.5 metres; and
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Data Sources
Notes 30218-BLE22B-24-A.dwg

No	Revisions	Date	Chkd
A	Original	29.09.2015	KS

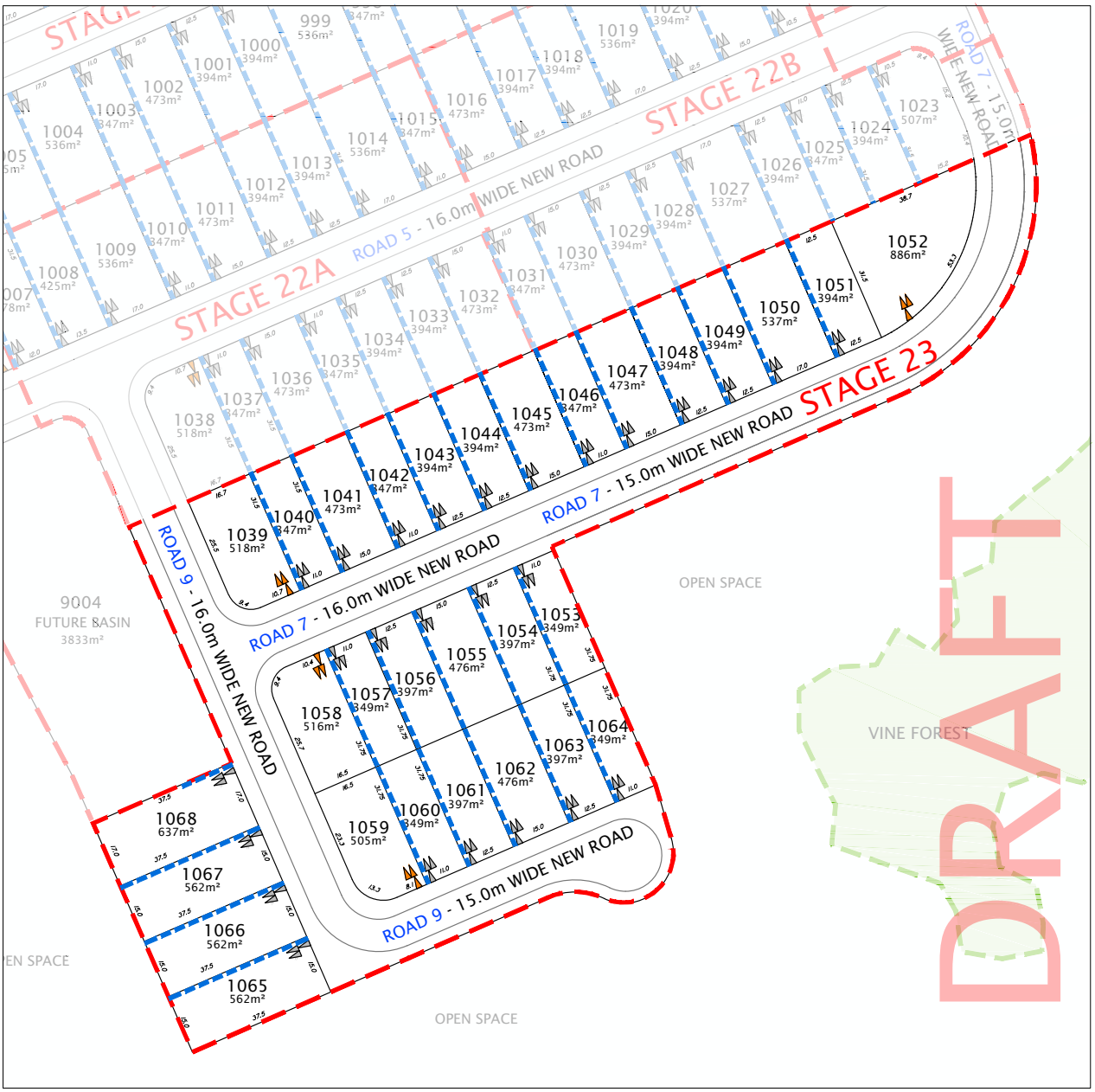
Drawn: KS
Checked: KS
Plot Date: 13 Oct, 2015
Computer File Ref: 30220-BLE22B-24-A.dwg

STAGE 22B
Setback Plan Notes

THG
BRISBANE (07) 3666 4700
MACKAY (07) 4951 2911
PROSERPINE (07) 4945 1722
BOWEN (07) 4786 1050
CAIRNS (07) 4051 6722
Email mail@thg.com.au www.thg.com.au
ABN 25 604 671 374
Queensland Surveying Pty Ltd t/a THG Resource Strategists

Drawing No 30220-BLE22B (Sheet 2 of 2)
Issue A

APPENDIX B SETBACKS PLAN



LEGEND

Stage Boundary.	
Possible Built to Boundary Wall.	
Mandatory vehicle access location where built to boundary walls are utilised.	
Mandatory vehicle access location.	

Draft subject to Council Approval

0 50m 100m 150m SCALE BAR

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Data Sources
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Contours / Topographic 30220-PP20A-B & 30218-BLE01-A

No	Revisions	Date	Chkd
A	Original	29.09.2015	KS

Parish: Goodna
County: Stanley
Locality: Bellbird Park
Local Authority: ICC
Scale: 1:1,000@A3
Drawn: KS
Checked: KS/CF
Plot Date: 13 Oct, 2015
Computer File Ref: 30220-BLE22B-24-A.dwg

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STAGE 23
Setback Plan

THG
BRISBANE (07) 3088 4700 MACKAY (07) 4951 2911 PROSERPINE (07) 4945 1722
BOWEN (07) 4786 1050 CAIRNS (07) 4051 6722
Email mail@thg.com.au www.thg.com.au
ABN 25 604 671 374
Queensland Surveying Pty Ltd t/a THG Resource Strategists

Drawing No 30220-BLE23 (Sheet 1 of 2)
Issue A

LEGEND

Stage Boundary.	
Possible Built to Boundary Wall.	
Mandatory vehicle access location where built to boundary walls are utilised.	
Mandatory vehicle access location.	

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SETBACKS

Road Frontage (in metres)	Side and Rear Boundary Clearances (in metres)		Front Boundary Clearances (in metres)		Garage Boundary Clearance (in metres)		Secondary Road Boundary Clearances (in metres)	
	4.5 or less	4.5 to 7.5	4.5 or less	4.5 to 7.5	4.5 or less	4.5 to 7.5	4.5 or less	4.5 to 7.5
15.001+	1.5000	2.0000	4.500	4.500	5.500	n/a	3.000	3.000
14.501-15.000	1.425	1.900	4.500	4.500	5.500	n/a	3.000	3.000
14.001-14.500	1.350	1.800	4.500	4.500	5.500	n/a	3.000	3.000
13.501-14.000	1.275	1.700	4.500	4.500	5.500	n/a	3.000	3.000
13.001-13.500	1.200	1.600	4.500	4.500	5.500	n/a	3.000	3.000
12.501-13.000	1.125	1.500	4.500	4.500	5.500	n/a	3.000	3.000
12.001-12.500	1.050	1.400	4.500	4.500	5.500	n/a	3.000	3.000
11.501-12.000	0.975	1.300	4.500	4.500	5.500	n/a	3.000	3.000
11.001-11.500	0.900	1.200	4.500	4.500	5.500	n/a	3.000	3.000
10.501-11.000	0.825	1.100	4.500	4.500	5.500	n/a	3.000	3.000
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STAGE 23
Setback Plan Notes

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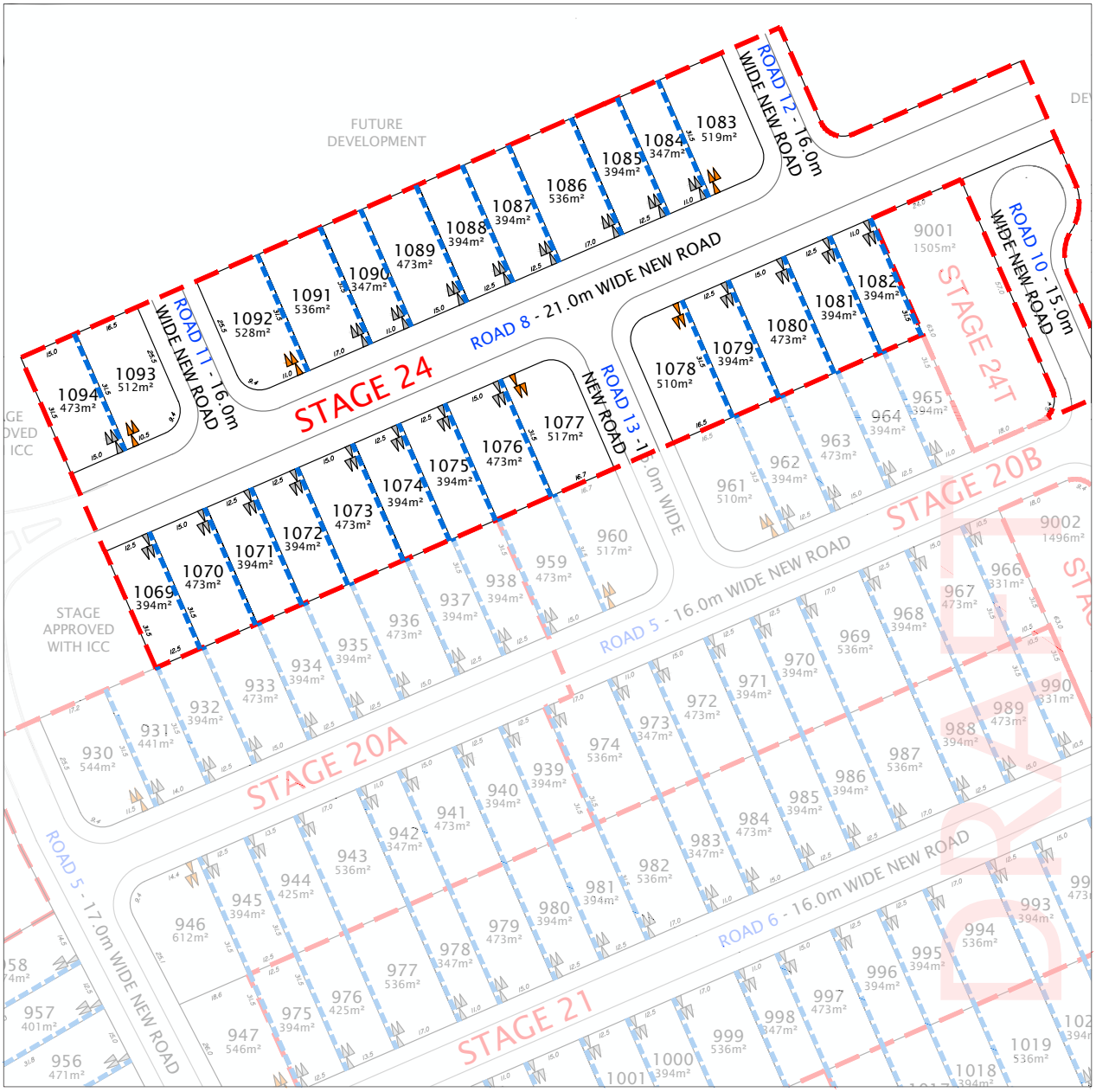
Drawing No 30220-BLE23 (Sheet 2 of 2)
Issue A

APPENDIX B SETBACKS PLAN



LEGEND

Stage Boundary.	
Possible Built to Boundary Wall.	
Mandatory vehicle access location where built to boundary walls are utilised.	
Mandatory vehicle access location.	

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0 50m 100m 150m
50 | mm 100 | mm 150 | mm SCALE BAR

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Drawn: KS
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FOR INVESTA

STAGE 24
Setback Plan

THG
BRISBANE (07) 3668 4700 MACKAY (07) 4951 2911 PROSERPINE (07) 4945 1722
BOWEN (07) 4786 1050 CAIRNS (07) 4051 6722
Email mail@thg.com.au www.thg.com.au
ABN 25 604 671 374
Queensland Surveying Pty Ltd t/a THG Resource Strategists

Drawing No 30220-BLE24 (Sheet 1 of 2)
Issue A

LEGEND

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STAGE 24
Setback Plan Notes

THG
BRISBANE (07) 3666 4700
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ABN 25 604 671 374
Queensland Surveying Pty Ltd t/a THG Resource Strategists

Drawing No 30220-BLE24 (Sheet 2 of 2)
Issue A

YOUR OWN BEAUTIFUL BRENTWOOD FOREST GARDEN... ALL YOU NEED TO DO IS IMAGINE IT.

As a special welcome to Brentwood Forest, when you purchase from our wide range of homesites, we will include front yard landscaping free of charge.

Simply choose one of the specially created styles in this brochure, and let us do the rest.

All you need to do is sit back and watch, as your front yard is transformed into a stunning, low-maintenance garden complete with trees, plants, shrubs and lawn, all finished using quality timber edging and pine mulch.

With five spectacular styles to choose from, the hardest part for you will be deciding which garden you like the most.

THE PACKAGE INCLUDES:

- Soft landscaping to your front yard (trees, plants, shrubs and turf) from your chosen design layout and installed to your front yard from the property boundary to the front of your home.
- Timber garden edging.
- One inch Hoop Pine mulch installed to garden beds.

FREQUENTLY ASKED QUESTIONS AND ANSWERS

WHAT DO I DO FIRST?

Once your home has been constructed, simply notify Investa at the Brentwood Forest Land Sales and Information Centre. To ensure the landscape package is installed without disruption, it is recommended that the following items are completed prior to the commencement of landscaping;

1. Home construction including site clean;
2. Driveway and pathway installation;
3. Drainage including field inlets if required;
4. Fencing;
5. Rear property landscaping.

CAN I HAVE EXTRAS OR INCREASE THE PACKAGE?

The landscaping is a fixed package. You are free to modify or extend upon the landscaping once it is completed.

CAN I HAVE ALL LAWN WITH NO GARDEN BED OR HAVE NO LAWN AND ALL GARDEN BED?

No, this would not be consistent with the intent of the Brentwood Forest landscape design guidelines.

HOW IS THE PACKAGE APPORTIONED?

The majority of the budget is apportioned to a fixed quantity of garden bed area and a fixed value of plants. The remainder is then apportioned to the variable quantities such as turf and timber edging to complete the front yard only.

HOW MANY PLANTS AM I ALLOWED TO HAVE?

All landscape packages allow for a fixed value of plants. The list of plants may require slight variations due to seasonal or nursery availability, but will be consistent with your chosen theme.

HOW IS THE CONSTRUCTION CONTRACTOR SELECTED?

The contractors are selected based on their work quality, value for money and compliance with Occupational Health and Safety requirements. To ensure the best value we regularly seek competitive tenders for these works.

DO I SIGN OFF ON THE FINAL PRODUCT?

Yes, you will be asked to approve the completion of the works and take over the maintenance responsibility of the works at completion of installation.

CAN I USE MY OWN CONTRACTOR?

To achieve an economy of scale, all packages are to be installed by Investa's landscape contractor. This is undertaken at no expense to the purchaser. You are free to engage your own contractor to finish the remainder of your property either prior to or after this installation.

WHEN CAN THE CONSTRUCTION WORKS BEGIN AND HOW LONG DOES IT TAKE?

Once the order is placed for the works, construction can commence shortly after completion of your home by your builder. In most cases, the works can be completed in 2 working days, however this will be dependent upon contractor scheduling and weather.

TERMS AND CONDITIONS

a. The Package applies to land for sale by Investa Residential Group Pty Ltd (Investa) at Brentwood Forest (Queensland) in the Rosella (stage 18B), Lorikeet (stage 18A) and Fantail (stage 19) releases as nominated by Investa, in its discretion, at the time of entry into a binding contract for the sale (Qualifying Land). For the avoidance of doubt the Package is not offered and does not apply to Qualifying Land where a holding deposit has been paid or a Contract for Sale is issued for the Rosella (stage 18B), Lorikeet (stage 18A) and Fantail (stage 19) releases.

b. To be eligible to receive the Package you must:

   i. Enter into a binding and unconditional contract for the sale of Qualifying Land (Contract for Sale).

   ii. Complete the purchase of the Qualifying Land in accordance with the Contract for Sale for that land.

   iii. Within 24 months of the date of settlement of the qualifying land:

      1. complete construction of the building on the subject land (to be evidenced by a final occupation certificate) in accordance with the Design Guidelines for Brentwood Forest;

      2. request in writing commencement of the landscaping works; and

      3. provide clear and uninterrupted access to the subject land for the purpose of carrying out the landscaping works; and

   iv. Remove all rubbish and rubble and level the area to be landscaped in preparation for the landscaping works to commence. Where the proposed turf area meets the kerb, driveway or path, ensure the final level of the soil is approximately 25mm below the top of that hard area.

c. Design and landscaping works will be carried out by a contractor(s) nominated by Investa. Investa makes no representation and gives no warranty as to the quality of any goods or services supplied or any work undertaken by the contractor(s).

d. Unless specified otherwise, the Package is not available in conjunction with any other promotion or offer by Investa or any of its related entities.

e. The Package is subject to any other terms and conditions in the Contract for Sale.

f. Investa may cancel or make changes to the Package at any time without notice. Such changes may include adding or withdrawing Qualifying Land, or shortening or extending the period during which the Package will be available.

g. The Package, or any unused portion of the Package, is not transferable or exchangeable and cannot be taken as cash.

h. Except for any liability that cannot be excluded by law, Investa (including its officers, employees and agents) and its related entities exclude all liability (including negligence), for any personal injury; or any cost, loss or damage (including loss of opportunity); whether direct, indirect, special or consequential, arising in any way out of the Package or any of the design services or works undertaken, including, but not limited to, where arising out of the following:

   i. any technical difficulties or equipment malfunction (whether or not under Investa's control);

   ii. any tax liability incurred by you; or

   iii. any fees, levies or charges associated with the Package;

   iv. the value of your property.

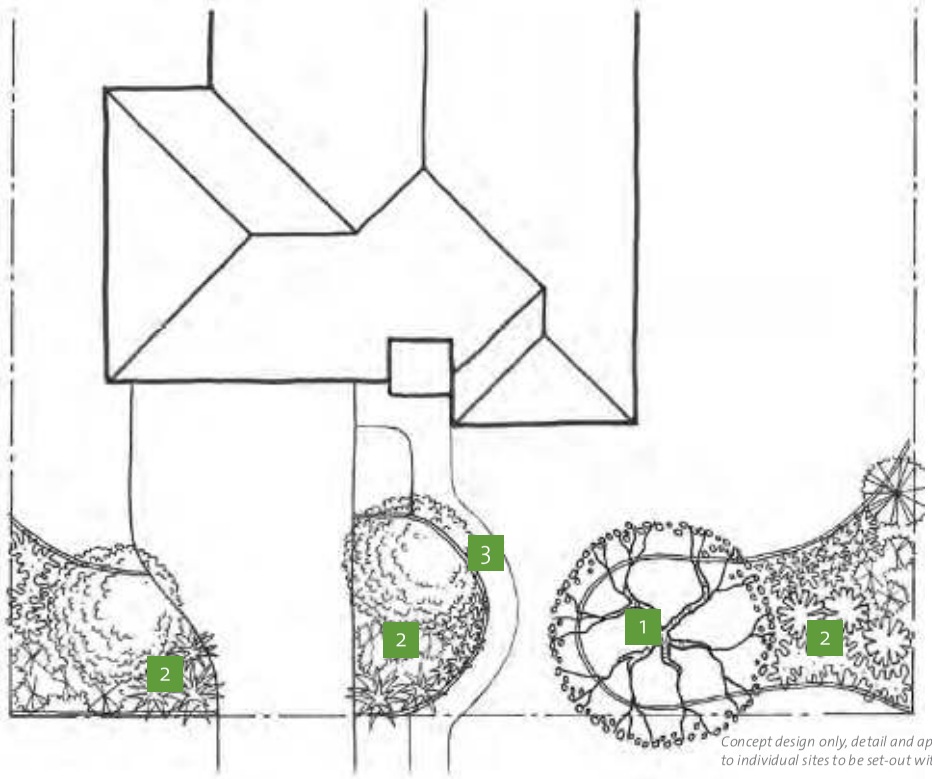
i. You may not deduct or set off the value of the Package from the balance of the purchase price payable on settlement in respect of the land under the Contract for Sale.

j. If the Package is not redeemed within 24 months of the date of settlement of the subject land (as set out in item b(iii) above), it expires and no amount may be claimed by you. If for any reason you do not provide access to the subject land for the purpose of carrying out the landscaping works as part of the Package by the time stipulated by us or our nominated contractor, then the Package or the landscaping works element of the Package will be forfeited.

k. These terms and conditions supersede any prior terms and conditions for the Package.

GLOSSY GARDEN

This combination of hardy species selected for their glossy leaves and lustrous shine creates a garden rich in shades of green. The subtle differences in foliage texture and colour become more pronounced after rain, when droplets of water bead on the waxy leafs and bring a fresh shine to the plants and garden.



Concept design only, detail and application to individual sites to be set-out with foreman.

1 Feature glossy leaf tree

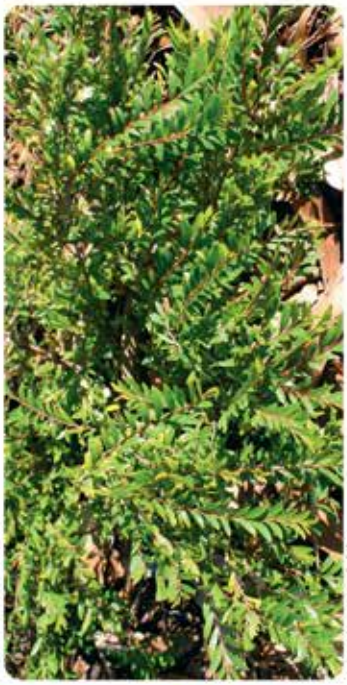
2 Mid-sized glossy leaf shrubs and understory

3 Suggested pathway option (not included in the installation)

Scientific Name	Common Name
Trees	
Gardenia ovularis	Native Gardenia
Podocarpus elatus	Brown Pine
Syzygium australe	Scrub Cherry
Understory	
Alocasia brisbanensis	Cunjevoi
Alpinia caerulea	Native Ginger
Austromyrtus dulcis	Midgen Berry
Dianella congesta	Beach Flax Lily
Doryanthes excelsa	Giant Lily
Lomandra hystrix	
Michelia figo	Port Wine Magnolia
Pittosporum 'Miss Muffet'	
Viburnum 'Emerald Lustre'	

APPENDIX C LANDSCAPE PACKAGES

Pittosporum 'Miss Muffet'



Austromyrtus dulcis

Dianella congesta

Alocasia brisbanensis

Alpinia caerulea

Lomandra hystrix

Michelia figo

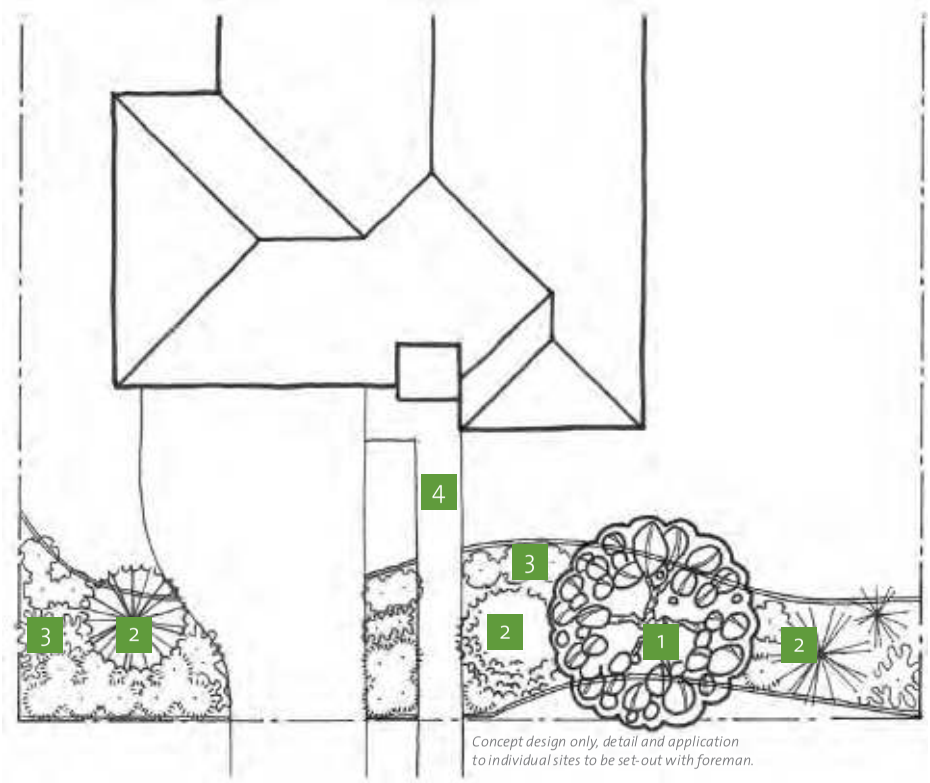
Doryanthes excelsa

Syzygium australe

COLOUR & SCENT GARDEN

A signature feature tree with striking flowers and foliage can become the beacon of the garden. A range of tree options have been suggested, offering a variety of characteristics. What holds the most appeal for you? Showy flowers? Shiny berries? Scented leaves? Foliage texture and colour?

A handful of tall accent shrubs set amongst swathes of flowering understory can be arranged to provide shifting colour highlights that progressively bloom throughout the year.



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Scientific Name	Common Name
Trees	
Acmena hemilampra	Blush Satinash
Backhousia citriodora	Lemon Scented Myrtle
Elaeocarpus eumundii	Eumundii Quondong
Eucalyptus 'Summer Red'	Red Flowering Gum
Grevillea baileyana	White Oak
Hibiscus tiliaceus	Cotton Tree
Randia fitzalanii	Yellow Mangosteen
Understory	
Anigozanthos flavidus	Tall Kangaroo Paw
Anigozanthos humilis	Catspaw
Anigozanthos manglesii	Red and green kangaroo paw
Banksia spinulosa	Hairpin Banksia
Lavandula spp.	Lavender
Pultenaea euchila	Bush Pea
Westringia eremicola	Mint Bush
Groundcover	
Chrysocephalum apiculatum	Yellow Buttons
Viola hederacea	Native Violet
Xerochrysum bracteatum	Paper Daisy
Climbers	
Trachelospermum jasminoides	Star Jasmine

1 Signature flowering/fruiting feature tree

2 Mid sized accent shrubs

3 Flowering understory

4 Suggested pathway option (not included in the installation)

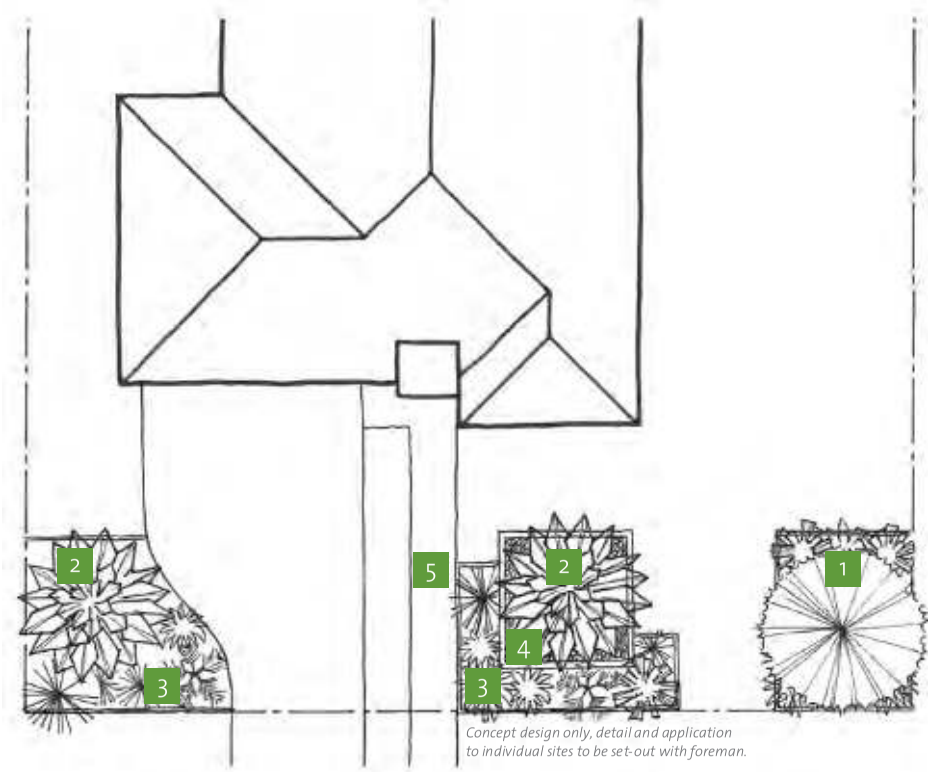
APPENDIX C LANDSCAPE PACKAGES

SILHOUETTE GARDEN

Striking feature trees such as the Lacy Tree Fern and Screwpine cast intricate shadows and provide dappled shade.

Mid sized shrubs with distinctive shapes can be used to create a formal garden structure, and over time, can grow to become the signature plants within the garden.

Understory shrubs selected for their contrasting textures and silhouettes add layers of depth, colour and shadow.



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Scientific Name	Common Name
Trees	
Cyathea cooperii	Lacy Tree Fern
Hymenosporum flavum	Native frangipani
Pandanus tectorius	Screwpine
Macrozamia mountperriensis	
Understory	
Cordiline fructicosa	
Cordiline 'Schubertii'	
Lepidozamia peroffskyana	Peroffsky's Lepidozamia
Licuala ramsayi	Australian Fan Palm
Lomandra confertifolia	
Pittosporum 'Miss Muffet'	
Yucca filamentosa	
Zamia furfuracea'	Cardboard palm
Groundcover	
Zoysia	
Climbers	
Raphidophora pinnata	

1 Feature tree
2 Mid sized signature plants
3 Understory shrubs
4 Raised garden bed and decorative pebbles
5 Suggested pathway option (not included in the installation)

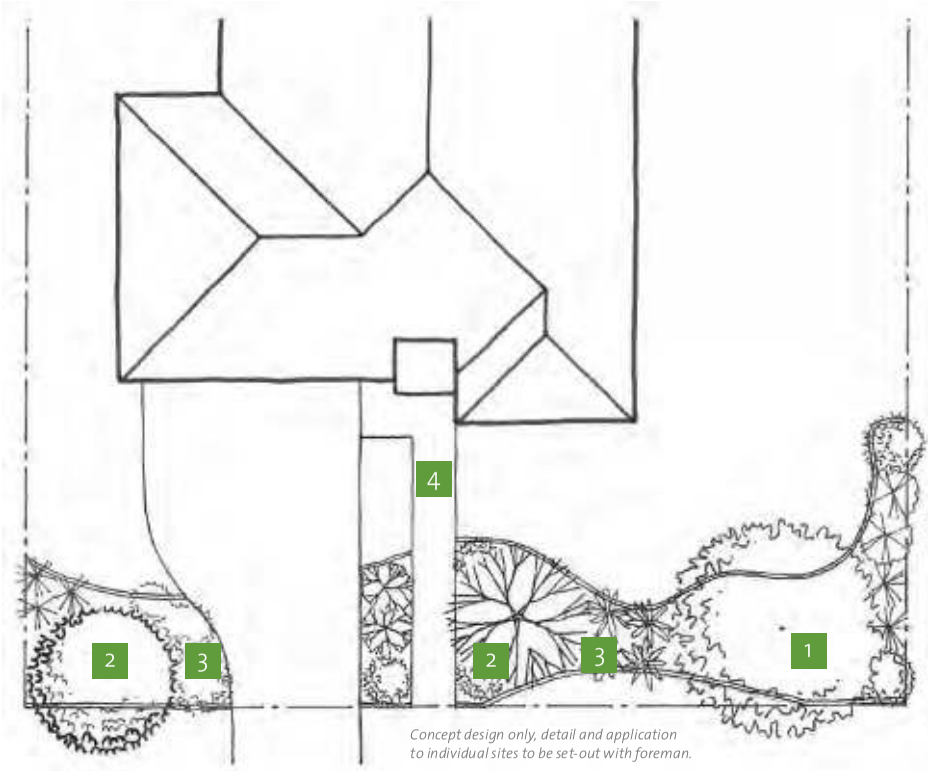
APPENDIX C LANDSCAPE PACKAGES

BUSHLAND GARDEN

The joy of a bushland garden is in selecting species that are found in the surrounding pockets of retained vegetation and extending that habitat into your own garden.

A bushland garden offers a hardy, low maintenance option, where fallen seed pods and leaves form part of the native understory.

Birds and other native wildlife will find valuable shelter and food within bushland gardens, adding to the life and activity of the garden.

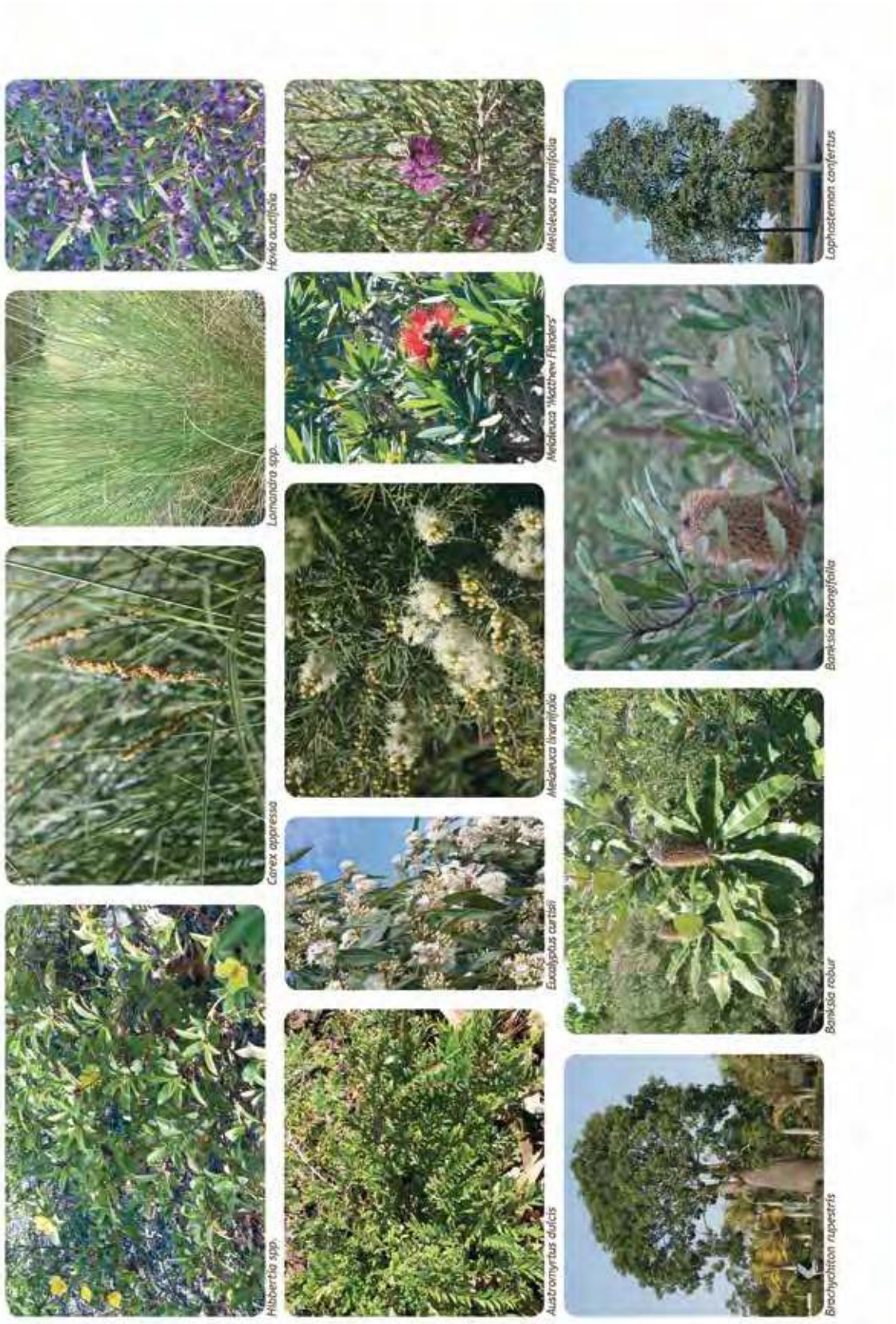


Concept design only, detail and application to individual sites to be set-out with foreman.

Scientific Name	Common Name
Trees	
Banksia ericifolia	Fern Banksia
Brachychiton rupestris	Queensland Bottle Tree
Eucalyptus curtisii	Plunkett Mallee
Lophostemon confertus	Brush Box
Melaleuca linariifolia	Flax-leaved Paperbark
Understory	
Carex appressa	Tall Sedge
Chamelaucium uncinatum	Geraldton wax
Austromyrtus dulcis	Midgen Berry
Banksia oblongifolia	
Banksia robur	Swamp Banksia
Hovea acutifolia	
Melaleuca thymifolia	Thyme-leaf Honey-myrtle
Melaleuca 'Matthew Flinders'	Dwarf Bottlebrush
Lomandra 'Shara'	
Groundcover	
Hibbertia aspera	Guinea Flower

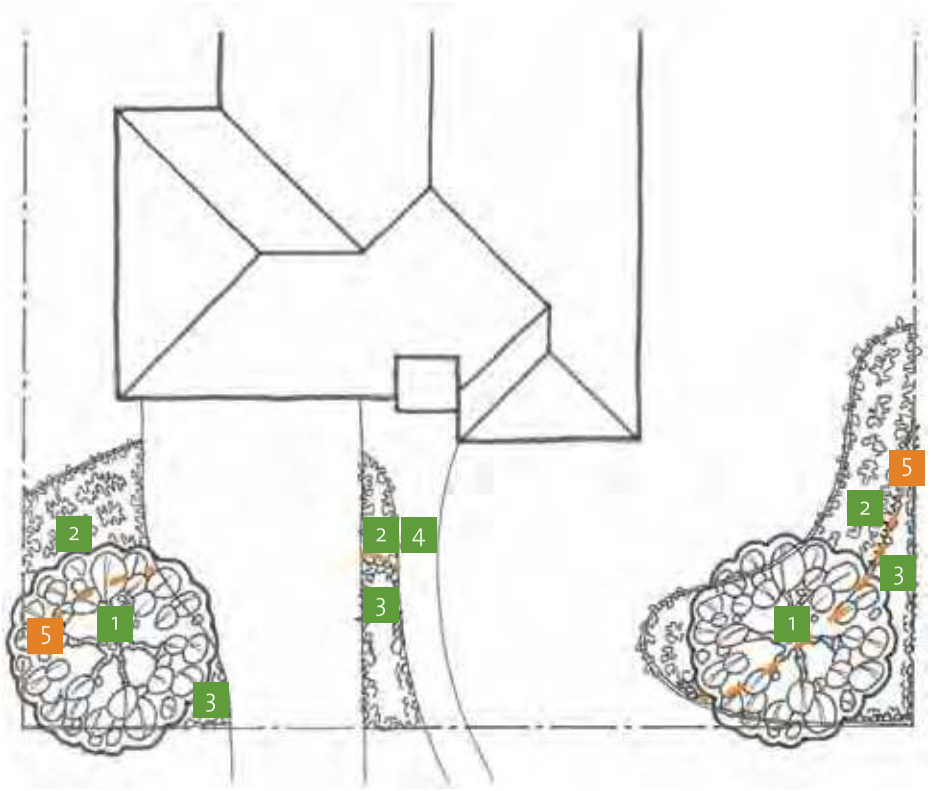
1 Feature native tree 2 Mid sized signature plants 3 Understory shrubs 4 Suggested pathway option (not included in the installation)

APPENDIX C LANDSCAPE PACKAGES



FLAME TREE GARDEN

The simplicity of the flame tree garden is part of its beauty. Two flame trees flank the front of the garden, bearing masses of crimson flowers in early summer. The understory of Pennisetum and Xanthostemon planted in two dense bands provide vertical accents of wispy white seed heads and foliage to catch in the breeze.

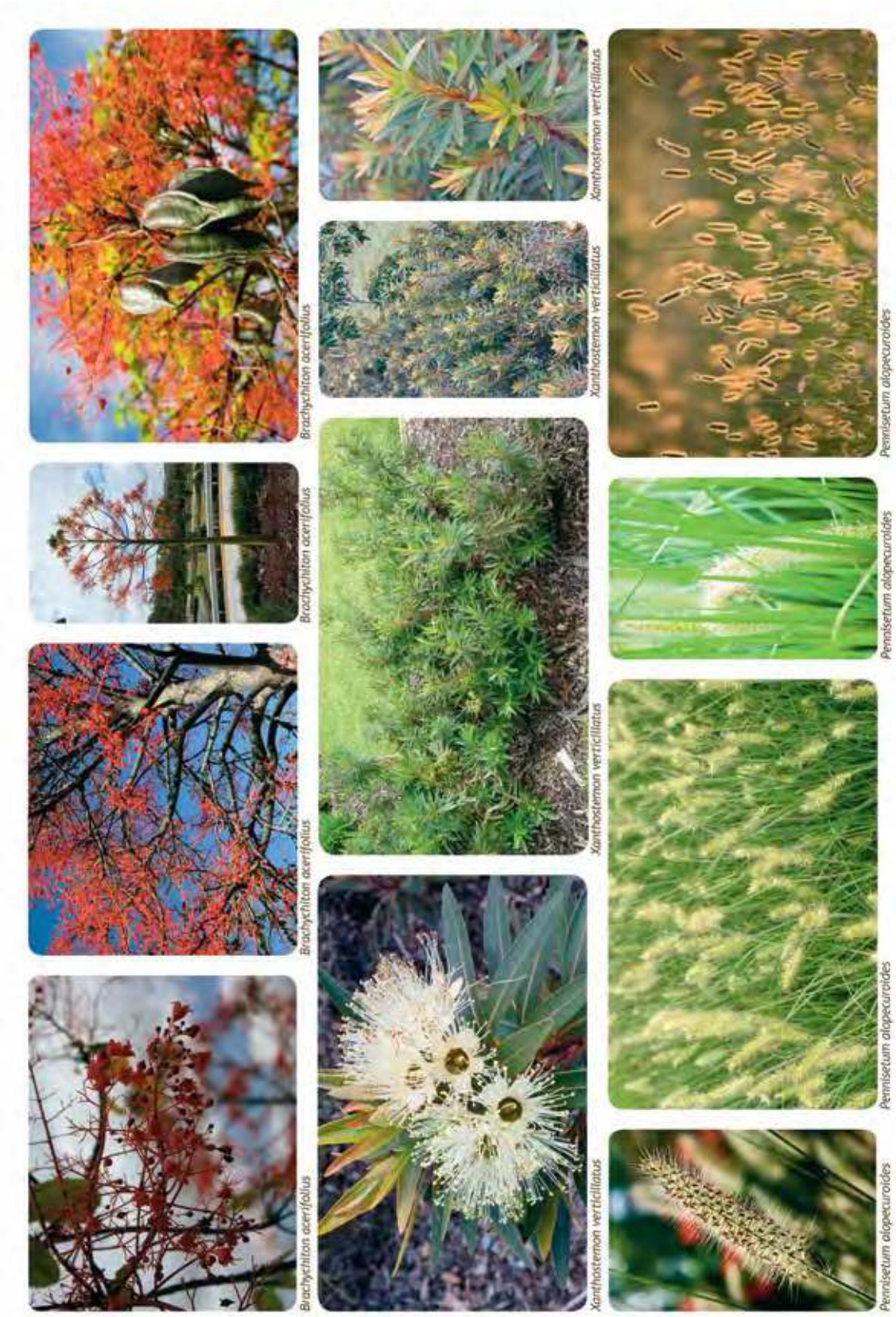


Concept design only, detail and application to individual sites to be set-out with foreman.

Scientific Name	Common Name
Trees	
Brachychiton acerifolius	Flame Tree
Understory	
Pennisetum alopecuroides	Fountain Grass (white seed head variety recommended)
Xanthostemon verticillatus	Little Penda

1. Signature Flame Tree
2. Mass planting of Xanthostemon verticillatus
3. Mass planting of Pennisetum alopecuroides
4. Suggested pathway option (not included in the installation)
5. Indicates separation between Xanthostemon and Pennisetum

APPENDIX C LANDSCAPE PACKAGES



APPENDIX D LANDSCAPE DESIGN APPLICATION FORM

Property: .....

Stage: .....

Name: .....

Signature: .....

Date: .....

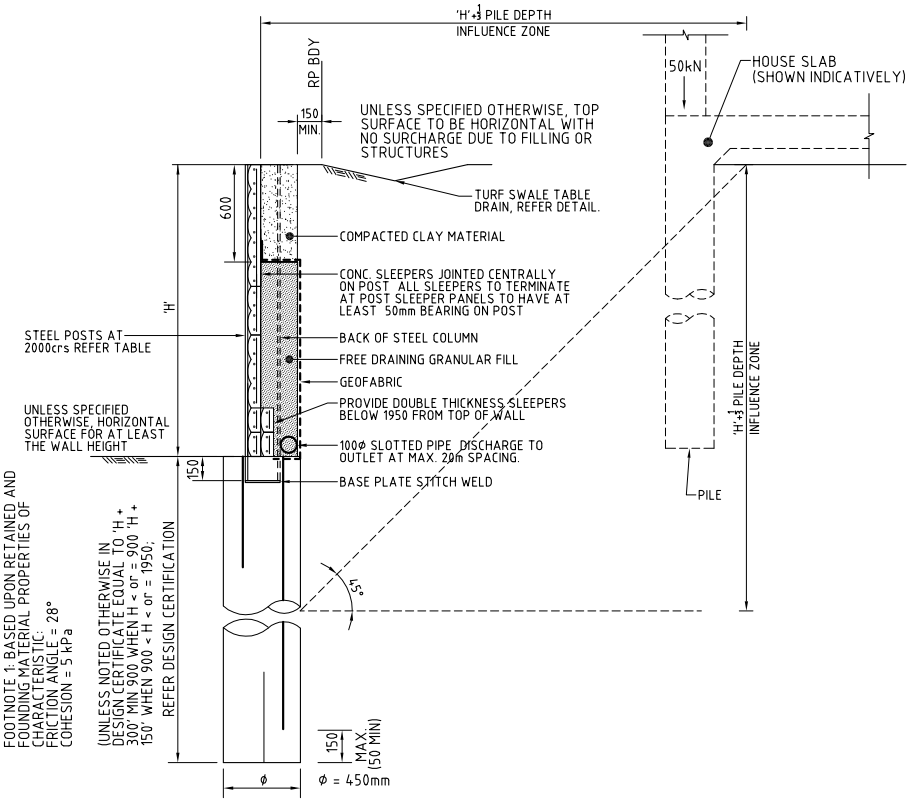
Please indicate your preferred Landscape Design Package by placing an X in the relevant box.

- ☐ Landscape Package – Glossy Garden
- ☐ Landscape Package – Colour and Scent Garden
- ☐ Landscape Package – Silhouette Garden
- ☐ Landscape Package – Bushland Garden
- ☐ Landscape Package – Flame Tree Garden

Please forward this Landscape Design Application Form to Investa at the Brentwood Forest Land Sales and Information Centre and the landscape contractor will call you to arrange installation.

Brentwood Forest Land Sales and Information Centre
Phone: 1300 853 537

APPENDIX E RETAINING WALL / ZONE OF INFLUENCE DETAIL



TYPICAL SLEEPER WALL
SCALE- 1:100

NOTES

1. CONCRETE SLEEPER WALL DETAILS ARE INDICATIVE ONLY. DETAILED DESIGN & CERTIFICATION TO BE PROVIDED BY CONTRACTORS RPEQ.
2. DESIGN IS BASED UPON:
   EARTH-RETAINING STRUCTURES CODE AS4678-2002
   CONCRETE STRUCTURES CODE AS3600
   STEEL STRUCTURES CODE AS4100
   BUILDING CODE OF AUSTRALIA
   PROTOTYPE TESTING AT THE UNIVERSITY OF QLD
3. LAND SLIPS (E.G. SLIP CIRCLE FAILURE MECHANISMS) HAVE NOT BEEN CONSIDERED IN THE RETAINING WALL DESIGN. THE DESIGN IS BASED UPON THE ASSUMPTION THAT THE WALL IS FOUNDED ON GROUND NOT SUBJECT TO SLIP. THE DETERMINATION OF THE SITE SUSCEPTIBILITY TO SLIP IS THE RESPONSIBILITY IS THE PROJECT ENGINEER AND THE GEOTECHNICAL CONSULTANT AND IS BEYOND THE SCOPE OF WORK OF CONCRIB AND QLD STRUCTURAL ENGINEERING PTY. LTD.
4. HOUSES BUILT WITHIN INFLUENCE ZONE (H+1/3 PILE DEPTH) TO BE PILED TO BELOW RETAINING WALL INFLUENCE LINE DEPTH.

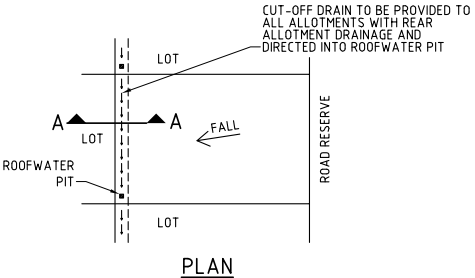
DESIGN PARAMETERS

1. REFER DESIGN CERTIFICATION FOR RETAINED AND FOUNDING SOIL DESIGN PARAMETERS, DESIGN SURCHARGE LOADS AND WALL DESIGN GEOMETRY.
2. CONCRETE STANDARD – AS3600 STANDARD DESIGN EXPOSURE CLASSIFICATION SLEEPERS & POSTS – B1, FOOTINGS – A2
3. SLEEPER WALLS TO BE DESIGNED FOR AN ALLOWABLE 0.5m CUT TO BASE OF WALL AND ADDITIONAL 0.5m OF FILL TO BE PLACED TO TOP OF WALL SHOULD EARTHWORKS BE UNDERTAKEN ON RESIDENTIAL ALLOTMENTS FOLLOWING CIVIL WORKS CONSTRUCTION.
4. MINIMUM SURCHARGE LOAD OF 5 KPa TO BE USED FOR DESIGN.
5. WALL TO BE DESIGNED TO BRIDGE ANY UNDERGROUND SERVICES SO AS NOT TO IMPOSE ANY ADDITIONAL LOADING ON SERVICES.
6. DESIGN DRAWINGS AND RPEQ CERTIFICATION TO BE PROVIDED TO SUPERINTENDENT 5 WORKING DAYS PRIOR TO COMMENCEMENT OF RETAINING WALL CONSTRUCTION.
7. NOMINAL LINE LOAD OF 50kN/m TO BE USED FOR PILE DESIGN WITHIN INFLUENCE ZONE.

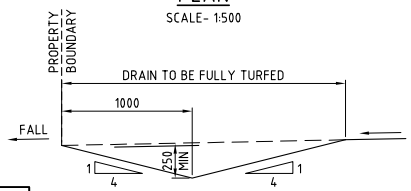
ELEMENT	GRADE	SLUMP	MIN. COVER
SLEEPER	N50	50mm	20mm × ××
FOOTING	N25	80mm	75mm

× RIGID FORMWORK & INTENSE COMPACTION
×× MINIMUM SPECIFIED COVER 25mm.

REINFORCEMENT STANDARD – AS/NZS 4671
YIELD 500 MPa; DUCTILITY CLASS N

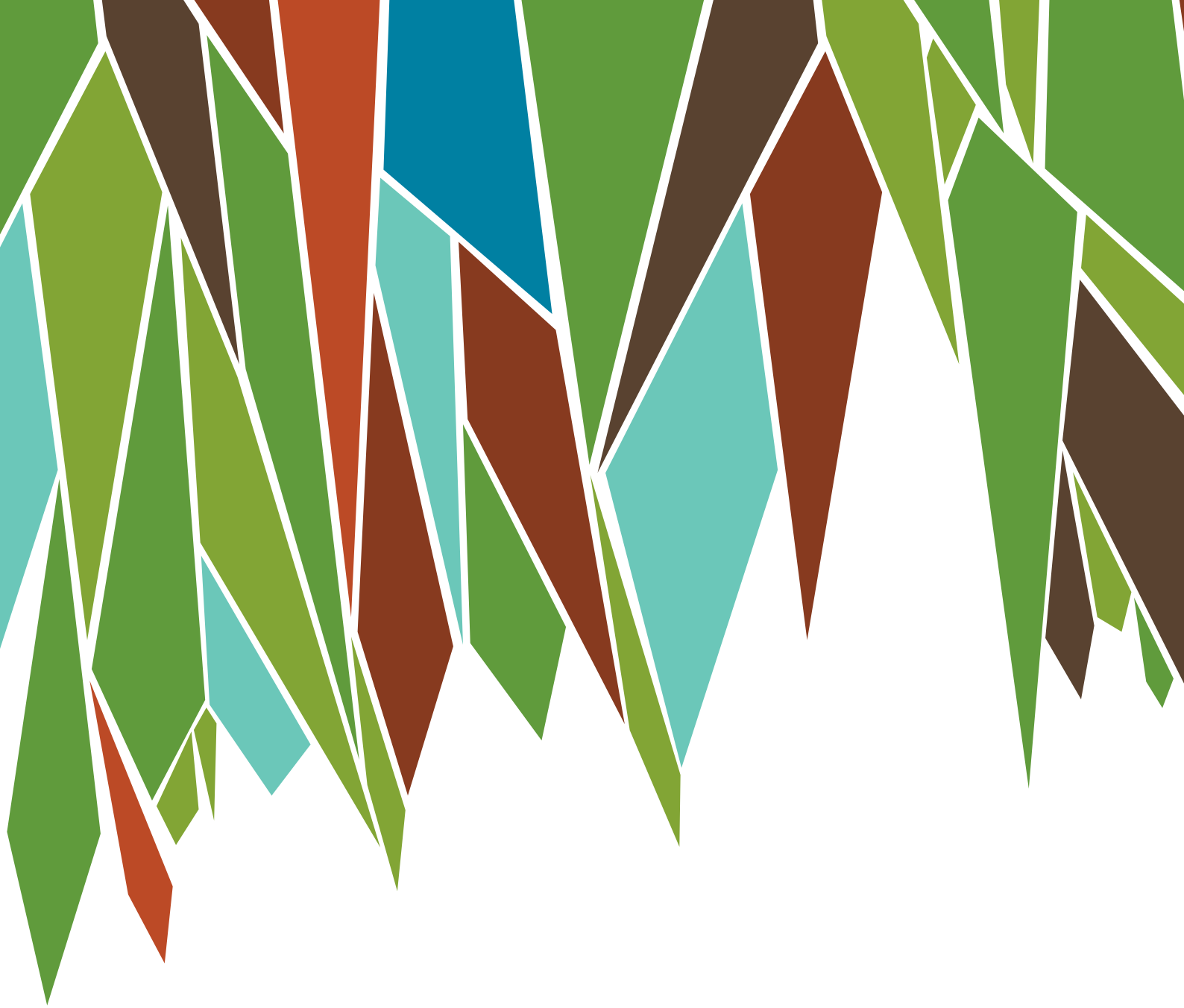


PLAN
SCALE- 1:500



SECTION A-A
SCALE 1:25

ALLOTMENT DRAINAGE

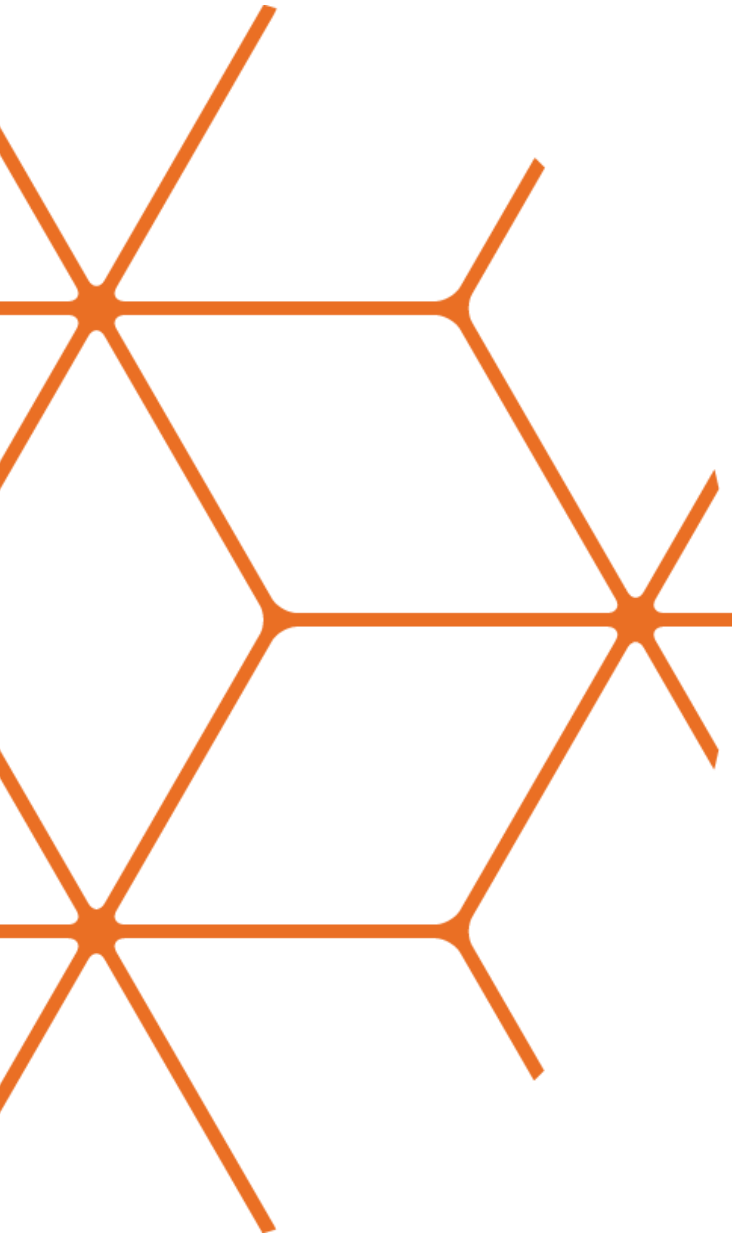


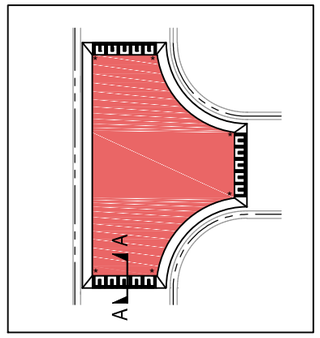
Visit us today at the Brentwood Forest Sales Centre
48 Columbia Drive, Bellbird Park, QLD 4300
Open daily 10am – 5pm

T: 1300 853 537 W: brentwoodforest.com.au

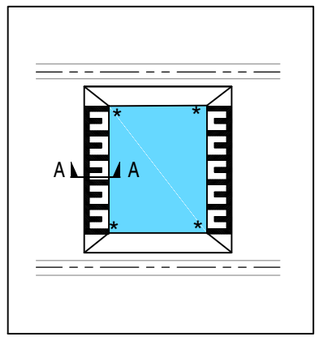
APPENDIX H

Overall Speed Control Layout Plan

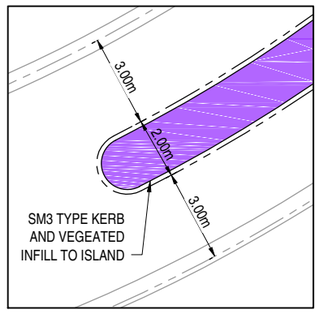




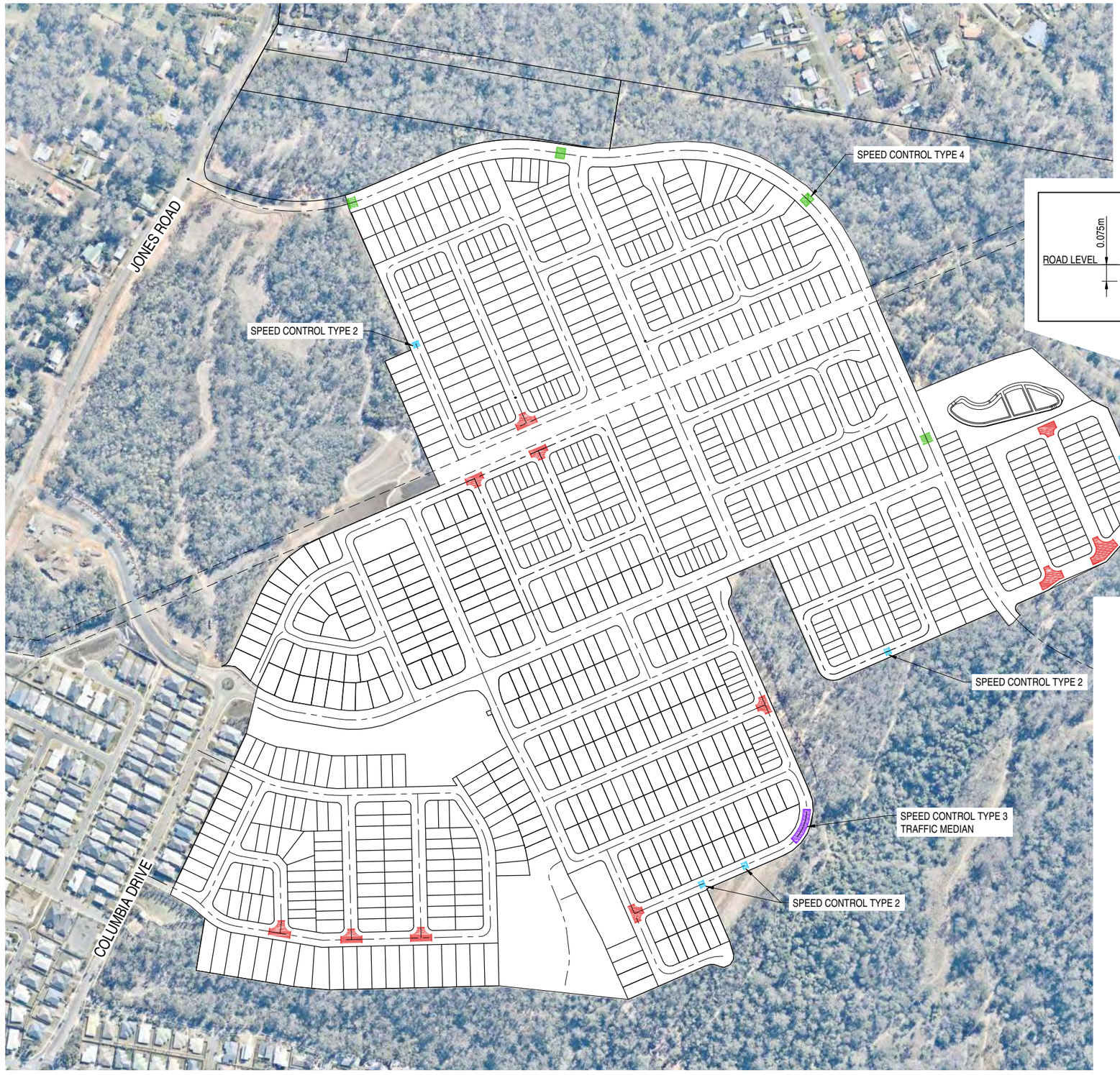
SPEED CONTROL TYPE 1
RAISED INTERSECTION PLATFORM



SPEED CONTROL TYPE 2
RAISED PLATFORM MID BLOCK

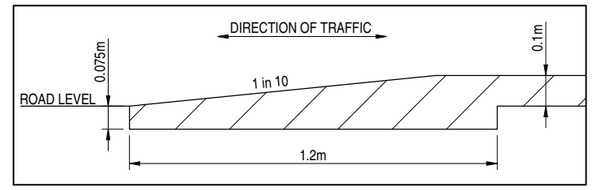


SPEED CONTROL TYPE 3
TRAFFIC MEDIAN



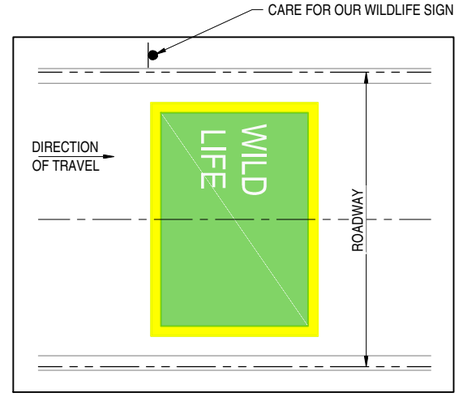
LEGEND

- SPEED CONTROL TYPE 1
- SPEED CONTROL TYPE 2
- SPEED CONTROL TYPE 3
- SPEED CONTROL TYPE 4



TYPICAL SECTION A-A
RAISED PLATFORM DETAIL

CARE FOR OUR
WILDLIFE



SPEED CONTROL TYPE 4
LINEMARKED TREATMENT

HYDER CONSULTING Pty Ltd
ABN 76 104 485 289
Level 7, 199 Grey Street
South Brisbane, QLD 4101
Australia
Tel: +61 (07) 3337 0000
Fax: +61 (07) 3337 0050
www.hyderconsulting.com

0 50 100 150 200 250m
1 : 2500

01	ORIGINAL ISSUE	31/08/2015

**CONCEPT DESIGN.
FOR DISCUSSION ONLY**

INVESTA

Project: BRENTWOOD ESTATE

Title: OVERALL SPEED CONTROL LAYOUT PLAN

Author: TP | Designed: MG

Date:	Scale:	Size:
27/08/15	1 : 2500	A1

Drawing No.	Project No.	Issue
SK00200	AA006266	A

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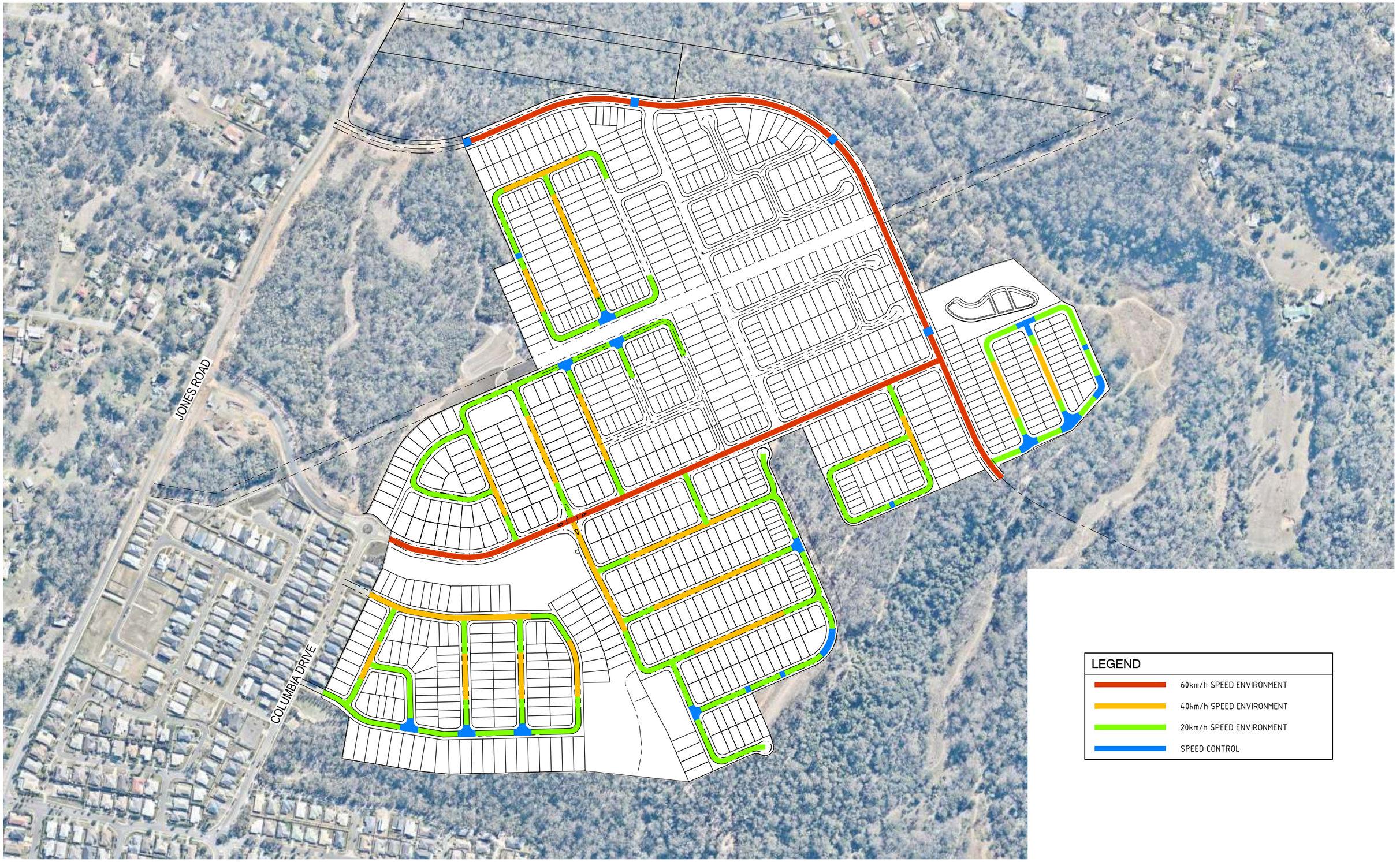

Issue	Description	By	Ckd	Date
B	LAYOUT UPDATED	TP	SE	01.09.15
A	ORIGINAL ISSUE	MG	SE	04.06.15

100mm on Original

Scale: 0 50 100 150 200 250m — 1 : 2500

Surveyor:

Architect:

Filename: SK00001-AA006266-AAD-00-SPEED CONTROL.DWG

Client: INVESTA

Status: **FOR APPROVAL**
CONSTRUCTION SUBJECT TO APPROVAL

Approved — R.P.E.Q No : ----

		Current Issue Signatures	
Scales	AS SHOWN	Author T.PHAN	
Original Size	A1	Designer S.EISEL	
Height Datum	AHD	Reviewer S.EISEL	
Grid	GDA94	© Copyright reserved	

Project: BRENTWOOD ESTATE

Title: SPEED ENVIRONMENT WITH SPEED CONTROL

HYDER CONSULTING Pty Ltd
ABN 76 104 485 289
Level 7, 199 Grey Street
Locked Bag 2017
South Brisbane, QLD 4101
Australia

Tel: +61 07 3337 0000
Fax: +61 07 3337 0050

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Drawing No.	Project No.	Issue
SK00001	AA006266	B

1/Sep/2015 11:31 AM \\HC-AUS-BN-FS-01\Jobs\AA006266\E-CAD\C-Civil\B-Sketches\SK00001-AA006266-AAD-00-SPEED CONTROL.dwg V1