



total earth care

## **Vegetation Management Plan**

**5 Mid Dural Road & 392 Galston Road, Galston NSW**

Vigor Master

**March 2015**



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## Vegetation Management Plan

### Proposed Development – Seniors Living Development at 5 Mid Dural Rd & 392 Galston Rd, Galston NSW

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**ABBREVIATIONS**

BR	Bush Regeneration
DE	Department of Environment
DECC	Department of Environment and Climate Change
EEC	Endangered Ecological Community
EPA Act	Environmental Planning and Assessment Act 1979
EPBC Act	Environmental Protection and Biodiversity Conservation Act 1999
HLEP	Hornsby Local Environmental Plan
LGA	Local Government Area
NW	Noxious Weed
OEH	Office of Environment and Heritage
TEC	Total Earth Care
TSC Act	Threatened Species Conservation Act 1995
VMP	Vegetation Management Plan
VMZ	Vegetation Management Zone

## Vegetation Management Plan

### Proposed Development – Seniors Living Development at 5 Mid-Dural Rd & 392 Galston Rd, Galston NSW

#### 1 INTRODUCTION

The applicant Vigor Master Pty Ltd has proposed to develop a seniors living department containing 76 independent living units and an associated community building at 5 Mid-Dural Rd & 392 Galston Rd, Galston NSW as shown in DA Landscape Site Plan (Taylor Brammer 2011) Appendix A and Map 1 Appendix B. As a condition of consent, the Land and Environment Court requires the preparation of a Vegetation Management Plan (VMP) for the area of Sydney Turpentine Ironbark Forest located at Mid-Dural Rd frontage (Maps 2 & 3). The area was previously identified by Clarke Dowdle & Associates within a Flora and Fauna assessment in May 2011. Vigor Master has contracted Total Earth Care (TEC) to prepare a VMP.

As described in the Land and Environment Court conditions of consent, this VMP has been prepared in accordance with Hornsby Council *Guidelines for the preparation of Vegetation Management and Restoration Plans* 2008 and includes:

- Management and eradication of introduced environmental and noxious weeds including Blackberry *Rubus fruticosus agg sp.*, *Cotoneaster sp.* and *Lantana camara* using approved bush regeneration techniques;
- Strategies for the encouragement of natural regeneration on site from the soil seed bank;
- Revegetation works, where required, using a diversity of locally indigenous species;
- Use of any topsoil translocation as recommended within the *Flora and Fauna Assessment Report* prepared by Clarke Dowdle and Associates May 2011;
- Erosion, sediment and stormwater runoff controls;
- Details of any access tracks and other structures (i.e. fencing);
- Appropriate map of the site showing all areas to be managed and restored under the plan;
- Schedule of works including timeframes and responsibilities for management actions;
- Monitoring, performance criteria and reporting details;
- Provide minimum qualifications and experience of contractors implementing the plan;
- Linkages to the approved Landscape Plan (*Landscape and Planting Plan – LS01 Issue E & LA03 Issue D prepared by Taylor Brummer Pty Ltd*); and
- Details of qualifications and experience of the company preparing the plan.

The proposed works include an approximate 1500m<sup>2</sup> area of an Endangered Ecological Community (EEC), namely Sydney Turpentine Ironbark Forest (STIF). Listed under Part 3 of Schedule 1 of the Threatened Species Conservation Act 1995 (TSC Act), the Scientific Committee believes STIF within the Sydney Basin Bioregion is likely to become extinct in nature with the increasing threat of clearing, physical damage from recreational activities, rubbish dumping, grazing, mowing and weed invasion.

The area of STIF will be referred to as the Vegetation Management Zone (VMZ).

In addition to the Land and Environment Court conditions of consent the VMP will also include;

- A broad description of the subject site, based upon the site visit and review of relevant mapping data and reports (e.g. Council vegetation mapping, OEH vegetation mapping, previous Flora and Fauna Assessments and Landscape Plans);

- A brief description of the existing inventory of flora and fauna species, including all environmental and noxious weed species both within the area relating to the VMP and more broadly over the subject site;
- A description of proposed regeneration, rehabilitation and restoration methodologies within the VMP area, planting layout and densities, including a list of appropriate species for use in revegetation in any rehabilitation areas;
- Details of the planting program, rehabilitation methods and staging for the vegetation management zones identified;
- A maintenance program for the minimum required period after the completion of works, including monitoring and reporting responsibilities; and
- Preparation of vegetation management maps detailing the management zones, existing vegetation, vegetation to be retained, vegetation to be cleared, any retained development footprint and revegetation areas.

Remnant vegetation within the VMZ was assessed within the Flora and Fauna Assessment Report by Clarke Dowdle and Associates (herein referred to as the Flora and Fauna Report) and found a low to lacking potential habitat for flora and fauna species listed on one or both of the TSC or EPBC Acts that have previously been recorded within 5km of the study area, as listed on the Office of Environment and Heritage (OEH) Bionet database.

TEC has considered the mentioned key threatening processes and provided descriptions of best practise control measures and vegetation management procedures to follow to best conserve STIF and meet the Land and Environment conditions.

## 1.1 Aims & Objectives

The general aim of the VMP is to provide a working document for the protection and enhancement of the vegetation to be retained and rehabilitated within the site. More specifically, the objectives of the VMP are to:

- Describe the site, including soils and flora and fauna resources;
- Describe the proposed management zones, works and mitigation measures;
- Provide management actions for the threatened ecological community and potential fauna species;
- Identification of different methods for rehabilitation, regeneration, weed management and revegetation works including specific steep STIF soil slope stabilisation techniques;
- List appropriate species for use in revegetation works;
- Outline management issues and proposed actions, their timing and designated parties for pre-construction, construction and post-construction; and
- Outline the rehabilitation and revegetation programs including the maintenance and monitoring of these programmes.

The scope for the preparation of the VMP has been based on information gathered by TEC ecologists during site visit, Council documents, State documents, planning documents including Landscape Plans provided by Vigor Master and best practise procedures.

## 2 METHODS

### 2.1 Desktop Research

A review of all available design plans and reports relating to the site and adjacent areas was conducted, as well as relevant legislation, recent vegetation mapping and other documentation relevant to the current project, including:

- *Final Court Order – Consent Conditions* (Land and Environment Court 12/01/2012)
- *Flora and Fauna Assessment* (Clarke Dowdle & Associates May 2011)
- *Site Plan* (Vigor Master 16/02/2015)
- *Landscape Plan CC* (Taylor Brammer May 2011)
- *Arboricultural Impact Assessment* (Advanced Treescape Consulting May 2011)

### 2.2 Botanical Survey

A general botanical survey of the area was conducted across the site on 24<sup>th</sup> February 2015. The study area was surveyed using transect and random meander methods. This involved:

- The identification of native and exotic plant species, according to Field Guide to the Native Plants of Sydney (Robinson 2003) and the Flora of NSW (Harden 1992, 1993, 2000, 2002), with reference to recent taxonomic changes;
- The identification and mapping of plant communities according to the structural definitions of Specht & Specht (1999), Smith and Smith (2008) and Benson and Howell (1994).
- Targeted searches for plant species of conservation significance according to the “random meander” method (Cropper 1993);
- An assessment of the natural resilience of the vegetation of the site;
- Identification of previous and current factors threatening the ecological function and survival of native vegetation on the site; and
- Determination of appropriate rehabilitation and bush regeneration techniques for the native vegetation of the site.

The conservation significance of plant species and plant communities was determined according to:

- TSC Act for significance within NSW; and
- EPBC Act for significance within Australia.

A flora inventory of recorded species on site is provided within Appendix C.

### **3 STATUTORY CONSIDERATIONS**

Local, State and Federal Government Legislation and Policies relevant to this VMP are outline below.

#### **3.1 Hornsby Local Environment Plan 2013**

##### Land Use Zone

Council has zoned the study area as RU2 Rural Landscape (5 Mid-Dural Road) which permits environment protection works without consent.

#### **3.2 State Legislation & Policy**

##### 3.2.1 Threatened Species Conservation Act 1995

The *Threatened Species Conservation Act 1995* (TSC Act) aims to conserve threatened species, populations, ecological communities and their habitats to promote their recovery, and to manage the processes that threaten or endanger them. The Act has lists of threatened flora, fauna and ecological communities, for which consideration must be given for proposed development and actions.

##### Flora

During the Flora and Fauna investigation, one threatened flora species (suspected planted *Syzygium paniculatum* Magenta Lilly Pilly) listed under the TSC Act was recorded on site. Eighteen threatened flora species previously recorded within 10km of the subject site as reported by OEH National Parks and Wildlife Service BioAtlas Search. An assessment of potential habitat was conducted and found all but one (suspected planted *Syzygium paniculatum* Magenta Lilly Pilly) had a low likelihood of occurring within the subject site.

No threatened flora populations under the TSC Act were recorded on the subject site during the previous Flora and Fauna investigation.

##### Fauna

During the Flora and Fauna investigation, no threatened fauna species listed under the TSC Act were recorded on site. Thirty-nine threatened fauna species previously recorded within 10km of the subject site as reported by OEH National Parks and Wildlife Service BioAtlas Search. An assessment of potential habitat was conducted and found all thirty-nine species had low likelihood of occurring within the subject site.

One endangered fauna population (Gang-gang Cockatoo population in the Hornsby and Ku-ring-gai LGA's), listed under the TSC Act has been previously recorded within 10km of the subject site and was also assessed as having limited suitable habitat on the subject site.

##### Endangered Ecological Communities

One endangered ecological community, STIF, as listed under the TSC Act was recorded on site.

The following state significant flora and fauna issues have been previously identified on site:

- Sydney Turpentine Ironbark Forest; and
- Four suspected planted *Syzygium paniculatum* Magenta Lilly Pilly.

##### 3.2.2 Noxious Weeds Act 1993

The Noxious Weeds Act 1993 (NW Act) outlines the requirements of government, councils, private landholders and public authorities in the management of noxious weeds. The Act provides control

classes and actions for the various noxious weeds, according to their potential to cause harm to the natural environment.

Each individual council has its own list of declared noxious weeds and is responsible for administration of the Act which includes:

- Inspection and control of noxious weeds on Council lands;
- Inspection of private properties and ensuring that land owners carry out their legal obligations to control noxious weeds; and
- Development, implementation, and review of noxious weed control policies and programs.

A number of noxious weed species declared within the Hornsby LGA were recorded within the study area. A list of these species is contained below in Section 4.2 within Table 1.

### **3.3 Commonwealth Legislation and Policy**

#### **3.3.1 Environment Protection and Biodiversity Conservation Act 1999**

The *Environment and Protection and Biodiversity Conservation Act 1999* (EPBC Act) primarily aims to provide for the protection of the environment, especially those aspects of the environment that are matters of national environmental significance whilst promoting ecologically sustainable development.

During the Flora and Fauna investigation, no threatened flora or fauna species or populations thereof as listed under the EPBC Act were recorded on site.

##### Flora

Twelve threatened flora species previously recorded within 10km of the subject site (EPBC Protected Matters Search) were also listed under the TSC Act and as stated above (Section 3.2.1) were considered to have a low likelihood of occurring within the subject site (Flora and Fauna Report).

##### Fauna

Seven threatened fauna species previously recorded within 10km of the subject site (EPBC Protected Matters Search) were also listed under the TSC Act and considered to have a low likelihood of occurring within the subject site (Flora and Fauna Report).

##### Endangered Ecological Communities

Turpentine-Ironbark Forest is listed as a critically endangered EEC under the EPBC Act. STIF can be classified as Turpentine-Ironbark Forest if the following Commonwealth condition classes are met:

- Vegetation contains some characteristic components from all structural layers (tree canopy, small tree/shrub midstorey, and understorey);
- Tree canopy cover is greater than 10% and remnant size is greater than one hectare; and
- Remnants with tree canopy cover less than 10% are also included in the ecological community, if the fragments are greater than one hectare in size and occur in areas of native vegetation in excess of 5 hectares in area.

TEC observed STIF occurring on site in an approximate area of 1500m<sup>2</sup>. In addition, the STIF was observed to have a limited and occasional absent midstorey and understorey. Therefore the area of vegetation identified as STIF on site is not considered to be the EPBC Act listed Turpentine-Ironbark Forest.

## **4 SITE DESCRIPTION**

### **4.1 Soils**

Soils at the subject site are mapped by the NSW Soil Conservation Service – Soil Landscapes of the Sydney 1:100 000 Sheet (Chapman and Murphy 1989) as of the Glenorie Landscape, underlain by Wianamatta Group Ashfield Shale and Bringelly Shale formations that occur north of Parramatta River on the Hornsby Plateau.

The Glenorie landscape as quoted by Chapman and Murphy (Soil Landscapes of the Sydney 1:100 000 Sheet) is characterised by low rolling and steep hills, local relief 50-120m and slopes of 5-20%. Moderately inclined slopes of 10-15% are the dominant landforms. The landscape within the area has undergone extensive clearing of tall open-forests (wet sclerophyll forest). Dominant tree species are Sydney Blue Gum *Eucalyptus saligna*, and Blackbutt *Eucalyptus pilularis*, with other species including Turpentine *Syncarpia glomulifera*, Grey Ironbark *Eucalyptus paniculata*, White Stringybark *Eucalyptus globoidea* and Rough Barked Apple *Angophora floribunda*. Common understorey species are *Pittosporum undulatum* and Coffee Bush *Breynia oblongifolia*. Most original vegetation has been extensively cleared, except for larger trees in many residential areas.

Minor gully erosion is evident along unpaved roads. Moderate sheet erosion occurs on disturbed (mainly cultivated) areas. Generally soils within the area are low wet strength strongly acidic with a high aluminium toxicity. Fertility is low to moderate with tall trees abundant in the deep soils with a high clay content.

## 4.2 Flora

A total of 50 plant species were recorded within the study area during the flora field survey (TEC 24/02/2015), 2 of which are considered non-indigenous native species (probably planted) and 25 are introduced exotics.

Of the 25 exotic species, 9 are noxious weeds listed on the NW Act for the Hornsby LGA, as listed in Table 1 below as per Weed Control Order No.30.

A full list of flora species recorded across the study area during the current investigation is contained in Appendix C.

**Table 1** Noxious Weeds Recorded on site for Hornsby LGA

Control Class	Scientific Name	Common Name
4	<i>Asparagus aethiopicus</i>	Asparagus Fern
4	<i>Asparagus asparagoides</i>	Bridal Creeper
4	<i>Lantana camara</i>	Lantana
4	<i>Ligustrum sinense</i>	Small-leaf Privet
4	<i>Ligustrum lucidum</i>	Broad-leaf Privet
4	<i>Lonicera japonica</i>	Japanese Honeysuckle
4	<i>Ochna serrulata</i>	Mickey Mouse Plant
4	<i>Olea europaea sub. cuspidata</i>	African Olive
4	<i>Rubus fruticosus</i>	Blackberry

### Requirements of the Noxious Weeds Act

Class 4 The growth of the plant must be managed in a manner that continuously inhibits the ability of the plant to spread and the plant must not be sold, propagated or knowingly distributed.

### 4.2.1 Plant Communities

The study area was assessed as supporting Sydney Turpentine Ironbark Forest (STIF) as listed under the TSC Act. The following ecological community description is quoted from the NSW Scientific Committee final determination, Office of Environment and Heritage (OEH) and The Native Vegetation of the Sydney Metropolitan Area (OEH 2013).

## Sydney Turpentine Ironbark Forest

Sydney Turpentine Ironbark Forest (STIF) was originally forest, but may now exist as woodland or remnant trees. Characteristic trees are Sydney Turpentine *Syncarpia glomulifera*, *Eucalyptus globoidea*, *Eucalyptus resinifera*, Grey Ironbark *Eucalyptus paniculata*, Sydney Red-gum *Angophora costata* and *Angophora floribunda*.

STIF has been previously recorded within Hornsby LGA and is documented on Hornsby Shire's website. Hornsby Council describes STIF as an open forest community with dominant trees similar to those mentioned above. Common understorey shrubs include Sweet Pittosporum *Pittosporum undulatum*, Hop Bush *Dodonaea triquetra*, Elderberry *Panax Polyscias sambucifolia* and Sickle Wattle *Acacia falcata*. In open grassy areas, Kangaroo Grass *Themeda australis* and Blady Grass *Imperata cylindrical* are common (Council).

There is only 195 ha of STIF remaining in urban, rural and roadside areas (Council). It is estimated that only 0.5% of the original area of STIF exists in the form of a number of remnants (DE 2015a).

Major threats to STIF include:

- Clearing;
- Physical damage from recreational activities;
- Rubbish and green waste dumping;
- Grazing and mowing; and
- Weed invasion.

STIF exists along Mid-Dural Road roadside and into property 5 Mid-Dural Road (Map 2 & 3). This EEC located on site has a varied understorey with patches predominantly consisting of weed species including *Lantana camara*, *Senna* and *Kikuyu* to the west, with Cotoneaster dominating the west of the driveway and Privet abundant east of the existing driveway. The highest condition of STIF was observed in the eastern extent of the study area with the ground cover dominated by leaf litter with minor amounts of natives and weed species.

### 4.3 Fauna

Previous Flora and Fauna Report identified a total of 12 vertebrate species including two mammals, nine birds and one amphibian during site visits. All species recorded on the subject site are generally typical of urban areas, urban fringes and adjoining natural areas within the Sydney Basin region and are widespread in distribution and common abundant within their ranges.

As mentioned under section 3.2.1 in this report, no threatened fauna species as listed under the TSC Act or EPBC Act previously recorded within the 10km of the subject site were recorded or were assessed as likely to occur on site (Flora and Fauna Report).

No fauna study was conducted as part of this VMP. TEC agrees with the majority of the Flora and Fauna Report and considers the isolated patch of STIF as having limited potential habitat. The main habitat value exists within the canopy potentially for birds and bats, whilst the lower stratum appear discontinuous, highly modified and disturbed by past and current land use. The mid-storey predominantly includes weed species such as *Lantana* (mainly present in the western portion of site) providing preferable habitat for exotic fauna such as foxes and rabbits. Rabbit scats were identified throughout the western portion of site (TEC site visit 24/02/2015).

## 5 VEGETATION MANAGEMENT MEASURES

The general aim of vegetation management for the proposed development is to provide guidelines and suitable management practices including, but not limited to, the rehabilitation of the retained vegetation, and the protection and enhancement of the on-site locally significant vegetation communities and threatened species habitat. The area to be managed in accordance with this VMP is shown in Map 3 (Appendix B).

The program of vegetation management measures will include:

- Noxious weed removal and control;
- Protection of retained vegetation, specifically STIF species;
- Weed removal and revegetation of locally significant communities;
- Bush regeneration of retained vegetation and threatened species habitat; and
- Maintenance of plantings and ongoing weed removal to the 3 year maintenance term of this VMP.

The proposed management strategy for this VMP has been divided into four components.

- **Roles and Responsibilities** – recommending the staging of vegetation management works and assigning responsibilities.
- **Construction Activities** – incorporating construction of the proposed development and associated earthworks and erosion control;
- **Weed Control, Revegetation and Maintenance** – incorporating weed removal and control, planting of native species, and planting and vegetation maintenance;
- **Monitoring** – actions required to ensure the vegetation management measures of this VMP are being met and remain appropriate.

### 5.1 Roles and Responsibilities and Timing

The roles and responsibilities of all project personnel of relevance to this VMP are listed in Table 2 below. The proponent (Vigor Master) will be primarily responsible for the implementation of this VMP to its 36 month maintenance term, and will engage a qualified Vegetation Management Consultant (Consulting Ecologist) with experience in bush regeneration and ecological assessment for monitoring, auditing and overseeing the works included herein.

The majority of the vegetation management actions are to be undertaken, or managed by, a Bush Regeneration Contractor (also to be engaged by Vigor Master) with sufficient experience in such works.

The bush regeneration contractor should obtain the appropriate Scientific License for the project from the Office of Environment and Heritage.

**Table 2** Project Staff Roles and Responsibilities

<b>Role</b>	<b>Responsibilities</b>
Vigor Master / Appointed Project Manager	<ul style="list-style-type: none"> <li>▪ Ultimately responsible for the implementation of the Vegetation Management Plan/ VMP.</li> <li>▪ Project management of entire site including planning, contracting and coordination of all construction works, vegetation clearing, bush regeneration, revegetation and rehabilitation, compliance with development consent conditions, liaison with stakeholders and consent authorities, and Workplace, Health and Safety (WH&amp;S).</li> </ul>
Vegetation Management Consultant	<ul style="list-style-type: none"> <li>▪ Ensure all on-ground works are undertaken as per the relevant approvals and consent conditions.</li> <li>▪ Monitoring and provision of advice on restoration and revegetation projects to both the Proponent and works contractors.</li> <li>▪ Monitoring of weed control and revegetation works, plant survivorship, weed densities and correct installation of erosion control measures.</li> <li>▪ Ensuring compliance with this VMP and providing certifications where required.</li> </ul>
Bush Regeneration (BR) Contractor	<ul style="list-style-type: none"> <li>▪ Implementation of VMP actions where outlined in the following Actions Tables.</li> <li>▪ Weed control, seed collection, planting, and supplementary erosion control within regeneration areas.</li> <li>▪ The BR contractor is responsible for achieving the vegetation management performance targets listed below in the Actions Tables.</li> <li>▪ Maintenance of plantings and regeneration areas for the 36 month maintenance term of this VMP.</li> <li>▪ Contract, manage and supervise works for the installation of the footpath within the EEC and works associated with removing the driveway and reinstating STIF.</li> </ul>
Construction Contractor	<ul style="list-style-type: none"> <li>▪ Vegetation clearing, civil and construction works associated with proposed development.</li> <li>▪ Establish stockpiles and sediment controls.</li> </ul>
Arborist	<ul style="list-style-type: none"> <li>▪ Establishment and inspection of all tree protection zone fencing and signage.</li> <li>▪ Assessment and removal of required trees from subject site.</li> </ul>
Hornsby Council	<ul style="list-style-type: none"> <li>▪ Provide certifications and consents as and when required.</li> <li>▪ Ensure compliance with consent conditions.</li> </ul>

Timing of these responsibilities and actions are outlined in Table 3 below.

## 5.2 Construction Activities

### *Site Inductions*

Supervisors are required to identify all potential environmental impacts and implement and maintain control measures, procedures and constraints accordingly, and these should be documented as part of a Construction Environmental Management Plan (CEMP) or similar. Site specifics include the presence of threatened species habitat and locally significant vegetation communities, in this instance Sydney Turpentine Ironbark Forest. Details of exclusion fencing, strict hygiene protocols to reduce the potential introduction of invasive flora and fauna species or disease into the Vegetation Management Zone (VMZ).

### *Tree Protection Zones and Vegetation Fencing*

The conditions of consent require a number of tree protection measures be installed in accordance and reference to those listed within: Arboricultural Impact Assessment Report by Advanced Treescape Consulting 2011 (herein referred to as the Arborist Report).

Condition No. 31 states temporary tree protection fencing must be erected around the group of trees and significant bushland located at the north, Mid-Dural road frontage of the property, trees numbered

26, 28, 29 and 31-52 inclusive at a minimum distance of six metres and in accordance with AS 4970-2009.

Condition No. 31 continues: tree fencing must be constructed of 1.8 metre 'cyclone chainmesh fence' and maintained for the duration of the construction of the development.

Stockpiles of excavated material are to be kept outside the Tree Protection Zones (TPZs).

In accordance with Condition No. 34, temporary fencing (no soil penetration) is to be constructed around the entire mapped STIF (Map 3) in accordance with Australian Standards Protection of trees on development sites. The applicant must ensure the following:

- The installation of a 1.8 metre high chain wire fencing at a minimum distance of six metre (6m) from the significant bushland located at the north, Mid-Dural road frontage of the property;
- The northern end of the property shall not be used for vehicle access and egress during construction; and
- No stockpiling of soils or material within the fenced STIF.

This fence of type complying with the conditions of consent, should be erected pre-construction, to protect the EEC during all works. The fence will be sign-posted Endangered Ecological Community – Sydney Turpentine Ironbark Forest and be highlighted during site inductions as a vegetation area to be protected. The fence will stop any building debris being placed within the VMZ and stop personnel causing unnecessary disruption within the EEC including introducing pathogens and further weed propagules.

Native trees, or limbs of trees, that are removed as part of clearing for the current proposal (outside of VMZ) should be mulched and used on site in landscaping works or for temporary sediment and erosion control during construction. No mulching is to occur within the VMZ, with the exception of the reinstatement of STIF after driveway removal, see section below "Removal of driveway and reinstatement of STIF".

Stockpiles of excavated material are to be kept outside the VMZ, while sediment controls are to be installed around the pile. No machinery parking or materials storage is to occur in the VMZ. No wash off of machinery, equipment, chemicals and excess construction materials is to occur in, or be carried out in, an area that may affect the VMZ.

### ***Erosion and Sediment Controls***

Earthworks are not to commence until sediment and erosion controls have been installed (where possible) as per the approved *Erosion and Sediment Control Plan / Soil and Water Management Plan* document or similar. Erosion and sediment control is to be installed prior to demolition and must be observed and monitored for the entire pre-construction and construction phase of the development. All objectives and measures outlined within Landcom *Managing Urban Stormwater: Soils and Construction (2004)*, this VMP and any Sediment and Erosion Control Plan prepared for the development are to be enforced.

The Principle is responsible for the installation of sediment controls across the property, this task is separate from those required for implementation of this VMP.

As part of protecting the EEC within the VMZ, TEC recommends erosion and sediment control such as installation of silt fencing upslope of the EEC prior to any earthworks including demolition. Suitable techniques should be implemented to avoid any run-off from construction entering VMZ. Depending on the amount of water flowing towards the VMZ, a more appropriate control may be constructing an earth berm in front of the VMZ to divert run-off, this option will have to adhere erosion and sediment controls set out by the conditions of consent (not defined by this VMP).

Jute meshing is recommended on the roadside steep edge of the STIF during revegetation works as weeds will be removed increasing the risk of soil erosion and loss of EEC seedbank. Erosion was observed along this northern boundary and soil must be retained with STIF.

Two stormwater basins are proposed either side of VMZ. Overflow must be designed away from VMZ, including during all construction phases.

### ***Raised footpath within STIF***

The Arborist Report states pier holes are not to impact roots >30mm (assume diameter). If a root >30mm (diameter) is encountered the pier hole must be relocated to miss the root entirely. TEC require pier holes to be dug by hand tools only. In addition any soil that is excavated must be utilised as part of the driveway removal process as outlined below. The top 10cm of soil will hold a seedbank of STIF, and hence any earthworks within the VMZ must preserve the soil and replace in the same order, making sure the top 10cm is returned as the upper-most layer.

The installation of the raised footpath must be contracted and managed by a Bush Regeneration company who will also supervise construction works within the VMZ.

### ***Removal of driveway and reinstatement of STIF***

The driveway currently intersecting Zone 2 will be removed, and the area remediated and revegetated with STIF species.

The driveway will be removed using a small excavator (or equivalent). Bush Regeneration (BR) Company must supervise these works, including the fencing off of surrounding STIF during these works. All component materials should be removed from the area so that the local substrate (B-horizon) is visible. All component materials including, but not limited to: bricks, concrete, blue metal, gravel, and fill, will be placed in a tipper truck and disposed of in accordance with the relevant waste disposal regulations at an appropriately licensed waste disposal facility. Under no circumstances should the waste material be stockpiled within the VMZ.

Once the driveway has been removed, the B-horizon should be decompacted either through light scarifying or a shallow rip to a depth of 150 mm. The Bush Regeneration (BR) Company must supervise these works.

Substrate level should be reinstated to that of the surrounding areas using the following (in order of priority):

1. Weed and weed propagule free topsoil from locally occurring STIF (unlikely to be available);
2. The B-horizon sourced from excavated areas onsite as part of the construction works; or
3. Virgin excavated natural material (VEMN) such as crushed sandstone.

The driveway area should be revegetated in the following manner and be supervised by BR Contractor:

1. Translocated topsoil: A / O horizons spread by small excavator bucket and by hand. The surface should be left roughened to create micro-catchments to improve water detention and infiltration. Bush regeneration contractors should assist in transplanting any grasses, herbs, and other species that are placed by the excavator and watered into place.
2. B-horizon: a small area should be cordoned off for topsoil translocation associated with the raised footpath (see below). The remaining area should be mulched to a depth of 100mm and revegetated in accordance with the species and densities outlined in Appendix D.
3. VEMN: a small area should be cordoned off for topsoil translocation associated with the raised footpath (see below). The remaining area should be mulched to a depth of 100mm and revegetated in accordance with the species and densities outlined in Appendix D.
4. The area should be maintained 95% weed free as part of the bush regeneration works for Zone 2.

### 5.3 Weed Control, Revegetation and Maintenance

**Table 3 Vegetation Management Action Table**

Management Action	Responsibility	Tasks / Performance Criteria	Timing
Noxious Weed Removal	BR Contractor	All exotic species listed as Noxious Weeds within the Hornsby LGA are to be successfully treated within and immediately surrounding the construction footprint prior to any vegetation removal or earthworks. All seeds and vegetative propagules are to be removed from site.	<ul style="list-style-type: none"> <li>As stated adjacent</li> </ul>
Establish TPZs and Vegetation Exclusion Fencing	Construction Contractor / Vegetation Management Consultant / BR Contractor / Arborist	TPZs are to be installed as per the Arborist's Report (Arboricultural Impact Assessment Report by Advanced Treescape Consulting 2011). EEC protection fencing is to be installed as per the specifications above (Section 5.2) surrounding the area of STIF (Map 3).	<ul style="list-style-type: none"> <li>Prior to vegetation removal or earthworks</li> </ul>
Vegetation removal	Construction Contractor / Arborist / Wildlife handler	Locally occurring native vegetation (outside of VMZ) once removed is to be mulched and stockpiled on site for use during vegetation management works elsewhere on site. Stockpiles are not to be placed within the VMZ. Hollow bearing trees should be removed in accordance with Condition 35. Exotic vegetation and non-local native trees are NOT to be mulched with native species.	<ul style="list-style-type: none"> <li>During vegetation removal works</li> </ul>
Installation of erosion and sediment controls	Construction Contractor	Install and manage erosion and sediment controls across the site as outlined in approved Erosion and Sediment Control Plan (ESCP). Install and manage erosion and sediment controls upslope of STIF prior to earthworks including demolition as per the specifications above (Section 5.2). Vegetation removed and mulch generated can be used as temporary or permanent control measures, although these <u>MUST NOT</u> be placed within Vegetation Management Zone.	<ul style="list-style-type: none"> <li>Prior to ground breaking, immediately following vegetation removal</li> </ul>

Management Action	Responsibility	Tasks / Performance Criteria	Timing
Bush Regeneration (Primary & Secondary)	BR Contractor	<p>Works to be undertaken utilising best practice bush regeneration techniques, and generally progress from areas of higher resilience / lower weed densities, into areas more affected by weed invasion.</p> <p>All noxious, environmental, vine and woody weeds within the VMZ are to undergo primary treatment within 4 weeks of the commencement of the vegetation management programme.</p> <p>Secondary treatments are to be ongoing as required over the next 8 weeks following completion of primary treatment works.</p> <p>Revegetation works, as outlined below, are to be undertaken across the zone following secondary weed control works, to aid re-establishment the native midstorey and understorey lacking from the locally significant Sydney Turpentine Ironbark Forest.</p> <p>Woody weeds are to be treated both in situ (direct injection of herbicide) and cut and painted, to provide a combination of both shelter and light to the tubestock.</p> <p>Woody weeds cut down may be utilized for slope stabilisation where required, the majority of exotic biomass is to be removed from site.</p> <p>The use of herbicides on the site must be in accordance with labelling instructions and MSDS's, and comply with the NSW Pesticides Act 1999. Herbicides should generally be applied when wind speeds are generally low. Where possible herbicide application should take place after two consecutive days with no rain; application should be delayed if rain is forecasted. Appropriate PPE should be worn during herbicide application.</p> <p>Commencement of maintenance works will occur once exotic species have been reduce to 5% Projected Foliage Cover (PFC). This is expected to be 12 weeks (3 months) after commencement of primary weed control works.</p> <p>All mature noxious weeds are to be successfully treated within VMZ prior to commencement of maintenance period.</p>	<ul style="list-style-type: none"> <li>• From the outset of vegetation management programme.</li> <li>• As specified adjacent.</li> </ul>
Installation of erosion and sediment controls	BR Contractor	<p>Installation of erosion and sediment controls, and slope stabilisation measures are may be required within some areas of the VMZ following primary and secondary weeding, and prior to revegetation.</p> <p>Slope stabilisation measures and erosion control is to be installed as per the specifications above (Section 5.2) in areas currently experiencing erosion issues, or areas deemed at risk of erosion.</p>	<ul style="list-style-type: none"> <li>• Following primary and secondary weed control works where required.</li> </ul>

Management Action	Responsibility	Tasks / Performance Criteria	Timing
Installation of raised footpath	BR Contractor	<p>The installation of the raised footpath must be contracted and managed by a Bush Regeneration company who will also supervise construction works within the VMZ.</p> <p>Installation of pier holes are to be dug by hand tools only. If a root &gt;30mm (diameter) is encountered the pier hole must be relocated to miss the root entirely.</p> <p>In addition any soil that is excavated must be utilised as part of the driveway removal process as outlined below. The top 10cm of soil will hold a seedbank of STIF, and hence any earthworks within the VMZ must preserve the soil and replace in the same order, making sure the top 10cm is returned as the upper-most layer.</p>	<ul style="list-style-type: none"> <li>Following primary weed removal, prior to planting.</li> </ul>
Removal of driveway and reinstatement of STIF	BR Contractor	<p>BR Contractor must engage company to carry out works associated with removing driveway fill and reinstating STIF as outlined above in section 5.2.</p> <p>The BR Contractor must supervise these works to make sure the area of STIF surrounding driveway is protected during removal works (fencing) and the reinstatement of soils are carried out following strict guidelines set out in section 5.2.</p>	<ul style="list-style-type: none"> <li>Removal of driveway is to occur after primary wedding works.</li> <li>Reinstatement of STIF can be carried out in alignment with planting works.</li> </ul>
Planting	BR Contractor	<p>Only plants commensurate with Sydney Turpentine Ironbark Forest will be installed within the VMZ. A planting list is contained within Appendix D of this VMP.</p> <p>Locally genetic plant stock must be planted to maintain the genetic integrity of Sydney Turpentine Ironbark Forest. As such, seed for the plantings must be sourced from local occurrences of the EEC. <b><u>Due to temporal seed availability, seed collecting may need to take place up to two years prior to installation.</u></b></p> <p>A Scientific License is required to collected seed within Sydney Turpentine Ironbark Forest. Plants should be sourced from nurseries holding the relevant Scientific licenses.</p> <p>Plants should be installed by a suitably qualified bush regeneration company who hold an appropriate Scientific License to work within EECs.</p> <p>Planting within the VMZ is to be undertaken as per the following specifications;</p> <ul style="list-style-type: none"> <li>Plantings will be a mix of groundcovers / grasses, shrubs and climbers to re-establish native understorey vegetation within the zone.</li> <li>Tree species may be planted in lower numbers in areas where</li> </ul>	<ul style="list-style-type: none"> <li>Following successful secondary weed control works</li> </ul>

Management Action	Responsibility	Tasks / Performance Criteria	Timing
		<p>canopy gaps exists.</p> <p><b>VEGETATION MANAGEMENT ZONE 1:</b></p> <p>Planting densities are to be as follows;</p> <ul style="list-style-type: none"> <li>○ Groundcovers, climbers and graminoids planted densely at 4 plants / m<sup>2</sup>. At least 15 species must be planted. No one species should constitute more than 20% of total ground covers, climbers and graminoids species planted.</li> <li>○ Shrubs planted at 1 plants / m<sup>2</sup>. At least 9 species must be planted. No one species should constitute more than 20% of total shrub species planted.</li> <li>○ Trees at 1 plant / 25m<sup>2</sup>. At least 5 species must be planted. No one species should constitute more than 30% of total trees species planted.</li> </ul> <p><b>VEGETATION MANAGEMENT ZONE 2:</b></p> <p>Planting densities are to be as follows;</p> <ul style="list-style-type: none"> <li>○ Groundcovers, climbers and graminoids planted densely at 6 plants / m<sup>2</sup>. At least 18 species must be planted. No one species should constitute more than 20% of total ground covers, climbers and graminoids species planted.</li> <li>○ Shrubs planted at 1 plants / m<sup>2</sup>. At least 12 species must be planted. No one species should constitute more than 20% of total shrub species planted.</li> <li>○ Trees at 1 plant / 5m<sup>2</sup>. At least 9 species must be planted. No one species should constitute more than 20% of total trees species planted.</li> </ul>	

Management Action	Responsibility	Tasks / Performance Criteria	Timing
Planting Maintenance	BR Contractor	<p>Installed plantings are to be maintained with key elements of water, prevention of predation and suppression of smothering weeds.</p> <p>There will be a maximum loss of 20% of the original planting numbers for an individual species.</p> <p>A minimum of 80% survivorship for each species is to be maintained.</p> <p>Replacement planting is to be carried out throughout the maintenance period to sustain the 80% survival rate at the completion of the maintenance period.</p> <p>Losses of greater than 20% of originally installed plantings may have the maintenance period extended until survival rates have been achieved.</p>	<ul style="list-style-type: none"> <li>• Commences immediately following final installation of all plants.</li> <li>• Minimum weekly watering over the 8 weeks in summer, 3 weeks in winter, immediately following installation.</li> <li>• Watering visits as required to plant establishment.</li> <li>• Weed removal as required to the completion of the maintenance period.</li> </ul>

Management Action	Responsibility	Tasks / Performance Criteria	Timing
Bush Regeneration Maintenance	BR Contractor	<p>All mature noxious weeds are to be successfully treated within the VMZ prior to commencement of maintenance period.</p> <p>Seedlings of noxious species are to be continually suppressed to a level of &lt;5% Projected Foliage Cover (PFC) where they occur in the seed bank below mature specimens, and &lt;1% PFC across remainder of the zone.</p> <p>Works to be undertaken utilising best practice bush regeneration techniques.</p> <p>Less than 5% exotic species FPC to be achieved after 12 months maintenance and continual suppression at &lt;5% for the remaining 36 months of the maintenance period.</p>	<ul style="list-style-type: none"> <li>• The maintenance period will run for a 36 month term following successful secondary weed control and, if appropriate, installation of final plantings.</li> <li>• The commencement of this maintenance period may be adjusted if there are delays beyond the BR Contractors control.</li> <li>• Commencement and completion dates of the maintenance period will be determined by the Vegetation Management Consultant, following consultation with Council, the BR Contractor and Principle.</li> <li>• The maintenance period will be aligned with any other vegetation management works being undertaken across the site.</li> </ul>

Management Action	Specification / Requirement
Monitoring Framework	<p>Ecological Monitoring works are to be undertaken by the Vegetation Management Consultant.</p> <p>Monitoring surveys will assess the success of weed removal, plant growth and natural regeneration, and will be undertaken as follows;</p> <ul style="list-style-type: none"> <li>• Prior to commencement of works to gather baseline data;</li> <li>• Followed by a survey every six (6) months to gather ecological monitoring data on the progress of the project, commencing at the start of the maintenance period with a final survey and report at the completion of the 36 month programme. Each six month survey should be accompanied by brief correspondence with the BR Contractor and the Principle regarding the progress of the vegetation management works, and highlight any areas of concern / merit.</li> <li>• Vegetation Monitoring Reports are to be prepared at the commencement of maintenance works, at the 12 month stage, 24 month stage, and a final report at the end of the 36 month period. <ul style="list-style-type: none"> <li>○ Achievement of Performance Criteria will be updated in each preceding report as milestones are achieved.</li> </ul> </li> <li>• These reports are to be submitted to Pittwater Council.</li> </ul> <p>The VMZ will be monitored in terms of vegetation condition and the achievement of performance criteria. Monitoring activities are to include:</p> <ul style="list-style-type: none"> <li>• Establishing photo-points in representative locations;</li> <li>• Compile initial and on-going weed density maps;</li> <li>• Assessment of weed control works including noxious and woody weed control, and weed density surrounding plantings, via monitoring techniques such as weed density mapping, and quadrat / transect surveys,</li> <li>• Identification and assessment of any natural regeneration of native plant species,</li> <li>• Assessment of the success rate of plantings and assessment of plant replacement requirements, and convey any need to BR Contractor,</li> <li>• Assessment of the site for evidence of herbivory and erosion,</li> </ul> <p>Monitoring Works will also provide the following Certifications to the Principle, and then onto Council:</p> <ul style="list-style-type: none"> <li>▪ Certification that the planting stock (including initial and replacement plantings) are of local genetic material as evidenced by the supplying nursery or bush regeneration contractor, and at the required densities;</li> <li>▪ Certification of commencement of maintenance period, i.e. all primary secondary and revegetation works have been completed to acceptable standards.</li> <li>▪ Final certification that the targets of the vegetation management works have been achieved.</li> </ul>

Management Action	Specification / Requirement
Bush Regeneration	Activities carried out to provide conditions that facilitate the natural recruitment or germination of endemic flora. This involves progressive weed control in a systematic manner or primary weed control, follow-up (secondary) weed control and maintenance over an identified area and timeframe. Typically works progress from areas of sparse weeds and expand into denser adjacent areas. These activities are to be undertaken by a professional contractor experienced in bush regeneration methods and activities.
Bush Regeneration Contractors	Professional companies or individuals with qualifications and at least three years' experience in bush regeneration activities. Contractors are to provide an experienced site supervisor with minimum qualifications of a TAFE Cert. II in Bush Regeneration, or equivalent education/ experience. The contractor must be eligible for membership to the Australian Association of Bush Regenerators (AABR).
Plant Stock	Plant species are to be selected from the species lists below (Appendix D). Plants are to be grown by a commercial or community nursery possesses a Scientific License to collect seed from within Sydney Turpentine Ironbark Forest. Revegetation works shall be of locally indigenous species that are grown from the seed stock from Sydney Turpentine Ironbark Forest in the locality. Installed trees, shrubs and scramblers will be of 'forestry tubes' size. Grasses and herbs as 'Hiko cells'.
Plant Densities, Maintenance and Replacement	Plants are to be installed as per the specification above. There will be a maximum loss of 20% of the original planting numbers for an individual species. Replacement plantings are required to maintain the original planting numbers at a minimum of 80% survivorship for each species. Replacement planting is to be carried out throughout the VMP term to sustain the 80% survival rate to the completion vegetation management programme. All revegetation works must be maintained and key elements will be watering in, prevention of predation and suppression of smothering weeds. To prevent damage or loss of plantings through herbivory, monitoring and maintenance of tree guards (if installed) is an important aspect of maintenance activities. An assessment as to the need for tree guards to prevent herbivory from wallabies or rabbits is to be made prior to plant installation, and monitored until such a time as plants have become established.

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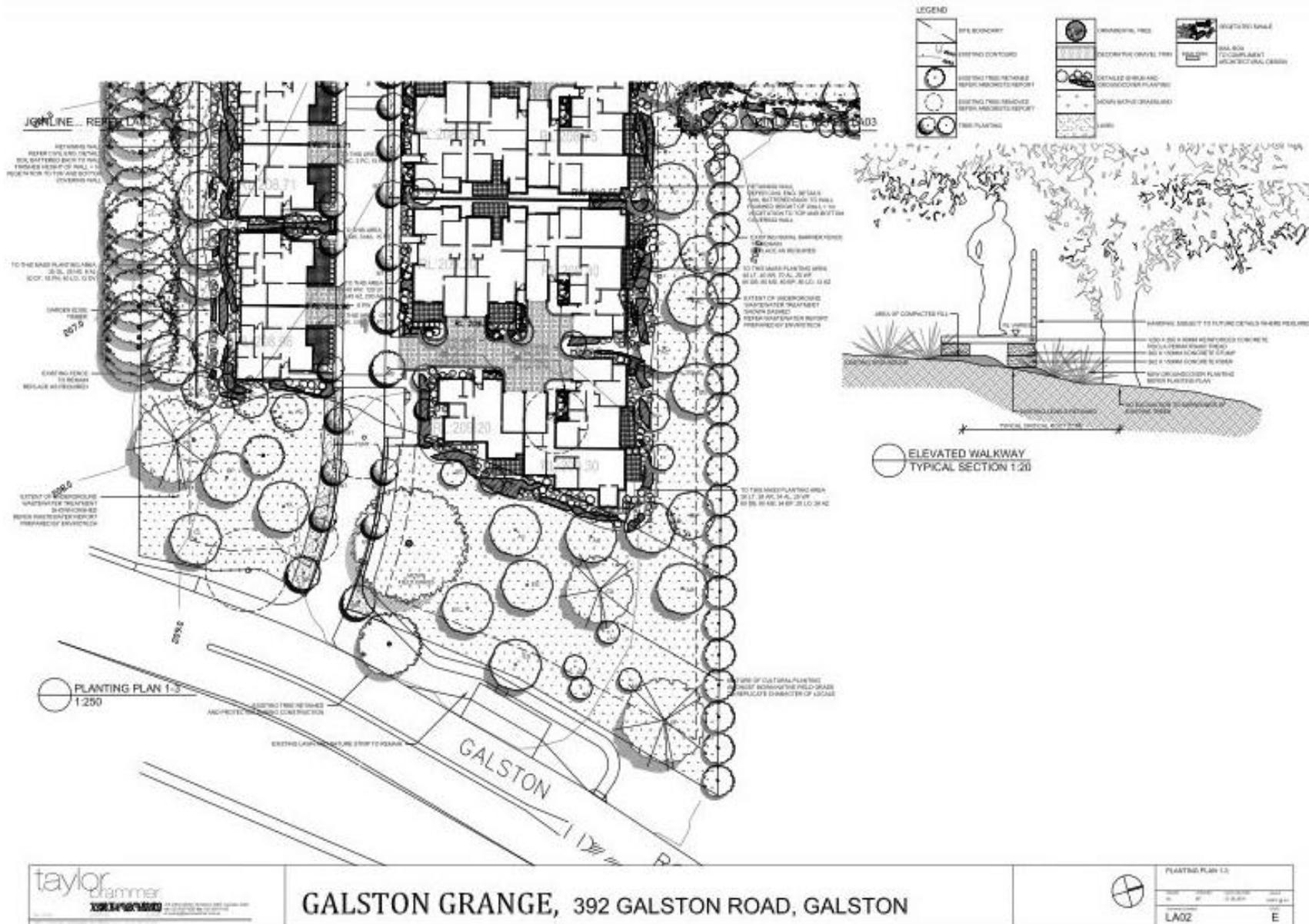
## **Appendix A**

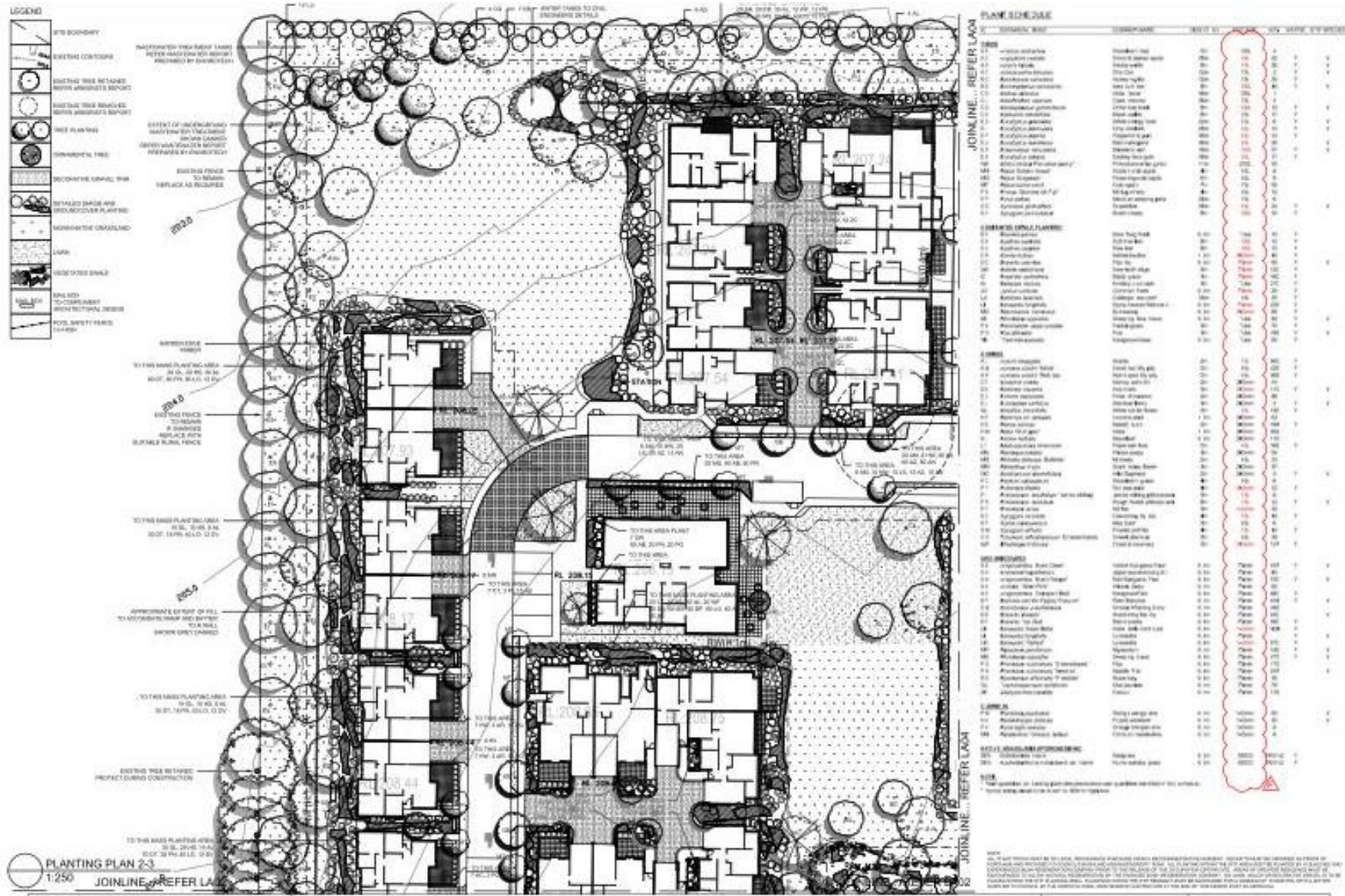
### **DA Landscape Site Plan, Taylor Brammer 2011**

### **Vegetation Management Plan**

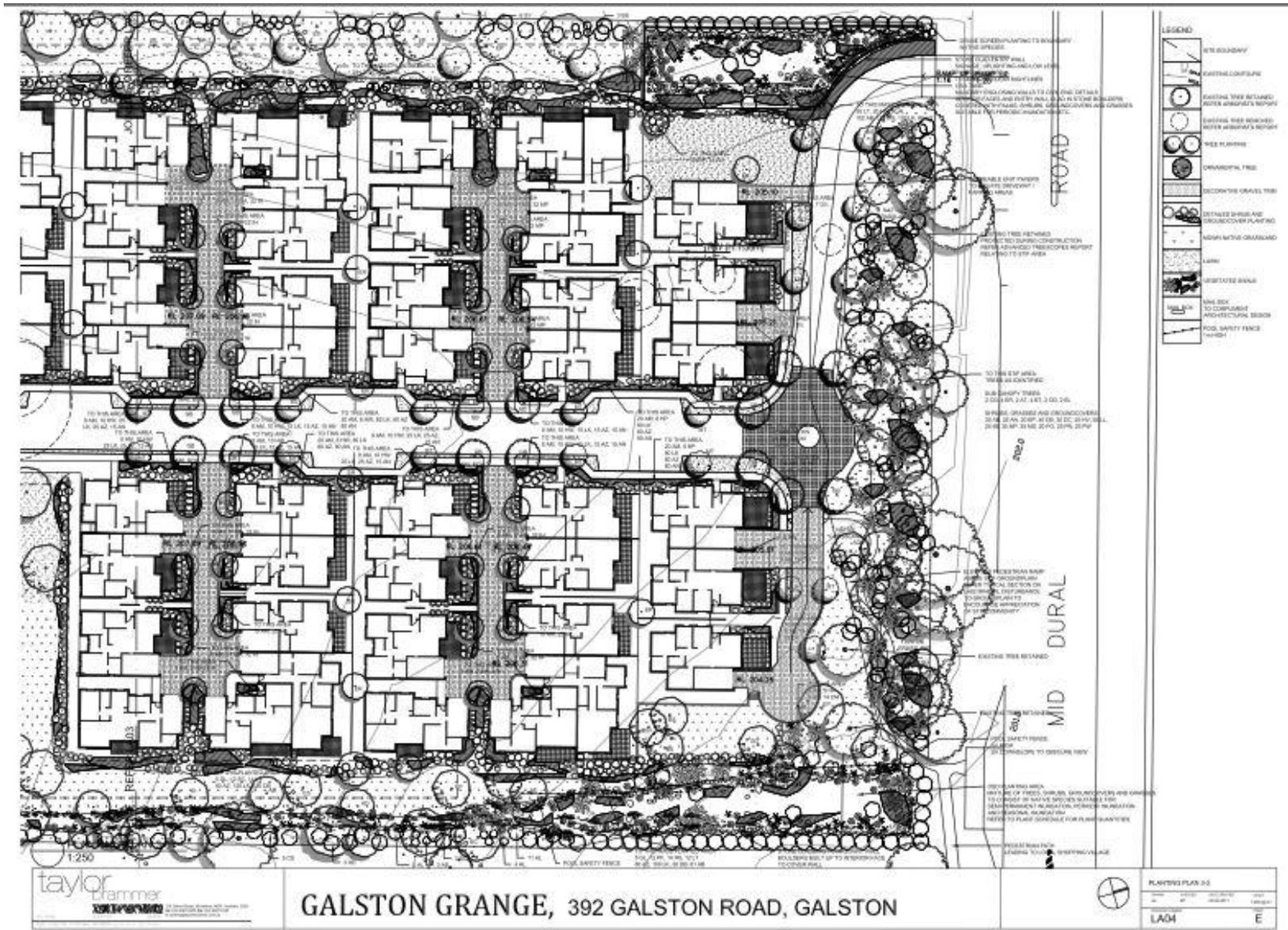
### **5 Mid Dural Road, Galston NSW**







**GALSTON GRANGE, 392 GALSTON ROAD, GALSTON**

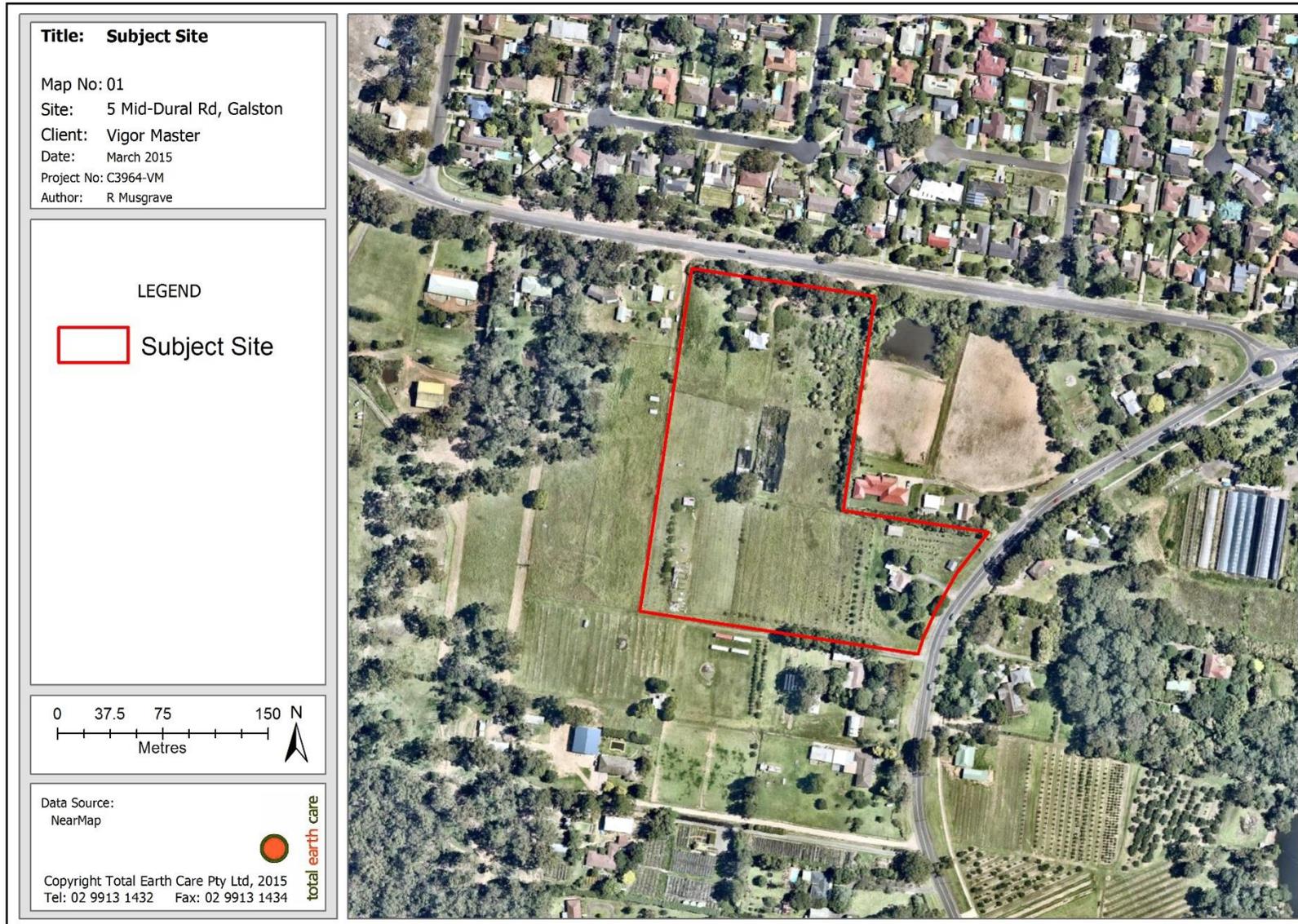


## **Appendix B**

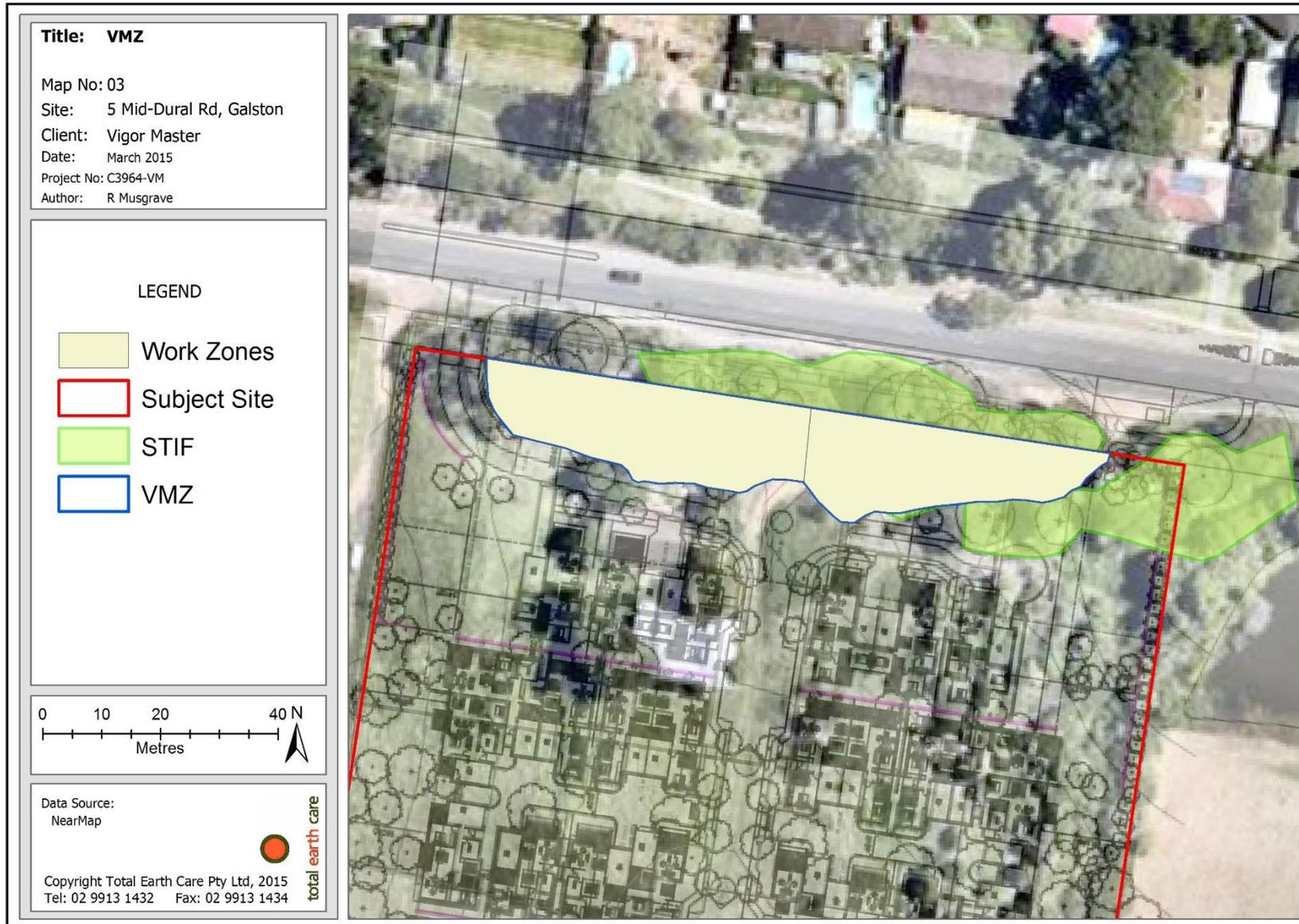
### **Maps**

## **Vegetation Management Plan**

### **5 Mid Dural Road, Galston NSW**









## **Appendix C**

### **Flora Species Inventory**

### **Vegetation Management Plan**

### **5 Mid Dural Road, Galston NSW**

## Flora Species 5 Mid-Dural Road, Galston NSW

<b>General Status</b>			
*	Exotic (not native to Australia)		
N( )	Noxious weeds and 'Control Class' as listed on the NSW Noxious Weeds Act 1993 for the Campbelltown LGA		
ni	Non - indigenous native species (does not naturally occur at this locality)		
(?)	Uncertain identification		
<b>Conservation Status</b>			
CE	Critically Endangered - listed under Schedule 1A of the TSC Act		
E	Endangered - listed under Schedule 1 of the TSC Act		
V	Vulnerable - listed under Schedule 2 of the TSC Act		
<b>Abundance</b>			
c	Common, species occur all over the site		
o	Occasional, species occur over the survey area but not in large numbers at any occurrence		
uc	Uncommon, species occur only once or twice during the survey		

Status	Family	Genus species	Common Name	Abundance
*	Alliaceae	Agapanthus praecox ssp orientalis	African Lily	uc
N(4)	Asparagaceae	Asparagus aethiopicus	Asparagus Fern	c
N(4)	Asparagaceae	Asparagus asparagoides	Bridal Creeper	o
*	Asteraceae	Cirsium vulgare	Spear Thistle	uc
*	Asteraceae	Conyza bonariensis	Flaxleaf Fleabane	o
	Asteraceae	Ozothamnus diosmifolius	Rice Flower	o
*	Bignoniaceae	Jacaranda mimosifolia	Jacaranda	uc
N(4)	Caprifoliaceae	Lonicera japonica	Japanese Honeysuckle	uc
	Chenopodiaceae	Einadia hastata	Berry Saltbush	o
	Convolvulaceae	Dichondra repens	Kidney Weed	c
	Cyperaceae	Cyperus eragrostis		o
	Fabaceae - Faboideae	Desmodium rhytidophyllum		c
	Fabaceae - Faboideae	Glycine microphylla	Small-leaf glycine	c
	Fabaceae - Faboideae	Hardenbergia violacea	Purple Coral Pea	c
	Fabaceae - Faboideae	Kennedia rubicunda	Dusky Coral Pea	o
	Fabaceae - Faboideae	Pultenaea villosa		o
*	Fabaceae - Faboideae	Vicia sativa	Vetch	c
	Fabaceae - Mimosoideae	Acacia decurrens	Black Wattle	o
	Fabaceae - Mimosoideae	Acacia falcata		o
	Fabaceae - Mimosoideae	Acacia parramattensis	Sydney Green Wattle	uc
	Fabaceae - Mimosoideae	Acacia podalyriifolia	Queensland Silver Wattle	o
	Fabaceae - Mimosoideae	Acacia ulicifolia	Prickly Moses	o
*	Gentianaceae	Centaurium tenuiflorum		o
	Lobeliaceae	Pratia pedunculata	Matted or Trailing Pratia	o
	Luzuriagaceae	Eustrephus latifolius	Wombat Berry	uc
*	Malaceae	Cotoneaster pannosus		c
*	Malvaceae	Sida rhombifolia	Paddy's Lucerne	c
	Myrtaceae	Eucalyptus punctata	Grey Gum	o
	Myrtaceae	Eucalyptus resinifera	Red Mahogany	o
N(4)	Ochnaceae	Ochna serrulata	Mickey Mouse Plant	uc
N(4)	Oleaceae	Ligustrum lucidum	Large Leaved Privet	c
N(4)	Oleaceae	Ligustrum sinense	Small Leaved Privet	c
N(4)	Oleaceae	Olea europaea ssp cuspidata	African Olive	c
*	Pinaceae	Pinus radiata	Radiata Pine	uc
	Pittosporaceae	Bursaria spinosa	Blackthorn	o
	Pittosporaceae	Pittosporum revolutum	Wild Yellow Jasmine	c
	Pittosporaceae	Pittosporum undulatum	Sweet Pittosporum	c
*	Poaceae	Paspalum dilatatum	Paspalum	c
*	Poaceae	Pennisetum clandestinum	Kikuyu Grass	c
	Poaceae	Themeda australis	Kangaroo Grass	c
ni	Proteaceae	Grevillea robusta	Silky Oak	uc
ni	Proteaceae	Macadamia integrifolia	Queensland Nut	o

**Flora Species 5 Mid-Dural Road, Galston NSW continued**

<b>General Status</b>				
*	Exotic (not native to Australia)			
N( )	Noxious weeds and 'Control Class' as listed on the NSW Noxious Weeds Act 1993 for the Campbelltown LGA			
ni	Non - indigenous native species (does not naturally occur at this locality)			
(?)	Uncertain identification			
<b>Conservation Status</b>				
CE	Critically Endangered - listed under Schedule 1A of the TSC Act			
E	Endangered - listed under Schedule 1 of the TSC Act			
V	Vulnerable - listed under Schedule 2 of the TSC Act			
<b>Abundance</b>				
c	Common, species occur all over the site			
o	Occasional, species occur over the survey area but not in large numbers at any occurrence			
uc	Uncommon, species occur only once or twice during the survey			
<b>Status</b>	<b>Family</b>	<b>Genus species</b>	<b>Common Name</b>	<b>Abundance</b>
N(4)	Rosaceae	Rubus fruticosus agg sp	Blackberry	c
	Santalaceae	Exocarpos cupressiformis	Cherry Ballart	o
*	Solanaceae	Solanum nigrum	Black-berry Nightshade	o
*	Solanaceae	Solanum seaforthianum		o
	Sterculiaceae	Brachychiton acerifolius	Flame Tree	o
	Strelitziaceae	Strelitzia nicolai	Giant Bird of Paradise	uc
N(4)	Verbenaceae	Lantana camara	Lantana	c
*	Verbenaceae	Verbena bonariensis	Purpletop	uc

## **Appendix D**

### **Planting Species List**

### **Vegetation Management Plan**

### **5 Mid Dural Road, Galston NSW**

## Planting Species List - 5 Mid-Dural Road, Galston NSW

Planting Densities	Scientific Name	Common Name
<p><b>Density Zone 1:</b> 1 tree every 25sqm. <b>Density Zone 2:</b> 1 tree every 5sqm. At least 9 species must be planted. No one species should comprise more than 20% of total tree species planted.</p>	<b>Trees</b>	
	<i>Acacia decurrens</i>	Sydney Green Wattle
	<i>Acacia parramattensis</i>	Parramatta Green wattle
	<i>Allocasuarina torulosa</i>	Forest Sheoak
	<i>Angophora costata</i>	Sydney Red Gum
	<i>Angophora floribunda</i>	Rough Barked Apple
	<i>Corymbia gummifera</i>	Red Bloodwood
	<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark
	<i>Eucalyptus fibrosa</i>	Red Ironbark
	<i>Eucalyptus globoidea</i>	White Stringybark
	<i>Eucalyptus paniculata</i>	Grey Ironbark
	<i>Eucalyptus pilularis</i>	Blackbutt
	<i>Eucalyptus resinifera</i>	Red Mahogany
	<i>Pittosporum undulatum</i>	Sweet Pittosporum
<i>Syncarpia glomulifera</i>	Turpentine	

Planting Densities	Scientific Name	Common Name
<p><b>Density Zone 1:</b> 1 shrub every 1sqm. <b>Density Zone 2:</b> 1 shrub every 1sqm. At least 12 species must be planted. No one species should comprise more than 20% of total shrub species planted.</p>	<b>Shrubs</b>	
	<i>Acacia falcata</i>	Sickle Wattle
	<i>Acacia implexa</i>	Hickory Wattle
	<i>Acacia linifolia</i>	White Wattle
	<i>Acacia longifolia</i>	Sydney Golden Wattle
	<i>Acacia mrytifolia</i>	Myrtle Wattle
	<i>Acacia stricta</i>	Straight Wattle
	<i>Banksia spinulosa var spinulosa</i>	Hairpin Banksia
	<i>Breynia oblongifolia</i>	Breynia
	<i>Bursaria spinosa</i>	Blackthorn
	<i>Clerodendron tomentosum</i>	Hairy Clerodendron
	<i>Dodonaea triquetra</i>	Hop Bush
	<i>Eleocarpus reticulatus</i>	Blueberry Ash
	<i>Hakea sericea</i>	Needlebush
	<i>Indigofera australis</i>	Native Indigo
	<i>Kunzea ambigua</i>	Tick Bush
	<i>Leptospermum trinervium</i>	Slender Tea-tree
	<i>Leucopogon juniperinus</i>	Beard heath
	<i>Notolaea longifolia</i>	Native Olive
	<i>Ozothamnus diosmifolius</i>	Paper Everlasting
	<i>Persoonia levis</i>	Broad-leaved Geebung
<i>Pittosporum revolutum</i>	Rough Fruit Pittosporum	
<i>Platylobium formosum ssp. parviflorum</i>	Handsome Flat Pea	
<i>Polyscias sambucifolius</i>	Native Elderberry	
<i>Zieria smithii</i>	Sandfly Zieria	

Planting Densities	Scientific Name	Common Name
<p><b>Density Zone 1:</b> 4 groundcovers every 1sqm.</p> <p><b>Density Zone 2:</b> 6 groundcovers every 1sqm. At least 18 species must be planted. No one species should comprise more than 20% of total groundcover species planted.</p>	<b>Groundcovers (Grasses, Herbs, Scramblers &amp; Vines)</b>	
	<i>Aristida vagans</i>	Three awned Spear Grass
	<i>Austrostipa pubescens</i>	
	<i>Billardiera scandens</i>	Apple Dumplings
	<i>Cassytha pubescens</i>	
	<i>Centella asiatica</i>	Centella
	<i>Clematis aristata</i>	Old Man's Beard
	<i>Clematis glycinoides</i>	Old Man's Beard
	<i>Commelina cyanea</i>	Scurvy Weed
	<i>Dianella caerulea</i>	Flax Lily
	<i>Dichelachne rara</i>	Plume Grass
	<i>Dichondra repens</i>	Kidney Weed
	<i>Echinopogon caespitosus</i>	Hedgehog Grass
	<i>Entolasia marginata</i>	Broad Panic
	<i>Entolasia stricta</i>	Straight Panic
	<i>Glycine microphylla</i>	Love Creeper
	<i>Goodenia heterophylla</i>	Variable Leaved Goodenia
	<i>Hardenbergia violacea</i>	Native Sarsparilla
	<i>Imperata cylindrica</i>	Bladey Grass
	<i>Kennedia rubicunda</i>	Dusky Coral Pea
	<i>Lepidosperma laterale</i>	Sword Sedge
	<i>Lomandra longifolia</i>	Mat Rush
	<i>Lomandra multiflora ssp multiflora</i>	Many-flowered Mat-rush
	<i>Microlaena stipoides</i>	Weeping Rice Grass
	<i>Oplismenus aemulus</i>	Basket Grass
	<i>Pandorea pandorana</i>	Bower of Beauty
	<i>Panicum simile</i>	Two-colour Panic
	<i>Poa affinis</i>	Tussock Grass
	<i>Pratia purpurascens</i>	White Root
	<i>Pseuderanthemum variabile</i>	Pastel Flower
	<i>Pteridium esculentum</i>	Common Bracken
	<i>Rubus parvifolius</i>	Native Raspberry
<i>Smilax glyciophylla</i>	Sarsparilla	
<i>Stipa pubescens</i>	Tall Speargrass	
<i>Themeda australis</i>	Kangaroo Grass	
<i>Tylophora barbata</i>	Milk Vine	
<i>Veronica plebeia</i>	Native Hebe	