

Building 2, Hollinsworth Road, Marsden Park - SSD 8606 & MOD 3
LANDSCAPE MANAGEMENT PLAN
(INCORPORATING WEED MANAGEMENT PLAN)

Report Ref: **200528_CC_RPT_LAN_LMP01**

Prepared for

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CONSTRUCTIONS

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1.0 INTRODUCTION

1.1 Project Background

This Landscape Management Plan has been prepared to fulfill the minister's condition B54 and B55 of the approved Building 2 development at Hollinsworth Road, Marsden Park. Condition B54 and B55 state:

B54. Before the commencement of operation of any stage, the Applicant must prepare a Landscape Management Plan to manage the revegetation and landscaping works on-site, to the satisfaction of the Planning Secretary. The plan must:

- (a) detail the species to be planted on-site;
- (b) include a mixture of locally native ground covers, shrubs and mature trees generally consistent with Appendix D of the Growth Centres Development Control Plan;
- (c) comply with section 6.3.3 and 6.3.4 of the Growth Centres Development Control Plan in relation to landscaping in car park and communal areas;
- ~~(d) include details of the green screen and vine plantings to screen the noise barrier required under condition B37;*~~
- (e) describe the monitoring and maintenance measures to manage revegetation and landscaping works;
- (f) detail how the landscaping on-site will comply with the principles of Appendix 5 of Planning for Bushfire Protection 2006; and
- (g) be consistent with the Applicant's Management and Mitigation Measures at Appendix C.

B55. The Applicant must:

- (a) not commence operation of any stage of the development until the Landscape Management Plan is approved by the Planning Secretary and the landscaping works relevant for that stage of the development have been planted;
- (b) implement the most recent version of the Landscape Management Plan approved by the Planning Secretary; and
- (c) maintain the landscaping and vegetation on the site in accordance with the approved Landscape Management Plan required by condition B54 for the duration of the development.

***Note B54 (d) is no longer relevant as no noise wall exists within the site boundary to Building 2. This is now located along the north side of Hollinsworth Road within streetscape works subject to separate approval.**

1.2 This Report and Author

Geoscapes Pty Ltd, has been commissioned by Richard Crookes Constructions, to produce a Landscape Management Plan (LMP) for the above mentioned development. This LMP has been written by Ben Gluszkowski, Director of Geoscapes and Registered Landscape Architect.

Geoscapes prepared the original approved SSD 8606 landscape visual impact assessment and landscape design drawings. Subsequently Geoscapes also provided landscape documentation for SSD-8606-Mod-3, (landscape design drawings LDA-00 to LDA-07) and more recently, landscape tender and construction documentation (LCC-000 to LCC-601). These documents detail landscape treatments to the site, and should be read in conjunction with this report.

1.3 The Role of this Landscape Management Plan

Building 2 contains two warehouses A & B, office buildings and carparks. Due to it being located along Hollinsworth Road directly adjacent to the existing Ingenia Lifestyle Park, providing visual screening with the use of landscape planting, is an important part of the development. The visual appearance and scale of the built form can be reduced with the introduction of native tree and shrub species. The ongoing management of landscape buffer zones is therefore, fundamental in creating and maintaining visual mitigation of the development at present and into the future. Using endemic native planting will also provide a small habitat for native birds and animals.

1.4 Areas to which this Plan Applies

This plan will apply to all landscape areas within the site boundary, these are:

Northern Boundary adjacent to Hollinsworth Road
 Eastern Boundary to Daniels Road (Future Development)

1.5 Landscape Maintenance Responsibility

The Landscape Contractors engaged by Richard Crooks, will hold the first level of responsibility for the implementation of the Landscape Management Plan. The on-going, day-to-day implementation, monitoring and reviewing of the LMP will be undertaken by the tenant of Building 2.

1.6 Landscape Management Principles

The following landscape management principles have been identified as being consistent with the approved SSD Modification Landscape Design Drawings and CC/Tender Drawings:

- Minimise environmental impacts that may result from landscape management activities and utilise environmentally sustainable practices. Disturb only the minimum area necessary.
- Control dust with best management principles.
- Water sprays and/or covers would be employed for material stockpiles, particularly during adverse weather conditions, to minimise dust generation.
- Stockpiles should be covered overnight.
- Mark clearance boundaries prior to commencement of construction to ensure that there is no unnecessary removal of vegetation.
- Strengthen, enhance and promote local character with the use of native endemic planting in all landscape areas and for any replacement plantings.
- Any trees in APZ areas should have clear separation between canopies of between 2 to 5m as per Bushfire recommendations.
- A low water use, low maintenance approach with the use of native species.
- Provide clear site lines for trucks and vehicular users.
- Provide a safe environment, minimising potential risks to people, buildings and property.
- Best practice landscape maintenance in landscaped areas.
- Target noxious weeds and feral animals through the use of integrated pest management approaches.
- Manage bushfire risk in accordance with the principles of Appendix 5 of Planning for Bushfire Protection 2019 guidelines and the Bushfire Consultants report.
- Appropriately fund, plan and manage landscape maintenance to provide sufficient resource to achieve a long term quality landscape.

1.7 Report Structure

This report is to be read in conjunction with the following documents:

- Landscape Documentation for State Significant Development Modification - SSD 8606 MOD 3, 2020, prepared by Geoscapes Landscape Architects Dwg No's LDA-00 to LDA-07.
- Landscape CC/Tender Drawings Dwg No's LCC-000 to LCC601 and LSP01.
- Operational Environmental Management Plan (OEMP).
- Contractors Environmental Management Plan (CEMP).
- SSD 8606 Appendix C Applicant's Management and Mitigation Measures.
- Due diligence report – Ecological matters 2016, prepared by Keystone Ecological
- Bush Fire Assessment Report, September 2019, prepared by Bushfire Consulting Services.

Section 1.0 provides an introduction to the LMP

Section 2.0 describes the general site conditions

Section 3.0 describes the design compliance

Section 4.0 describes specific landscape types

Section 5.0 describes management activities common to all landscape areas

Section 6.0 describes protective measures for trees and vegetation

Section 7.0 monitoring and reporting

The report is structured into two main maintenance categories:

1. Specific Landscape types – Those maintenance activities that are specific to particular landscape types. The specific landscape types are:

Buffer Zones - These are planted with native grasses or groundcovers; and mass planting areas -These may be composed of single species plantings or mixes which may include trees shrubs and groundcovers.

2. All areas of the site – Those maintenance activities that apply to all areas of the across the site. These activities include:

- a. Disease and Insect Control
- b. Irrigation

1.8 Intensity of Use

A key factor in the frequency and types of landscape maintenance activities required for particular areas is the intensity of their use.

Buffer Zones

The buffer planting areas at the building 2 site run along the north and eastern boundaries. These areas are generally areas of low activity. The site is mapped by Blacktown City Council as bush fire prone land and is to be managed as per recommendations in the bush fire report.

Areas of mass planting are not generally susceptible to compaction from pedestrian usage, therefore, heavier textured soils can be used.

2.0 GENERAL SITE CONDITIONS

2.1 Soil

The site was previously used for rural and agricultural purposes. Geotechnical testing in 2016 described the soil profile as shale, carbonaceous claystone, claystone, laminate, fine to medium grained lithic sandstone, and rare coal / tuff.

TOPSOIL

Sandy SILT, pale brown, pale grey/brown.

NATURAL SOIL

Subsurface soils to comprise a medium to high plasticity clay soil extending to a sandstone or shale bedrock at depths of between 0.7-3.2m below existing ground surface levels.

SALINITY

It was assessed that the majority of soils on site were classified as “slightly saline to moderately saline”.

Following civil works, any topsoil being reused and site subsoil should be retested to identify any specific issues, including the need for soil amelioration and rectification of poor drainage. The awarded landscape contractor should make the head contractor aware of such issues and remedial works carried out accordingly.

PH

Of the seven samples tested in the Geotechnical report, pH ranged from 4.7 to 5.7. This should be conducive to planting of Australian natives however, pH should be re-tested as part of general soil testing.

2.2 Existing Vegetation

Early earthworks have cleared the site of existing vegetation. An Ecological report was conducted at the original SSD application stage that concluded that:

‘... loss of native vegetation and / or threatened species habitats have already been taken into account at the strategic planning stage, and biodiversity impacts have already been offset within other reserved lands. Therefore, clearing of native vegetation may occur without further consideration of impact on threatened species, endangered populations or endangered ecological communities.’

3.0 PROPOSED PLANTING SPECIES AND DESIGN COMPLIANCE

3.1 Mass Planting Areas and Carpark

All landscape buffer zones will be mass planted with trees, shrubs and groundcovers predominately from the Cumberland Plain Woodland Community. These are listed in the schedule within section 3.2 and the landscape tender documentation should be read in conjunction with these. Plant species follow recommendations within the Ecological report by Keystone and are consistent with Appendix D of the Growth Centres Development Control Plan. They are intended to create layered planting to visually break up the dominance of the build form. The density of planting should ensure that once established, weed infiltration is reduced.

3.2 Planting Schedule

CODE	BOTANICAL NAME	COMMON NAME	MATURE HEIGHT	INSTALL SIZE	SPACING	QUANTITY
Trees						
ACA IMP	<i>Acacia implexa</i>	Hickery Wattle	5-12m	200mm	As Shown	9
EUC CRE	<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark	12-18m	75L	As Shown	5
EUC MOL	<i>Eucalyptus moluccana</i>	Grey Box	18-20m	75L	As Shown	6
EUC TER	<i>Eucalyptus tereticornis</i>	Forest Red Gum	20-30m	75L	As Shown	6
MEL DEC	<i>Melaleuca decora</i>	White Feather Honey Myrtle	5-8m	200mm	As Shown	4
Shrubs						
ACA par	<i>Acacia parramattensis</i>	Parramatta wattle	2-15m	200mm	1500mm ctr's	20
BUR spi	<i>Bursaria spinosa</i>	Boxthorn	4m	140mm	1000mm ctr's	23
DAV uli	<i>Daviesia ulicifolia</i>	Gorse Bitter-pea	2m	Tubestock	1000mm ctr's	15
DOD vis	<i>Dodonaea viscosa subsp. cuneata</i>	Hop Bush	3m	140mm	1500mm ctr's	12
DOR exc	<i>Doryanthes excelsa</i>	Gynea Lily	2m	140mm	750mm ctr's	18
IND aus	<i>Indigofera australis</i>	Australian Indigo	2.5m	140mm	1500mm ctr's	21
PUL vil	<i>Pultenaea villosa</i>	Hairy Bush pea	2m	Tubestock	1000mm ctr's	9
Grasses and Groundcovers G1						
DIC rep	<i>Dichondra repens</i>	Kidney Weed	0.2m	Tubestock	3/m2	164
DIA lon	<i>Dianella longifolia</i>	Smooth flax lily	1m	Tubestock	6/m2	321
DIA rev	<i>Dianella revoluta</i>	Blue Flax-lily, Spreading Flax-lily	1m	Tubestock	6/m2	321
POA lab	<i>Poa labillardieri var. labillardieri</i>	Tussock Poa	1.2m	Tubestock	6/m2	321
THE aus	<i>Themeda australis</i>	Kangaroo Grass	1m	Tubestock	6/m2	321
Grasses and Groundcovers G2						
ARI vag	<i>Aristida vagans</i>	Threeawn Speargrass	0.8m	Tubestock	6/m2	444
DIC rep	<i>Dichondra repens</i>	Kidney Weed	0.2m	Tubestock	3/m2	223
DIA lon	<i>Dianella longifolia</i>	Smooth flax lily	1m	Tubestock	6/m2	444
DIA rev	<i>Dianella revoluta</i>	Blue Flax-lily, Spreading Flax-lily	1m	Tubestock	6/m2	444
POA lab	<i>Poa labillardieri var. labillardieri</i>	Tussock Poa	1.2m	Tubestock	6/m2	444
Grasses and Groundcovers in narrow strips						
LOM lon	<i>Lomandra longifolia 'Tanika'</i>	Spiny Head mat Rush	0.8m	Tubestock	6/m2	126

3.3 Growth Centres Development Control Plan and Compliance

This Landscape Management plan is intended to demonstrate compliance with Appendix D and sections 6.3.3 and 6.3.4 of the Growth Centres Development Control Plan, in relation to landscaping in car park and communal areas.

As described in section 3.1 and 3.2, native endemic plant species have been selected which comply with Appendix D. A staff amenity area have been provided adjacent to the proposed office space. Shade amenity is achieved by a combination of a small awning on the building and tree planting in large freestanding planter boxes. Picnic style furniture is proposed.

This plan is consistent with the Applicant's Management and Mitigation Measures at Appendix C of the Minister's Development consent. Relevant mitigation measures to this LMP, focus on visual screening of the development. Due to the entire site being classes as an Inner Protection Area (IPA) landscape planting is required to be separated, to not form continuous canopies as in accordance with bush fire protection measures.

4.0 SPECIFIC LANDSCAPE MANAGEMENT ACTIVITIES

4.1 Buffer Planting around Hard Stand and Car Parking Areas

Mass planting areas vary in appearance from mass plantings of single species (eg. *Lomandra* sp., *Dianella* sp.) to more complex beds containing advanced trees, low and tall shrubs and ground covers. Planting sizes can include tubestock up to super advanced or semi-mature container sizes. All mass planted beds are planted with native species.

The key differences in the management of native plants are their requirement for low-phosphorous fertilisers and a lower fertiliser rate than exotic species generally. Plants of the Pea group (including *Acacias*, *Daviesia* and *Pultenaeas*) and *Casuarinas* are also able to fix their own Nitrogen. Natives also have lower water requirements in comparison to exotics and are adapted to the harsher Australian conditions.

Endemic native plants will tolerate site soils without amendment better than exotics, and if fertilisers are added there may be a lesser invasion by exotic weeds.

For the above reasons native plantings make a more sustainable option in respect of the long term landscape management and should their be failures the original species specified on the landscape plans should always be reused before exotic species.

The edges of the beds will be usually defined by a concrete path or concrete kerb. Beds shall be weed free and mulched annually to suppress weed growth and retain moisture content within the soil.

Pruning will be carried out on shrubs and trees that require it according to species to remove the dead and damaged branches and to retain natural shape and to improve health and vigour. Lower branches should also be removed as per APZ requirements. Where die-back of plant material has been identified new plants will be planted as soon as possible, using species originally specified or that maintain the character and continuity of the planting.

Note: all buffer planting areas are required to have regular assessment by a bush fire contractor and maintenance carried out if required.

4.2 Soil Management for Buffer Planting Areas

Areas of native mass planting require a sandy loam to clay loam topsoil mix which is suitable for the planting of grasses, woody and herbaceous perennials and trees. The following mix is suitable for plants that do not have high nutrient requirements and are not susceptible to compaction. Note that if phosphorous sensitive natives are used, the phosphorous levels of all components must be checked for suitability. Additional drainage may be required depending on the situation.

The following table outlines suggested components, that may likely meet the physical requirements of the soil for the buffer planting areas:

Sandy loam soil or site won topsoil Composted soil conditioner conforming with AS 4454	70-100% by volume 0-30% by volume	e.g. 8 parts washed sand/2 parts sandy loam/1 part AS 4454 compost
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(Leake and Haeger 2014, p.87)

4.3 Soil Management for Trees

Wherever trees are to be planted it is important to understand whether the existing in situ topsoil can be used as backfill, whether new topsoil, soil mix, soil conditioner or amendments needs to be imported, or if a mix of the above is best.

In general, the greater the soil/subsoil depth (the effective root depth) - the larger the tree that can be supported with minimal maintenance. The ideal soil profile for trees will have at least 3 horizons where the "A" horizon is the topsoil, the "B" horizon is Subsoil and the "C" horizon is the Subgrade. The minimum recommended topsoil depth for trees is 300mm with a minimum subsoil depth of 200mm. This will provide the tree with the minimum moisture/nutrient reserve and anchorage capacity.

In addition to a physical inspection of the soil to be used to assess field texture and structure and drainage capability, soils should also be analysed by a soil laboratory for the following properties at a minimum:

- pH
- Salinity (electrical conductivity)
- Cation exchange properties and exchangeable cations
- Major and minor nutrients
- Organic matter (%)

Where tree specimens in container sizes 25 litres or larger are to be planted, the subsoil should also be tested for:

- pH
- Salinity (electrical conductivity)
- Cation exchange properties and exchangeable cations
- Aggregate stability.

The most common amendments used to bring soils up to a standard suitable for plant growth are:

- Lime or dolomite to make acid pH soils more alkaline.
- Lime or Gypsum to enhance exchangeable calcium and eliminate sodicity
- Gypsum to make clay soils more friable
- Composts and/or manures to improve organic matter and nutrients levels
- Single or complete fertilisers often with trace elements to correct a particular deficiency or multiple deficiencies.

It is important that the backfill soil is returned in the layers in which it was excavated so that topsoil with organic content is placed back near the top 300mm of the backfill. If this is not carried out correct anaerobic conditions can occur. Where the existing site topsoil backfill is unsuitable or insufficient it can be made up with:

Sandy loam soil or site won topsoil Composted soil conditioner conforming with AS 4454	70-100% by volume 0-30% by volume	e.g. 8 parts washed sand/2 parts sandy loam/1 part AS 4454 compost
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(Leake and Haege 2014, p.87)

Where the tree pit is deeper than 300mm (usually for trees in containers over 45 litres) and the existing site subsoil is unsuitable or insufficient a topsoil medium low in organic matter is required so that the organic matter does not “sour” at depths where there is less oxygen, It can be made up with a sandy, well-drained medium which contains low organic matter An example of the components may be:

Sandy loam On-site clay loam or clay topsoil or subsoil Composted soil conditioner conforming with AS 4454	60-80% by volume 20-30% by volume <10% by volume
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(Leake and Haege 2014, p.96)

4.4 Fertilising, Composting and Mulching

To ensure the health and vigour of mass plantings are maintained. All mass planted areas whether native or exotic will perform better when the soil conditions are healthy. Building healthy soils is the key to achieving the long term maintenance goals of mass planted landscape areas. Soil health is primarily achieved with regular applications of organic soil conditioners such as animal manures, decomposed green waste or proprietary blends of compost.

Fertilising and composting are not critical maintenance activities except where there are obvious deficiencies, but should be assessed on an annual basis by observation and leaf analysis.

4.5 Pruning

Ground cover and shrubs should be maintained at a maximum height of 0.5 m along path edges for personal security. Remove dead or dying plant material from mass planted areas on the site as required. This may become necessary as plantings mature, after damage or adverse environmental conditions.

4.6 Weeding

Weeding is often a concern in new areas of mass planted/buffer type landscaping.

A noxious weed is a plant declared to be noxious under the NSW Noxious Weeds Act 1993. Noxious weeds can be agricultural weeds, environmental weeds or have a direct impact on human health.

Environmental weeds are non-local plants that can invade and change natural areas and threaten the survival of native plants and animals. After land clearing, environmental weeds are considered to be the next greatest threat to our indigenous biological diversity. Environmental weeds have the potential to readily invade garden bed areas and potentially impact on the adjacent lands.

In addition to the environmental hazard posed by weeds, weeds occurring in mass planted beds, growing from the base of trees and from pavement can be unsightly and presents an untidy appearance.

Hawkesbury River Council controls noxious weeds within Blacktown LGA and a full list can be found at:

<http://www.hrcc.nsw.gov.au/>

This list defines plants that are classified as weeds and should be removed from the site and not planted in any new works.

This list provides a good basis for management and includes many problem garden weeds. However, for control of weeds on the site comply entirely with the New South Wales Weed Control Handbook a guide to weed control in non-crop, aquatic and bushland situations NSW DPI management guide, seventh edition.

A copy of the handbook can be downloaded at the link:

https://www.dpi.nsw.gov.au/data/assets/pdf_file/0017/123317/weed-control-handbook.pdf

To ensure that environmental and noxious weeds do not reproduce within or spread into mass planted areas and compete with plantings and spread to other areas or nearby South Creek. Weeding and weed control is considered to be a critical maintenance action.

Maintenance Action Required	Frequency
Prevent reproduction of weeds by destroying seedlings and established weeds before seed set or other propagules form. Remove by hand in the first instance (where infestations are low). Ensure that the entire weed including all roots is removed. Dispose of the weeds off site.	2 Weeks or Monthly
Remove by Herbicide application any weeds which cannot be controlled by hand removal. Herbicide application must occur before weed seed set. Non-target species and areas must be reinstated if damaged by herbicide application.	
Herbicide use to be in accordance with regulation rates and manufacturers recommendations. Herbicide use must comply with the requirements of the Noxious and environmental weed control handbook. a guide to weed control in non-crop, aquatic and bushland situations. NSW Department of Primary Industry Management Guide, Seventh Edition.	
After spraying, lop any dead weeds flush with the ground surface and dispose of the cuttings.	2 Weeks or Monthly
Use of bio-degradable herbicide is mandatory	

5.0 IRRIGATION, DISEASE AND INSECT CONTROL

5.1 Irrigation

All landscape areas are to have a subsurface irrigation system to minimise water use and evaporation. The irrigation system to be designed, supplied and installed by an experienced specialist irrigation sub-landscape contractor, nominated by the Landscape Contractor and approved by the Head Contractor or their landscape consultant. After selection they will be required to prepare detailed irrigation plans and specification for approval prior to commencing work. The Landscape Contractor will co-ordinate the irrigation installation to the client / landscape architects approval. Ensure completion of the irrigation system before the commencement of any other landscape works, so as to provide a readily available supply of water to planting areas.

Upon completion of the installation of irrigation works, the Landscape Contractor is to run through the system to ensure that it is operating correctly and instruct the client's representative in the correct operation and maintenance of the system. Manuals, warranties, and a minimum of two programs, summer and winter are to be provided to the client's representative at the time of completion.

At the completion of the installation the landscape contractor must provide complete dimension drawings, based on the approved design plan of the entire irrigation system as executed, clearly indicating the type and location of all sprinkler lines, heads, etc. This is essential to ensure that the irrigation lines and valve boxes can be located for repair and replacement. Works-as-Executed irrigation drawings should be given to the client.

The following principles are to apply:

Maintain adequate soil moisture – match supplemental irrigation water needs to climate conditions and available soil water
Water effectively – apply water so that it reaches the root systems with minimal losses
Encourage extension of the root system – apply water to extremity of root system and beyond
Remove competition for water – maintain mulch around the plants

5.2 Disease and Insect Control

Always consider biological and non-chemical controls in favour of chemical controls in the first instance because the margin for error is far greater with chemicals. For example most insecticide will also harm beneficial insects as well as the target species.
For a comprehensive reference to the identification, diagnosis and control of pests and diseases refer to "What Garden Pest or Disease Is That? Organic and Chemical Solutions for Every Garden Problem" by Judy McMaugh 2000 New Holland.

6.0 PROTECTIVE MEASURES

6.1 Erosion, Contamination and Sedimentation Control

During construction, all precautions necessary should be undertaken to prevent erosion, contamination, and sedimentation of the site, surrounding areas and drainage systems, including but not limited to the following:

- Construction of temporary drains and catch drains
- Diversion and dispersal of concentrated flows to points where the water can pass through the site without detrimental impacts
- Construction and maintenance of silt traps to prevent discharge of scoured material to downstream areas
- Stabilisation of exposed soil surfaces
- Use of erosion and sediment control measures to collect sediment and to reduce flow velocities
- Construction of temporary fencing
- Regular monitoring and maintenance of all erosion and sediment control structures throughout the construction and operational phases of the development to ensure their effective function.

6.2 Bushfire Protection

The Modification of Development Consent SSD-8606-MOD3 includes the following replacement condition 45(b):

Asset Protection Zone

From the commencement of building works, and in perpetuity, the entire property must be managed as an inner protection area (IPA). The IPA must comprise:

- i) Minimal fine fuel at ground level;
- ii) Grass must be mowed or grazed;
- iii) Trees and shrubs must be retained as clumps or islands and do not take up more than 20% of the area;
- iv) Trees and shrubs must be located far enough from buildings so that they will not ignite the building;
- v) Garden beds with flammable shrubs must not be located under trees or within 10 metres of any windows or doors;
- vi) Minimal plant species that keep dead material or drop large quantities of ground fuel;
- vii) Tree canopy cover must not cover more than 15% of the area;
- viii) Tree canopies must not be located within 2 metres of the building;
- ix) Trees must be separated by 2-5 metres and do not provide a continuous canopy from the hazard to the building; and
- x) Lower limbs of trees removed up to a height of 2 metres above the ground.

The onsite landscape has been designed in accordance with the above and follows the principles of Appendix 5 Planning for Bush Fire Protection 2019. Trees are spaced at distances to prevent canopies touching or overhanging buildings. Shrub planting has been located between gaps in tree canopies and in isolated groups.

Ongoing management and maintenance is to be as per the condition 45(b) and the Bush Fire Report.

7.0 MONITORING AND REPORTING

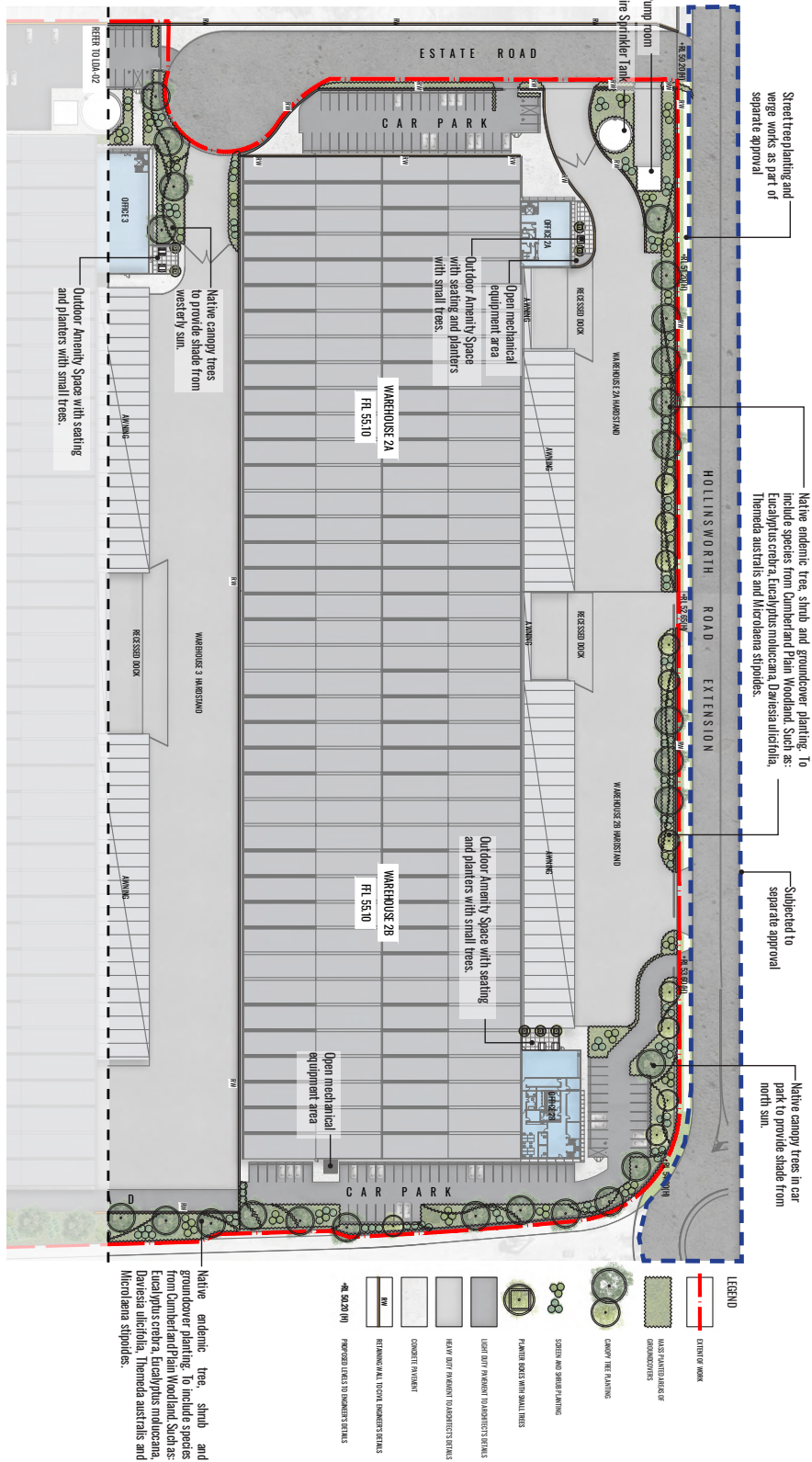
General maintenance tasks are described in the Landscape Technical Specification document 200528_CC_SPC_LAN_LSP01. A Maintenance Schedule for the maintenance period is also included in Appendix B of this report. A log book should be used to record daily/weekly/monthly visits. All maintenance actions should be recorded in the log book and this should be made available upon request.

Regular inspections of all landscape areas should be undertaken initially by the appointed contractor and then estate maintenance teams following handover. This is to ensure that maintenance is carried out according to the plan. Inspections should include the ongoing protection of revegetation works during its establishment period.

IPA Maintenance should be carried out as per timings advised by the Bush Fire Consultant.

8.0 APPENDICES

8.1 Appendix A - Approved Building 2 Masterplan



Drawing Title: Landscape Plan North
DWG No: LDA-01

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Client: **Logos**

Scale: 1:500 @ A1
1:1000 @ A3

Date: 25/12/2019

Job Number: 190985

North

Project: **Hollinsworth Road SSP Buildings 2&3**
Warehouse Park, NSW 2195

Revision	Date	Description	Drawn	Checked
A	20/01/20	ISSUE FOR TENDERS	SI	BB
B	20/01/20	ISSUE FOR SELECTION	SI	BB
C	20/01/20	ISSUE FOR SELECTION	SI	BB
D	25/12/19	ISSUE FOR SELECTION	SI	BB

FBI SSP MODIFICATION

8.2 Appendix B - Maintenance Schedule

CATEGORY	TIMEFRAMES / FREQUENCY				Tasks and Specification
	Daily/Weekly	2 Weekly/Monthly	3 to 6 Months	As Required	
1. Weeding and Rubbish Removal		✓			Weed garden areas manually or with approved herbicide. Prior approval required for Herbicide use. Approved Herbicide use to be in accordance with regulation rates and manufacturer's recommendation. Protect plants from overspray and avoid if rain is likely within 12 hour period. Dispose of any waste material using appropriate methods and at designated disposal sites. Maintain weeds for a period of 12 months, with more frequent weeding in the summer months.
2. Leaf Litter Removal		✓	✓		Remove leaf litter as per Bushfire recommendations. Remove leaf litter from pathways
3. Mulching		✓	✓		Reapply mulch to maintain to a depth of 75mm in areas that are deficient. Soil should be aerated before placing mulch. After 12 months, mulching will have broken down and should be topped up to ensure a depth of 75mm. A slow release, low phosphorous fertiliser should also be applied.
4. Plant Fertiliser			✓		Fertilise all plants at specified rates based on soil testing results. Prior approval required for fertiliser use. Slow release fertiliser N:P:K ratio- 18:3:10 at manufacturer's recommended rate per plant. Initial fertilising at planting based on soil testing results
5. Pest & Disease Control		✓		✓	Check for incidence of fungal and insect attack. Avoid use of chemical sprays Apply appropriate treatment for fungal and insect attack if necessary subject to approval Prior approval required of chemical to be applied
6. Pruning, Trimming, Stakes and Ties		✓			Remove deadwood, remove suckering roots from rootball, check ties. Improve plant shape and promote new growth. Adjust ties and stakes as necessary. Stakes can be removed once plants are self-supporting. Notify in writing to Management any perceived need for tree structural work. Adjust ties and stakes as necessary.
7. Plant Removal & Replacements		✓			Inspect for failed or dying plants requiring replacement and record probable cause. Replant after dead or failed plant removal. Densities, sizes and species to be in accordance with Landscape Plans LCC-000 and relevant drawing sheet no. Water replacement plantings for a minimum of 12 weeks after planting.
8. Urgent Works	✓				To be actioned within 7 days.
9. Watering	✓	✓			Water as necessary every day especially during periods of hot weather. 2 week interval watering should be maintained until planting is fully established. Best practice watering is early morning or late afternoon to reduce evaporation.

8.2 Appendix C - Reference Documents

The following Australian Standards are referred to in this report:

- AS 1319 Safety signs for the occupational environment
- AS 4373 Pruning of amenity trees
- AS 4454 Composts, soil conditioners and mulches
- AS 4687 Temporary fencing and hoardings
- AS 4970 Protection of trees on development sites

The following documents are referred to in this report:

- Landscape Documentation for State Significant Development Modification - SSD 8606 MOD 3, 2019, prepared by Geoscapes Landscape Architects Dwg No's LDA-00 to LDA-07.
- Landscape CC/Tender Drawings Dwg No's LCC-000 to LCC-601 and LSP01, prepared by Geoscapes Landscape Architects.
- Operational Environmental Management Plan (OEMP).
- Contractors Environmental Management Plan (CEMP).
- Bush Fire Assessment Report, September 2019, prepared by Bushfire Consulting Services.
- SSD 8606 Appendix C Applicant's Management and Mitigation Measures.
- Due diligence report – Ecological matters 2016, prepared by Keystone Ecological
- Noxious and environmental weed control handbook. a guide to weed control in non-crop, aquatic and bushland situations. NSW Department of Primary Industry Management Guide, Seventh Edition.
- Soils for Landscape Development. Selection, Specification and Validation. Simon Leake and ELke Haege. CSIRO Publishing 2014.
- What Garden Pest or Disease Is That? Organic and Chemical Solutions for Every Garden Problem. Judy McMaugh 2000 New Holland.