

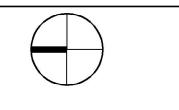
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ISSUE REV. DESCRIPTION

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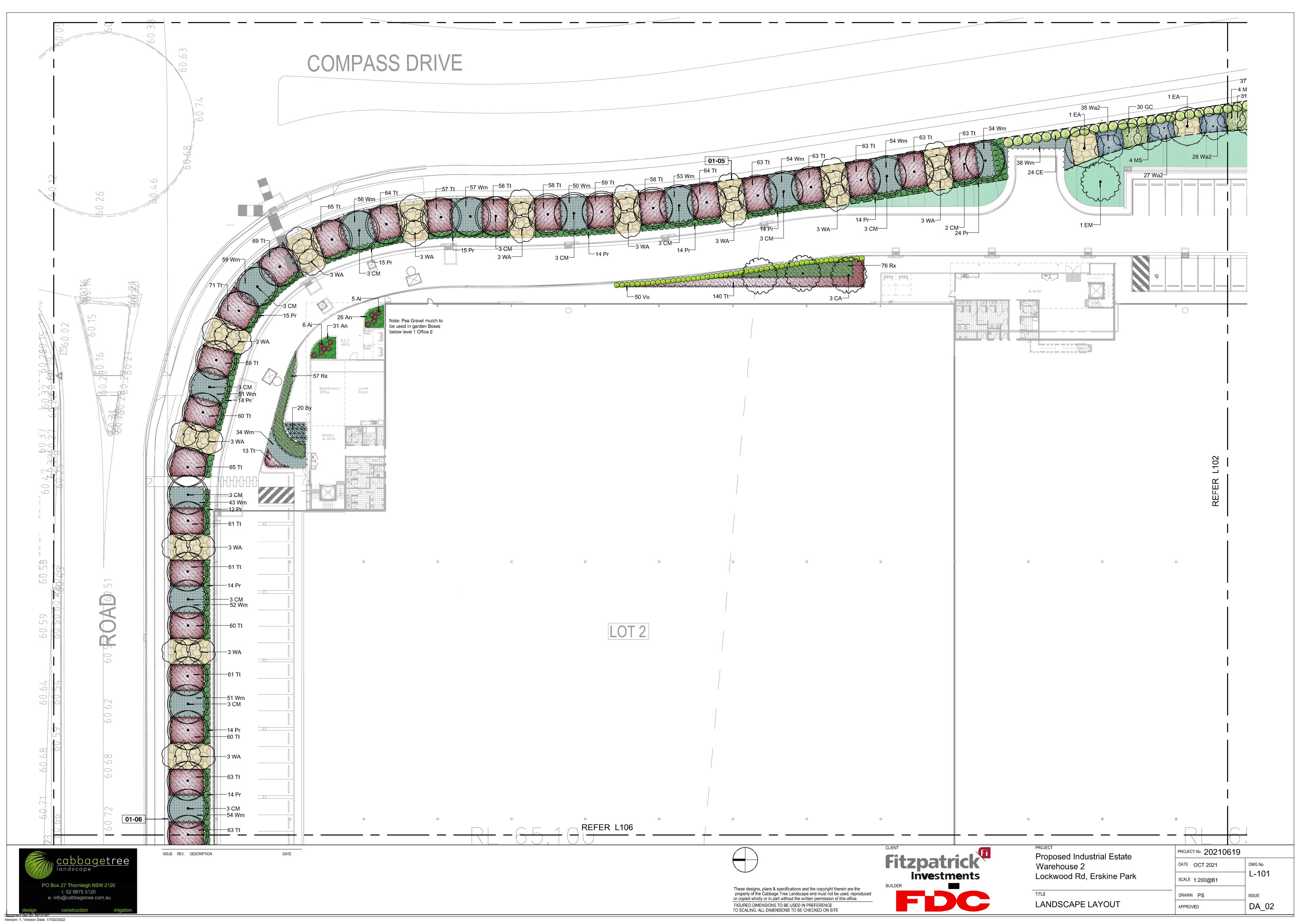
Proposed Industrial Estate Warehouse 2 Lockwood Rd, Erskine Park

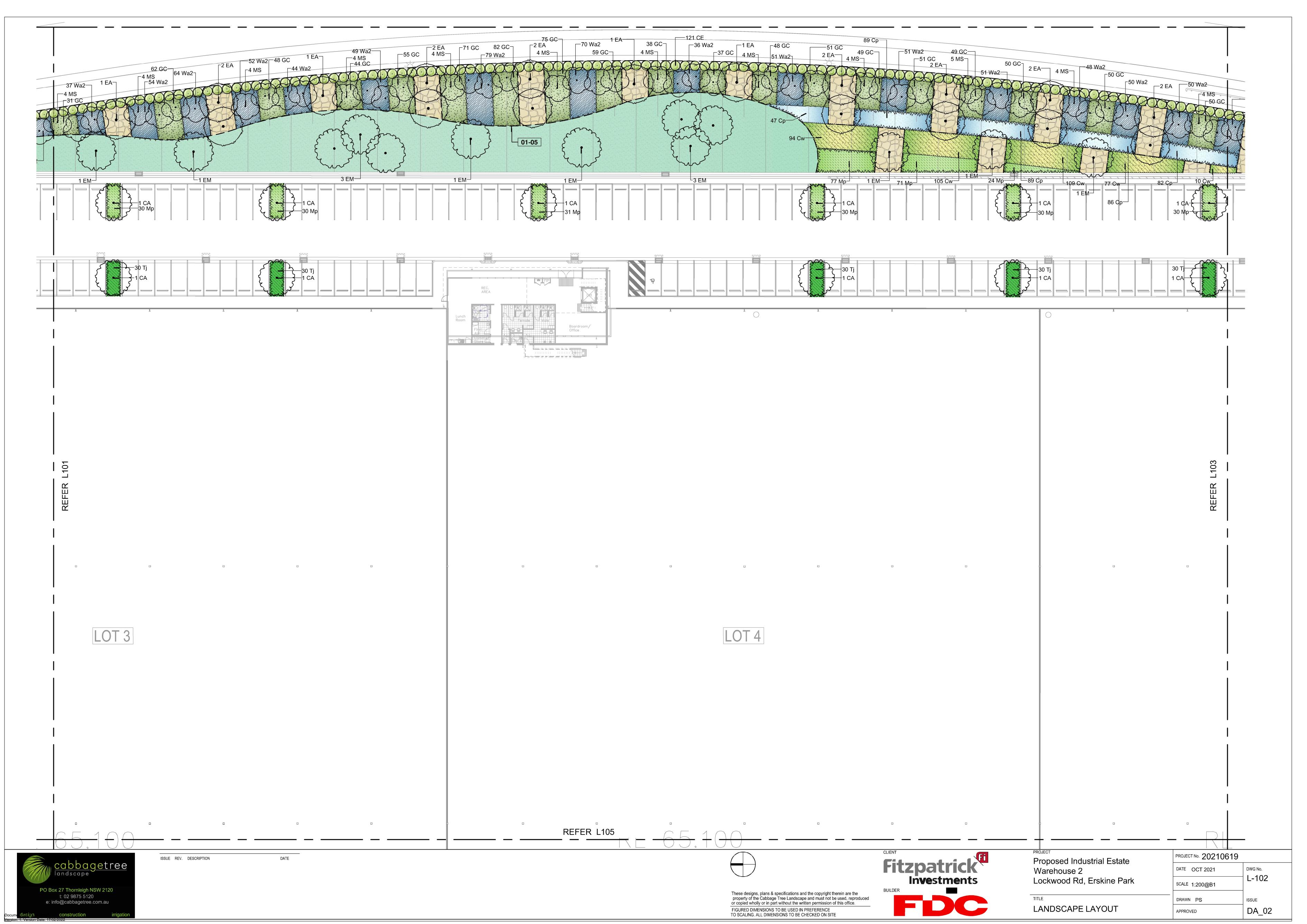
LANDSCAPE LAYOUT

TITLE

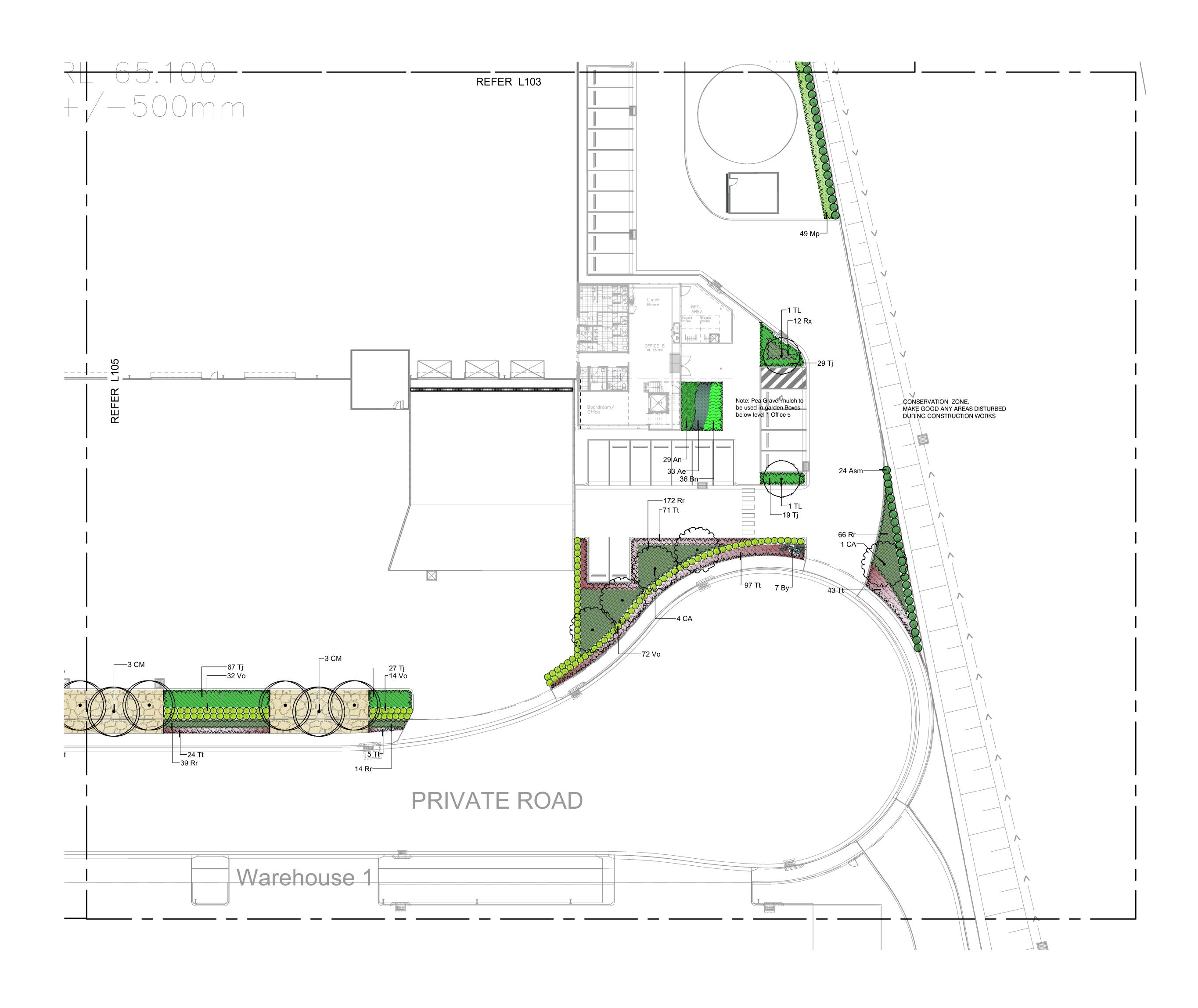
PROJECT No. 20210619 DATE OCT 2021 DWG No. L-100 SCALE 1:200@B1 DRAWN PS ISSUE DA\_02

APPROVED











ISSUE REV. DESCRIPTION

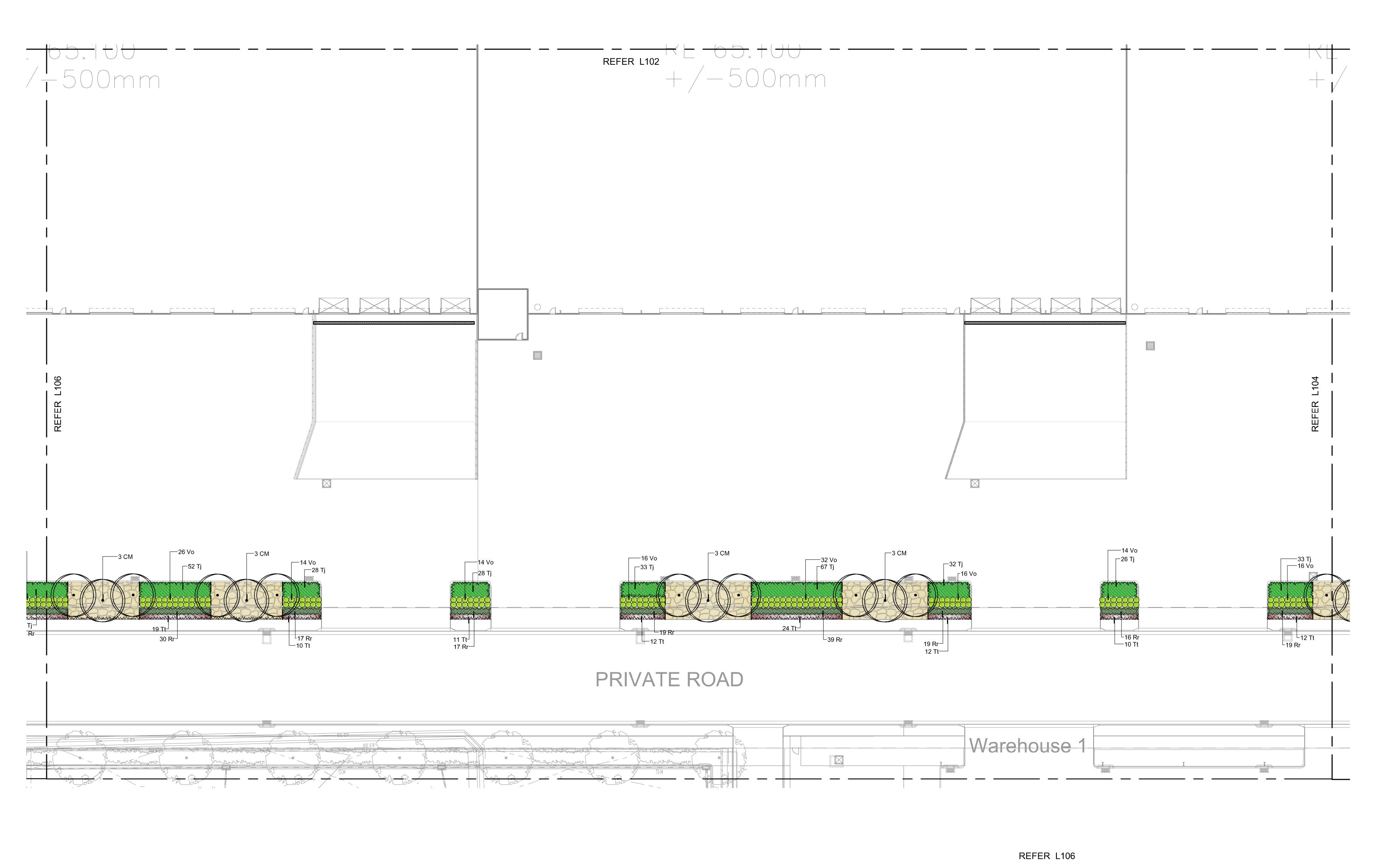
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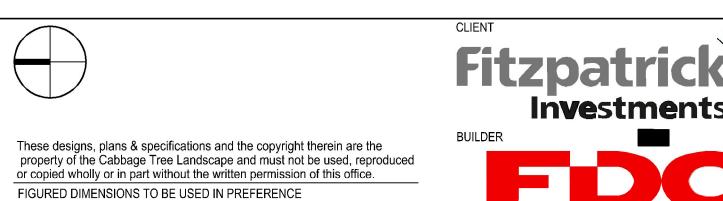
Proposed Industrial Estate Warehouse 2 Lockwood Rd, Erskine Park

LANDSCAPE LAYOUT

PROJECT No. 20210619 DATE OCT 2021 DWG No. L-104 SCALE 1:200@B1 DRAWN PS ISSUE DA\_02 APPROVED





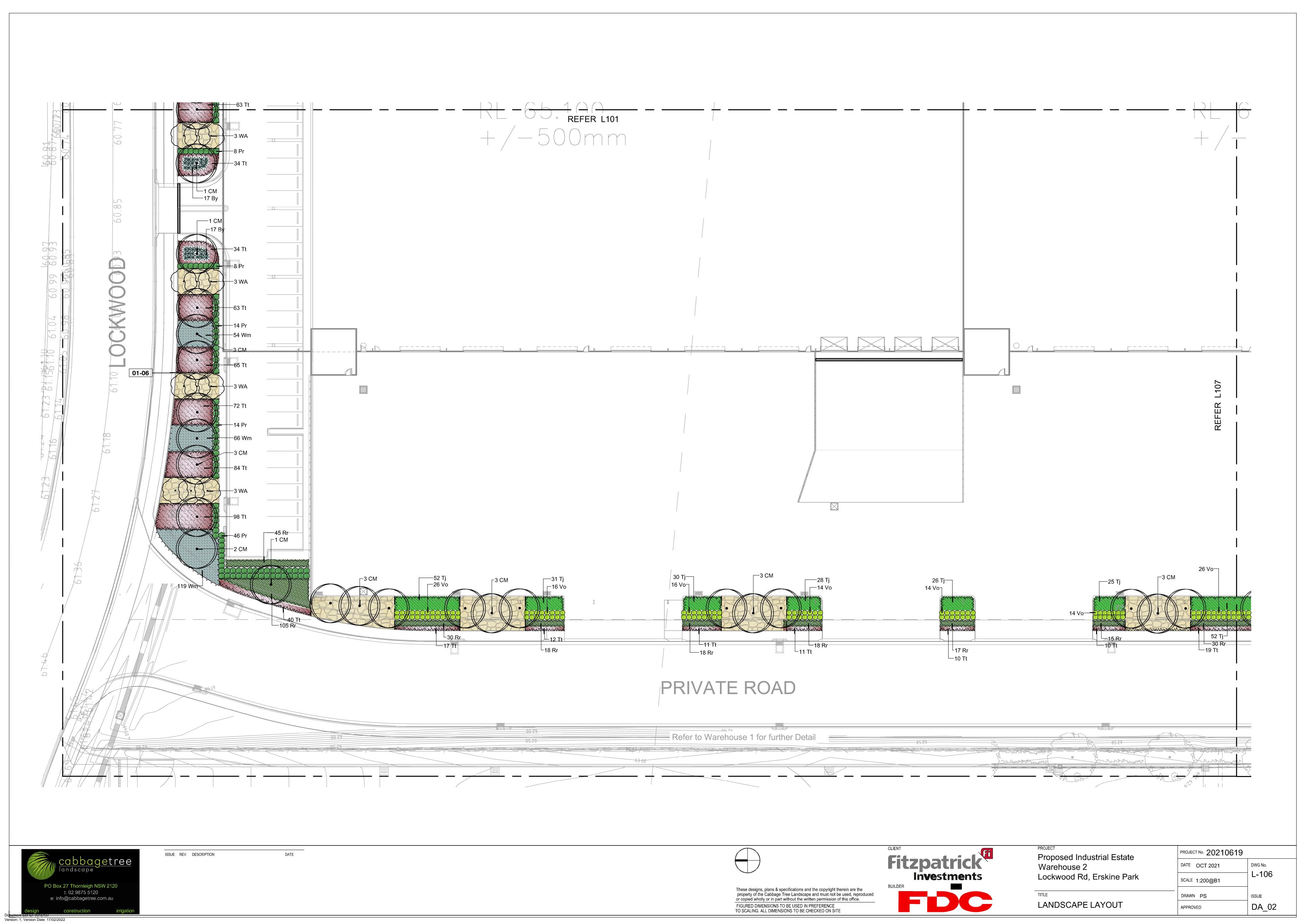


PROJECT Proposed Industrial Estate	PROJECT No. 20210619	
Warehouse 2	DATE OCT 2021	
Lockwood Rd, Erskine Park	SCALE 1:200@B1	
TITLE	DRAWN PS	
LANDSCAPE LAYOUT	APPROVED	

DWG No. L-105

ISSUE

DA\_02



## Irrigation Specification

A fully certified specialist irrigation contractor is required to design and install, balance, adjust and commission a fully automatic irrigation system that will deliver even, sufficient water to all new trees, shrubs, groundcovers, turf and other plants in all garden beds, pots and planters to maintain healthy growth continuously throughout the year.

### Standards

Irrigation system to comply with: Local or regional Council By-laws, regulations and policies Local or regional Water By-laws, regulations and policies AS/NZS 3500.1 - Plumbing and Drainage - Water Services AS 2033 - Installation of Polyethylene Pipe

AS/NZS 4129 - Fittings for Polyethylene (PE) Pipe for Pressure Applications Requirements AS/NZS 3000 Electrical Installations

(all parts)

AS 1477 - PVC Pipes And Fittings For Pressure Applications AS 1432 - Copper Tubes For Plumbing, Gas fitting And Drainage Applications

All materials and workmanship shall comply with the requirements of relevant Australian Standards, Government regulations, Council conditions, and Authority Requirements including water and electricity. Where any discrepancy arises between this specification and that of the relevant Authorities, ensure that the system complies with all regulations. Install materials in accordance with the manufacturers specifications.

The Irrigation Contractor shall be responsible for establishing the number and locations of drip emitters, zones, solenoid valves, filters etc required to provide a satisfactory performance of the system. Irrigation contractor is to provide enough solenoid valves for effective micro-zones based for groups of plants and turf with similar water requirements and microclimates.

The Irrigation Contractor must have the system operational and properly tested before the planting is commenced in each area. Contractor is to ensure any irrigation that is damaged during the course of construction is repaired and or re-instated prior to practical completion. Any planted areas specifically not nominated for irrigation are to be hand watered as part of the plant establishment/ maintenance period.

### Shop drawings

Submit drawings and schedules showing the layout and details of the system, including but not limited to:

- Water take offs / backflow prevention devices
- Pressure regulating valves Booster box as required
- Irrigation controller cabinet
- Irrigation lines and conduits
- Solenoid valve locations / valve boxes
- Cable and conduit routes
- Drip irrigation line layout
- Popup and spray locations Micro-irrigation stake layout
- Sensor, rain and weather station locations

### Technical Data

All technical data relating to the equipment tendered shall be included and neatly bound in a folder with all relevant warranties. All guarantees for materials shall be supplied to the client on practical completion and commissioning.

## Operational Manual

Provide an operational manual containing details of the following: Complete operating instructions for the system

- Complete programming and operating instructions for the control system and irrigation controllers
- Full details of all equipment used in the system Full maintenance and servicing instructions and maintenance

program - 2 laminated colour coded copies of as built drawings, one copy framed, indicating dimensions of pipes from the building or other permanent features, numbered and colour coded irrigated areas referring to particular stations. The drawing shall be fixed next to irrigation

## Materials & Components

controller.

## Water Supply / Water Take Off Point

The source of water shall be from a town water take off point if there is no on-site retention tank provided for irrigation. Refer to Hydraulic Engineer's Drawings and Specification and confirm and co- ordinate with Head Contractor. Co-ordinate with Hydraulic Consultant to connect irrigation take off point to the retention tank or closest existing water supply.

## Backflow Prevention Device

A licenced plumber must install a backflow prevention device at the potable water irrigation take off point. The device must meet requirements of development and the Local Water Authority

Pressure Regulating Valves Supply and install pressure-regulating valves at take-off points, which are

adjustable between 100 - 600kPa, to ensure the accurate amount of water is supplied to each zone and for long term performance of the irrigation system. Provide filters and mesh filter screens to suit irrigation lines and emitters. Typically for drip irrigation provide a 40mm filter with 120 mesh filter screen (130 microns) sized to suit the flow immediately upstream from the pressure-regulating valve. Provide gate valves upstream from the filter and downstream from the pressure-regulating valve. Mount the assembly in an accessible position in a valve box, access pit or adjacent building, and provide backflow prevention, if not connected to the central backflow prevention device. Supply pressure regulation specific to the irrigation requirements of each zone.

### Automatic Control Valves (Solenoid Valves)

24 V solenoid actuated hydraulic valves with flow control and a maximum operating pressure rating 1MPa. Provide stainless steel bonnet holding down bolts and internal metal parts of stainless steel, able to be serviced push in or screw in fittings. Saturate the soil with hose water prior to without removal from the line. Provide a gate valve of the same size immediately upstream of each automatic control valve. House valves in an watering supplementation during plant establishment as required. accessible position in a high impact plastic valve box, and provide backflow Header and footer manifold pipe prevention, if not connected to the central backflow prevention device. Each valve must be provided with numbers identical with station number Tube fittings and corresponding with as built plan.

Supply and install high impact plastic valve boxes with snap lock covers at ring. finished ground level, House all valves in valve boxes. The size shall be the Air relief valves minimal size practical. The exact positions must be proposed by Irrigation Contractor on the Shop Drawings for approval of the Principle. As a rule do not install in conspicuous locations. Top of the box shall finish flush with ground and the box shall be installed over the drainage aggregate. If two or more boxes are used in one location, they shall neatly line up. All boxes shall be located within garden beds wherever possible. When non potable water is use Valve box lids are to be lilac. Support the box on bricks at each Irrigation Controller

### Conduits

Provide protective Metric PVC Pipe conduits of sufficient diameter where programs on all required stations piping runs under or penetrates paving, retaining walls, slabs or similar

### Irrigation pipes

Irrigation mainline is to be PE 100 MDPE pipe rated PN 12.5.

during Tender. All pipes must carry clear stamp referring to class and supplier. Irrigation lines using non potable water must colour coded to Australian Standards. Install to manufacturer's instructions. Use copper pipes where required by Local Water Authority. Ensure irrigation lines are Rain Sensor fully concealed and pipework is installed in the least visible position possible. Pipes in trenches with rock or concrete bases shall be laid on a minimum 75mm thickness of bedding material.

Fittings Supply and install Metric Polyethylene fittings as appropriate. Install to manufacturer's instructions. Copper shall be used in situations as defined by the Local Water Authority.

All pipe and fittings are to be installed in accordance with the manufacturer's specification. When installing the pipe in either hot or cold weather the Contractor is to and at joints. allow for expansion or contraction of the pipe.

Handling

the pipe manufactures requirements.

## Bending

Where the pipe is to be bent, the Contractor must ensure that the radius, of which the pipe is bending, does not exceed the manufactures specification. The minimum radius must not be tighter than 20 times the

Where pipes are to be installed below paving only factory supplied straight lengths are to be used.

Tapping saddles

Tapping Saddles are to be MDPE rated to a minimum PN 16 with tight fittings stainless steel retaining rings fitted to the branch. All saddles are to

have 304 stainless steel set bolts and nuts. Anti-seize is to be used on all threads prior to tightening

PVC pipe is to be used for the popup sprinkler laterals. The pipe is to be a minimum pn12 with solvent welded fittings. Thread sealing

All threads are to be cleaned prior to wrapping with single density commercial grade PTFE Teflon thread tape. The use of sealing compound is acceptable unless specified otherwise. The Contractor must ensure that the use of liquid sealers does not affect the operation of any other compound of the system or is in breach of any

warranty terms associated with the products installed. Contractors are to ensure threads remain clean while installing.

## SPRINKLERS

Location: Turf areas Sprinklers are to be popup type, with check valves and adjustable nozzles. Arcs are to be set to limit overthrow onto the surrounding hardstand areas. Sprinklers are to installed level to the surrounding undisturbed

The Contractor will be required to rectify any subsidence of more than 20 mm. Refer to detail for installation. Articulated risers

All popup sprinklers are to be fitted with schedule 40 articulated riser assemblies consisting of:

3 x 15 DN M& F Elbows

1 x 15 DN x 200 mm riser All threads to be sealed using thread tape.

### Location: Garden Beds

All drip tube is to be suitable for sub-surface installation and be: Minimum 13 mm OD

Pressure regulated to either 2 l/hr or 2.3 l/hr Have a root inhibitor extruded in the tube

Have emitters set at 400 mm or 300 mm apart. Irrigation lines using non potable water must be clearly marked "Caution Not For Drinking" and colour coded to Australian Standards. Install to manufacturer's instructions.

Installation: Lay driplines on finished ground surface under planting bed mulch. Exposed lines are not acceptable. All trees are to be provided with triple rings over the rootball. Connect micro-tube laterals with proprietary commencing use of the dripline irrigation system and continue hose

Manifolds may be fabricated using either 25 DN LDPE pipe.

All barbed fittings are to match the ID of the pipe and match the manufacture's specification.

All connections are to be fitted with a form of external locking clamp or

Air relief valves are to be fitted onto the manifold pipe. The final location is to be determined by the Contractor to allow easy of maintenance in the future as plants grow and the need for special safety

Supply and install an automatic digital irrigation controller, with the option of snap in modules to extend capacity. The controller must:

be capable of running drip, spray, micro spray and popup irrigation

be capable of linking with sensors installed in all planters

be programmable for up to 4 start times per day provide schedules of min 7 days duration Location: Contractor to select appropriate location and indicate on shop

from existing or proposed power source for connection of Irrigation

Supply and install a rain sensor to prevent irrigation during rainfall. This unit is to be set to turn the irrigation system off after a min. 3mm of rain has occurred.

Control Wires Connect the automatic control valves to the controller with double insulated underground cables laid inside dedicated conduit piping where possible. Lay intertwined for their full length without joints except at valves, sensors and branches off common wires. Provide

waterproof connectors. Provide expansion loops at changes of direction All wiring for 24V AC control of solenoid valves shall be sized to ensure a minimum of 20 volts at the valve when calculated on the inrush amperage Pipes are to be supplied in the longest practical lengths. The Contractor is of the valve solenoid. All wiring shall be a minimum size of 7/050 building to ensure that the pipe is handled, stored and installed in accordance with wire of 1/0.8 multi- core cable. All wires shall be run in min. 20mm

conduits. Electrical conduits shall be also used under paving and other permanent surfaces. Jointing of cable will be a continuous length between the irrigation controller and the solenoid valve. All wire jointing will be carried out in such a way as to ensure a completely waterproof seal. It is recommended to install spare wires alongside the main irrigation circuits.

### Operation and Maintenance

Guarantee all workmanship for a period of 12 months from commissioning and be responsible for the rectification of any works that have been carried out in an unworthy manner. During the Defects and Liability Period and Maintenance Period the contractor shall maintain the system in full working order and operate the system at least once a week.

## Landscape Specification

The Landscape Contractor shall check all relevant dimensions on site before proceeding with the work. Under no circumstances shall dimensions be scaled from the drawings.

## Weed Eradication

Eradicate weeds using environmentally acceptable methods, such as a non-residual glyphosate herbicide in any of its registered formulae, at the recommended maximum rate.

Continue eradication throughout the course of the works and during the planting establishment period.

### Hardscape elements Feature Gravel - Sandstone spall

Before placing gravel ensure that subgrade depths are correct and that the surface is even and ready to receive gravel as a consistent layer within the steel edge frame. Ballast rock is to be placed by hand at the base of any tree trunk and its immediate surrounds. A 50mm layer of mulch will be laid under rock ballast areas.

Gravel shall be equal to "Sandstone Spall" (Min 75mm - Max 150mm)" Produce an even surface and finish flush with the adjoining surfaces and

Colour: Brown

Decomposed Granite Paving Decomposed granite shall be of uniform colour and low plasticity. Particle size shall be graded up to 10mm maximum with between 30-40% less than

Lay paving compacted to a thickness of not less than 100mm. Mix gravel with oof white cement at a proportion of 5% off white cement to gravel. The mix shall be damp but not wet when placed. Compact with vibrating roller generally and in accessible areas by other approved mechanical means. Produce an even surface and finish flush with the adjoining surfaces and edges. Ensure that the granite does not come in contact with trunk/stem of plantings

### Edging Edging shall be used as a separation between gardens and lawns and areas of sandstone spall.

Concrete Edge • Location: Between gardens and nature strip as shown on Plans. Type: 150mm x 150mm 'Square' Profile

### Colour: Charcoal

Galvanised steel edging • Location: Between gardens and internal turf areas and gardens and gravel areas

• Type: 100 x 4mm flats • Installation: Install with 600mm long galvanised rods 12mm in dia. Welded to steel flat. Rods to be installed no further than 1m apart

and 300mm from joins. Joins are to be butt welded. All welds are to

## Softscape elements

Subsoil Excavate all garden beds to bring the subsoil to at least 275mm below finished design levels. Excavate all turf and grass areas to bring the subsoil to at least 100mm below finished design levels. Shape the subsoil to fall to subsoil drains where applicable. Do not excavate within the drip line of

cleaned and coated with Galmet Cold Gal® or similar.

trees to be retained. Cultivate the subsoil to a further depth of 100mm. Trim the surface to design levels after cultivation.

Import topsoil for the garden and turf areas. All imported soils are to conform to AS 4419. Spread the topsoil on the prepared subsoil and grade evenly, compact lightly and uniformly ensuring topsoil is finished to design levels, allowing

for mulch or turf, which is to finish flush with adjoining hard surfaces.

Grade soil to drain freely, without ponding, to catchment points.

Spread topsoil to the following typical depths: Garden Beds: 225mm Turf areas: 100mm

## Fertiliser

Plants

Provide proprietary fertilisers, delivered to the site in sealed bags marked to show manufacturer or vendor, weight, fertiliser type, N:P:K ratio,

recommended uses and application rates. Trees: Apply two (2) 20g tree tablets / 500mm of height (maximum

Mass planted areas: Apply slow release fertiliser (with N:P:K ratio of 16:4.4:8.3) or equivalent to individual plants at manufacturers recommended rates.

Turf: Apply a Turf starter fertiliser to manufacturer's

## recommendations

which have the following characteristics:

**Embankment Stabilisation** Where necessary to prevent soil erosion or soil movement, stabilise embankments, where slopes are greater (steeper) than 1 in 3 (slope >1 in

Stabilise embankments using biodegradable Jute mesh. Install in accordance with manufacturer's specification, including 300 x 300 mm anchor trenches at top and bottom, backfilled with soil and compacted, and U-shaped galvanised steel pegs at 1000 x 1000 mm intervals generally and 250mm at overlaps.

Supply plants in accordance with the landscape drawings and schedules,

## Large healthy root systems, with no evidence of root curl, restriction

Vigorous, well established, free from disease and pests, of good form consistent with the species or variety.

Hardened off, not soft or forced, and suitable for planting in the natural climatic conditions prevailing at the site.

Grown in their final containers for not less than twelve weeks.

Trees, unless required to be multi-stemmed, shall have a single All plant specimens are to be true to name and variety listed in the plant

schedules on the landscape drawings. Make no substitutions of species

type or container size unless approved by the Principle.

### Installation of Plants

Do not plant in unsuitable weather conditions such as extreme heat, cold, wind or rain. Do not vary the plant locations from those shown on the drawings unless

otherwise directed. For tree plantings, excavate a hole to twice the diameter of the root ball and at least 200mm deeper than the root ball. Break up the base of the hole to a further depth of 100mm and loosen compacted sides of the hole. Thoroughly water the plants before planting, immediately after planting, and as required to maintain growth rates free of stress. No plant material shall show signs of water stress at any time.

### Mulching

Garden mulch shall conform to AS4454 and be free of deleterious and extraneous matter such as soil, weeds, sticks, wood slivers, rubbish, litter, stones and vegetative reproductive parts of undesirable plants. Before placing mulch ensure that soil depths are correct and that the soil surface is even and ready to receive mulch as a consistent layer. Place mulch in all garden beds to a depth of 75mm, when all specified plants are installed, clear of all plant stems, and rake to an even surface flush with the surrounding finished levels and evenly graded between design surface levels. The specified depth shall be achieved after the mulch has settled.

Type: ANL Forest Blend or equivalent

Stakes shall be durable hardwood, straight, free from knots or twists, pointed at one end, in the following minimum quantities and sizes for each

of the various plant pot sizes: Plants (>25L): One (1) of 38 x 38 x 1200mm;

stem in a figure of eight pattern and stapled to the stake.

Semi-advanced plants (>75L): Two (2) of 50 x 50 x 1800mm; or Advanced (>100L): Three (3) of 50 x 50 x 2400mm. Drive stakes into the ground a minimum one third of their length, making

sure they are plumb, equal in height and avoids damage to the plants root

Provide ties fixed securely to the stakes as necessary to stabilise the plant, allowing a small degree of movement but not affording any damage to the stem. Ties shall be 50 mm hessian webbing installed around the stake and

### Turf

### Turf: Couch

Turf to be delivered to site as 25mm minimum thick cut rolls. Obtain turf from a specialist grower of cultivated turf. Provide turf of even thickness, free from weeds and other foreign matter. Deliver turf to the site within 24 hours of being cut, and lay it within 24 hours of delivery. Prevent it from drying out between cutting and laying.

Lav the turf as follows: In stretcher pattern with the joints staggered and close butted, Parallel with the long sides of level areas, and with contours on

To finish flush, after tamping, with adjacent finished surfaces of ground, paving edges, and timber edges. Lightly tamp to an even surface immediately after laving. Water immediately after placement as necessary to keep the topsoil moist.

## is established.

Plant establishment and maintenance The Landscape Contractor shall rectify defects during installation and those that become apparent in the works under normal use for the duration of the contract Defects Liability Period. The Landscape Contractor shall maintain the contract areas by using

industry accepted horticultural practices for 52 weeks. The landscape

Protect newly turf areas against pedestrian and vehicular traffic until grass

## maintenance works shall include, but not be limited to, the following:

Replacing failed plants Insect and pest control Fertilising Maintaining mulch

Mowing Watering Weeding

Rubbish removal

Top dressing of lawns as required.

again at the end of the Defects Liability Period. M

Keep a Maintenance Logbook recording when and what maintenance work has been done and what materials, including chemical materials, have

Submit the initial logbook for inspection prior to Practical Completion and

## REFERENCE NOTES SCHEDULE

### 01 GENERAL DESCRIPTION CODE

75 -150mm SandstoneSpalls. Depth: 150mm deep over 50mm forest fines Location: As shown on landscape plans Min size: 100mm, max 200mm

PLANT SCHEDULE

SHRUBS

SHRUB AREAS

**BOTANICAL / COMMON NAME** 

Corymbia maculata / Spotted Gum

Angophora floribunda / Rough Barked Apple

Cupaniopsis anacardioides / Carrot Wood

Eucalyptus crebra / Narrow-leaved Ironbark

Eucalyptus moluccana / Gum-topped Box

Tristaniopsis laurina `Luscious` TM / Luscious Water Gum

Alcantarea imperialis 'Rubra' / Rubra Imperial Bromeliad

Callistemon citrinus `White Anzac` / White Anzac Bottlebrush

Westringia fruticosa `WES08` TM / Aussie Box Coast Rosemary

Westringia fruticosa 'WES05' TM / Mundi Coast Rosemary

Grevillea x `Canberra Gem` / Canberra Gem Grevillea

Rhaphiolepis indica Snow Maiden / Indian Hawthorn

Rhaphiolepis x Oriental Pearl / Indian Hawthorn

Waterhousea floribunda 'Green Avenue' TM / Weeping Lilly Pilly

Melaleuca linariifolia / Flaxleaf Paperbark

Acmena smithii minor / Dwarf Lilly Pilly

Callistemon citrinus `Endeavour` / Bottlebrush

Photinia x fraseri `Red Robin` / Christmas Bern

| Viburnum odoratissimum / Sweet Viburnum

BOTANICAL / COMMON NAME

Beschorneria yuccoides / Amole

| BOTANICAL / COMMON NAME

GROUND COVERS | BOTANICAL / COMMON NAME

Asplenium nidus / Birds Nest Fern

Aspidistra elatior / Cast Iron Plant

Blechnum nudum / Fishbone Waterferr

Carpobrotus glaucescens / Pig Face

Carpobrotus glaucescens / Pig Face

Myoporum parvifolium / Trailing Myoporum

Myoporum parvifolium / Trailing Myoporum

Trachelospermum jasminoides / Chinese Star Jasmine

Trachelospermum jasminoides 'Tricolor' / Variegated Star Jasmine | 140mm | 3/m²

Eucalyptus amplifolia / Cabbage Gum

QTY

79

25

26

14

48

QTY

108

192

283

442

913

763

145

1,444

979

432

432

597

1,238

2,634

1,224

SIZE

45 litre

100 litre

100 litre

45 litre

45 litre

45 litre

45 litre

45 litre

45 litre

SIZE

200mm

400mm

300mm

200mm

200mm

200mm

200mm 3/m<sup>2</sup>

150mm | 3/m<sup>2</sup>

| 200mm | 3/m²

|150mm |3/m²

150mm | 3/m<sup>2</sup>

200mm | 4/m²

150mm 4/m<sup>2</sup>

150mm 3/m<sup>2</sup>

|150mm |3/m²

|150mm | |3/m²

150mm

150mm

SIZE DENSITY QTY

150mm

SIZE DENSITY QTY

Species: Couch Location: As shown Turf to be delivered to site as minimum 25mm mn Thick cut rolls. Turf to be laid in a stretcher pattern. Finished surface to be flush with adjacent levels.

Concrete Edge Location: Between garden an turf areas and along boundary Type: 150mm x 100mm Square Profile



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PROJECT No. 20210619 Proposed Industrial Estate DATE OCT 2021 Warehouse 2 Lockwood Rd, Erskine Park SCALE 1:200@B1 TITLE DRAWN PS LANDSCAPE LAYOUT APPROVED

DWG No.

ISSUE

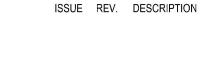
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Sizes: 100 x 4mm Location: As shown on landscape plans. Between all ballast and garden areas. Internal turf and garden areas. Along eastern boundary.

Galvanised Steel Edging

Colour: Charcoal



DATE

/ersion: 1, Version Date: 17/02/2022

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## AS 4130 - Polyethylene Pipe for Pressure applications AS/NZS 2053.1 - Conduit and fittings for Electrical installations - General

AS 2698 - Plastics Pipes And Fittings For Irrigation And Rural Applications

AS 1415 - Unplasticized PVC (UPVC) pipes and fittings for soil, waste and vent (SWV) applications (all parts)

# Performance