LOCATION PLAN
NTS (Image: Google, 2017)

Harvest Estate, Chisholm - Stage 6
Landscape CC Documentation

Sheet No.	Sheet Name	Revision	Date
LC-001	COVER SHEET	F	13/2/18
LC-002	KEY PLAN	F	13/2/18
LA-101	LANDSCAPE PLAN 1	F	13/2/18
LA-102	LANDSCAPE PLAN 2	F	13/2/18
LA-103	LANDSCAPE PLAN 3	F	13/2/18
LA-104	LANDSCAPE PLAN 4	F	13/2/18
LA-105	BASIN PLAN	F	13/2/18
LD-201	STREET TREE DETAIL	F	13/2/18
LD-202	PLANTING DETAIL	F	13/2/18
SP-301	SPECIFICATION	F	13/2/18
SP-302	SPECIFICATION	F	13/2/18
SP-303	SPECIFICATION	F	13/2/18
SP-304	SPECIFICATION	F	13/2/18

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Engineer:

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A	16/8/17	Draft for review	RL
B	28/8/17	Revised for submission	RL
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North

Status
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Harvest Estate, Chisholm - Stage 6

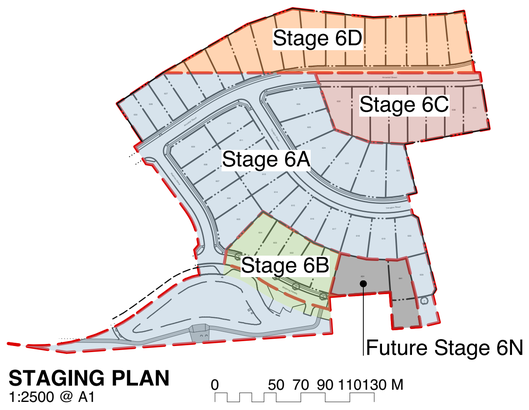
5 Pioneer Avenue, Tuggerah, NSW

AVID Property Group

COVER SHEET

SCALE: NTS
ORIGINAL DRAWING AT A1.
Drawn By: RL
Checked By: DM
Approved By: DM

Project No. **1464**
Drawing No. LC-001 Rev F



STAGING PLAN
1:2500 @ A1

0 50 70 90 110130 M

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LANDSCAPE PLAN 1
Refer LA-101

LANDSCAPE PLAN 2
Refer LA-102

LANDSCAPE PLAN 3
Refer LA-103

LANDSCAPE PLAN 4
Refer LA-104

BASIN PLAN
Refer LA-105

Arrowtail Street
Tarragon Street
Morcan Street
Billabong Parade

KEY PLAN
1:600 @ A1

0 60 80 100 M

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KEY PLAN

SCALE: As Shown
ORIGINAL DRAWING AT A1.
Drawn By: RL
Checked By: DM
Approved By: DM

Project No. **1464**
Drawing No. Rev
LC-002 F

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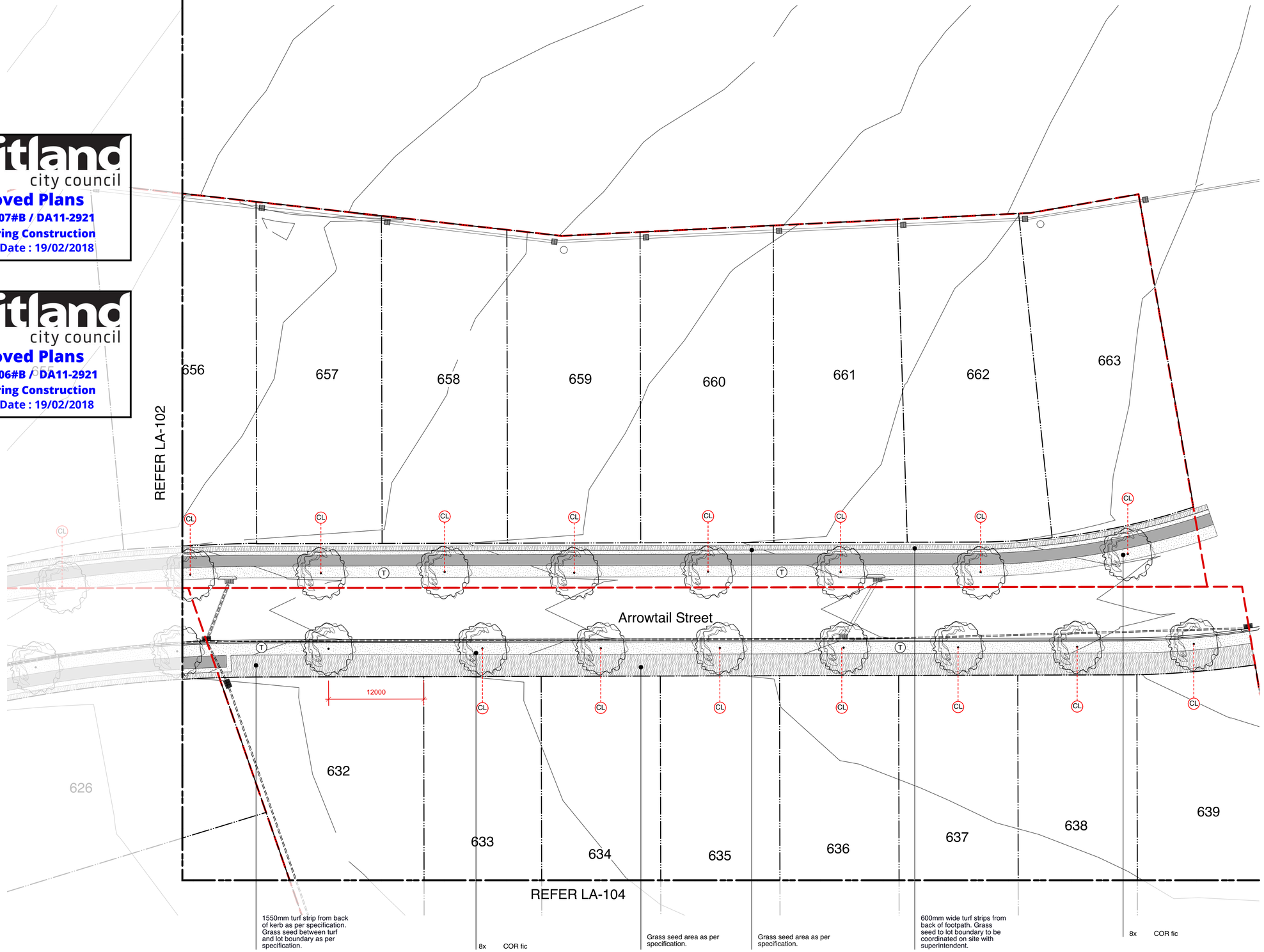

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- Lot boundary.
- Proposed contour. Refer to Engineer.
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- Decomposed rhyolyte access track. Refer to Engineer.
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- CE — Concrete edge. Refer to detail.
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STREET PLANTING LEGEND

TREE

Acer buergerianum

Corymbia ficifolia 'Fairy Floss'

Caesalpinia ferrea

SHRUB/ACCENT PLANTING

Doryanthes excelsa

GROUNDCOVER

Spot Planting @ 4/m2
Lomandra 'Katrinus' (50%)
Poa labillardieri (50%)

Embankment Planting @ 4/m2 — Ep
Carex inversa (40%)
Juncus usitatus (40%)
Lepironia articulata (20%)

Mass Planting @ 4/m2 — Mp
Lomandra longifolia (50%)
Poa labillardieri (50%)

T — Turf as per specification.

Grass seed as per specification.

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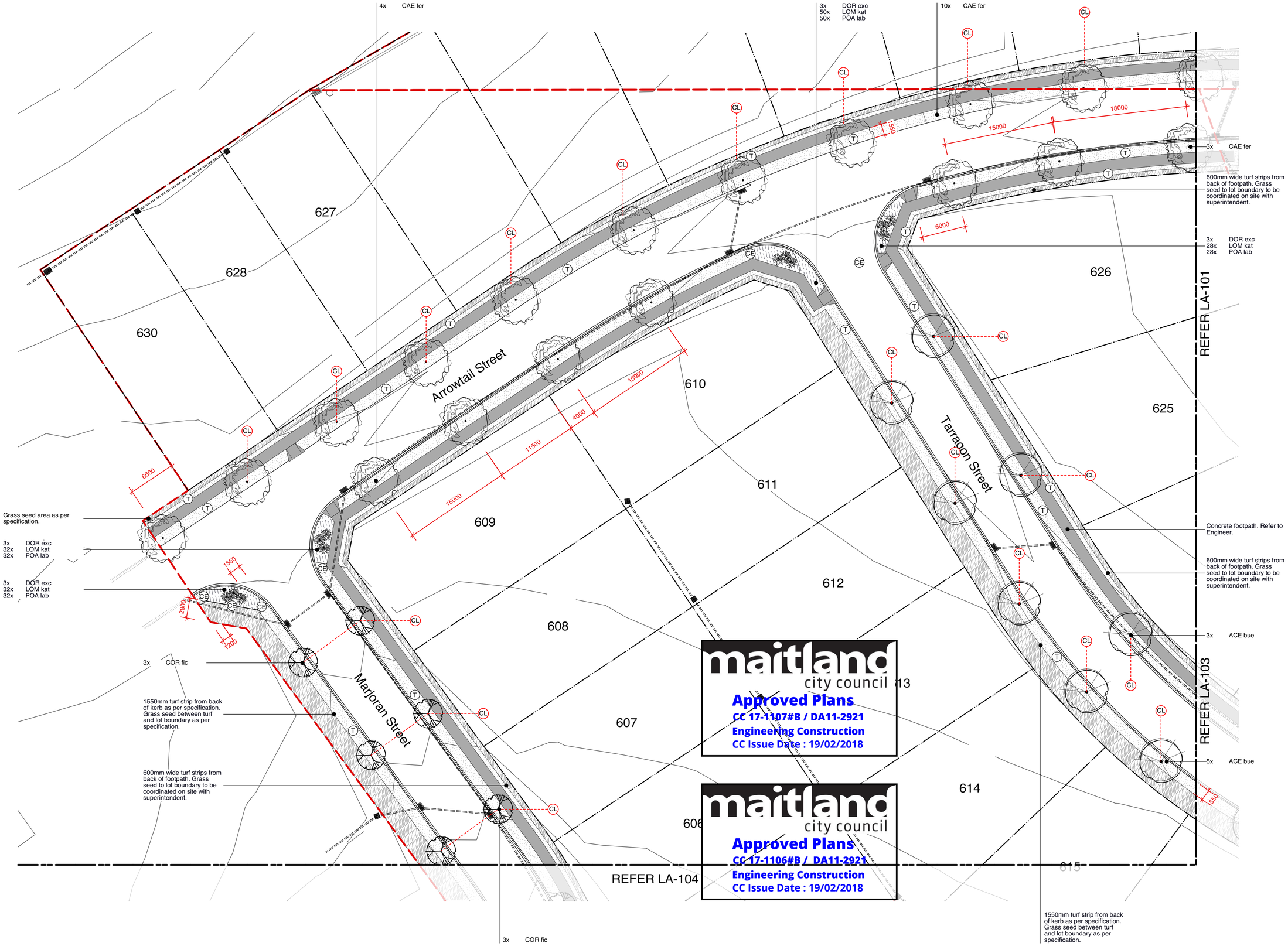
AVID Property Group

LANDSCAPE PLAN 1

SCALE: 1:250
ORIGINAL DRAWING AT A1.
Drawn By: RL
Checked By: DM
Approved By: DM

Project No. **1464**
Drawing No. LA-101 F
Rev



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STREET PLANTING LEGEND

TREE

Acer buergerianum

Corymbia ficifolia 'Fairy Floss'

Caesalpinia ferrea

SHURB/ACCENT PLANTING

Doryanthes excelsa

GROUNDCOVER

Spot Planting @ 4/m2
Lomandra 'Katrinus' (50%)
Poa labillardieri (50%)

Embankment Planting @ 4/m2
Carex inversa (40%)
Juncus usitatus (40%)
Lepironia articulata (20%)

Mass Planting @ 4/m2
Lomandra longifolia (50%)
Poa labillardieri (50%)

T — Turf as per specification.

Grass seed as per specification.

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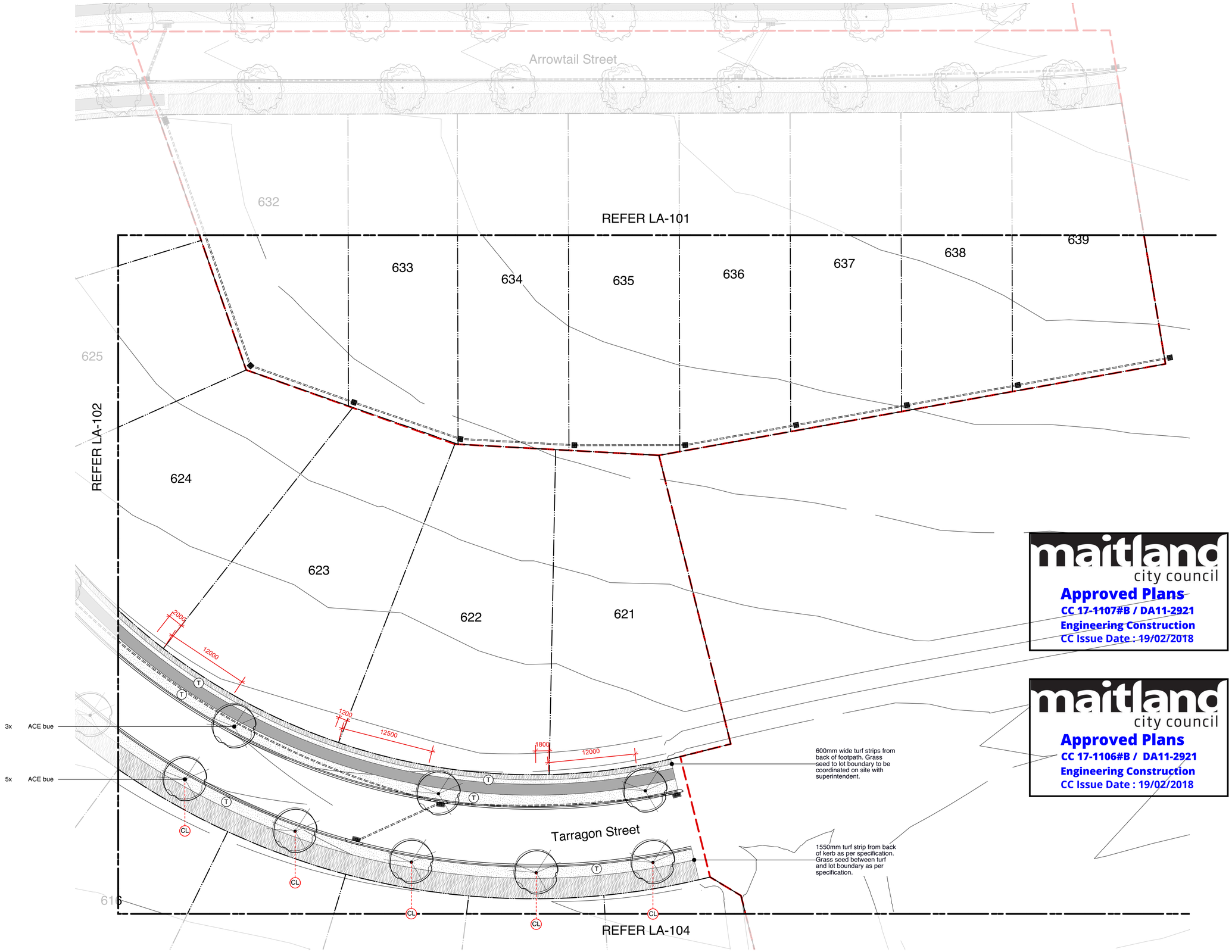
AVID Property Group

LANDSCAPE PLAN 2

SCALE: 1:250
ORIGINAL DRAWING AT A1.
Drawn By: RL
Checked By: DM
Approved By: DM

Project No. 1464
Drawing No. LA-102 Rev F



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STREET PLANTING LEGEND

TREE

Acer buergerianum

Corymbia ficifolia 'Fairy Floss'

Caesalpinia ferrea

SHRUB/ACCENT PLANTING

Doryanthes excelsa

GROUNDCOVER

Spot Planting @ 4/m2
Lomandra 'Katrinus' (50%)
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Embankment Planting @ 4/m2
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Lepironia articulata (20%)

Mass Planting @ 4/m2
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T — Turf as per specification.

Grass seed as per specification.

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AVID Property Group

LANDSCAPE PLAN 3

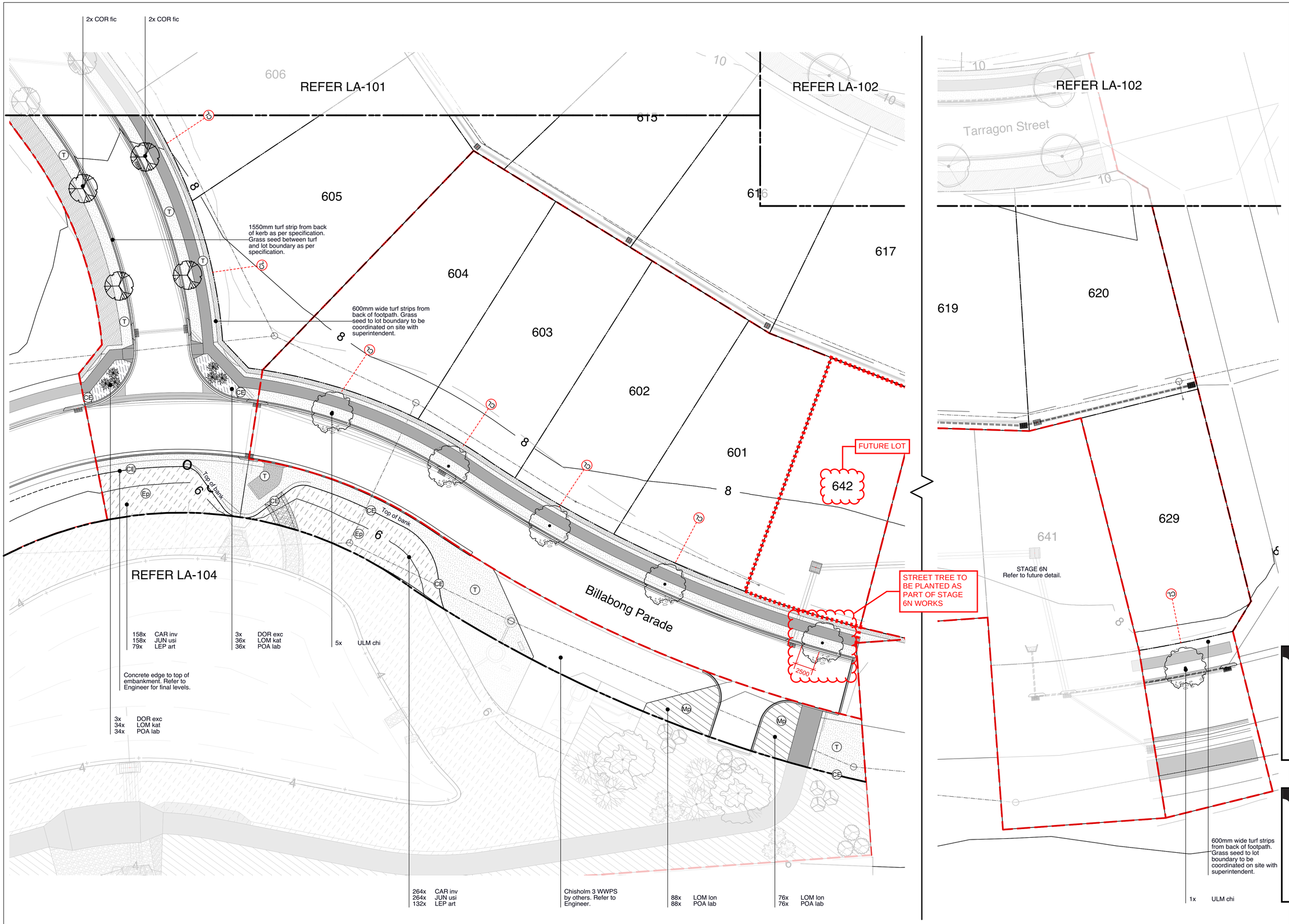
SCALE: 1:250

ORIGINAL DRAWING AT A1:

Drawn By: RL
Checked By: DM
Approved By: DM

Project No. **1464**

Drawing No. Rev
LA-103 F



LEGEND

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- Concrete edge. Refer to detail.
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STREET PLANTING LEGEND

TREE

- *Acer buergerianum*
- *Corymbia ficifolia* 'Fairy Floss'
- *Caesalpinia ferrea*

SHURB/ACCENT PLANTING

- *Doryanthes excelsa*

GROUNDCOVER

- Spot Planting @ 4/m2
  Lomandra 'Katrinus' (50%)
  Poa labillardieri (50%)
- Embankment Planting @ 4/m2
  Carex inversa (40%)
  Juncus usitatus (40%)
  Lepironia articulata (20%)
- Mass Planting @ 4/m2
  Lomandra longifolia (50%)
  Poa labillardieri (50%)
- Turf as per specification.
- Grass seed as per specification.

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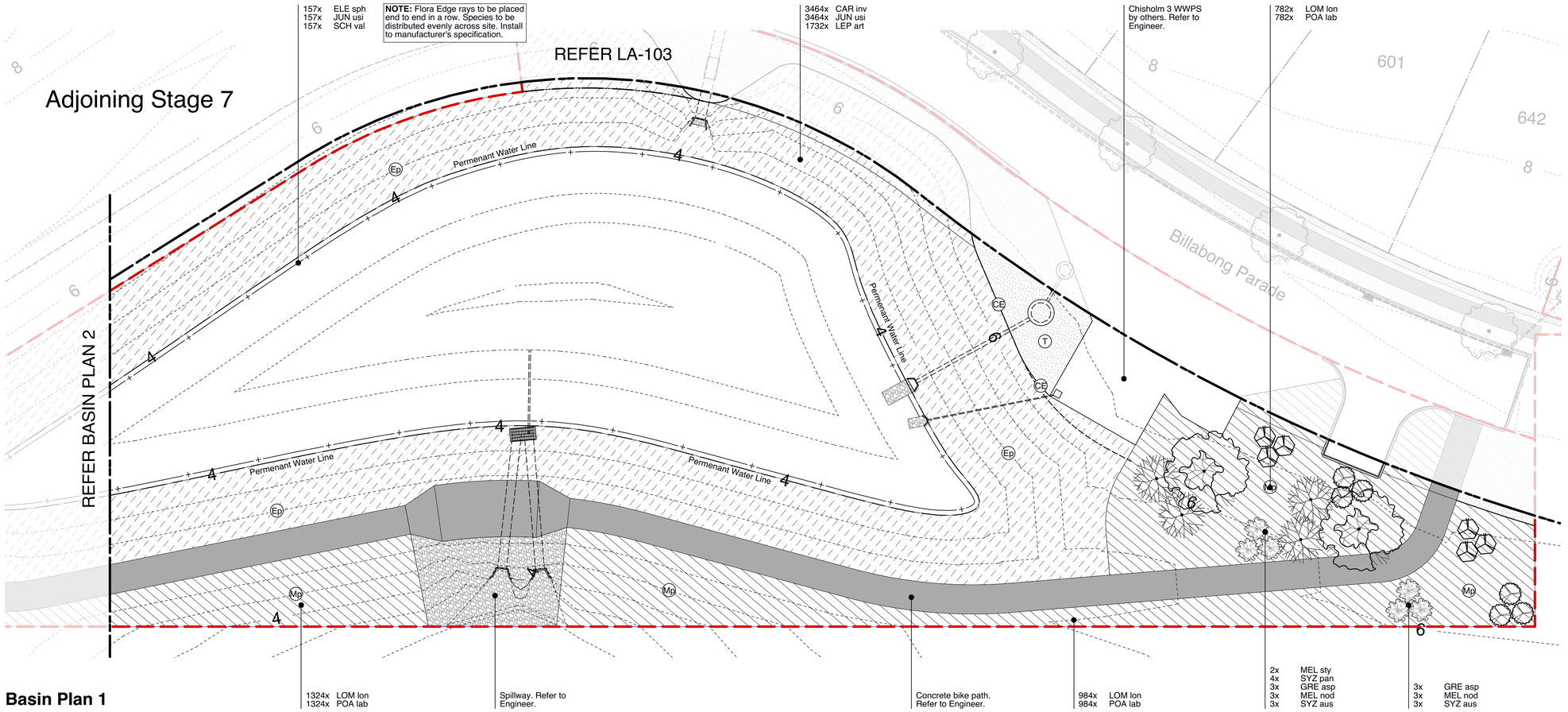
AVID Property Group

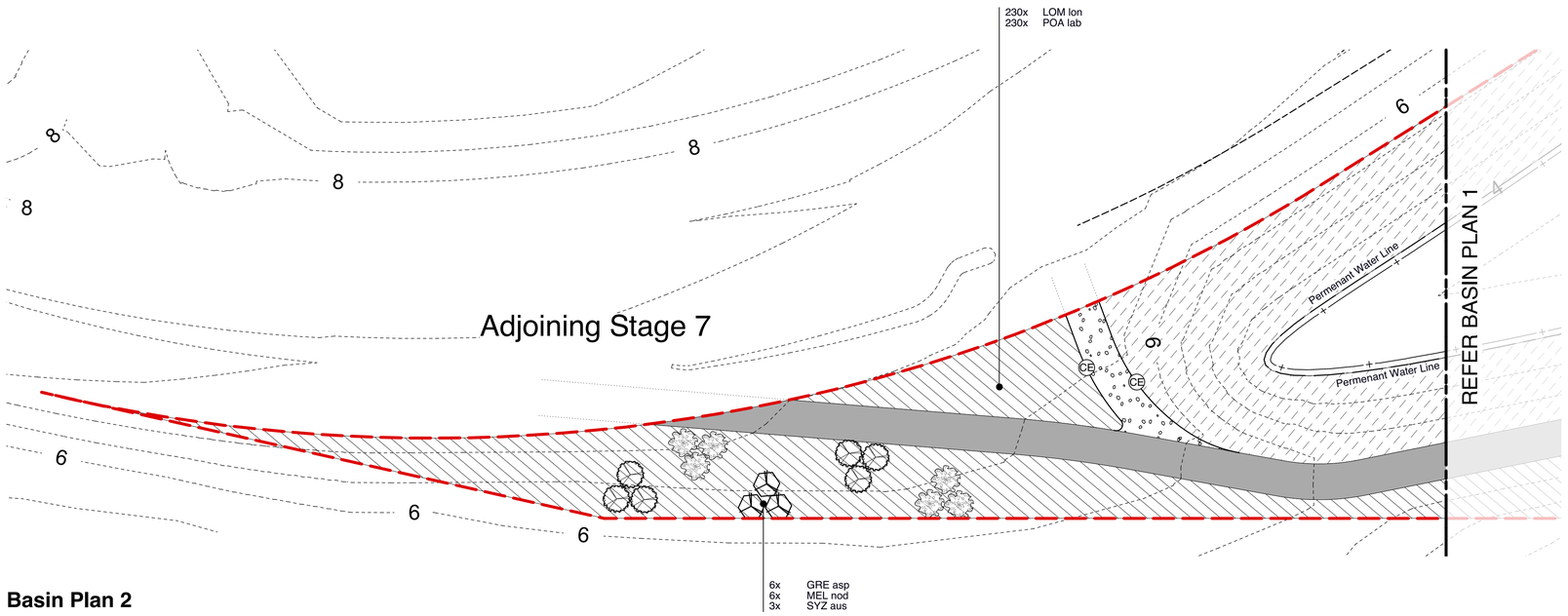
LANDSCAPE PLAN 4

SCALE: 1:250
ORIGINAL DRAWING AT A1.
Drawn By: RL
Checked By: DM
Approved By: DM

Project No. **1464**
Drawing No. Rev
LA-104 F



Basin Plan 1



Basin Plan 2

LEGEND

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- CE — Concrete edge. Refer to detail.

STREET PLANTING LEGEND

TREE

Melaleuca styphelioides

Syzygium paniculatum

SHURB/ACCENT PLANTING

Grevillea asplenifolia

Melaleuca nodosa

Syzygium australe 'Resilience'

GROUNDCOVER

Ep — Embankment Planting @ 4/m2
Carex inversa (40%)
Juncus usitatus (40%)
Lepironia articulata (20%)

Mp — Mass Planting @ 4/m2
Lomandra longifolia (50%)
Poa labillardieri (50%)

T — Turf as per specification.

INUNDATED PLANTING

Plant @ 2/Linial Metre
Eleocharis sphacelata (33%)
Juncus usitatus (33%)
Schoenoplectus validus (33%)

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BASIN PLAN

SCALE: 1:250

ORIGINAL DRAWING AT A1.

Drawn By: RL
Checked By: DM
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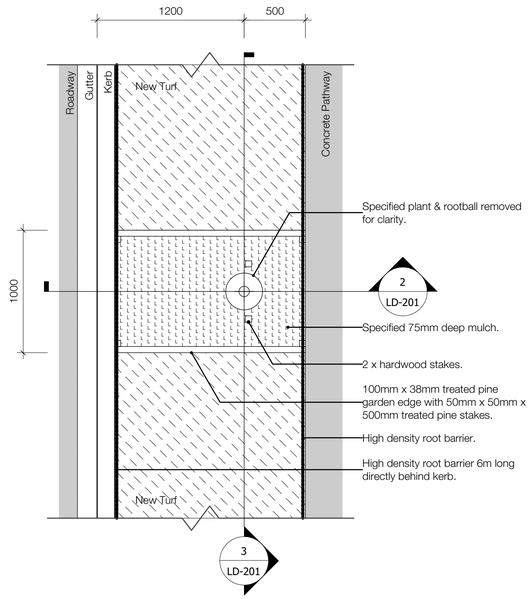
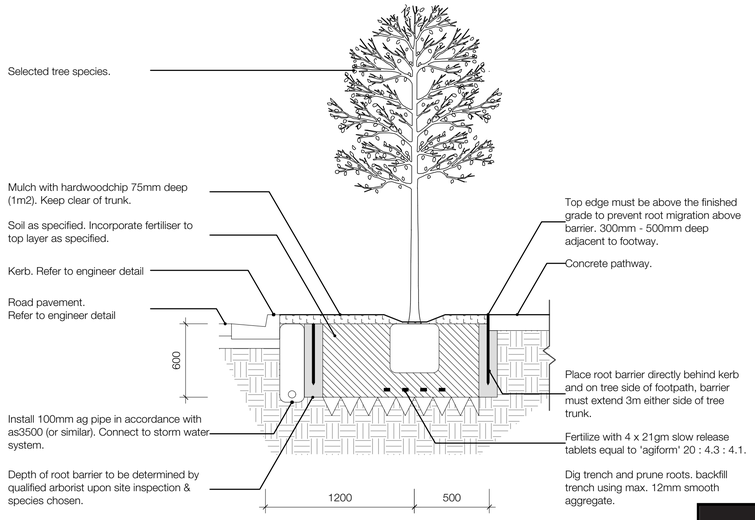
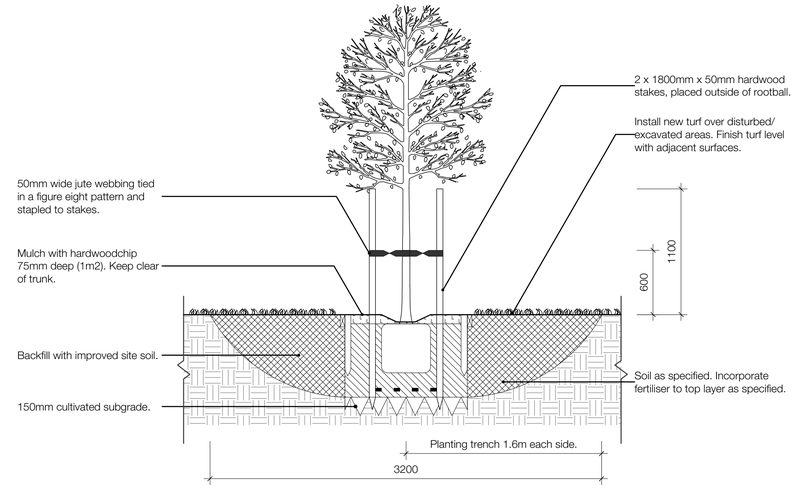
Drawing No. LA-105 Rev F



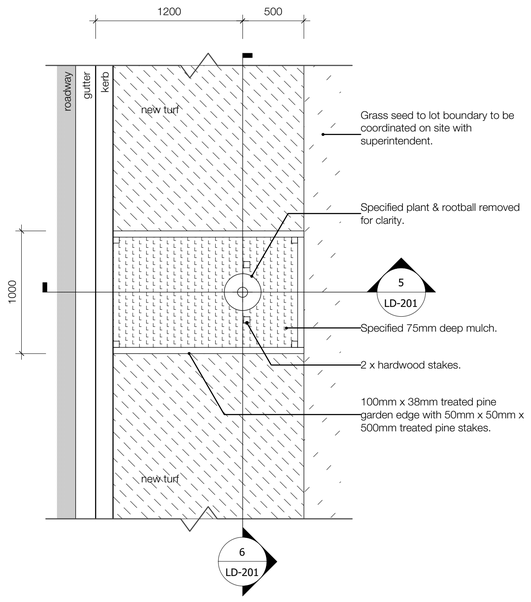
1. Typical street tree adjoining footpath
1:25@ A1



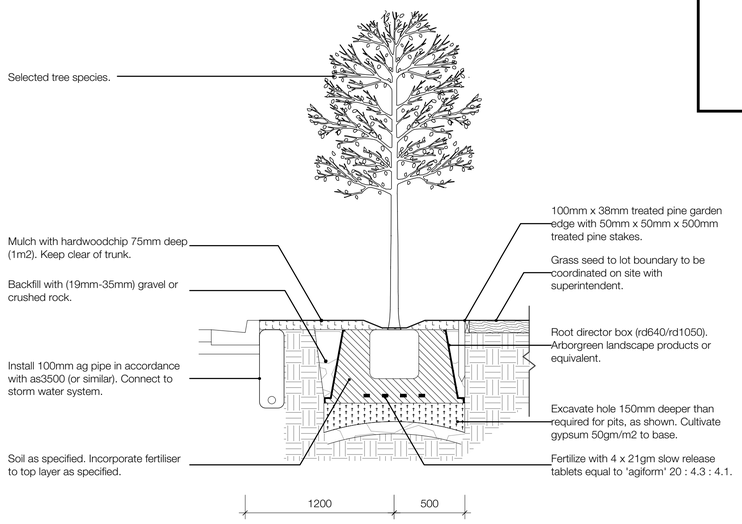
2. Typical street tree adjoining footpath - Section
1:25@ A1



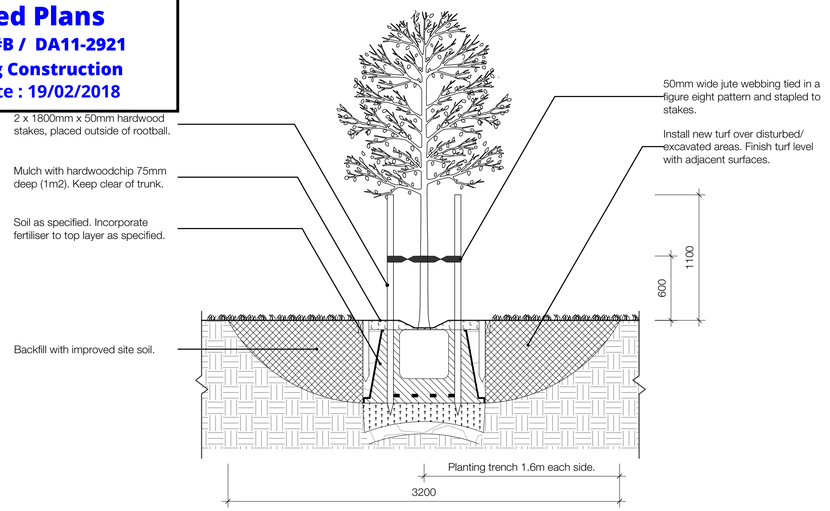
3. Typical street tree adjoining footpath - Section
1:25@ A1



4. Typical street tree adjoining grass seed
1:25@ A1



5. Typical street tree adjoining grass seed - Section
1:25@ A1



6. Typical street tree adjoining grass seed - Section
1:25@ A1

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Harvest Estate, Chisholm - Stage 6

5 Pioneer Avenue, Tuggerah, NSW

AVID Property Group

STREET TREE DETAIL

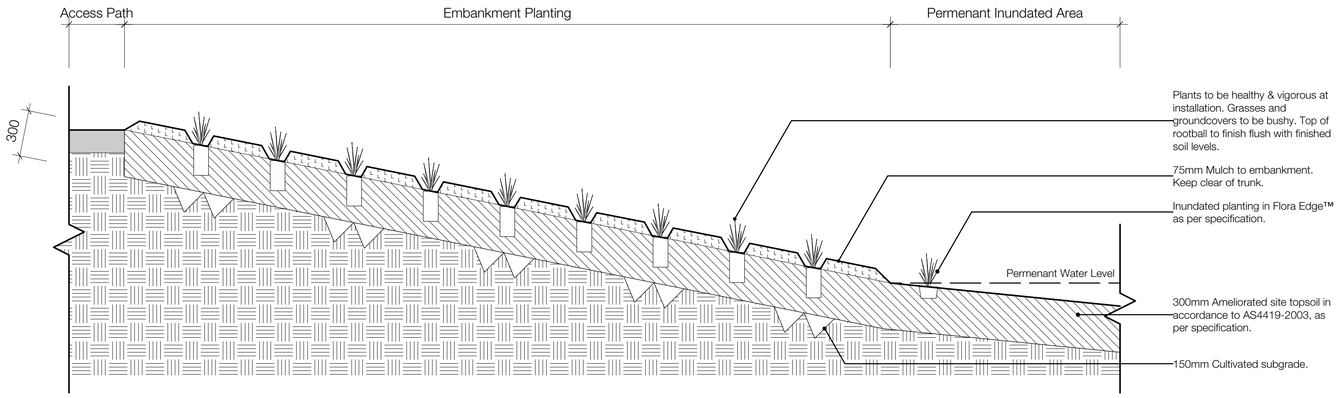
SCALE: 1:100

ORIGINAL DRAWING AT A1.

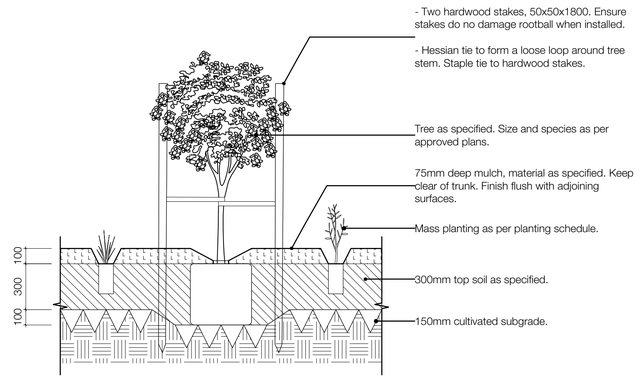
Drawn By: RL
Checked By: DM
Approved By: DM

Project No. 1464

Drawing No. Rev
LD-201 F



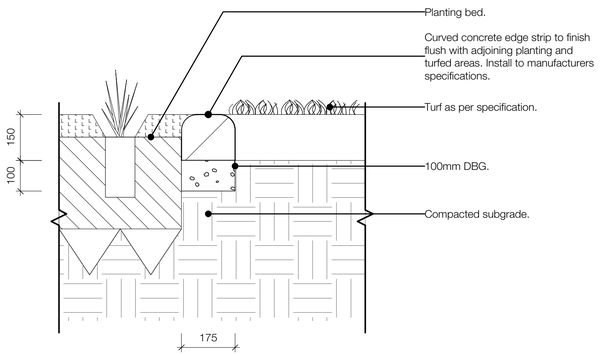
1. Typical embankment and basin planting
1:20@ A1



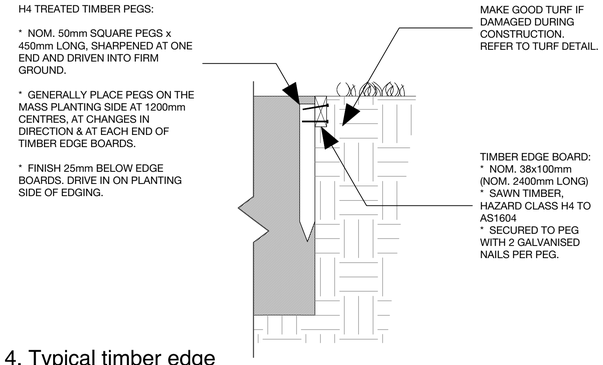
2. Typical tree in mass planting
1:20@ A1

maitland city council
Approved Plans
CC 17-1107#B / DA11-2921
Engineering Construction
CC Issue Date : 19/02/2018

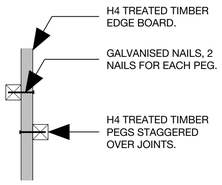
maitland city council
Approved Plans
CC 17-1106#B / DA11-2921
Engineering Construction
CC Issue Date : 19/02/2018



3. Typical concrete edge
1:10@ A1



4. Typical timber edge
1:10@ A1



4A. Typical timber edge - Plan View
1:10@ A1

STREETSCAPE PLANTING

CODES:	BOTANICAL NAME:	COMMON NAME:	POT SIZE:	SPACING:	QUANTITY:	SIZE(HxW):
TREE:						
ACE bue	*Acer buergerianum*	Trident Maple	75L	As Shown	16	6m x 6m
CAE fer	*Caesalpinia ferrea*	Leopard Tree	75L	As Shown	34	10m x 5m
COR fic	*Corymbia ficifolia* 'Fairy Floss'	Fairy Floss Corymbia	75L	As Shown	10	6m x 4m
ULM chi	Ulmus chinensis	Chinese Elm	75L	As shown	6	12 x 8m
Note: All trees to be kept at 1.2m undercut in consulation with qualified arborist.						
SHRUB/ACCENT PLANTING						
DOR exc	Doryanthes excelsa	Gymea Lily	200mm TS	As Shown	12	
GROUNDCOVER						
SPOT PLANTING @ 4/m2						
LOM kat	*Lomandra* 'Katrinus'	Math Rush cv.	150mm TS	50%	212	
POA lab	*Poa labillardieri*	Tussock Grass	150mm TS	50%	212	

BASIN PLANTING

CODES:	BOTANICAL NAME:	COMMON NAME:	POT SIZE:	SPACING:	QUANTITY:	SIZE(HxW):
TREE:						
MEL sty	*Melaleuca styphelioides*	Prickly Paperbark	25L	As Shown	2	10m x 8m
SYZ pan	*Syzygium paniculatum*	Magenta Lilly Pilly	25L	As Shown	4	12m x 5m
SHRUB/ACCENT PLANTING						
GRE asp	*Grevillea asplenifolia*	Gymea Lily	200mm TS	As Shown	12	
MEL nod	*Melaleuca nodosa*	Prickly-leaved Paperbark	200mm TS	As Shown	12	
SYZ aus	*Syzygium australe* 'Resilience'	Resilience Lilly Pilly	200mm TS	As Shown	9	
GROUNDCOVER						
EMBANKMENT PLANTING @ 4/m2						
CAR inv	*Carex inversa*	Common Sedge	150mm TS	40%	3886	
JUN usi	*Juncus usitatus*	Common Rush	150mm TS	40%	3886	
LEP art	*Lepironia articulata*	Grey Sedge	150mm TS	20%	1943	
MASS PLANTING @ 4/m2						
LOM lon	*Lomandra longifolia*	Mat Rush	150mm TS	50%	3502	
POA lab	*Poa labillardieri*	Tussock Grass	150mm TS	50%	3502	
INUNDATED PLANTING						
PLANTING @ 2/linial meter						
ELE sph	*Eleocharis sphacelata*	Tall Spike Rush	140mm Tray	33%	157	
JUN usi	*Juncus usitatus*	Common Rush	140mm Tray	33%	157	
SCH val	*Schoenoplectus validus*	River Club Rush	140mm Tray	33%	157	

Note: All inundated planting to be in FLORA EDGE™ trays as per specification.

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NOTES:
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2. VERIFY ALL DIMENSIONS ON SITE.
3. TO BE READ IN CONJUNCTION WITH THE SPECIFICATION.
4. READ IN CONJUNCTION WITH ALL ARCHITECTURAL, CIVIL, STRUCTURAL, HYDRAULIC, MECHANICAL AND ELECTRICAL ENGINEER'S DRAWINGS AND SPECIFICATIONS.
5. CONFIRM LOCATION OF ALL SERVICES ON SITE PRIOR TO EXCAVATION.

Architect:

Engineer:

No.	Date	REVISION	By
A	16/8/17	Draft for review	RL
B	28/8/17	Revised for submission	RL
C	25/9/17	Revised to council comment	RL
D	14/12/17	Revised to client comment	EG
E	31/1/18	Update to include Stage 6B	BN
F	13/2/18	Update as per comment	BN

North

Status
For submission
Harvest Estate, Chisholm - Stage 6
5 Pioneer Avenue, Tuggerah, NSW
AVID Property Group

PLANTING DETAIL

SCALE: 1:100
ORIGINAL DRAWING AT A1.
Drawn By: RL
Checked By: DM
Approved By: DM

Project No. **1464**
Drawing No. LD-202 Rev F

SECTION A: TREE SUPPLY SPECIFICATION - AS2303:2015

1.0 GENERAL

1.1 STANDARD

Guidance: Follow the guidance given in 'AS2303:2015 Tree Stock for Landscape Use'.

1.2 INTERPRETATION

Definitions

For the purposes of this work section the definitions given below apply.

Apical bud
Terminal bud located at the tip of the stem and branches.

Apical dominance
Dominance of the terminal bud over lateral buds of growth.

Balance
Concerning the relationship between the above- and below-ground parts of tree stock.

Bare rooted
Tree stock grown in the ground that is dispatched without soil.

Bark graft
Graft in which a wedge-shaped scion is inserted under a loosened tongue of bark on the stock.

Batch
Quantity of tree stock of the same species, container size, type and age from the same origin.

Branch
Lateral shoot on a main axis such as a trunk or another branch.

Branch bark ridge
Raised or furrowed bark in the branch union that marks where the branch wood and trunk wood overlap.

Branch collar
Trunk tissue around the base of a branch.

Branch union
Place of common juncture for two or more branches.

Bud
Embryonic vegetative or reproductive tissue, which may be terminal, axillary or adventitious in origin.
NOTE: Buds can be active or dormant.

Calliper
Trunk diameter measured at 300mm above the root crown, or 50% of the overall height, whichever is the lower height, expressed in millimetres.

Central leader
Clearly defined single, relatively straight, trunk.

Circling root
Root at the rootball surface or in the rootball interior growing m a manner that is not radially away from the trunk but curves to encircle the rootball.

Clean stem height
Distance between the uppermost surface of the rootball and the first order branches of the trunk that is free from branches.

Cleft graft
Graft in which the scion is placed in a cleft or slit at the top of a stock.

Codominant stems
Two or more stems or trunks of similar dimensions arising from about the same position from a trunk or stem.

Container
Object such as a planter bag, woven bag, root control bag, rigid walled pot, air root pruning pot, punnet, tube or similar object that is used to contain the rootball of the tree stock.

Containerized
Process whereby tree stock grown in open ground are lifted and potted up into containers.

Container grown
Process whereby tree stock spend all or most of their time in the production nursery in containers.

Crown
Portion of the tree stock consisting of branches and leaves and any part of the trunk from which the branches arise; also referred to as canopy.

Dieback
Progressive death of twigs and branches of some areas of the crown.

Disease
Any pathogen injurious to tree stock.

Dispatch
Point in the supply chain where tree stock leaves the production nursery.

Epicormic growth
Shoot growing from latent or adventitious bud, underneath the bark of a stem or branch.

Ex-ground tree stock
Tree stock grown in the ground, dug and delivered with soil.
NOTE: Ex-ground tree stock include balled and burlapped (tree stock grown in the ground that are lifted with a ball of soil containing the roots, which is then tightly wrapped in hessian, twine or other fabrics such as geotextiles to hold it together during shipment) and in-ground container grown tree stock.

Formative pruning
Pruning tree stock with the aim of directing tree stock growth and/or developing a sound structure.

Girdled root
Circling roots around the base of a stem and above any lateral roots arising from the root crown.

Graft
Union of living parts (scion and rootstock) from different origins to form a structure physiologically acting as a single unit.

Graft union
Junction of scion and rootstock.

Health
Tree stock vigour for the time of year, location and stage of growth as exhibited by crown density, crown cover, crown form, leaf colour and size, absence of epicormic shoots and absence of die back.

Included bark
Inwardly turned (concave) bark within the union of branches or codominant stems.

In-ground container
Container made from fabric that is buried in the ground.
NOTE: Fabric structure is designed to allow small roots to escape and sever them as they expand.

J-root
Seedling tap root with a sharp bend ≤90°.

Kinked root
Root with a sharp bend ≤90°.

Node
Raised point on a stem from where one or more leaves or buds arise, or have arisen.

Pest
Any insect, mite, snail and nematode injurious to tree stock.

Point of initiation (of roots)
Point at which the new root emerges, from either the base of the trunk or from a previously existing root.

Primary division (of roots)
Division of roots that takes place immediately behind the root cap, or at the severed root end following root pruning.

Rootball
Root system and the intact mass of growing media or soil associated with it.

Rootball diameter
Width of the rootball measured near the top from two opposite sides through its centre.

Rootstock
Part of a tree forming the root system of a grafted cultivar/variety.

Root crown
Junction between the below-ground and above-ground parts of the tree stock.

Scion
Shoot or bud from an external source for the purpose of grafting
NOTE: A scion forms the shoot system of a grafted cultivar/variety.

Self-supporting
Tree stock supporting its above-ground parts in an upright position without movement of ≤ 30° from vertical, stem breakage, injury or loosening of roots in growing media.
NOTE: Any artificial support used in tree production should allow flexing of the stem as much as possible without stem breakage or injury.

Shall
Indicates that a statement is mandatory.

Should
Indicates a recommendation.

Significant injury
Damage that compromises the health and/or structure of the tree stock.
AS 2303:2015
NOTE: Practices or circumstances that may cause significant injury include damage caused by sunscald, wind burn, hail, water, heat, pesticides, fertilizers, pests, diseases, mechanical and physical handling and ties, stakes and labels.

Size index
Numerical expression of the size or physical bulk of a tree stock above-ground.
NOTE: Size index is the product of the height (in metres) of the tree stock, from the uppermost surface of the root crown to the top ofthe stem, and calliper.

Stem
Structure that supports branches, leaves, flowers and fruit.

Stem bark ridge
Ridge of bark that forms in the union between codominant stems.

Stem taper
Increase in diameter down the stem.

Suckering
Shoots developed from a root or stem close to or below root crown.

Tree
Long-lived woody perennial plant typically ≥3m in height at maturity with one or relatively few stems.

Tree stock balance
Proportional relationship between the above-ground parts of a tree stock (size index) to the volume of the below-ground parts of the tree stock (container size or rootball diameter ex-ground).

True to type
Denotes correct cultivar identification.

Tubes or cells
Small containers or cell trays typically used in the propagation stage of tree production with a height:diameter ratio ≥3:2 (typically ≤1.0 L).

Trunk
Main stem of a tree.

Weed
Plant growing out of place or where it is not wanted.

Woody circling root
Lignified circling root.

1.3 PRECOMPLETION TESTS

TREE STOCK TESTING
Compliance with this Standard shall be demonstrated by the following method:
(a) Testing in accordance with Appendix A and B of AS2303:2015 prior to dispatch ('at dispatch').
NOTES:
1. Tree stock inspection forms are provided as part of this specification.

RETENTION OF DOCUMENTATION
Documentation that demonstrates the product complies with the requirements of Section 2 shall be retained for a minimum of 12 months.

APPENDIX A, AS2303 - SAMPLING STRATEGY AND TEST PROCEDURE AT DISPATCH (Normative)

A1 GENERAL
This Appendix provides the principles to be observed when sampling and preparing tree stock samples for assessment at dispatch.
NOTE: Examples of dispatch tree stock inspection forms are provided in Appendix C.

A2 SAMPLING STRATEGY
An appropriate sampling plan shall be in place for each situation to assess the quality level of the outgoing product and reject batches that do not meet the performance requirements of the Standard. The overall sample selected shall be drawn randomly from a population of product at dispatch of known history to represent the batch as a whole.
NOTES:
1. The history needs to enable verification that the product was grown by essentially the same processes and under essentially the same system of control. In order for sampling to be meaningful, the manufacturer or supplier needs to demonstrate how this has been satisfied.
2. Sampling and the establishment of a sampling plan should be carried out in accordance with AS 1199.1, guidance to which is given in AS 1199.0.

TABLE A1 - SAMPLE SELECTION STRATEGY

Batch size	Sample size
2-8	2
9-15	3
16-25	5
26-50	7
51-90	9
91-150	12
151-280	17
281-500	25
501-1200	40
1201-3200	50
3201-10000	100
10 001-35 000	190
35 001-150 000	400
150 001-500 000	700
500 001 and over	1250

A3 TEST PROCESS
The testing process for the analysis of tree stock requirements shall consist of the following steps.

Step 1: Above-ground testing
Place the tree stock on a firm surface. Do not remove the container for container grown and containerised tree stock. Remove any stakes or support systems ifpresent.
Assess the above-ground characteristics of the tree stock in accordance with criteria detailed in Clause 2.2. Proceed to Step 2 for container grown, containerised and ex-ground tree stock and Step 4 for bare rooted tree stock.

Step 2: Tree stock balance and rootball assessment
Determine the tree stock balance of tree stock grown in containers ≥20 L or ex-ground tree stock with a minimum rootball diameter of ≤400 mm (refer to Section 2.3). Assess the root ball diameter (refer to Section 2.3), rootball depth(refer to Section 2.3) and height of root crown (refer to Section 2.3). Assess the rootstock of grafted tree stock (refer to Section 2.3) and assess for pests, diseases and weeds (refer to Section 2.3). Proceed to Step 3.

Step 3: Below-ground testing
Assess the below-ground characteristics of the tree stock in accordance with Appendix B. Determine rootball occupancy (refer to Section 2.3), root direction (refer to Section 2.3) and root division (refer to Section 2.3).
NOTE: Investigative rootball testing is not mandatory at dispatch. An appropriate sampling plan should be in place for this Step to limit the number of items inspected.

Step 4: Bare-rooted tree stock testing
Assess the rootball diameter (refer to Section 2.3). Assess the rootstock of grafted tree stock to determine that the roots are growing in an outwards (radial) or downwards direction and that there is no evidence of woody circling roots, girdled roots, kinked roots or j-roots (refer to Section 2.3).

APPENDIX B, AS2303 - ASSESSMENT OF ROOTBALL OCCUPANCY, ROOT DIRECTION AND ROOT DIVISION AT DISPATCH (Normative)

B1 SCOPE
This Appendix sets out the procedures for assessing rootball occupancy, root direction and root division of container grown, containerized or ex-ground tree stock at dispatch.

B2 PROCEDURE
The procedure shall be as follows:
(a) Ensure the tree stock is on a firm and level surface where possible, and the rootball is well watered.
(b) Remove any stakes or support systems if present.
(c) For tree stock ≤20 L, hold the stem at 80% of the total height above-ground and bend the stem 30° side to side, making sure the pressure is always at right angles to the stem. The rootball shall not lift off the ground.
(d) Hold the stem at 25% of the total height above-ground and rock the stem from side to side. There shall be no evidence of movement of the stem within the rootball, or evidence of large cracks in the rootball. Conduct investigative inspections where necessary.
(e) Remove the tree stock from the container, in-ground container, hessian or any covering of the rootball to expose the outer surface of the entire root ball.
(f) Check that there is no evidence of girdled or woody circling roots.
(g) For rootballs in containers ≤45 L, or ex-ground tree stock with a rootball diameter ≤500 mm, remove a wedge-shaped section of growing media/soil from the stem to the extremity of the rootball to inspect root development.
(h) For rootballs in containers ≤45 L, or ex-ground tree stock with a rootball diameter ≥500 mm, ensure that sufficient growing media/soil is removed to inspect the top 150-200 mm of the root ball from the stem to the extremity, and the outer section of the rootball, top to bottom in order to inspect root development.
(i) Gently replace growing media/soil.

B3 TEST REPORT
The following information shall be reported:
(a) Sample identification.
(b) Self-supporting nature.
(c) Evidence of rootball occupancy.
(d) Evidence that roots are growing in an outwards (radial) or downwards direction.
(e) Absence of girdled and kinked roots.
(f) Absence of circling roots within the rootball.
(g) Absence of woody circling roots on the extremity of the rootball.
(h) Evidence of primary division.
(i) Reference to this Appendix, i.e. Appendix B, AS 2303.

1.4 SUBMISSIONS

Test results

General: Complete and return the Tree Inspection Form for each batch inspected.
Rejection: Non-compliance may lead to rejection of the entire batch.
Corrective action: Comply with corrective action procedures for each order as instructed.
Substitution: If non-complying trees are proposed, submit a proposal in writing to the contract administrator for approval.
Authentication: Supply a copy of the written approval of substitution with any non-complying trees.

Forward order contracts

Reports: Complete regular reports using the pro forma Tree Inspection Form. Include checks against specification requirements.
Photographs: Provide current colour copies with date verification.
Submissions: To the contract administrator.
Inspection: Complete and return the attached pro-forma Tree Inspection Form before despatch of every batch, and at the following frequencies:
- Inspections: At 3 monthly intervals.
- Reports: At time of inspections.

2.0 CRITERIA FOR TREE STOCK ASSESSMENT

2.1 GENERAL

This Section specifies the above- and below-ground criteria for tree stock assessment, which are necessary for determining quality tree stock for landscape use.
NOTES:
1. Those involved in production, design, procurement, planting and management of trees should have a comprehensive understanding of this Standard. Specialist advice should be sought where necessary.
2. Above- and below-ground criteria should be considered part of nursery production systems. Alternatively, these criteria may be incorporated into QA accreditation programs or used to assess tree stock at dispatch.

2.2 CRITERIA FOR ABOVE-GROUND ASSESSMENT OF TREE STOCK

True to type
Tree stock shall be true to type. Individual tree stock or batches of tree stock per variety shall be clearly labelled with correct botanical nomenclature.
NOTES:
1. Where common names are used, they should only be used as an adjunct to the botanic name of the tree.
2. National Plant Labelling Guidelines contains information on determining correct botanic nomenclature. Available from www.ngia.com.au.

Height and calliper
The height and calliper range shall be recorded.
NOTES:
1. Height and calliper should be appropriate to the individual species.
2. Further information on Tree Stock Balance Assessment is provided in Section 3.0.

Health
Tree stock shall exhibit good health for the time of year, location and stage of growth, as demonstrated by the following:
(a) Crown density.
(b) Crown cover.
(c) Crown form.
(d) Leaf colour and size.
(e) Absence of epicormic shoots.
(f) Absence of die back.

Crown symmetry
Difference in crown distribution on opposite sides of the stem axis shall be ≤20%.

Significant injury
Tree stock shall be free from significant injury and wounds (except properly made pruning cuts in accordance with AS 4373), cracks, fungal fruiting bodies and bleeding areas (except from properly made pruning cuts in accordance with AS 4373).

Stem taper
The calliper at any given point on the stem shall be less than the calliper at any lower point on the stem, excluding species with atypical stem taper (e.g. Brachychiton rupestris or other such species).

Self-supporting
Tree stock in containers ≥45L and ex-ground tree stock shall be self-supporting at the time of dispatch. Tree stock in containers <45 L should be self-supporting at the time of dispatch (see Notes). The self-supporting nature of the tree stock shall be recorded.
NOTES:
1. Support through staking or other means may still be required during production even if the stem is well structured. For example, support may be required to develop a central leader, to assist root systems to consolidate after re-potting into fresh growing media, to protect against strong winds or to simply support the above-ground parts.
2. Tight staking during production should be avoided as it may reduce stem taper and root system development. Therefore, staking methods should seek to minimize reliance on the stake.

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Engineer:

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North

Status
For submission

Harvest Estate, Chisholm - Stage 6

5 Pioneer Avenue, Tuggerah, NSW

AVID Property Group

SPECIFICATION

SCALE: 1:100
ORIGINAL DRAWING AT A1.
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Approved By: DM

Project No. **1464**
Drawing No. SP-301 Rev F

Stem structure
The diameter of the stem above the branch union shall be greater than the diameter of the branch at the point of attachment.
1. Where tree stock has a defined central leader, an apical bud shall be intact and any stem deviation from vertical shall not exceed 15°. Division shall be above any clean stem height requirements.
NOTE:
1. This does not apply to weeping trees, trees produced as multi-stemmed specimens or other trees where a straight leader is not specified or is not a natural characteristic.
2. Where tree stock has branch dominance, terminal buds shall be intact. The union at any division shall be sound and any such division shall be above any clean stem height requirements.
Formative pruning
Formative pruning of tree stock shall be in accordance with AS 4373. All pruning cuts shall be at the branch collar or a node. The diameter of any pruning cut shall not exceed 50% of the stem diameter immediately above the point of pruning. If a clean stem is required it shall not exceed 40% of total stem height see.
Included bark
Included bark shall not be present (see Notes). The stem bark ridge and branch bark ridge unions shall be convex [outwardly turned and extruding (see Note 1).
NOTES:
1. Included bark may be an inherent characteristic of various species and can arise through genetics, the use of poor pruning practices or it may be associated with regrowth after damage.
2. Unions with included bark inwardly turned are generally more prone to failure than sound/convex unions. They represent an inherent risk, which is greater in larger trees. Included bark can often be managed by formative pruning during nursery production and through the exclusion of stock plants that exhibit inclusions.
3. While there may be some species that naturally exhibit junctions with included bark, which rarely fail, these exceptions should be dealt with on an individual basis and should not compromise the overall aim of eliminating included bark from tree stock.
Trunk position
The base of the trunk shall be positioned within 10% of the centre of the root ball diameter.
Compatibility of graft unions
In grafted tree stock, the graft union shall be sound, and the scion and rootstock shall be compatible for the entire perimeter of the graft.
The diameter of the scion immediately above the graft shall be within 20% of the diameter of the rootstock immediately below the graft, excluding bark and cleft grafts.
Pests and diseases
Tree stock should not show evidence of active pests and diseases that may compromise the health of the tree stock.
NOTES:
1. The Nursery Production Farm Management System incorporating Nursery Industry Accreditation Scheme, Australia (NIASA), EcoHort and BioSecure HACCP, contains information on the management of active pests and diseases. Available from www.ngia.com.au.
2. Some organisms or indications of their presence are not necessarily harmful, particularly in circumstances where beneficial organisms have been used under an integrated pest management strategy. Galls or swellings on some species may be normal.

2.3 CRITERIA FOR BELOW-GROUND ASSESSMENT OF TREE STOCK
Rootball diameter
Rootballs in containers ≥45 L and ex-ground tree stock should have a diameter greater than or equal to their depth. Bare-rooted tree stock with a size index ≤57 < (e.g. 1.9 m high x 30 mm calliper) should have a rootball diameter ≥10 x the calliper.
Rootball depth
Rootball depth in tubes and cells shall exceed their diameter. Rootballs in containers shall have a depth not exceeding 660 mm. Rootballs of ex-ground tree stock with a size index ≤1144 shall have a depth ≤850 mm. Rootballs of ex-ground tree stock with a size index ≥1145 shall have a depth ≤1200 mm
Height of root crown
Tree stock in containers and ex-ground tree stock shall have a root crown at the uppermost surface of the root ball.
Non-suckering rootstock
At the time of dispatch there shall be no evidence of suckering on rootstock.
NOTE: Grafted tree stock should be supplied on non-suckering species of rootstock.
Pests, diseases and weeds
The rootball should show no evidence of any active pests, diseases or weeds that may compromise the health of the tree stock.
NOTES:
1. The Nursery Production Farm Management System incorporating Nursery Industry Accreditation Scheme, Australia (NIASA), EcoHort and BioSecure HACCP, contains information on the management of active pests, diseases and weeds. Available from www.ngia.com.au.
2. Some organisms or indications of their presence are not necessarily harmful, particularly in circumstances where beneficial organisms have been used under an integrated pest management strategy. Galls or swellings on some species may be normal; e.g., lignotubers on some *Eucalyptus spp*.
Rootball occupancy
On removal of the unsupported rootball from the container, at least 90% of the growing media volume shall remain intact in or around the rootball.
Root direction
Tree stock in containers shall comply with the following:
(a) Circling roots shall not be present in the rootball (see Note 1).
(b) Woody circling roots shall not be present at the extremity of the rootball.
(c) Tree stock in containers and bare rooted tree stock shall also comply with the following (see Note 2):
(i) Roots, from the point of initiation, shall grow in an outwards (radial) and downwards direction.
(ii) Girdled roots, kinked roots or j-roots shall not be present (see Note 3).
NOTE:
Roots at the outer edge of a container should be removed at or before planting. Any such pruning should be restricted to the outermost edge of the rootball.
Root division
Tree stock in containers ≤45L and ex-ground tree stock shall have undergone primary division at least once within the rootball.
Tree stock in containers >45L shall have undergone primary division at multiple intervals (see Note 1).
NOTES:
1. This will ensure optimum root occupancy.
2. At each stage of production the root system should be inspected for non-conforming roots and pruned if required.

3.0 CRITERIA FOR TREE STOCK BALANCE ASSESSMENT
Tree stock balance is determined by calculating size index by multiplying the height (metres) of the tree stock measured from the root crown to the top of the trunk by the calliper (millimetres), as follows: *Size index = height x calliper*
The calculated size index value of tree stock in containers ≥20L or ex-ground tree stock with a minimum rootball diameter of ≥400mm should fall within nominated container volume as set out in Appendix E.
NOTES:
1. It is recognized that species, climatic conditions and production process may influence the height-calliper proportions. Therefore, size index should not be used in isolation when specifying tree stock for landscape use.
2. Further information regarding indicative tree stock height and calliper measurements is given in Appendix D, AS2303.
3. At the time of publication, industry had committed to undertake further research of tree stock balance parameters across all climatic regions of Australia. This is intended to be completed within two years of publication and the data considered in a review of the Standard at that time.

SECTION B: PLANTING SPECIFICATION

1.0 GENERAL

1.1 EXISTING SERVICES
Existing services on site include storm water drainage, water, and associated power service conduits. Locations of all services should be established prior to excavation of planting holes and installation of trees. The drawings DO NOT indicate the extent of existing services. Existing services must be confirmed by the contractor prior to excavation. Do not excavate by machine within 1m of existing underground services without prior approval or identification of service location.

1.2 TREE PROTECTION
Protect trees to be retained in accordance with AS4970 'Protection of Trees on Development Sites'.

* Tree Protection Zone (TPZ) are to be etablished around the trees identified to be retained in accordance with Australian Standard AS4970

* A 1.8 metre high chain mesh fence is to be erected around each TPZ prior to works commencing and must remain intact until contruction is completed.

* Fences around Tree Protection Zones must be sign posted to warn of its purpose.

* TPZs are to be mulched to a minimum depth of 100mm using organic mulch.

* Any excavation within the vicinity of an identified TPZ is to be carried out by hand, with all care taken not to damage tree roots. If tree roots greater than 30mm are found during works that need to be severed, they are to be cut with a saw (not ripped).

* A suitably qualified Project Arborist (AQF Level 5) is to be in attendance to supervise tree works on site during critical stages of construction, particularly when excavations are carried out within the identified TPZ of trees nominated for retention.

* Any minor pruning of trees must be carried out in accordance with Australian Standard AS4373-2007 - Pruning of Amenity Trees, by a suitably qualified Arborist.

* Harmful Materials - storage of materials, building waste, excavated spoil, cement or any harmful materials are not permitted within TPZs.

1.3 WEED CONTROL
Initial application of a glyphosate herbicide equal to Roundup Bi-Active to the manufacturers recommendation and in suitable weather conditions (sunny weather, no rain or wind), well prior to any site disturbance. Ensure an adequate time lapse between herbicide application and site disturbance to ensure that target vegetation is dead. Continue to reapply in two week intervals if target vegetation does not respond initially. Reapplication of a glyphosate herbicide (as above) after to remove any regrowth of grass/weeds. Regularly remove, by hand, rubbish and weed growth that may occur or reoccur throughout planted and mulched areas. Continue eradication throughout the course of the works and during the Planting Establishment Period.

1.4 FERTILISERS AND ADDITIVES
Apply fertilisers according to the manufacturer's recommendations and recommended rates. Use slow release fertiliser pellets placed to the bottom of the planting hole for plants. Spread fertiliser over topsoil before laying turf.
PLANTS 8/9mth Slow release fertiliser. N:P:K 8:1:5 (Natives)
TURF Complete lawn fertiliser. N:P:K 10:4:5.

2.0 TREES & MATERIALS

2.1 TREES & PLANTS

Material: Trees & plants shall be of the species, sizes and quantities as shown on the approved drawings. Discrepancies within the planting schedule and the drawing should be referred to Council's Project Officer for clarification.

Trees ordered and delivered to site must meet the requirements contained within AS2303 - Part A

Dispatch Tree Stock Inspection Checklist shall be provided to Council's nominated Project Officers.

Supply: Trees & plants are to be transported to site in a covered ventilated vehicle to reduce the effect of wind damage, transpiration and stress.

Storage: If trees & plants are to be stored on site prior to planting, ensure stock are protected from the winds and construction site activites. Water each plant thoroughly once a day for everyday it is stored on site.

Substitution: All proposed substitution require written consent from Maitland City Council.

2.2 SOILS

* Top 300mm soil to be equal to AS4419-2003 'Organic Soil' with texture to AS4419-2003 Table 1- Sandy Loam.
Below 300mm do not incorporate organic matter. Below 300mm soil to be equal to AS4419-2003 'Soil blend' with max 5% organic matter content. Texture to AS4419-2003 Table 1- Sandy Loam.

* Incorporate composted soil conditioners (to AS4454) into the top 300mm of the soil profile. (Refer to ***FERTILISERS***)

Soil Properties: Soil for the works shall be free from noxious weeds etc. Soil shall be assumed to be placed to all planting areas and as infill to structural cells. Remove and dispose of all spoilt or excess soil excavated in the process of implementing the landscape works.

Source Landscape Soil:
Soil to be used for these landscape works shall be: Ameliorated Site Topsoil or Imported General Purpose Soil (where quantities of site soil are insufficient) to the areas and locations as specified. Imported soil may be from site stockpiles or created from a mix of imported soils, stockpiled site soil and composted soil conditioners (conditioners to conform to AS4454).

Existing Topsoil: Existing topsoil may be used if it meets the requirements for imported topsoil or if approved by the supervisor. Provide a minimum of one soil sample with accompanying soil test report for each topsoil type found at the site. Following the completion of the soil testing, the contractor and supervisor shall meet at the site prior to beginning of topsoil stripping and establish the limitations of areas where existing topsoil may be used and the depth of topsoil stripping permitted.

Soil Substitution: Soils that do not conform to the above specifications may be proposed for use provided a statement from a qualifed landscape agronomist confirming the proposed soil is fit for purpose is submitted to Council's Project Officer for acceptance.

SOIL TESTS
Test soil and ameliorate in accordance with soil test results. Where unavailable for reuse import suitable topsoil to support native plant growth.

Sampling: As recommended in AS 4419 (2003) Appendix A (when on site soil is to be used).
Sampling technique: The following sampling technique should be used in conjunction with the guidelines recommended in AS 4419 (2003). Where discrepancies arise, refer to the Superintendent for clarification prior to proceeding with any works.

The Contractor shall arrange for the following soil tests to be carried out:
• Where site topsoil is to be used, three site topsoil tests by an approved soil testing laboratory as specified, from topsoil stockpiles.
• Three tests of any proposed imported topsoil; and

For each test, take six samples of each soil type. These should be taken from various locations. Each sample should be approximately a spade full in quantity. For each soil type, thoroughly mix the six samples together to obtain an 'average' sample. Ensure that mixing is carried out in a clean mixing container, with no impurities such as cement residue or imported soil etc present. Extract 1kg (approximately a 2L ice cream container) final samples from each of the three mixed batches. Package and forward to the soil laboratory for testing, together with a site plan locating sources of soil samples and a record of any relevant details about the site and source locations.

Type of Soil Test Required: The Contractor shall specify that a 'major soil test' is required, for the purpose of analysing the characteristics and recommendations for use as a landscaping topsoil for native species.

Results: The results of all soil tests should be submitted to the superintendent when available.

Lead time: Allow a minimum of five full working days for completion of soil testing, and check with laboratory to ensure testing will not delay landscaping works. Supply soil tests to site superintendent once available.

2.4 FERTILISERS
Depth: Incorporate additives by hand to a depth of 300mm.
Application Rate: To manufacturer's recommended application rates.
Type: A well-rotted vegetative material, free of weed and grass growth complying with the AS4454 *Composts, soil conditioners and mulches* requirement for mature compost suitable for the plant species scheduled.

2.5 MULCH
Quality: Free of weeds and pathogens. Free from polymers which do not degrade, such as plastics, rubber and coatings.
Type: A chipped timber mulch complying with the AS4454 *Composts, soil conditioners and mulches* requirements for coarse mulch and composted mulch suitable for the plant species scheduled.
Mulch Installation to Trees: Install immediately after planting to prevent erosion, loss of soil moisture and weed seed germination with a depth of 75mm.
Rake mulch to an even surface level with surrounding surfaces. Ensure mulch is kept clear of tree stems.
Mulch Installtion to Mass Planting: Spread the mulch layer over all mass planting beds and individual plantings with a depth of 75mm.

2.6 TURF
Type: Turf species to be couch unless otherwise indicated in conditions of consent.

Supply: Obtain turf from a specialist grower of cultivated turf. Provide turf to even thickness, free from weeds and other foreign matter. Turfing to make good any additional areas disturbed during construction works. The turf should be delivered to the site within 24 hours of being cut and lay within a further 12 hours. Prevent turf from drying out.

2.7 JUTE MAT
Supplier: 'TREE MAX'
Contact: Neil Taylor - 0400 584 585
Install in accordance with manufacturers specification. Trench at top and bottom of embankment as detailed.

2.7 FLORA EDGE™
Supplier: OZBreed
Contact: ph. 02 4577 2977 | http://ozbreed.com.au
Install in accordance with manufacturers specifcation. Refer to plans and detail on installation location.

2.8 GRASS SEEDING
Undertake weed removal works and soil test prior to application of grass seed mix.
Grass seed mix application area to be coordinated on site with the superintendent. Seeding depth subject to supplier.

Seed Mix Schedule

CYN dac	*Cynoden dactylon*	Hulled Couch	30kg/ha (11%)
FES aru	*Festuca arundinacea* 'Alta'	Alta Tall Fescue	140kg/ha (50%)
FES rub	*Festuca rubra* 'Commutata'	Chewing Fescue	40kg/ha (14%)
LOL per	*Lolium perenne* 'Victorian'	Perennial Rye Grass	50kg/ha (18%)
TRI rep	*Trifolium repens*	White Clover	20kg/ha (7%)

3.0 EXECUTION

3.1 EXCAVATION OF PLANTING HOLES
Locations for plants and/or outlines of areas to be planted are to be staked out at the site. Locate and mark all subsurface utility lines. Approval of the stakeout by the supervisor is required before excavation begins. Tree pits are to be excavated to the depth and widths indicated on the drawings. If the planting area under any tree is initially dug too deep, the soil added to bring it up to the correct level should be thoroughly tamped. The sides of the excavation of all planting areas shall be sloped at 45 degrees. The bottom of the planting hole shall slope parallel to the proposed grades or toward any subsurface drain lines within the planting bed. The bottom of the planting hole directly under any tree shall be horizontal such that the tree sits plumb.

Maintain all required angles of repose of the adjacent materials as shown on the drawings. Do not excavate compacted subgrades of adjacent pavement or structures.

Subgrade soils shall be separated from the topsoil, removed from the area, and not used as backfill in any planted or lawn area. Excavations shall not be left uncovered or unprotected overnight. For trees and shrubs planted in individual holes in areas of good soil that is to remain in place and/or to receive amendment in the top 150mm layer, excavate the hole to the depth of the root ball and to widths shown on the drawing. Slope the sides of the excavation at a 45 degree angle up and away from the bottom of the excavation.

3.2 SUB-GRADE CULTIVATION
Location: to all pits where sub-soil cultivation is noted on approved planting details.

Remove: Rocks >100mm diameter from base of excavated pits.

Apply gypsum at the at the manufacturer's specifed rates to clay subgrades. Chisel, disc plough or use an excavator with a tyne attachement to loosen subgrade and mix the gypsum to a 200mm deep to incorporate.

Harrow to break up clods but do not smooth (leave the surface rough to accept topsoil).

Preparation of subgrades to be inspected prior to the installation or modification of topsoil or planting mix. Till the subsoil into the bottom layer of topsoil or planting mix. Loosen the soil of the subgrade to a depth of 50 to 75 mm with a rototiller or other suitable device.

Detrimental soil conditions: The supervisor is to be notified, in writing, of soil conditions encountered, including poor drainage, that the contractor considers detrimental to the growth of plant material. When detrimental conditions are uncovered, planting shall be discontinued until instructions to resolve the conditions are received.

Obstructions: If rock, underground construction work, utilities, tree roots, or other obstructions are encountered in the excavation of planting areas, alternate locations for any planting shall be determined by the Council Project Officer.

3.3 PLANTING OPERATIONS
Before planting begins thoroughly water the plants and planting areas. Water plants again immediately after planting.

3.4 TREES
Plants shall be set on flat-tamped or unexcavated pads at the same relationship to finished grade as they were to the ground from which they were dug, unless otherwise noted on the drawings. Plants must be set plumb and braced in position until topsoil or planting mix has been placed and thoroughly watered in to stabilise the root ball of the tree (Do not tamp down soil). Improper stabilization of the soil around the root ball may result in the tree settling or leaning. Plants shall be set so that they will be at the same depth and so that the root ball does not shift or move laterally one year later.

Determine the elevation of the root flare and ensure that it is planted at grade. This may require that the tree be set higher than the grade in the nursery. If the root flare is less than 50mm below the soil level of the root ball, plant the tree at the appropriate level above the grade to set the flare even with the grade. If the flare is more than 50mm at the center of the root ball the tree shall be rejected.

Lift plants only from the bottom of the root balls or with belts or lifting harnesses of sufficient width not to damage the root balls. Do not lift trees by their trunk or use the trunk as a lever in positioning or moving the tree in the planting area.

Remove plastic, paper, or fiber pots from containerised plant material. Score the side of the root ball with a sharp knife and tease out roots. Immediately after removing the container, install the plant such that the roots do not dry out. Pack planting mix around the exposed roots while planting. Completely remove any waterproof or water-repellant strings or wrappings from the root ball and trunk before backfilling.

3.5 SOIL AND MULCH
Place soil mixes, tamping lightly to reduce settlement. Ensure that the backfill immediately around the base of the root ball is tamped with foot pressure sufficient to prevent the root ball from shifting or leaning.

Thoroughly water all plants immediately after planting. Apply water by hose directly to the root ball and the adjacent soil. Remove all tags, labels, strings, etc. from all plants. Remove any excess soil, debris, and planting material from the job site at the end of each workday.

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5. CONFIRM LOCATION OF ALL SERVICES ON SITE PRIOR TO EXCAVATION.

Architect:

Engineer:

No.	Date	REVISION	By
A	16/8/17	Draft for review	RL
B	28/8/17	Revised for submission	RL
C	25/9/17	Revised to council comment	RL
D	14/12/17	Revised to client comment	EG
E	31/1/18	Update to include Stage 6B	BN
F	13/2/18	Update as per comment	BN

North

Status
For submission
Harvest Estate, Chisholm - Stage 6
5 Pioneer Avenue, Tuggerah, NSW
AVID Property Group

SPECIFICATION
SCALE: 1:100
ORIGINAL DRAWING AT A1.
Drawn By: RL
Checked By: DM
Approved By: DM
Project No. **1464**
Drawing No. SP-302 Rev **F**

3.6 FINE GRADING
Provide smooth transitions between slopes of different gradients and direction. Modify the grade so that the finish grade is flush with all paving surfaces or as directed by the drawings. Fill all dips and remove any bumps in the overall plane of the slope.

3.7 PRUNING
Plants shall not be heavily pruned at the time of planting. Pruning is required at planting time to correct defects in the tree structure, including removal of injured branches, double leaders, waterspouts, suckers, and interfering branches. Healthy lower branches and interior small twigs should not be removed except as necessary to clear walks and roads. In no case should more than one-quarter of the branching structure be removed. Retain the normal or natural shape of the plant. All pruning shall be completed using clean, sharp tools. All cuts shall be clean and smooth, with the bark intact with no rough edges or tears.

3.8 MULCHING
Use mulch which is free of deleterious and extraneous matter such as soil, weeds and sticks. Place mulch to the required depth, clear of plant stems, and rake to an even surface flush with surrounding finished levels.
Mulch type shall be: 'Forest Blend' (Coarse 20-40mm) as supplied by Australian Native Landscape or an approved equivalent.
Maintain the surface in a clean and tidy condition and reinstate the mulch a necessary.

3.9 TURF
Prepare the soil in accordance with the approved landscape plans. Lay turf on a moist surface. Lay along the contours with close butted joints so turf is flush or 10mm below adjoining finished surfaces.

As soon s practicable after laying roll with roller, watering as necessary to keep soil moist.

Protect newly turfed areas against traffic until established.

SECTION C: LANDSCAPE MAINTENANCE SPECIFICATION

1.0 SCOPE

1.1 PERIOD
The Planting Establishment Period commences at the date of Practical Completion.
The duration of the plant establishment period is 52 weeks. Once planting is complete areas as marked must be protected by 1800mm high temporary fencing for the duration of construciton.

1.2 PROGRAM
Furnish a proposed planting maintenance program with the tender. Work schedule To Be Confirmed.

1.3 MAINTENANCE LOGBOOK
Contractor to keep a maintenance record of works carried out on a monthly basis. Log should include but not limited to:
- Activities carried out during each attendance
- Irregularities encountered and actions taken
NB: Maintenance payment will be evaluated on submission of monthly logbooks.

Submission: Contactor is to submit two maintenance Logbook to Moir Landscape Architecture at 26 weeks and 52 weeks after practical completion.

1.4 RECURRENT WORKS
Throughout the Planting Establishment Period, continue to carry out recurrent works of a maintenance nature including, but not limited to, watering, mowing, weeding, rubbish removal, fertilising, pest and disease control, staking and tying, replanting, cultivating, pruning and keeping the site neat and tidy. All rubbish related to landscape works shall be removed by the landscape contractor before it is allowed to accumulate.

1.5 PLANTING
Commence recurrent planting maintenance works at the completion of planting. Ensure the stock arriving on site is protected and maintained for healthy growth.

1.6 REPLACEMENTS
Continue to replace failed, damaged or stolen plants for the extent of the Planting Establishment Period.

1.7 MULCHED SURFACES
Maintain the surface in a clean and tidy condition and reinstate the mulch as necessary.

1.8 TURF AREAS
Regular watering, weeding, fertilising and any other activities required to ensure good establishment of the turf. Last mowing shall not be less than seven days before the end of the maintenance period.

Lift and replace failed turf.

Lightly top dress to correct any unevenness.

1.9 STAKES AND TIES
Adjust or replace as required. Remove those not required at the end of the Planting Establishment Period.

1.10 STREET TREE UNDERCUT
All street trees to be maintained a 1.2m undercut by qualified contractor in consultation with qualified arborist. All pruning to be conducted in accordance with industry best practice and ensuring the health of street tree is not compromised.

1.11 WATERING
Generally: Maintain a vigorous healthy appearance.
Site Water: The contractor shall assume there is no site water available other than that which is provided as part of the works. The contractor shall be responsible for supplying water and/or paying for water for the duration of the works.
Timing: Water at times of day to minimise water evaporation loss. Do not water during the hottest period of Summer days.
Public areas without installed watering systems: Water in dry periods. Make available all necessary equipment to carry out hand and sprinkler watering as required.
Water restrictions: Coordinate the water supply and confirm the watering regime against federal and state government legislation and restrictions at the time.
Hand watering: Manually water all lawn and planting areas in the absence of an irrigation system or until the proposed irrigation system is fully operational.

2.0 REPORTS

2.1 LANDSCAPE PRACTICAL COMPLETION REPORT
Moir Landscape Architecture is to submit a 'Landscape Practical Completion Report' to the Council's Project Mangement officer that certifies that all landscape works and relevant witness and hold point inspections have been carrried out, implement and maintained in accordance with the construction specification.

2.2 LANDSCAPE MAINTENANCE CERTIFICATE
Moir Landscape Architecture is to submit two 'Landscape Maintenance Certificate' to the Council's Project Management Officer at 26 weeks and 52 weeks after practical completion, that certify that at 26 and 52 weeks after practical completion, that approved public domain works are being satisfactorily maintained.

SECTION D: HARDWORKS

1.0 EDGING

1.1 TIMBER EDGING
Edging to be used as a separation between gardens (including tree planting) and lawns.
Timber edging shall be provided at the interface of gravel, turf, mass planting and other soft landscaping areas unless shown otherwise.
Use 38 X 100 mm H4 treated pine edging with 500 x 50 x 50 stakes (with 2 galvanised nails per fixing) finished 25 mm below top of edging.

2.0 ROOT BARRIER

Material: Root barriers shall be manufactured from a 100% recycled HDPE. with a minimum barrier thickness of 1mm.

Depth: As shown on approved drawings. Refer to details.

Installation: Install in accordance with approved project plans and manufacturer's specifications. Overlap the seal joins in accordance with manufacturer's specification.

SECTION F: WITNESS & HOLD POINTS

1.0 HOLD POINTS

All landscape and public domain works as approved shall be coordinated with Council's Project Management Officer during the construction period

The following hold point/witness point inspections (where applicable) are to be carried out by Council's Project Management Officer:

HOLD POINT	COMPLETED	NOTES
Excavation of tree pits with root barrier and sub-surface drainage installed in accordance with Council's Landscape Standard Drawings.	Yes/No	
Evidence of certification of all associated imported topsoil for street tree planting in accordance with AS4419 - 2003 to be provided to Council's Project Management Team.	Yes/No	
Tree delivery prior to installation an certification to comply with AS2303-2015 *'Tree Stock for Landscape Use'*	Yes/No	
WITNESS POINT		
Commencement of tree planting	Yes/No	
Completion of tree planting, including installation of any guards, feature panels / grates in accordance with Council's *Landscape Standard Drawings*	Yes/No	
Installation of each layer/horizon of growing medium	Yes/No	

2.0 INSPECTIONS

Inspections must be carried out by Council's nominated Project Manager at the following points unless otherwise indicated by the Conditions of Consent:

* Installation of any tree protection measures in accordanece with AS4970 - 2009 implemented at areas identified for retention/exclusion.

* Set out of tree pits complete, prior to excavation

* Trees delivered to the site and ready for planting. Note: if desired, arrangements may be made to inspect trees prior to delivery to assist in avoiding rejection due to poor quality (NB inpsections will still be required on site prior to installation).

* Commencement of tree planting

* Completion of street tree planting and other landscaping/planting, including installation of any guard/grates, and mulch in accordance with the approved plans.

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TREE INSPECTION FORM IN ACCORDANCE WITH AS2303

General

Date		Special requirements	
Purchaser		Reference	
Supplier		Inspected by (supplier/purchaser/agent)	
Species		Batch identification	
Number of trees in batch		Container/rootball size	
Height range		Calliper range	

Above ground

Labelling	❑	
Health and vigour	❑	
Freedom from pests/disease	❑	
Freedom from injury	❑	
Self-supporting	❑	
Stem taper	❑	
Pruning	❑	
Apical dominance	❑	
Crown symmetry	❑	
Stem structure	❑	
Included bark	❑	
Trunk position	❑	
Compatibility of graft unions	❑	
Indication of north	❑	

Below ground

Inspection method used	❑	External only
	❑ ❑	External plus investigative destructive ❑ partial
Number of trees in sample	❑	
Root division	❑	
Root direction	❑	
Dia. nonconforming roots at rootball extremity	❑	
Rootball occupancy	❑	
Rootball depth	❑	
Height of root crown	❑	
Non-suckering rootstock	❑	

Balance

Balance	❑	

Conformance with specification

Conforming	❑ Yes ❑ No
Comments	
Name and signature (inspector)	

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Checked By: DM
Approved By: DM
Project No. **1464**
Drawing No. Rev
SP-303 F

SECTION E: STORMWATER DETENTION BASIN SPECIFICATION

1.0 GENERAL
Discrepancies within the planting schedule and the drawing should be referred to Moir Landscape Architecture for clarification. Make no substitutions unless approved. Substitutions shall not be approved unless the contractor complies with this specification. The specification shall take precedence over the Landscape Notes should discrepancies (not including omissions) occur between the two.

2.0 PLANT MATERIAL
Plants shall be of the species, sizes and quantities as shown on the drawing. Plants shall be vigorous, well established, of good form, not soft or forced, free from disease and insect pests. Plants shall have large healthy root systems, not root bound and all trees with a single leading shoot. Shrubs shall be container grown, bushy, well furnished with top growth, not less than 300mm in height. Ground covers and herbaceous plants shall be supplied as well hardened off specimens. Trees shall have large healthy root systems, not root bound and all trees with a single leading shoot. (Refer to NATSPEC Tree Supply).

2.1 FLORA EDGE™
Supplier: OZBreed
Contact: ph. 02 4577 2977 | http://ozbreed.com.au
Install in accordance with manufacturers specifciation. Refer to plans and detail on installation location.

3.0 WEED CONTROL
Remove weeds to all planting and turf areas. Where herbicide is to be used - Initial application of a glyphosate herbicide equal to Roundup Bi-Active to the manufacturers recommendation and in suitable weather conditions (sunny weather, no rain or wind), well prior to any site disturbance. Ensure an adequate time lapse between herbicide application and site disturbance to ensure that target vegetation is dead. Continue to reapply in two week intervals if target vegetation does not respond initially. Mechanical removal of the topsoil layer to the grass root/seed zone and disposal off-site. Reapplication of a glyphosate herbicide (as above) after contouring is complete to remove any regrowth of grass/weeds.

4.0 TREE SUPPLY
4.1 TYPE
True to type: Supply trees which are true to type.
Health: Supply trees with foliage size, texture and colour consistent with that shown in healthy specimens of the species.
Vigour: Supply trees with extension growth consistent with that shown in vigorous specimens of the species.
4.2 FREEDOM FROM PESTS AND DISEASE
Foliage: Restrict attack by pests and disease to <10% of the foliage, such that potential for long term success of the trees is not affected.
4.3 BALANCE OF CROWN
Maximum variation in crown bulk on opposite sides of stem axis +/- 20%.
4.4 UNIFORMITY OF GROWTH
Longest internode: Maximum 1.2 X shortest internode.
4.5 STEM TAPER
Support: Supply trees which are self-supporting unstaked. (other than tubestock or small trees)
Caliper: at least 1.2 X caliper at 1m above ground.
4.6 PRUNING HISTORY
General: Comply with the recommendations of AS 4373.
Pruning wounds: Confine fresh pruning wounds to <25% of the clean stem height.
Wound diameter: <50% of stem diameter immediately above point of pruning.
Pruning location: Clean cut at branch collar.
4.7 APICAL DOMINANCE
Apical Bud: If appropriate for the species, supply trees which have a defined central leader and intact apical bud.
4.8 ROOT DIVISION
Root systems: Fibrous with repeated and sequential division.
4.8 ROOT DIRECTION
Roots growing out or down: >90% of roots within rootball at every stage of development.

5.0 SOILS
Soil for the works shall be free from noxious weeds etc. Soil shall be assumed to be placed to all planting areas. Remove and dispose of all spoilt or excess soil excavated in the process of implementing the landscape works.

5.1 SITE SOIL
Site topsoil: soil excavated from the site which has the following characteristics - contains minimum 2% organic matter, supports plant life, and is free from unwanted matter
Unwanted matter (in topsoil): Stones over 25mm diameter, clay lumps, weeds and tree roots, sticks and rubbish and material toxic to plants.

5.2 TOPSOIL
General: Where available use ameliorated site topsoil. Where unavailable Import topsoil from an off-site source approved by the Superintendent.

Source Landscape Soil:
Soil to be used for these landscape works shall be: Ameliorated Site Topsoil or Imported General Purpose Soil (where quantities of site soil are insufficient) to the areas and locations as specified. Soil for the works shall be free from noxious weeds etc. Soil shall be assumed to be placed to all revegetated areas and backfill to all plantings. Unless otherwise directed by site superintendent, the landscape contractor is responsible for the removal and or disposal of all spoil or excess soil excavated in the process of implementing the landscape works.

5.3 SOIL TESTS
Test soil and ameliorate in accordance with soil test results. Where unavailable for reuse import suitable topsoil to support native plant growth.

Sampling: As recommended in AS 4419 (2003) Appendix A (when on site soil is to be used).
Sampling technique: The following sampling technique should be used in conjunction with the guidelines recommended in AS 4419 (2003). Where discrepancies arise, refer to the Superintendent for clarification prior to proceeding with any works.

The Contractor shall arrange for the following soil tests to be carried out:
• Where site topsoil is to be used, three site topsoil tests by an approved soil testing laboratory as specified, from topsoil stockpiles.
• Three tests of any proposed imported topsoil; and

For each test, take six samples of each soil type. These should be taken from various locations. Each sample should be approximately a spade full in quantity. For each soil type, thoroughly mix the six samples together to obtain an 'average' sample. Ensure that mixing is carried out in a clean mixing container, with no impurities such as cement residue or imported soil etc present. Extract 1kg (approximately a 2L ice cream container) final samples from each of the three mixed batches. Package and forward to the soil laboratory for testing, together with a site plan locating sources of soil samples and a record of any relevant details about the site and source locations.

Type of Soil Test Required: The Contractor shall specify that a 'major soil test' is required, for the purpose of analysing the characteristics and recommendations for use as a landscaping topsoil for native species.

Results: The results of all soil tests should be submitted to the superintendent when available.

Lead time: Allow a minimum of five full working days for completion of soil testing, and check with laboratory to ensure testing will not delay landscaping works. Supply soil tests to site superintendent once available.

5.4 SOIL TEXTURES
Use soils described by the following terms (or their equivalents) which comply generally with the texture classifications and typical uses of AS 4419 –(1998) Table H1 Medium textured - Sandy loam.

5.5 SOIL LEVELS
Finished soil levels shall allow turf or mulch to be finished to top of kerb, gravel pavement, existing levels or as otherwise shown on drawings.

Compact lightly and uniformly in 150 mm layers. Avoid differential subsidence and excess compaction and produce a finished topsoil surface which has the following characteristics:
• Finished to design levels.
• Smooth and free from stones or lumps of soil.
• Graded to drain freely, without ponding, to catchment points.
• Graded evenly into adjoining ground surfaces.
• Ready for planting.

6.0 EXCAVATION
All other Mass planting beds: Where defined planting beds are indicated on the landscape drawings with specific species scheduled and no turfing shown, treat as an excavated landscape planting bed

Excavate the subgrade to the required depths to receive top soil and rip subgrade to the depths shown on the plans to allow plant roots to establish and divide. Finished soil levels shall allow for turf or mulch to be finished to top of kerb, top of steel edging, top of planter beds, top of paved surfaces or as otherwise shown on the drawings. Depth of topsoil shall be as shown below or as otherwise noted on the drawings. All spoil to be removed from site unless approved otherwise.

7.0 CULTIVATION
Prepare all sub grades to receive planting by cultivating to the depths shown on the details. The location of underground services are to be determined prior to commencement of work, do not cultivate with machinery within 1.0m of underground services lines. Remove all stones over 50mm and other unwanted debris by hand. Thoroughly mix in additives and trim finished levels.

8.0 ADDITIVES
Additive types and rates: The Contractor shall incorporate additives to the subsoil or topsoil at rates recommended by the soil test results.

Where site topsoil is to be stockpiled for reuse, incorporate additives as recommended in soil tests by cultivating through the topsoil. For excavated garden beds or backfill to planting holes, incorporate additives into stockpiled topsoil prior to placement. In all situations, ensure additives are thoroughly mixed through topsoil.

9.0 FERTILISERS AND SOIL CONDITIONERS
Fertiliser: Apply fertilisers according to the manufacturer's recommendations and recommended rates.
Native plant slow release fertiliser (equal to 'Osmocote Native Gardens') - N:P:K 17.9 :0.8 :7.3

Soil Conditioner Amendment:
Soil conditioner amendment to be 'TerraCottem Universal' (or approved other by Site Super Intendant), applied at the rates listed below.

150 dia pot	40 grams
200 dia pot	100 grams
25L pot	400 grams
100L pot	1 kg

10.0 PLANTING
Before planting begins thoroughly water the plants and planting areas. Plants shall be set plumb with the top of the root ball slightly below the level of the surrounding ground. Water plants again immediately after planting.

11.0 STAKING
Timber stakes must be hardwood and sharpened to a point at one end. The size of timber stakes, and the number required per plant must be in accordance with the table below.

Plant Size	Timber Stake Size	No. of Stakes
Advanced (200mm dia pot)	25 mm x 25 mm x 1500 mm long	1

Ties must be 50 mm wide hessian webbing.

12.0 MULCH
Use mulch which is free of deleterious and extraneous matter such as soil, weeds and sticks. Place mulch to the required depth (75mm), clear of plant stems, and rake to an even surface flush with surrounding finished levels.
Mulch type shall be: 'Forest Blend' (Coarse 20-40mm) as supplied by Australian Native Landscape or an approved equivalent.

13.0 JUTE MAT
Supplier: 'TREE MAX'
Contact: Neil Taylor - 0400 584 585
Install in accordance with manufacturers specification. Trench at top and bottom of embankment as detailed.

14.0 EDGING

14.1 CONCRETE EDGE
Maitland City Council (Refer SD-004 '*Edge Restraint*')
• 32MPa Concrete strip 250mm (high) x 200mm (wide)
• All exposed corners radii
• 100mm thick washed sand or Class 3 FCR sub-grade

15.0 MAINTENANCE

15.1 PERIOD
The Planting Establishment Period commences at the date of Practical Completion.
The duration of the plant establishment period is 52 weeks.

15.2 MAINTENANCE LOGBOOK
Contractor to keep a maintenance record of works carried out on a monthly basis. Log should include but not limited to:
- Activities carried out during each attendance;
- Irregularities encountered and actions taken;
NB: Maintenance payments will be evaluated on submission of monthly logbooks.

15.3 RECURRENT WORKS
Throughout the Planting Establishment Period, continue to carry out recurrent works of a maintenance nature including, but not limited to, watering, mowing, weeding, rubbish removal, fertilising, pest and disease control, staking and tying, replanting, cultivating, pruning and keeping the site neat and tidy. All rubbish related to landscape works shall be removed by the landscape contractor before it is allowed to accumulate.

15.4 PLANTING
Commence recurrent planting maintenance works at the completion of planting. Ensure the stock arriving on site is protected and maintained for healthy growth.

15.5 REPLACEMENTS
Continue to replace failed, damaged or stolen plants for the extent of the Planting Establishment Period.

15.6 MULCHED SURFACES
Maintain the surface in a clean and tidy condition and reinstate the mulch as necessary.

15.7 GRASSED AREAS
Commence grass maintenance works at the completion of turfing, and continue to carry out grass maintenance throughout the contract and Planting Establishment Period, maintaining healthy weed free growth.

15.8 STAKES AND TIES
Adjust or replace as required. Remove those not required at the end of the Planting Establishment Period.

15.9 WATERING
Generally: Maintain a vigorous healthy appearance.
Site Water: The contractor shall assume there is no site water available other than that which is provided as part of the works. The contractor shall be responsible for supplying water and/or paying for water for the duration of the works.
Timing: Water at times of day to minimise water evaporation loss. Do not water during the hottest period of Summer days.
Public areas without installed watering systems: Water in dry periods. Make available all necessary equipment to carry out hand and sprinkler watering as required.
Water restrictions: Coordinate the water supply and confirm the watering regime against federal and state government legislation and restrictions at the time.
Hand watering: Manually water all lawn and planting areas in the absence of an irrigation system or until the proposed irrigation system is fully operational.

16.0 MAINTENANCE LOGBOOK
Contractor to keep a maintenance record of works carried out on a monthly basis. Log should include but not limited to:
- Activities carried out during each attendance
- Irregularities encountered and actions taken
NB: Maintenance payment will be evaluated on submission of monthly logbooks.

Submission: Contactor is to submit two maintenance Logbook to Moir Landscape Architecture at 26 weeks and 52 weeks after practical completion.

17.0 REPORTS

17.1 LANDSCAPE PRACTICAL COMPLETION REPORT
Moir Landscape Architecture is to submit a 'Landscape Practical Completion Report' to the Council's Project Mangement officer that certifies that all landscape works and relevant witness and hold point inspections have been carrried out, implement and maintained in accordance with the construction specification.

17.2 LANDSCAPE MAINTENANCE CERTIFICATE
Moir Landscape Architecture is to submit two 'Landscape Maintenance Certificate' to the Council's Project Management Officer and NSW Office of Water at 26 weeks and 52 weeks after practical completion, that certify that at 26 and 52 weeks after practical completion, that approved public domain works are being satisfactorily maintained.

18.0 HOLD POINTS / WITNESS INSPECTIONS

• All landscape and public domain works as approved shall be coordinated with Council's Project Management Officer during the construction period.

• The following hold point/witness point inspections (where applicable) are to be carried out by Council's Project Management Officer:

HOLD POINT	COMPLETED	NOTES
Completion of subgrade preparation prior to spreading of any imported soil or ameliorated site soil (in accordance with AS4419 - 2003)	Yes/No	
Where ameliorated stockpiled soil or site soil is required and utilised for planting purposes in accordance with AS4419 – 2003, evidence of associated amelioration measures must be provided to Councils Project Officer .	Yes/No	
Completion of all landscape works in accordance with the Landscape Construction Specification and subject approved Council.	Yes/No	
Batch Certificates for all imported soil in accordance with AS4419 - 2003. Should site soil be utilised for planting purposes, soil testing must be conducted in accordance with AS4419 - 2003. A copy of the results must be provided to Councils Project Management Coordinator, where amelioration of the soil is required, evidence of this application must be communicated and will form a witness/hold point.	Yes/No	
Work shall be maintained for 52 weeks.	Yes/No	
WITNESS POINT		
Completion of nominated soil spreading, mulching, any associated proprietary products and planting in accordance with the landscape specifications.	Yes/No	
Pre-ordering of plant stock in accordance with the specification.	Yes/No	
Manufacturer's warranty and maintenance information for all proprietary products	Yes/No	

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5. CONFIRM LOCATION OF ALL SERVICES ON SITE PRIOR TO EXCAVATION.

Architect:

Engineer:

No.	Date	REVISION	By
A	16/8/17	Draft for review	RL
B	28/8/17	Revised for submission	RL
C	25/9/17	Revised to council comment	RL
D	14/12/17	Revised to client comment	EG
E	31/1/18	Update to include Stage 6B	BN
F	13/2/18	Update as per comment	BN

North

Status
For submission
Harvest Estate, Chisholm - Stage 6

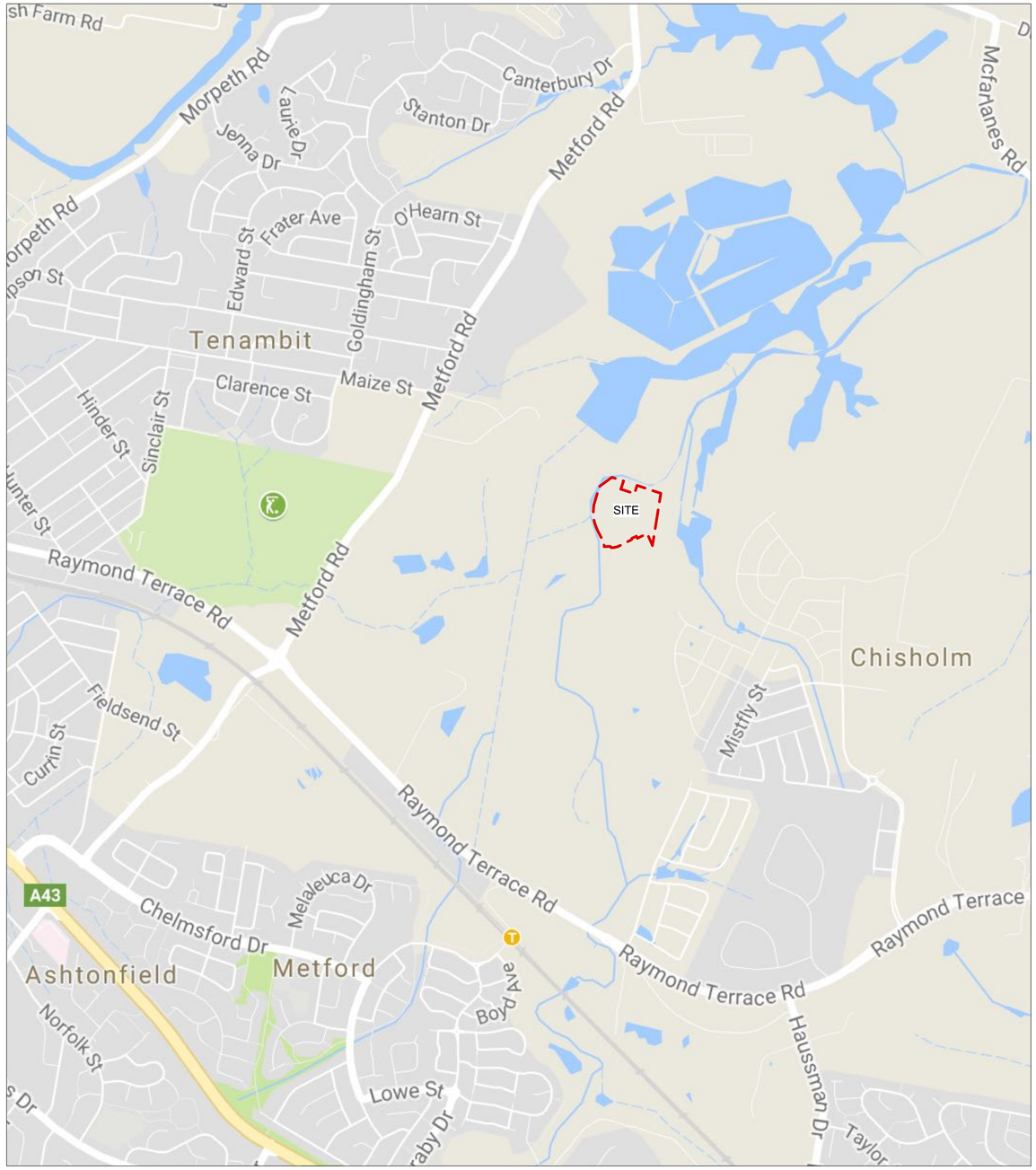
5 Pioneer Avenue, Tuggerah, NSW

AVID Property Group

SPECIFICATION

SCALE: 1:100
ORIGINAL DRAWING AT A1.
Drawn By: RL
Checked By: DM
Approved By: DM

Project No. **1464**
Drawing No. SP-304 Rev F



LOCATION PLAN
NTS (Image: Google, 2017)

Harvest Estate, Chisholm - Stage 7
Landscape CC Documentation

Sheet No.	Sheet Name	Revision	Date
LC-001	COVER SHEET	F	13/2/18
LC-002	KEY PLAN	F	13/2/18
LA-101	LANDSCAPE PLAN 1	F	13/2/18
LA-102	LANDSCAPE PLAN 2	F	13/2/18
LA-103	LANDSCAPE PLAN 3	F	13/2/18
LA-104	LANDSCAPE PLAN 4	F	13/2/18
LD-201	STREET TREE DETAIL	F	13/2/18
LD-202	PLANTING DETAIL	F	13/2/18
SP-301	SPECIFICATION	F	13/2/18
SP-302	SPECIFICATION	F	13/2/18
SP-303	SPECIFICATION	F	13/2/18
SP-304	SPECIFICATION	F	13/2/18

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D	14/12/17	Revised to client comment	EG
E	31/1/18	Update to include Stage 7B	BN
F	13/2/18	Update as per comments	BN

North

Status
For submission
Harvest Estate, Chisholm - Stage 7

5 Pioneer Avenue, Tuggerah, NSW

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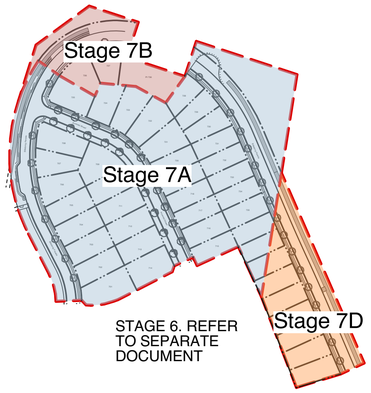
COVER SHEET

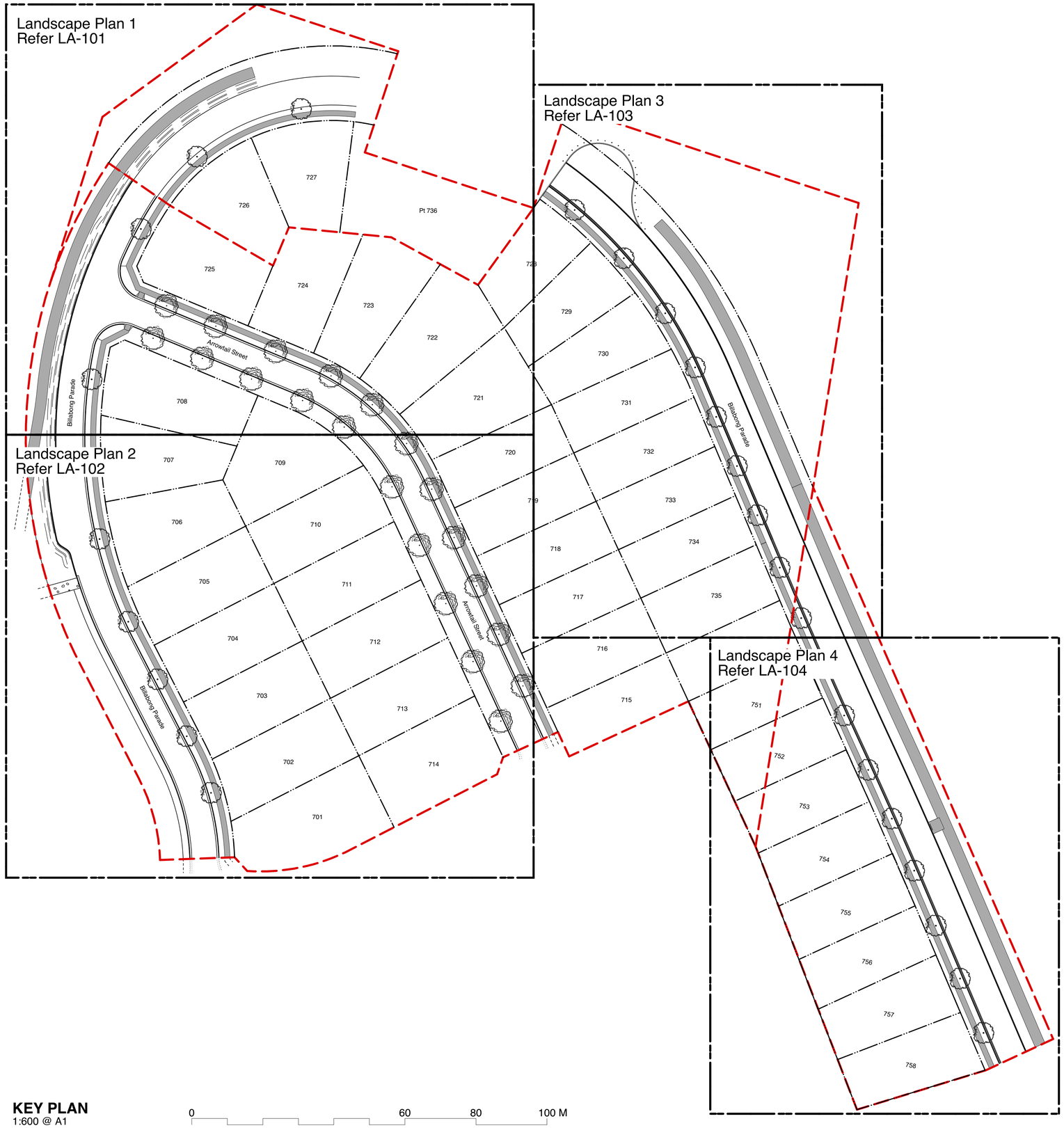
SCALE: NTS
ORIGINAL DRAWING AT A1.
Drawn By: RL
Checked By: DM
Approved By: DM

Project No. **1464**
Drawing No. LC-001 Rev F



STAGING PLAN
1:2500 @ A1

0 50 70 90 110130 M



KEY PLAN
1:600 @ A1

0 60 80 100 M

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AVID Property Group

KEY PLAN

SCALE: As Shown
ORIGINAL DRAWING AT A1.
Drawn By: RL
Checked By: DM
Approved By: DM

Project No. **1464**
Drawing No. Rev
LC-002 F

Straw mulching over grass seed area as per specification.
~~FULLY TURF WITH COUCH~~

3x ULM chi

Grass swale. Refer to Engineer details.

3m cycle way. Refer to Engineer details.

3x DOR exc
38x LOM kat
38x POA lab

3x DOR exc
30x LOM kat
30x POA lab

1x ULM chi

600mm wide turf strips from back of footpath. Grass seed to lot boundary to be coordinated on site with superintendent.

1550mm turf strip from back of kerb as per specification. Grass seed between turf and lot boundary as per specification.

5x CAE fer

5x CAE fer

Pedestrian pathway. Refer to Engineer detail.

600mm wide turf strips from back of footpath. Grass seed to lot boundary to be coordinated on site with superintendent.

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STAGE 7B
STAGE 7A
Arrowtail Street
Billabong Parade
REFER LA-102
REFER LA-103
Pt 736
727
726
725
724
723
722
721
720
708
15000
8300
3450
12000
13500

LEGEND

- Extent of work/stage boundary.
- Lot boundary.
- Proposed contour. Refer to Engineer.
- Stormwater pit and drainage. Refer to Engineer.
- Concrete footpath. Refer to Engineer.
- Decomposed rhyolyte access track. Refer to Engineer.
- Spillway. Refer to Engineer.
- TE Timber edge. Refer to detail.
- CE Concrete edge. Refer to detail.
- Align to centre of lot boundary.

STREET PLANTING LEGEND

TREE

Ulmus chinensis

Caesalpinia ferrea

SHRUB/ACCENT PLANTING

Doryanthes excelsa

GROUNDCOVER

Spot Planting @ 4/m2
Lomandra 'Katrinus' (50%)
Poa labillardieri (50%)

Embankment Planting @ 4/m2
Carex inversa (40%)
Juncus usitatus (40%)
Lepironia articulata (20%)

T Turf as per specification.

Grass seed as per specification.

Sm Grass seed with straw mulch over as per specification.

INUNDATED PLANTING

Plant @ 2/Linial Metre
Eleocharis sphacelata (33%)
Juncus usitatus (33%)
Schoenoplectus validus (33%)

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Status
For submission

Harvest Estate, Chisholm - Stage 7

5 Pioneer Avenue, Tuggerah, NSW

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LANDSCAPE PLAN 1

SCALE: 1:100
ORIGINAL DRAWING AT A1.
Drawn By: RL
Checked By: DM
Approved By: DM

Project No. **1464**
Drawing No. Rev **LA-101 F**

REFER LA-101

5x CAE fer

6x CAE fer

3m cycle way. Refer to Engineer detail.

6x ULM chi

Grass swale. Refer to Engineer detail.

Concrete edge to edge of basin. Refer to detail.

Decomposed rhyolyte accessway. Refer to Engineer detail.

Concrete edge to top of embankment. Refer to Engineer for final levels.

850x CAR inv
850x JUN usi
425x LEP art

Turf as per specification

600mm wide turf strips from back of footpath. Grass seed to lot boundary to be coordinated on site with superintendent.

600mm wide turf strips from back of footpath. Grass seed to lot boundary to be coordinated on site with superintendent.

1550mm turf strip from back of kerb as per specification. Grass seed between turf and lot boundary as per specification.

707 709 720 706 710 719 705 711 718 704 712 703 713 702 714 701

Billabong Parade

Arrowtail Street

STAGE 7A

STAGE 7A

STAGE 6
REFER TO
SEPARATE
DOCUMENT

REFER LA-103

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LEGEND

- Extent of work/stage boundary.
- Lot boundary.
- Proposed contour. Refer to Engineer.
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- Concrete footpath. Refer to Engineer.
- Decomposed rhyolyte access track. Refer to Engineer.
- Spillway. Refer to Engineer.
- TE Timber edge. Refer to detail.
- CE Concrete edge. Refer to detail.
- CL Align to centre of lot boundary.

STREET PLANTING LEGEND

TREE

Ulmus chinensis

Caesalpinia ferrea

SHRUB/ACCENT PLANTING

Doryanthes excelsa

GROUNDCOVER

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LANDSCAPE PLAN 2

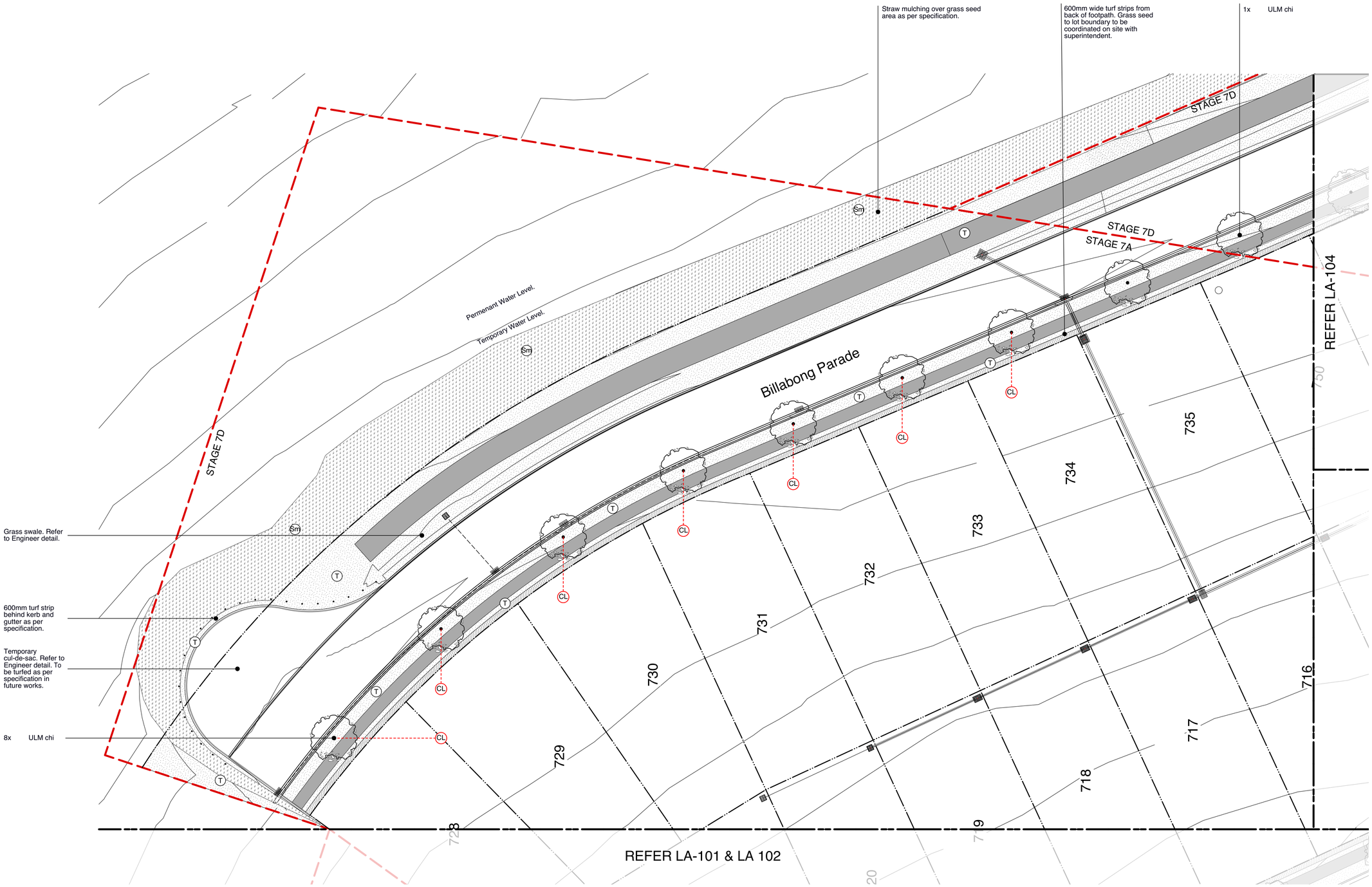
SCALE: 1:100

ORIGINAL DRAWING AT A1.

Drawn By: RL
Checked By: DM
Approved By: DM

Project No. 1464

Drawing No. Rev LA-102 F



LEGEND

- Extent of work/stage boundary.
- Lot boundary.
- Proposed contour. Refer to Engineer.
- Stormwater pit and drainage. Refer to Engineer.
- Concrete footpath. Refer to Engineer.
- Decomposed rhyolyte access track. Refer to Engineer.
- Spillway. Refer to Engineer.
- TE — Timber edge. Refer to detail.
- CE — Concrete edge. Refer to detail.
- CL — Align to centre of lot boundary.

STREET PLANTING LEGEND

TREE

Ulmus chinensis

Caesalpinia ferrea

SHRUB/ACCENT PLANTING

Doryanthes excelsa

GROUNDCOVER

Spot Planting @ 4/m2
Lomandra 'Katrinus' (50%)
Poa labillardieri (50%)

Embankment Planting @ 4/m2
Carex inversa (40%)
Juncus usitatus (40%)
Lepironia articulata (20%)

- T — Turf as per specification.
- Grass seed as per specification.
- Sm — Grass seed with straw mulch over as per specification.

INUNDATED PLANTING

Plant @ 2/Linial Metre
Eleocharis sphacelata (33%)
Juncus usitatus (33%)
Schoenoplectus validus (33%)

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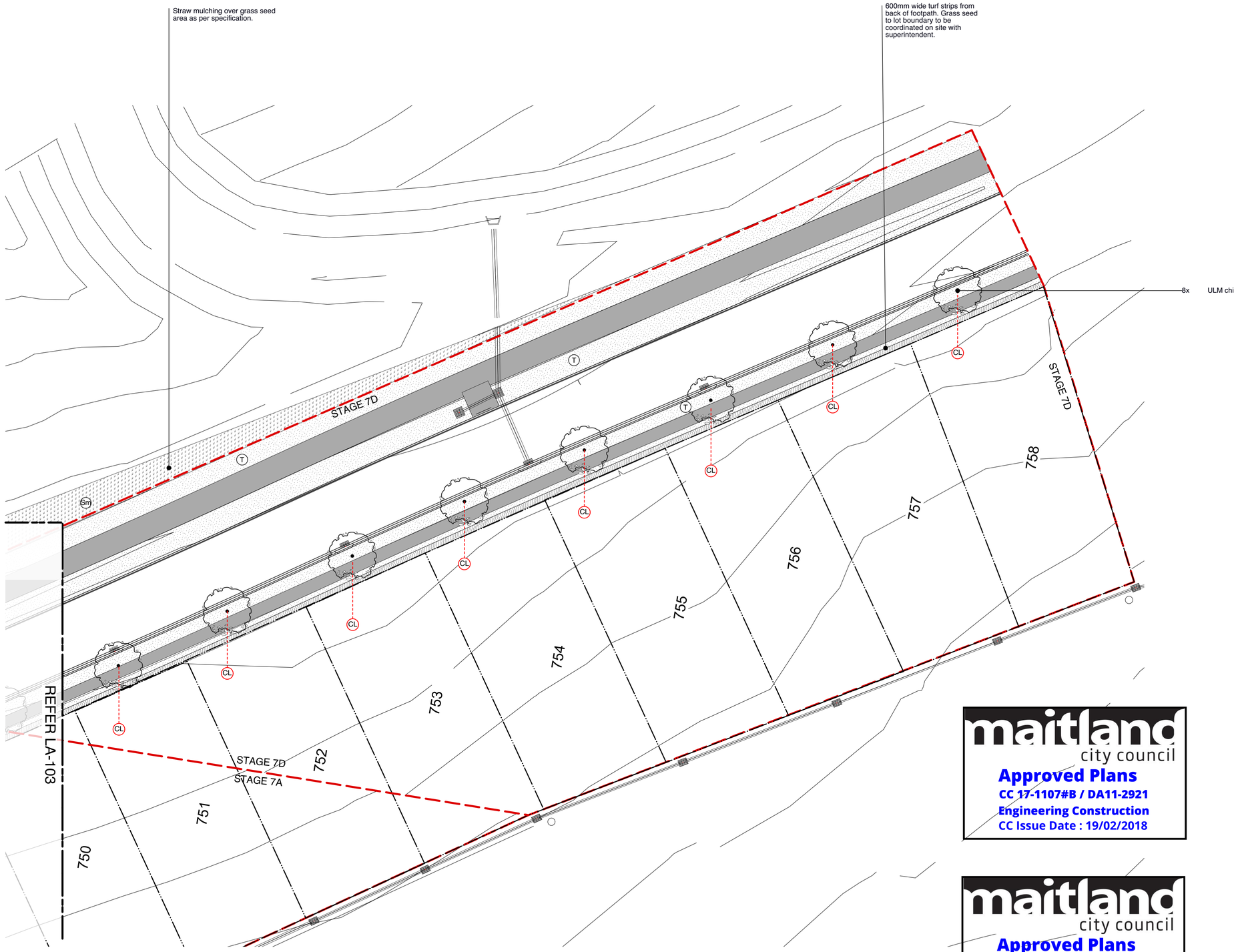
LANDSCAPE PLAN 3

SCALE: 1:100
ORIGINAL DRAWING AT A1.
Drawn By: RL
Checked By: DM
Approved By: DM

Project No. **1464**
Drawing No. LA-103 Rev F



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STREET PLANTING LEGEND

TREE

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Caesalpinia ferrea

SHRUB/ACCENT PLANTING

Doryanthes excelsa

GROUNDCOVER

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INUNDATED PLANTING

Plant @ 2/Linial Metre
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Juncus usitatus (33%)
Schoenoplectus validus (33%)

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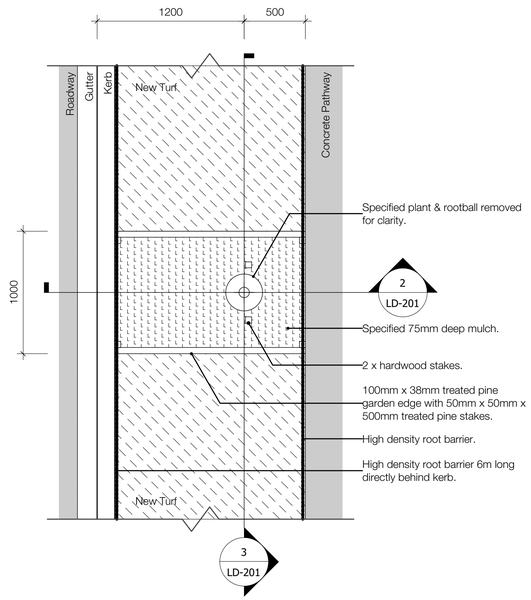
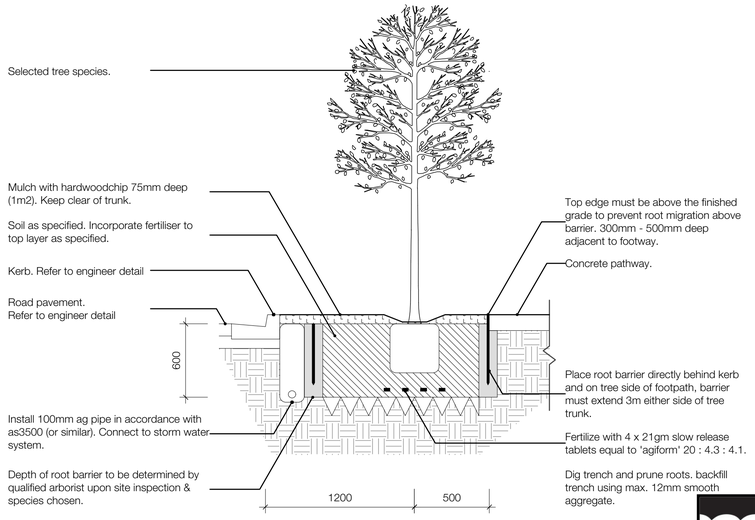
LANDSCAPE PLAN 4

SCALE: 1:100
ORIGINAL DRAWING AT A1.
Drawn By: RL
Checked By: DM
Approved By: DM

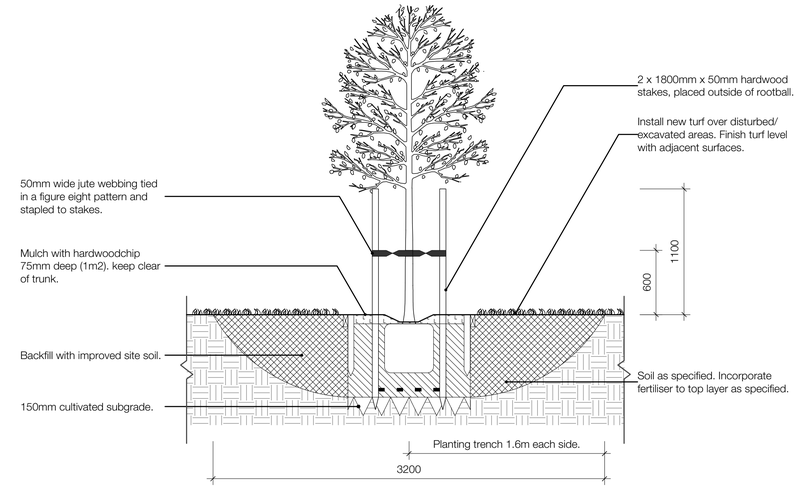
Project No. **1464**
Drawing No. LA-104 Rev F



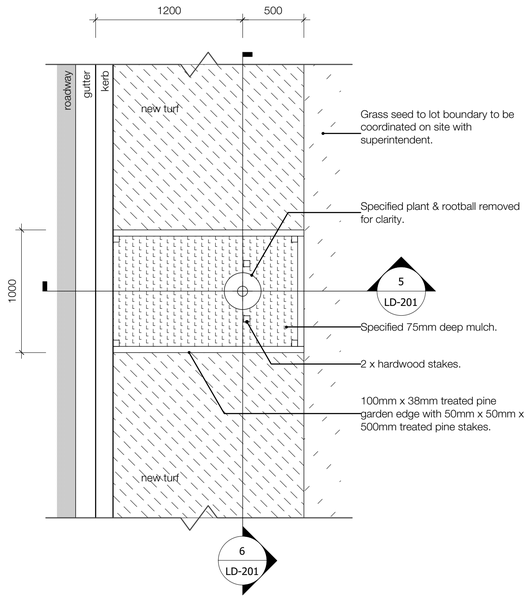
1. Typical street tree adjoining footpath
1:25@ A1



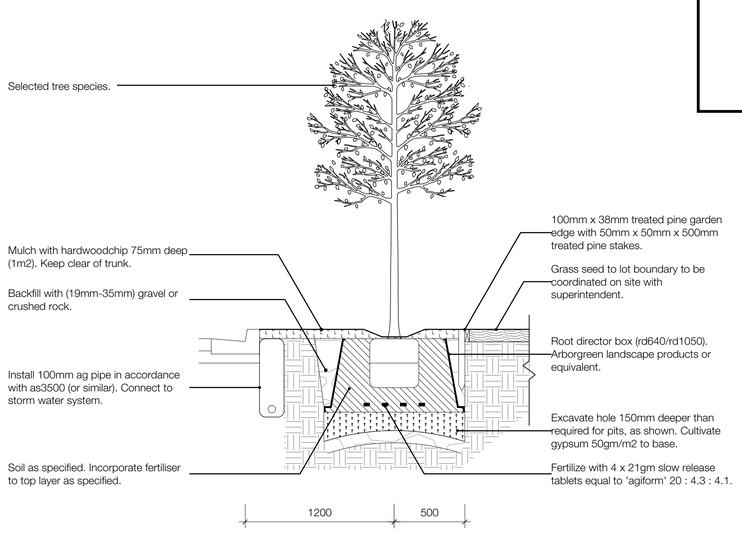
2. Typical street tree adjoining footpath - Section
1:25@ A1



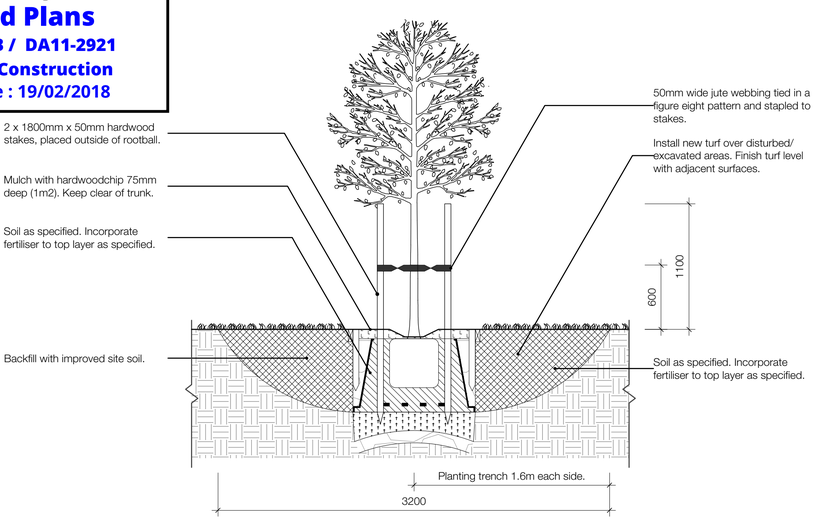
3. Typical street tree adjoining footpath - Section
1:25@ A1



4. Typical street tree adjoining grass seed
1:25@ A1



5. Typical street tree adjoining grass seed - Section
1:25@ A1



6. Typical street tree adjoining grass seed - Section
1:25@ A1

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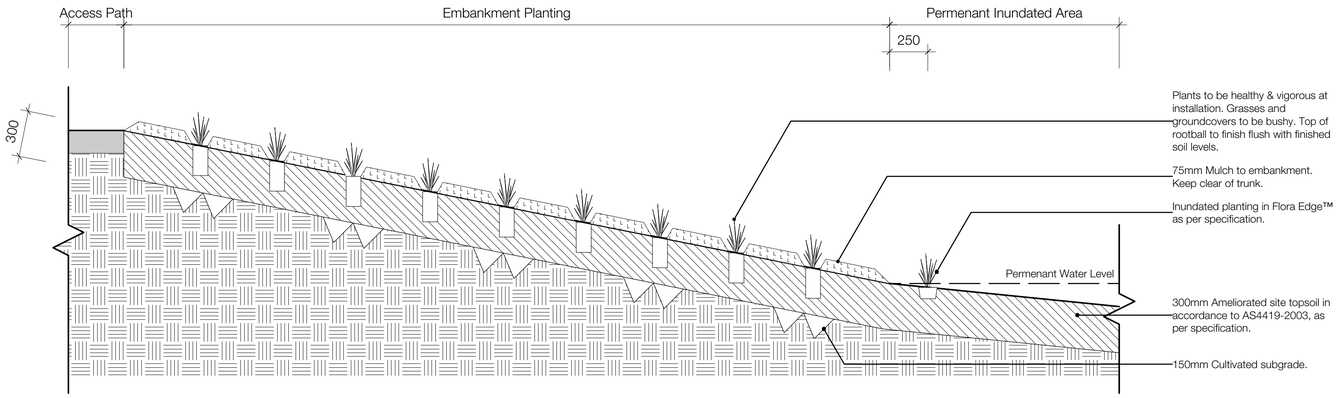
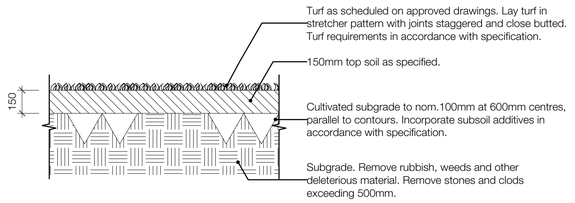
STREET TREE DETAIL

SCALE: 1:100
ORIGINAL DRAWING AT A1.
Drawn By: RL
Checked By: DM
Approved By: DM

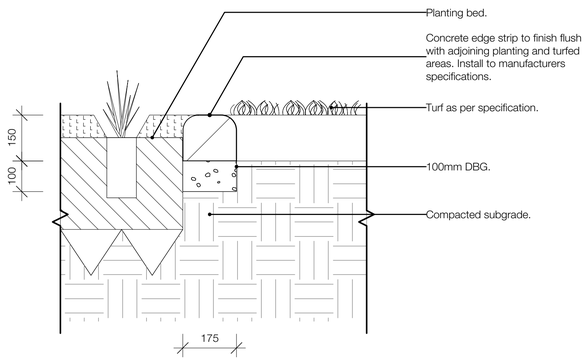
Project No. 1464
Drawing No. LD-201 Rev F



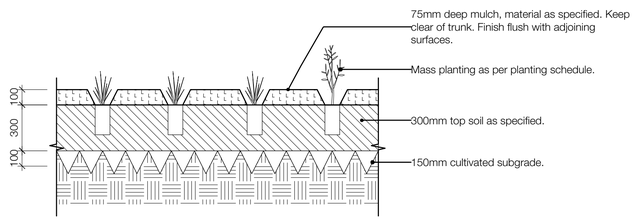
1. Typical embankment and basin planting
1:20@ A1



2. Typical Turf
1:20@ A1



3. Typical concrete edge
1:10@ A1



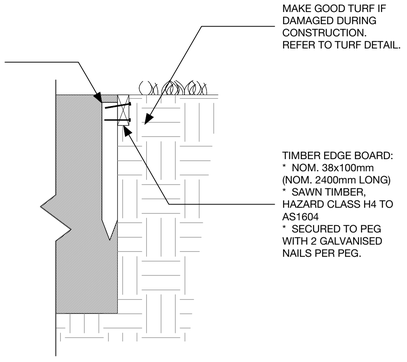
4. Typical mass planting
1:20@ A1

H4 TREATED TIMBER PEGS:

* NOM. 50mm SQUARE PEGS x 450mm LONG, SHARPENED AT ONE END AND DRIVEN INTO FIRM GROUND.

* GENERALLY PLACE PEGS ON THE MASS PLANTING SIDE AT 1200mm CENTRES, AT CHANGES IN DIRECTION & AT EACH END OF TIMBER EDGE BOARDS.

* FINISH 25mm BELOW EDGE BOARDS. DRIVE IN ON PLANTING SIDE OF EDGING.



5. Timber Edge
1:10@ A1

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CC Issue Date : 19/02/2018

STREETSCAPE PLANTING

CODES:	BOTANICAL NAME:	COMMON NAME:	POT SIZE:	SPACING:	QUANTITY:	SIZE(HxW):
TREE:						
CAE fer	*Caesalpinia ferrea*	Leopard Tree	75L	As Shown	20	10m x5m
ULM par	*Ulmus chinensis*	Chinese Elm	75L	As Shown	20	12m x 8m
Note: All trees to be kept at 1.2m undercut in consulation with qualified arborist.						
SHRUB/ACCENT PLANTING						
DOR exc	Doryanthes excelsa	Gymea Lily	200mm	As Shown	6	
GROUNDCOVER						
SPOT PLANTING @ 4/m2						
LOM kat	*Lomandra* 'Katrinus'	Math Rush cv.	150mm	50%	68	
POA lab	*Poa labillardieri*	Tussock Grass	150mm	50%	68	

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PLANTING DETAIL

SCALE: 1:100
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Drawn By: RL
Checked By: DM
Approved By: DM

Project No. **1464**
Drawing No. LD-202 Rev F

SECTION A: TREE SUPPLY SPECIFICATION - AS2303:2015

1.0 GENERAL

1.1 STANDARD

Guidance: Follow the guidance given in 'AS2303:2015 Tree Stock for Landscape Use'.

1.2 INTERPRETATION

Definitions

For the purposes of this work section the definitions given below apply.

Apical bud
Terminal bud located at the tip of the stem and branches.

Apical dominance
Dominance of the terminal bud over lateral buds of growth.

Balance
Concerning the relationship between the above- and below-ground parts of tree stock.

Bare rooted
Tree stock grown in the ground that is dispatched without soil.

Bark graft
Graft in which a wedge-shaped scion is inserted under a loosened tongue of bark on the stock.

Batch
Quantity of tree stock of the same species, container size, type and age from the same origin.

Branch
Lateral shoot on a main axis such as a trunk or another branch.

Branch bark ridge
Raised or furrowed bark in the branch union that marks where the branch wood and trunk wood overlap.

Branch collar
Trunk tissue around the base of a branch.

Branch union
Place of common juncture for two or more branches.

Bud
Embryonic vegetative or reproductive tissue, which may be terminal, axillary or adventitious in origin.
NOTE: Buds can be active or dormant.

Calliper
Trunk diameter measured at 300mm above the root crown, or 50% of the overall height, whichever is the lower height, expressed in millimetres.

Central leader
Clearly defined single, relatively straight, trunk.

Circling root
Root at the rootball surface or in the rootball interior growing m a manner that is not radially away from the trunk but curves to encircle the rootball.

Clean stem height
Distance between the uppermost surface of the rootball and the first order branches of the trunk that is free from branches.

Cleft graft
Graft in which the scion is placed in a cleft or slit at the top of a stock.

Codominant stems
Two or more stems or trunks of similar dimensions arising from about the same position from a trunk or stem.

Container
Object such as a planter bag, woven bag, root control bag, rigid walled pot, air root pruning pot, punnet, tube or similar object that is used to contain the rootball of the tree stock.

Containerized
Process whereby tree stock grown in open ground are lifted and potted up into containers.

Container grown
Process whereby tree stock spend all or most of their time in the production nursery in containers.

Crown
Portion of the tree stock consisting of branches and leaves and any part of the trunk from which the branches arise; also referred to as canopy.

Dieback
Progressive death of twigs and branches of some areas of the crown.

Disease
Any pathogen injurious to tree stock.

Dispatch
Point in the supply chain where tree stock leaves the production nursery.

Epicormic growth
Shoot growing from latent or adventitious bud, underneath the bark of a stem or branch.

Ex-ground tree stock
Tree stock grown in the ground, dug and delivered with soil.
NOTE: Ex-ground tree stock include balled and burlapped (tree stock grown in the ground that are lifted with a ball of soil containing the roots, which is then tightly wrapped in hessian, twine or other fabrics such as geotextiles to hold it together during shipment) and in-ground container grown tree stock.

Formative pruning
Pruning tree stock with the aim of directing tree stock growth and/or developing a sound structure.

Girdled root
Circling roots around the base of a stem and above any lateral roots arising from the root crown.

Graft
Union of living parts (scion and rootstock) from different origins to form a structure physiologically acting as a single unit.

Graft union
Junction of scion and rootstock.

Health
Tree stock vigour for the time of year, location and stage of growth as exhibited by crown density, crown cover, crown form, leaf colour and size, absence of epicormic shoots and absence of die back.

Included bark
Inwardly turned (concave) bark within the union of branches or codominant stems.

In-ground container
Container made from fabric that is buried in the ground.
NOTE: Fabric structure is designed to allow small roots to escape and sever them as they expand.

J-root
Seedling tap root with a sharp bend ≤90°.

Kinked root
Root with a sharp bend ≤90°.

Node
Raised point on a stem from where one or more leaves or buds arise, or have arisen.

Pest
Any insect, mite, snail and nematode injurious to tree stock.

Point of initiation (of roots)
Point at which the new root emerges, from either the base of the trunk or from a previously existing root.

Primary division (of roots)
Division of roots that takes place immediately behind the root cap, or at the severed root end following root pruning.

Rootball
Root system and the intact mass of growing media or soil associated with it.

Rootball diameter
Width of the rootball measured near the top from two opposite sides through its centre.

Rootstock
Part of a tree forming the root system of a grafted cultivar/variety.

Root crown
Junction between the below-ground and above-ground parts of the tree stock.

Scion
Shoot or bud from an external source for the purpose of grafting
NOTE: A scion forms the shoot system of a grafted cultivar/variety.

Self-supporting
Tree stock supporting its above-ground parts in an upright position without movement of ≤ 30° from vertical, stem breakage, injury or loosening of roots in growing media.
NOTE: Any artificial support used in tree production should allow flexing of the stem as much as possible without stem breakage or injury.

Shall
Indicates that a statement is mandatory.

Should
Indicates a recommendation.

Significant injury
Damage that compromises the health and/or structure of the tree stock.
AS 2303:2015
NOTE: Practices or circumstances that may cause significant injury include damage caused by sunscald, wind burn, hail, water, heat, pesticides, fertilizers, pests, diseases, mechanical and physical handling and ties, stakes and labels.

Size index
Numerical expression of the size or physical bulk of a tree stock above-ground.
NOTE: Size index is the product of the height (in metres) of the tree stock, from the uppermost surface of the root crown to the top ofthe stem, and calliper.

Stem
Structure that supports branches, leaves, flowers and fruit.

Stem bark ridge
Ridge of bark that forms in the union between codominant stems.

Stem taper
Increase in diameter down the stem.

Suckering
Shoots developed from a root or stem close to or below root crown.

Tree
Long-lived woody perennial plant typically ≥3m in height at maturity with one or relatively few stems.

Tree stock balance
Proportional relationship between the above-ground parts of a tree stock (size index) to the volume of the below-ground parts of the tree stock (container size or rootball diameter ex-ground).

True to type
Denotes correct cultivar identification.

Tubes or cells
Small containers or cell trays typically used in the propagation stage of tree production with a height:diameter ratio ≥3:2 (typically ≤1.0 L).

Trunk
Main stem of a tree.

Weed
Plant growing out of place or where it is not wanted.

Woody circling root
Lignified circling root.

1.3 PRECOMPLETION TESTS

TREE STOCK TESTING
Compliance with this Standard shall be demonstrated by the following method:
(a) Testing in accordance with Appendix A and B of AS2303:2015 prior to dispatch ('at dispatch').
NOTES:
1. Tree stock inspection forms are provided as part of this specification.

RETENTION OF DOCUMENTATION
Documentation that demonstrates the product complies with the requirements of Section 2 shall be retained for a minimum of 12 months.

APPENDIX A, AS2303 - SAMPLING STRATEGY AND TEST PROCEDURE AT DISPATCH (Normative)

A1 GENERAL
This Appendix provides the principles to be observed when sampling and preparing tree stock samples for assessment at dispatch.
NOTE: Examples of dispatch tree stock inspection forms are provided in Appendix C.

A2 SAMPLING STRATEGY
An appropriate sampling plan shall be in place for each situation to assess the quality level of the outgoing product and reject batches that do not meet the performance requirements of the Standard. The overall sample selected shall be drawn randomly from a population of product at dispatch of known history to represent the batch as a whole.
NOTES:
1. The history needs to enable verification that the product was grown by essentially the same processes and under essentially the same system of control. In order for sampling to be meaningful, the manufacturer or supplier needs to demonstrate how this has been satisfied.
2. Sampling and the establishment of a sampling plan should be carried out in accordance with AS 1199.1, guidance to which is given in AS 1199.0.

TABLE A1 - SAMPLE SELECTION STRATEGY

Batch size	Sample size
2-8	2
9-15	3
16-25	5
26-50	7
51-90	9
91-150	12
151-280	17
281-500	25
501-1200	40
1201-3200	50
3201-10000	100
10 001-35 000	190
35 001-150 000	400
150 001-500 000	700
500 001 and over	1250

A3 TEST PROCESS
The testing process for the analysis of tree stock requirements shall consist of the following steps.

Step 1: Above-ground testing
Place the tree stock on a firm surface. Do not remove the container for container grown and containerised tree stock. Remove any stakes or support systems ifpresent.
Assess the above-ground characteristics of the tree stock in accordance with criteria detailed in Clause 2.2. Proceed to Step 2 for container grown, containerised and ex-ground tree stock and Step 4 for bare rooted tree stock.

Step 2: Tree stock balance and rootball assessment
Determine the tree stock balance of tree stock grown in containers ≥20 L or ex-ground tree stock with a minimum rootball diameter of ≤400 mm (refer to Section 2.3). Assess the root ball diameter (refer to Section 2.3), rootball depth(refer to Section 2.3) and height of root crown (refer to Section 2.3). Assess the rootstock of grafted tree stock (refer to Section 2.3) and assess for pests, diseases and weeds (refer to Section 2.3). Proceed to Step 3.

Step 3: Below-ground testing
Assess the below-ground characteristics of the tree stock in accordance with Appendix B. Determine rootball occupancy (refer to Section 2.3), root direction (refer to Section 2.3) and root division (refer to Section 2.3).
NOTE: Investigative rootball testing is not mandatory at dispatch. An appropriate sampling plan should be in place for this Step to limit the number of items inspected.

Step 4: Bare-rooted tree stock testing
Assess the rootball diameter (refer to Section 2.3). Assess the rootstock of grafted tree stock to determine that the roots are growing in an outwards (radial) or downwards direction and that there is no evidence of woody circling roots, girdled roots, kinked roots or j-roots (refer to Section 2.3).

APPENDIX B, AS2303 - ASSESSMENT OF ROOTBALL OCCUPANCY, ROOT DIRECTION AND ROOT DIVISION AT DISPATCH (Normative)

B1 SCOPE
This Appendix sets out the procedures for assessing rootball occupancy, root direction and root division of container grown, containerized or ex-ground tree stock at dispatch.

B2 PROCEDURE
The procedure shall be as follows:
(a) Ensure the tree stock is on a firm and level surface where possible, and the rootball is well watered.
(b) Remove any stakes or support systems if present.
(c) For tree stock ≤20 L, hold the stem at 80% of the total height above-ground and bend the stem 30° side to side, making sure the pressure is always at right angles to the stem. The rootball shall not lift off the ground.
(d) Hold the stem at 25% of the total height above-ground and rock the stem from side to side. There shall be no evidence of movement of the stem within the rootball, or evidence of large cracks in the rootball. Conduct investigative inspections where necessary.
(e) Remove the tree stock from the container, in-ground container, hessian or any covering of the rootball to expose the outer surface of the entire root ball.
(f) Check that there is no evidence of girdled or woody circling roots.
(g) For rootballs in containers ≤45 L, or ex-ground tree stock with a rootball diameter ≤500 mm, remove a wedge-shaped section of growing media/soil from the stem to the extremity of the rootball to inspect root development.
(h) For rootballs in containers ≤45 L, or ex-ground tree stock with a rootball diameter ≥500 mm, ensure that sufficient growing media/soil is removed to inspect the top 150-200 mm of the root ball from the stem to the extremity, and the outer section of the rootball, top to bottom in order to inspect root development.
(i) Gently replace growing media/soil.

B3 TEST REPORT
The following information shall be reported:
(a) Sample identification.
(b) Self-supporting nature.
(c) Evidence of rootball occupancy.
(d) Evidence that roots are growing in an outwards (radial) or downwards direction.
(e) Absence of girdled and kinked roots.
(f) Absence of circling roots within the rootball.
(g) Absence of woody circling roots on the extremity of the rootball.
(h) Evidence of primary division.
(i) Reference to this Appendix, i.e. Appendix B, AS 2303.

1.4 SUBMISSIONS

Test results

General: Complete and return the Tree Inspection Form for each batch inspected.
Rejection: Non-compliance may lead to rejection of the entire batch.
Corrective action: Comply with corrective action procedures for each order as instructed.
Substitution: If non-complying trees are proposed, submit a proposal in writing to the contract administrator for approval.
Authentication: Supply a copy of the written approval of substitution with any non-complying trees.

Forward order contracts

Reports: Complete regular reports using the pro forma Tree Inspection Form. Include checks against specification requirements.
Photographs: Provide current colour copies with date verification.
Submissions: To the contract administrator.
Inspection: Complete and return the attached pro-forma Tree Inspection Form before despatch of every batch, and at the following frequencies:
- Inspections: At 3 monthly intervals.
- Reports: At time of inspections.

2.0 CRITERIA FOR TREE STOCK ASSESSMENT

2.1 GENERAL

This Section specifies the above- and below-ground criteria for tree stock assessment, which are necessary for determining quality tree stock for landscape use.
NOTES:
1. Those involved in production, design, procurement, planting and management of trees should have a comprehensive understanding of this Standard. Specialist advice should be sought where necessary.
2. Above- and below-ground criteria should be considered part of nursery production systems. Alternatively, these criteria may be incorporated into QA accreditation programs or used to assess tree stock at dispatch.

2.2 CRITERIA FOR ABOVE-GROUND ASSESSMENT OF TREE STOCK

True to type
Tree stock shall be true to type. Individual tree stock or batches of tree stock per variety shall be clearly labelled with correct botanical nomenclature.
NOTES:
1. Where common names are used, they should only be used as an adjunct to the botanic name of the tree.
2. National Plant Labelling Guidelines contains information on determining correct botanic nomenclature. Available from www.ngia.com.au.

Height and calliper
The height and calliper range shall be recorded.
NOTES:
1. Height and calliper should be appropriate to the individual species.
2. Further information on Tree Stock Balance Assessment is provided in Section 3.0.

Health
Tree stock shall exhibit good health for the time of year, location and stage of growth, as demonstrated by the following:
(a) Crown density.
(b) Crown cover.
(c) Crown form.
(d) Leaf colour and size.
(e) Absence of epicormic shoots.
(f) Absence of die back.

Crown symmetry
Difference in crown distribution on opposite sides of the stem axis shall be ≤20%.

Significant injury
Tree stock shall be free from significant injury and wounds (except properly made pruning cuts in accordance with AS 4373), cracks, fungal fruiting bodies and bleeding areas (except from properly made pruning cuts in accordance with AS 4373).

Stem taper
The calliper at any given point on the stem shall be less than the calliper at any lower point on the stem, excluding species with atypical stem taper (e.g. Brachychiton rupestris or other such species).

Self-supporting
Tree stock in containers ≥45L and ex-ground tree stock shall be self-supporting at the time of dispatch. Tree stock in containers <45 L should be self-supporting at the time of dispatch (see Notes). The self-supporting nature of the tree stock shall be recorded.
NOTES:
1. Support through staking or other means may still be required during production even if the stem is well structured. For example, support may be required to develop a central leader, to assist root systems to consolidate after re-potting into fresh growing media, to protect against strong winds or to simply support the above-ground parts.
2. Tight staking during production should be avoided as it may reduce stem taper and root system development. Therefore, staking methods should seek to minimize reliance on the stake.

maitland city council
Approved Plans
CC 17-1106#B / DA11-2921
Engineering Construction
CC Issue Date : 19/02/2018

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NOTES:
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5. CONFIRM LOCATION OF ALL SERVICES ON SITE PRIOR TO EXCAVATION.

Architect:

Engineer:

No.	Date	REVISION	By
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North

Status
For submission

Harvest Estate, Chisholm - Stage 7

5 Pioneer Avenue, Tuggerah, NSW

AVID Property Group

SPECIFICATION

SCALE: 1:100
ORIGINAL DRAWING AT A1.
Drawn By: RL
Checked By: DM
Approved By: DM

Project No. **1464**
Drawing No. SP-301 Rev F

Stem structure
The diameter of the stem above the branch union shall be greater than the diameter of the branch at the point of attachment.
1. Where tree stock has a defined central leader, an apical bud shall be intact and any stem deviation from vertical shall not exceed 15°. Division shall be above any clean stem height requirements.
NOTE:
1. This does not apply to weeping trees, trees produced as multi-stemmed specimens or other trees where a straight leader is not specified or is not a natural characteristic.
2. Where tree stock has branch dominance, terminal buds shall be intact. The union at any division shall be sound and any such division shall be above any clean stem height requirements.
Formative pruning
Formative pruning of tree stock shall be in accordance with AS 4373. All pruning cuts shall be at the branch collar or a node. The diameter of any pruning cut shall not exceed 50% of the stem diameter immediately above the point of pruning. If a clean stem is required it shall not exceed 40% of total stem height see.
Included bark
Included bark shall not be present (see Notes). The stem bark ridge and branch bark ridge unions shall be convex [outwardly turned and extruding (see Note 1).
NOTES:
1. Included bark may be an inherent characteristic of various species and can arise through genetics, the use of poor pruning practices or it may be associated with regrowth after damage.
2. Unions with included bark inwardly turned are generally more prone to failure than sound/convex unions. They represent an inherent risk, which is greater in larger trees. Included bark can often be managed by formative pruning during nursery production and through the exclusion of stock plants that exhibit inclusions.
3. While there may be some species that naturally exhibit junctions with included bark, which rarely fail, these exceptions should be dealt with on an individual basis and should not compromise the overall aim of eliminating included bark from tree stock.
Trunk position
The base of the trunk shall be positioned within 10% of the centre of the root ball diameter.
Compatibility of graft unions
In grafted tree stock, the graft union shall be sound, and the scion and rootstock shall be compatible for the entire perimeter of the graft.
The diameter of the scion immediately above the graft shall be within 20% of the diameter of the rootstock immediately below the graft, excluding bark and cleft grafts.
Pests and diseases
Tree stock should not show evidence of active pests and diseases that may compromise the health of the tree stock.
NOTES:
1. The Nursery Production Farm Management System incorporating Nursery Industry Accreditation Scheme, Australia (NIASA), EcoHort and BioSecure HACCP, contains information on the management of active pests and diseases. Available from www.ngia.com.au.
2. Some organisms or indications of their presence are not necessarily harmful, particularly in circumstances where beneficial organisms have been used under an integrated pest management strategy. Galls or swellings on some species may be normal.

2.3 CRITERIA FOR BELOW-GROUND ASSESSMENT OF TREE STOCK
Rootball diameter
Rootballs in containers ≥45 L and ex-ground tree stock should have a diameter greater than or equal to their depth. Bare-rooted tree stock with a size index ≤57 < (e.g. 1.9 m high x 30 mm calliper) should have a rootball diameter ≥10 x the calliper.
Rootball depth
Rootball depth in tubes and cells shall exceed their diameter. Rootballs in containers shall have a depth not exceeding 660 mm. Rootballs of ex-ground tree stock with a size index ≤1144 shall have a depth ≤850 mm. Rootballs of ex-ground tree stock with a size index ≥1145 shall have a depth ≤1200 mm
Height of root crown
Tree stock in containers and ex-ground tree stock shall have a root crown at the uppermost surface of the root ball.
Non-suckering rootstock
At the time of dispatch there shall be no evidence of suckering on rootstock.
NOTE: Grafted tree stock should be supplied on non-suckering species of rootstock.
Pests, diseases and weeds
The rootball should show no evidence of any active pests, diseases or weeds that may compromise the health of the tree stock.
NOTES:
1. The Nursery Production Farm Management System incorporating Nursery Industry Accreditation Scheme, Australia (NIASA), EcoHort and BioSecure HACCP, contains information on the management of active pests, diseases and weeds. Available from www.ngia.com.au.
2. Some organisms or indications of their presence are not necessarily harmful, particularly in circumstances where beneficial organisms have been used under an integrated pest management strategy. Galls or swellings on some species may be normal; e.g., lignotubers on some *Eucalyptus spp*.
Rootball occupancy
On removal of the unsupported rootball from the container, at least 90% of the growing media volume shall remain intact in or around the rootball.
Root direction
Tree stock in containers shall comply with the following:
(a) Circling roots shall not be present in the rootball (see Note 1).
(b) Woody circling roots shall not be present at the extremity of the rootball.
(c) Tree stock in containers and bare rooted tree stock shall also comply with the following (see Note 2):
(i) Roots, from the point of initiation, shall grow in an outwards (radial) and downwards direction.
(ii) Girdled roots, kinked roots or j-roots shall not be present (see Note 3).
NOTE:
Roots at the outer edge of a container should be removed at or before planting. Any such pruning should be restricted to the outermost edge of the rootball.
Root division
Tree stock in containers ≤45L and ex-ground tree stock shall have undergone primary division at least once within the rootball.
Tree stock in containers >45L shall have undergone primary division at multiple intervals (see Note 1).
NOTES:
1. This will ensure optimum root occupancy.
2. At each stage of production the root system should be inspected for non-conforming roots and pruned if required.

3.0 CRITERIA FOR TREE STOCK BALANCE ASSESSMENT
Tree stock balance is determined by calculating size index by multiplying the height (metres) of the tree stock measured from the root crown to the top of the trunk by the calliper (millimetres), as follows: *Size index = height x calliper*
The calculated size index value of tree stock in containers ≥20L or ex-ground tree stock with a minimum rootball diameter of ≥400mm should fall within nominated container volume as set out in Appendix E.
NOTES:
1. It is recognized that species, climatic conditions and production process may influence the height-calliper proportions. Therefore, size index should not be used in isolation when specifying tree stock for landscape use.
2. Further information regarding indicative tree stock height and calliper measurements is given in Appendix D, AS2303.
3. At the time of publication, industry had committed to undertake further research of tree stock balance parameters across all climatic regions of Australia. This is intended to be completed within two years of publication and the data considered in a review of the Standard at that time.

SECTION B: PLANTING SPECIFICATION

1.0 GENERAL

1.1 EXISTING SERVICES
Existing services on site include storm water drainage, water, and associated power service conduits. Locations of all services should be established prior to excavation of planting holes and installation of trees. The drawings DO NOT indicate the extent of existing services. Existing services must be confirmed by the contractor prior to excavation. Do not excavate by machine within 1m of existing underground services without prior approval or identification of service location.

1.2 TREE PROTECTION
Protect trees to be retained in accordance with AS4970 'Protection of Trees on Development Sites'.

* Tree Protection Zone (TPZ) are to be etablished around the trees identified to be retained in accordance with Australian Standard AS4970

* A 1.8 metre high chain mesh fence is to be erected around each TPZ prior to works commencing and must remain intact until contruction is completed.

* Fences around Tree Protection Zones must be sign posted to warn of its purpose.

* TPZs are to be mulched to a minimum depth of 100mm using organic mulch.

* Any excavation within the vicinity of an identified TPZ is to be carried out by hand, with all care taken not to damage tree roots. If tree roots greater than 30mm are found during works that need to be severed, they are to be cut with a saw (not ripped).

* A suitably qualified Project Arborist (AQF Level 5) is to be in attendance to supervise tree works on site during critical stages of construction, particularly when excavations are carried out within the identified TPZ of trees nominated for retention.

* Any minor pruning of trees must be carried out in accordance with Australian Standard AS4373-2007 - Pruning of Amenity Trees, by a suitably qualified Arborist.

* Harmful Materials - storage of materials, building waste, excavated spoil, cement or any harmful materials are not permitted within TPZs.

1.3 WEED CONTROL
Initial application of a glyphosate herbicide equal to Roundup Bi-Active to the manufacturers recommendation and in suitable weather conditions (sunny weather, no rain or wind), well prior to any site disturbance. Ensure an adequate time lapse between herbicide application and site disturbance to ensure that target vegetation is dead. Continue to reapply in two week intervals if target vegetation does not respond initially. Reapplication of a glyphosate herbicide (as above) after to remove any regrowth of grass/weeds. Regularly remove, by hand, rubbish and weed growth that may occur or reoccur throughout planted and mulched areas. Continue eradication throughout the course of the works and during the Planting Establishment Period.

1.4 FERTILISERS AND ADDITIVES
Apply fertilisers according to the manufacturer's recommendations and recommended rates. Use slow release fertiliser pellets placed to the bottom of the planting hole for plants. Spread fertiliser over topsoil before laying turf.
PLANTS 8/9mth Slow release fertiliser. N:P:K 8:1:5 (Natives)
TURF Complete lawn fertiliser. N:P:K 10:4:5.

2.0 TREES & MATERIALS

2.1 TREES & PLANTS
Material: Trees & plants shall be of the species, sizes and quantities as shown on the approved drawings. Discrepancies within the planting schedule and the drawing should be referred to Council's Project Officer for clarification.

Trees ordered and delivered to site must meet the requirements contained within AS2303 - Part A

Dispatch Tree Stock Inspection Checklist shall be provided to Council's nominated Project Officers.

Supply: Trees & plants are to be transported to site in a covered ventilated vehicle to reduce the effect of wind damage, transpiration and stress.

Storage: If trees & plants are to be stored on site prior to planting, ensure stock are protected from the winds and construction site activites. Water each plant thoroughly once a day for everyday it is stored on site.

Substitution: All proposed substitution require written consent from Maitland City Council.

2.2 SOILS
* Top 300mm soil to be equal to AS4419-2003 'Organic Soil' with texture to AS4419-2003 Table 1- Sandy Loam.
Below 300mm do not incorporate organic matter. Below 300mm soil to be equal to AS4419-2003 'Soil blend' with max 5% organic matter content. Texture to AS4419-2003 Table 1- Sandy Loam.

* Incorporate composted soil conditioners (to AS4454) into the top 300mm of the soil profile. (Refer to ***FERTILISERS***)

Soil Properties: Soil for the works shall be free from noxious weeds etc. Soil shall be assumed to be placed to all planting areas and as infill to structural cells. Remove and dispose of all spoilt or excess soil excavated in the process of implementing the landscape works.

Source Landscape Soil:
Soil to be used for these landscape works shall be: Ameliorated Site Topsoil or Imported General Purpose Soil (where quantities of site soil are insufficient) to the areas and locations as specified. Imported soil may be from site stockpiles or created from a mix of imported soils, stockpiled site soil and composted soil conditioners (conditioners to conform to AS4454).

Existing Topsoil: Existing topsoil may be used if it meets the requirements for imported topsoil or if approved by the supervisor. Provide a minimum of one soil sample with accompanying soil test report for each topsoil type found at the site. Following the completion of the soil testing, the contractor and supervisor shall meet at the site prior to beginning of topsoil stripping and establish the limitations of areas where existing topsoil may be used and the depth of topsoil stripping permitted.

Soil Substitution: Soils that do not conform to the above specifications may be proposed for use provided a statement from a qualifed landscape agronomist confirming the proposed soil is fit for purpose is submitted to Council's Project Officer for acceptance.

SOIL TESTS
Test soil and ameliorate in accordance with soil test results. Where unavailable for reuse import suitable topsoil to support native plant growth.

Sampling: As recommended in AS 4419 (2003) Appendix A (when on site soil is to be used).
Sampling technique: The following sampling technique should be used in conjunction with the guidelines recommended in AS 4419 (2003). Where discrepancies arise, refer to the Superintendent for clarification prior to proceeding with any works.

The Contractor shall arrange for the following soil tests to be carried out:
• Where site topsoil is to be used, three site topsoil tests by an approved soil testing laboratory as specified, from topsoil stockpiles.
• Three tests of any proposed imported topsoil; and

For each test, take six samples of each soil type. These should be taken from various locations. Each sample should be approximately a spade full in quantity. For each soil type, thoroughly mix the six samples together to obtain an 'average' sample. Ensure that mixing is carried out in a clean mixing container, with no impurities such as cement residue or imported soil etc present. Extract 1kg (approximately a 2L ice cream container) final samples from each of the three mixed batches. Package and forward to the soil laboratory for testing, together with a site plan locating sources of soil samples and a record of any relevant details about the site and source locations.

Type of Soil Test Required: The Contractor shall specify that a 'major soil test' is required, for the purpose of analysing the characteristics and recommendations for use as a landscaping topsoil for native species.

Results: The results of all soil tests should be submitted to the superintendent when available.

Lead time: Allow a minimum of five full working days for completion of soil testing, and check with laboratory to ensure testing will not delay landscaping works. Supply soil tests to site superintendent once available.

2.4 FERTILISERS
Depth: Incorporate additives by hand to a depth of 300mm.
Application Rate: To manufacturer's recommended application rates.
Type: A well-rotted vegetative material, free of weed and grass growth complying with the AS4454 *Composts, soil conditioners and mulches* requirement for mature compost suitable for the plant species scheduled.

2.5 MULCH
Quality: Free of weeds and pathogens. Free from polymers which do not degrade, such as plastics, rubber and coatings.
Type: A chipped timber mulch complying with the AS4454 *Composts, soil conditioners and mulches* requirements for coarse mulch and composted mulch suitable for the plant species scheduled.
Mulch Installation to Trees: Install immediately after planting to prevent erosion, loss of soil moisture and weed seed germination with a depth of 75mm.
Rake mulch to an even surface level with surrounding surfaces. Ensure mulch is kept clear of tree stems.
Mulch Installtion to Mass Planting: Spread the mulch layer over all mass planting beds and individual plantings with a depth of 75mm.

2.6 TURF
Type: Turf species to be couch unless otherwise indicated in conditions of consent.
Supply: Obtain turf from a specialist grower of cultivated turf. Provide turf to even thickness, free from weeds and other foreign matter. Turfing to make good any additional areas disturbed during construction works. The turf should be delivered to the site within 24 hours of being cut and lay within a further 12 hours. Prevent turf from drying out.

2.7 JUTE MAT
Supplier: 'TREE MAX'
Contact: Neil Taylor - 0400 584 585
Install in accordance with manufacturers specification. Trench at top and bottom of embankment as detailed.

2.7 FLORA EDGE™
Supplier: OZBreed
Contact: ph. 02 4577 2977 | http://ozbreed.com.au
Install in accordance with manufacturers specifcation. Refer to plans and detail on installation location.

2.8 GRASS SEEDING
Undertake weed removal works and soil test prior to application of grass seed mix.
Grass seed mix application area to be coordinated on site with the superintendent. Seeding depth subject to supplier.

Seed Mix Schedule

CYN dac	*Cynoden dactylon*	Hulled Couch	30kg/ha (11%)
FES aru	*Festuca arundinacea* 'Alta'	Alta Tall Fescue	140kg/ha (50%)
FES rub	*Festuca rubra* 'Commutata'	Chewing Fescue	40kg/ha (14%)
LOL per	*Lolium perenne* 'Victorian'	Perennial Rye Grass	50kg/ha (18%)
TRI rep	*Trifolium repens*	White Clover	20kg/ha (7%)

2.9 STRAW MULCHING
Straw Depth: 30mm
Binder: granulated 'Guar Gum'
Colouring: Biodegradable green dye as recommended

3.0 EXECUTION

3.1 EXCAVATION OF PLANTING HOLES
Locations for plants and/or outlines of areas to be planted are to be staked out at the site. Locate and mark all subsurface utility lines. Approval of the stakeout by the supervisor is required before excavation begins. Tree pits are to be excavated to the depth and widths indicated on the drawings. If the planting area under any tree is initially dug too deep, the soil added to bring it up to the correct level should be thoroughly tamped. The sides of the excavation of all planting areas shall be sloped at 45 degrees. The bottom of the planting hole shall slope parallel to the proposed grades or toward any subsurface drain lines within the planting bed. The bottom of the planting hole directly under any tree shall be horizontal such that the tree sits plumb.

Maintain all required angles of repose of the adjacent materials as shown on the drawings. Do not excavate compacted subgrades of adjacent pavement or structures.

Subgrade soils shall be separated from the topsoil, removed from the area, and not used as backfill in any planted or lawn area. Excavations shall not be left uncovered or unprotected overnight. For trees and shrubs planted in individual holes in areas of good soil that is to remain in place and/or to receive amendment in the top 150mm layer, excavate the hole to the depth of the root ball and to widths shown on the drawing. Slope the sides of the excavation at a 45 degree angle up and away from the bottom of the excavation.

3.2 SUB-GRADE CULTIVATION
Location: to all pits where sub-soil cultivation is noted on approved planting details.

Remove: Rocks >100mm diameter from base of excavated pits.

Apply gypsum at the at the manufacturer's specifed rates to clay subgrades. Chisel, disc plough or use an excavator with a tyne attachement to loosen subgrade and mix the gypsum to a 200mm deep to incorporate.

Harrow to break up clods but do not smooth (leave the surface rough to accept topsoil).

Preparation of subgrades to be inspected prior to the installation or modification of topsoil or planting mix. Till the subsoil into the bottom layer of topsoil or planting mix. Loosen the soil of the subgrade to a depth of 50 to 75 mm with a rototiller or other suitable device.

Detrimental soil conditions: The supervisor is to be notified, in writing, of soil conditions encountered, including poor drainage, that the contractor considers detrimental to the growth of plant material. When detrimental conditions are uncovered, planting shall be discontinued until instructions to resolve the conditions are received.

Obstructions: If rock, underground construction work, utilities, tree roots, or other obstructions are encountered in the excavation of planting areas, alternate locations for any planting shall be determined by the Council Project Officer.

3.3 PLANTING OPERATIONS
Before planting begins thoroughly water the plants and planting areas. Water plants again immediately after planting.

3.4 TREES
Plants shall be set on flat-tamped or unexcavated pads at the same relationship to finished grade as they were to the ground from which they were dug, unless otherwise noted on the drawings. Plants must be set plumb and braced in position until topsoil or planting mix has been placed and thoroughly watered in to stabilise the root ball of the tree (Do not tamp down soil). Improper stabilization of the soil around the root ball may result in the tree settling or leaning. Plants shall be set so that they will be at the same depth and so that the root ball does not shift or move laterally one year later.

Determine the elevation of the root flare and ensure that it is planted at grade. This may require that the tree be set higher than the grade in the nursery. If the root flare is less than 50mm below the soil level of the root ball, plant the tree at the appropriate level above the grade to set the flare even with the grade. If the flare is more than 50mm at the center of the root ball the tree shall be rejected.

Lift plants only from the bottom of the root balls or with belts or lifting harnesses of sufficient width not to damage the root balls. Do not lift trees by their trunk or use the trunk as a lever in positioning or moving the tree in the planting area.

Remove plastic, paper, or fiber pots from containerised plant material. Score the side of the root ball with a sharp knife and tease out roots. Immediately after removing the container, install the plant such that the roots do not dry out. Pack planting mix around the exposed roots while planting. Completely remove any waterproof or water-repellant strings or wrappings from the root ball and trunk before backfilling.

3.5 SOIL AND MULCH
Place soil mixes, tamping lightly to reduce settlement. Ensure that the backfill immediately around the base of the root ball is tamped with foot pressure sufficient to prevent the root ball from shifting or leaning.

Thoroughly water all plants immediately after planting. Apply water by hose directly to the root ball and the adjacent soil. Remove all tags, labels, strings, etc. from all plants. Remove any excess soil, debris, and planting material from the job site at the end of each workday.

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Status
For submission
Harvest Estate, Chisholm - Stage 7
5 Pioneer Avenue, Tuggerah, NSW
AVID Property Group

SPECIFICATION
SCALE: 1:100
ORIGINAL DRAWING AT A1.
Drawn By: RL
Checked By: DM
Approved By: DM
Project No. 1464
Drawing No. SP-302 Rev F

3.6 FINE GRADING
Provide smooth transitions between slopes of different gradients and direction. Modify the grade so that the finish grade is flush with all paving surfaces or as directed by the drawings. Fill all dips and remove any bumps in the overall plane of the slope.

3.7 PRUNING
Plants shall not be heavily pruned at the time of planting. Pruning is required at planting time to correct defects in the tree structure, including removal of injured branches, double leaders, waterspouts, suckers, and interfering branches. Healthy lower branches and interior small twigs should not be removed except as necessary to clear walks and roads. In no case should more than one-quarter of the branching structure be removed. Retain the normal or natural shape of the plant. All pruning shall be completed using clean, sharp tools. All cuts shall be clean and smooth, with the bark intact with no rough edges or tears.

3.8 MULCHING
Use mulch which is free of deleterious and extraneous matter such as soil, weeds and sticks. Place mulch to the required depth, clear of plant stems, and rake to an even surface flush with surrounding finished levels.
Mulch type shall be: 'Forest Blend' (Coarse 20-40mm) as supplied by Australian Native Landscape or an approved equivalent.
Maintain the surface in a clean and tidy condition and reinstate the mulch a necessary.

3.9 TURF
Prepare the soil in accordance with the approved landscape plans. Lay turf on a moist surface. Lay along the contours with close butted joints so turf is flush or 10mm below adjoining finished surfaces.

As soon s practicable after laying roll with roller, watering as necessary to keep soil moist.

Protect newly turfed areas against traffic until established.

SECTION C: LANDSCAPE MAINTENANCE SPECIFICATION

1.0 SCOPE

1.1 PERIOD
The Planting Establishment Period commences at the date of Practical Completion.
The duration of the plant establishment period is 52 weeks. Once planting is complete areas as marked must be protected by 1800mm high temporary fencing for the duration of construciton.

1.2 PROGRAM
Furnish a proposed planting maintenance program with the tender. Work schedule To Be Confirmed.

1.3 MAINTENANCE LOGBOOK
Contractor to keep a maintenance record of works carried out on a monthly basis. Log should include but not limited to:
- Activities carried out during each attendance
- Irregularities encountered and actions taken
NB: Maintenance payment will be evaluated on submission of monthly logbooks.

Submission: Contactor is to submit two maintenance Logbook to Moir Landscape Architecture at 26 weeks and 52 weeks after practical completion.

1.4 RECURRENT WORKS
Throughout the Planting Establishment Period, continue to carry out recurrent works of a maintenance nature including, but not limited to, watering, mowing, weeding, rubbish removal, fertilising, pest and disease control, staking and tying, replanting, cultivating, pruning and keeping the site neat and tidy. All rubbish related to landscape works shall be removed by the landscape contractor before it is allowed to accumulate.

1.5 PLANTING
Commence recurrent planting maintenance works at the completion of planting. Ensure the stock arriving on site is protected and maintained for healthy growth.

1.6 REPLACEMENTS
Continue to replace failed, damaged or stolen plants for the extent of the Planting Establishment Period.

1.7 MULCHED SURFACES
Maintain the surface in a clean and tidy condition and reinstate the mulch as necessary.

1.8 TURF AREAS
Regular watering, weeding, fertilising and any other activities required to ensure good establishment of the turf. Last mowing shall not be less than seven days before the end of the maintenance period.

Lift and replace failed turf.

Lightly top dress to correct any unevenness.

1.9 STAKES AND TIES
Adjust or replace as required. Remove those not required at the end of the Planting Establishment Period.

1.10 STREET TREE UNDERCUT
All street trees to be maintained a 1.2m undercut by qualified contractor in consultation with qualified arborist. All pruning to be conducted in accordance with industry best practice and ensuring the health of street tree is not compromised.

1.11 WATERING
Generally: Maintain a vigorous healthy appearance.
Site Water: The contractor shall assume there is no site water available other than that which is provided as part of the works. The contractor shall be responsible for supplying water and/or paying for water for the duration of the works.
Timing: Water at times of day to minimise water evaporation loss. Do not water during the hottest period of Summer days.
Public areas without installed watering systems: Water in dry periods. Make available all necessary equipment to carry out hand and sprinkler watering as required.
Water restrictions: Coordinate the water supply and confirm the watering regime against federal and state government legislation and restrictions at the time.
Hand watering: Manually water all lawn and planting areas in the absence of an irrigation system or until the proposed irrigation system is fully operational.

2.0 REPORTS

2.1 LANDSCAPE PRACTICAL COMPLETION REPORT
Moir Landscape Architecture is to submit a 'Landscape Practical Completion Report' to the Council's Project Mangement officer that certifies that all landscape works and relevant witness and hold point inspections have been carrried out, implement and maintained in accordance with the construction specification.

2.2 LANDSCAPE MAINTENANCE CERTIFICATE
Moir Landscape Architecture is to submit two 'Landscape Maintenance Certificate' to the Council's Project Management Officer at 26 weeks and 52 weeks after practical completion, that certify that at 26 and 52 weeks after practical completion, that approved public domain works are being satisfactorily maintained.

SECTION D: HARDWORKS

1.0 EDGING

1.1 TIMBER EDGING
Edging to be used as a separation between gardens (including tree planting) and lawns.
Timber edging shall be provided at the interface of gravel, turf, mass planting and other soft landscaping areas unless otherwise shown
Use 38 X 100 mm H4 treated pine edging with 500 x 50 x 50 stakes (with 2 galvanised nails per fixing) finished 25 mm below top of edging.

2.0 ROOT BARRIER

Material: Root barriers shall be manufactured from a 100% recycled HDPE. with a minimum barrier thickness of 1mm.

Depth: As shown on approved drawings. Refer to details.

Installation: Install in accordance with approved project plans and manufacturer's specifications. Overlap the seal joins in accordance with manufacturer's specification.

SECTION F: WITNESS & HOLD POINTS

1.0 HOLD POINTS

All landscape and public domain works as approved shall be coordinated with Council's Project Management Officer during the construction period

The following hold point/witness point inspections (where applicable) are to be carried out by Council's Project Management Officer:

HOLD POINT	COMPLETED	NOTES
Excavation of tree pits with root barrier and sub-surface drainage installed in accordance with Council's Landscape Standard Drawings.	Yes/No	
Evidence of certification of all associated imported topsoil for street tree planting in accordance with AS4419 - 2003 to be provided to Council's Project Management Team.	Yes/No	
Tree delivery prior to installation an certification to comply with AS2303-2015 *'Tree Stock for Landscape Use'*	Yes/No	
WITNESS POINT		
Commencement of tree planting	Yes/No	
Completion of tree planting, including installation of any guards, feature panels / grates in accordance with Council's *Landscape Standard Drawings*	Yes/No	
Installation of each layer/horizon of growing medium	Yes/No	

2.0 INSPECTIONS

Inspections must be carried out by Council's nominated Project Manager at the following points unless otherwise indicated by the Conditions of Consent:

* Installation of any tree protection measures in accordanece with AS4970 - 2009 implemented at areas identified for retention/exclusion.

* Set out of tree pits complete, prior to excavation

* Trees delivered to the site and ready for planting. Note: if desired, arrangements may be made to inspect trees prior to delivery to assist in avoiding rejection due to poor quality (NB inpsections will still be required on site prior to installation).

* Commencement of tree planting

* Completion of street tree planting and other landscaping/planting, including installation of any guard/grates, and mulch in accordance with the approved plans.

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Engineering Construction
CC Issue Date : 19/02/2018

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Engineering Construction
CC Issue Date : 19/02/2018

TREE INSPECTION FORM IN ACCORDANCE WITH AS2303

General

Date		Special requirements	
Purchaser		Reference	
Supplier		Inspected by (supplier/purchaser/agent)	
Species		Batch identification	
Number of trees in batch		Container/rootball size	
Height range		Calliper range	

Above ground

Labelling	❑	
Health and vigour	❑	
Freedom from pests/disease	❑	
Freedom from injury	❑	
Self-supporting	❑	
Stem taper	❑	
Pruning	❑	
Apical dominance	❑	
Crown symmetry	❑	
Stem structure	❑	
Included bark	❑	
Trunk position	❑	
Compatibility of graft unions	❑	
Indication of north	❑	

Below ground

Inspection method used	❑	External only
	❑ ❑	External plus investigative destructive ❑ partial
Number of trees in sample	❑	
Root division	❑	
Root direction	❑	
Dia. nonconforming roots at rootball extremity	❑	
Rootball occupancy	❑	
Rootball depth	❑	
Height of root crown	❑	
Non-suckering rootstock	❑	

Balance

Balance	❑	

Conformance with specification

Conforming	❑ Yes ❑ No
Comments	
Name and signature (inspector)	

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NOTES:
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2. VERIFY ALL DIMENSIONS ON SITE.
3. TO BE READ IN CONJUNCTION WITH THE SPECIFICATION.
4. READ IN CONJUNCTION WITH ALL ARCHITECTURAL, CIVIL, STRUCTURAL, HYDRAULIC, MECHANICAL AND ELECTRICAL ENGINEER'S DRAWINGS AND SPECIFICATIONS.
5. CONFIRM LOCATION OF ALL SERVICES ON SITE PRIOR TO EXCAVATION.

Architect:

Engineer:

No.	Date	REVISION	By
A	21/8/17	Draft for review	RL
B	31/8/17	Revised for submission	RL
C	25/9/17	Revised to council comment	RL
D	14/12/17	Revised to client comment	EG
E	31/1/18	Update to include Stage 7B	BN
F	13/2/18	Update as per comments	BN

North

Status
For submission
Harvest Estate, Chisholm - Stage 7
5 Pioneer Avenue, Tuggerah, NSW
AVID Property Group

SPECIFICATION
SCALE: 1:100
ORIGINAL DRAWING AT A1.
Drawn By: RL
Checked By: DM
Approved By: DM
Project No. **1464**
Drawing No. Rev
SP-303 F

SECTION E: STORMWATER DETENTION BASIN SPECIFICATION

1.0 GENERAL
Discrepancies within the planting schedule and the drawing should be referred to Moir Landscape Architecture for clarification. Make no substitutions unless approved. Substitutions shall not be approved unless the contractor complies with this specification. The specification shall take precedence over the Landscape Notes should discrepancies (not including omissions) occur between the two.

2.0 PLANT MATERIAL
Plants shall be of the species, sizes and quantities as shown on the drawing. Plants shall be vigorous, well established, of good form, not soft or forced, free from disease and insect pests. Plants shall have large healthy root systems, not root bound and all trees with a single leading shoot. Shrubs shall be container grown, bushy, well furnished with top growth, not less than 300mm in height. Ground covers and herbaceous plants shall be supplied as well hardened off specimens. Trees shall have large healthy root systems, not root bound and all trees with a single leading shoot. (Refer to NATSPEC Tree Supply).

2.1 FLORA EDGE™
Supplier: OZBreed
Contact: ph. 02 4577 2977 | http://ozbreed.com.au
Install in accordance with manufacturers specifciation. Refer to plans and detail on installation location.

3.0 WEED CONTROL
Remove weeds to all planting and turf areas. Where herbicide is to be used - Initial application of a glyphosate herbicide equal to Roundup Bi-Active to the manufacturers recommendation and in suitable weather conditions (sunny weather, no rain or wind), well prior to any site disturbance. Ensure an adequate time lapse between herbicide application and site disturbance to ensure that target vegetation is dead. Continue to reapply in two week intervals if target vegetation does not respond initially. Mechanical removal of the topsoil layer to the grass root/seed zone and disposal off-site. Reapplication of a glyphosate herbicide (as above) after contouring is complete to remove any regrowth of grass/weeds.

4.0 TREE SUPPLY
4.1 TYPE
True to type: Supply trees which are true to type.
Health: Supply trees with foliage size, texture and colour consistent with that shown in healthy specimens of the species.
Vigour: Supply trees with extension growth consistent with that shown in vigorous specimens of the species.
4.2 FREEDOM FROM PESTS AND DISEASE
Foliage: Restrict attack by pests and disease to <10% of the foliage, such that potential for long term success of the trees is not affected.
4.3 BALANCE OF CROWN
Maximum variation in crown bulk on opposite sides of stem axis +/- 20%.
4.4 UNIFORMITY OF GROWTH
Longest internode: Maximum 1.2 X shortest internode.
4.5 STEM TAPER
Support: Supply trees which are self-supporting unstaked. (other than tubestock or small trees)
Caliper: at least 1.2 X caliper at 1m above ground.
4.6 PRUNING HISTORY
General: Comply with the recommendations of AS 4373.
Pruning wounds: Confine fresh pruning wounds to <25% of the clean stem height.
Wound diameter: <50% of stem diameter immediately above point of pruning.
Pruning location: Clean cut at branch collar.
4.7 APICAL DOMINANCE
Apical Bud: If appropriate for the species, supply trees which have a defined central leader and intact apical bud.
4.8 ROOT DIVISION
Root systems: Fibrous with repeated and sequential division.
4.8 ROOT DIRECTION
Roots growing out or down: >90% of roots within rootball at every stage of development.

5.0 SOILS
Soil for the works shall be free from noxious weeds etc. Soil shall be assumed to be placed to all planting areas. Remove and dispose of all spoilt or excess soil excavated in the process of implementing the landscape works.

5.1 SITE SOIL
Site topsoil: soil excavated from the site which has the following characteristics - contains minimum 2% organic matter, supports plant life, and is free from unwanted matter
Unwanted matter (in topsoil): Stones over 25mm diameter, clay lumps, weeds and tree roots, sticks and rubbish and material toxic to plants.

5.2 TOPSOIL
General: Where available use ameliorated site topsoil. Where unavailable Import topsoil from an off-site source approved by the Superintendent.

Source Landscape Soil:
Soil to be used for these landscape works shall be: Ameliorated Site Topsoil or Imported General Purpose Soil (where quantities of site soil are insufficient) to the areas and locations as specified. Soil for the works shall be free from noxious weeds etc. Soil shall be assumed to be placed to all revegetated areas and backfill to all plantings. Unless otherwise directed by site superintendent, the landscape contractor is responsible for the removal and or disposal of all spoil or excess soil excavated in the process of implementing the landscape works.

5.3 SOIL TESTS
Test soil and ameliorate in accordance with soil test results. Where unavailable for reuse import suitable topsoil to support native plant growth.

Sampling: As recommended in AS 4419 (2003) Appendix A (when on site soil is to be used).
Sampling technique: The following sampling technique should be used in conjunction with the guidelines recommended in AS 4419 (2003). Where discrepancies arise, refer to the Superintendent for clarification prior to proceeding with any works.

The Contractor shall arrange for the following soil tests to be carried out:
• Where site topsoil is to be used, three site topsoil tests by an approved soil testing laboratory as specified, from topsoil stockpiles.
• Three tests of any proposed imported topsoil; and

For each test, take six samples of each soil type. These should be taken from various locations. Each sample should be approximately a spade full in quantity. For each soil type, thoroughly mix the six samples together to obtain an 'average' sample. Ensure that mixing is carried out in a clean mixing container, with no impurities such as cement residue or imported soil etc present. Extract 1kg (approximately a 2L ice cream container) final samples from each of the three mixed batches. Package and forward to the soil laboratory for testing, together with a site plan locating sources of soil samples and a record of any relevant details about the site and source locations.

Type of Soil Test Required: The Contractor shall specify that a 'major soil test' is required, for the purpose of analysing the characteristics and recommendations for use as a landscaping topsoil for native species.

Results: The results of all soil tests should be submitted to the superintendent when available.

Lead time: Allow a minimum of five full working days for completion of soil testing, and check with laboratory to ensure testing will not delay landscaping works. Supply soil tests to site superintendent once available.

5.4 SOIL TEXTURES
Use soils described by the following terms (or their equivalents) which comply generally with the texture classifications and typical uses of AS 4419 –(1998) Table H1 Medium textured - Sandy loam.

5.5 SOIL LEVELS
Finished soil levels shall allow turf or mulch to be finished to top of kerb, gravel pavement, existing levels or as otherwise shown on drawings.

Compact lightly and uniformly in 150 mm layers. Avoid differential subsidence and excess compaction and produce a finished topsoil surface which has the following characteristics:
• Finished to design levels.
• Smooth and free from stones or lumps of soil.
• Graded to drain freely, without ponding, to catchment points.
• Graded evenly into adjoining ground surfaces.
• Ready for planting.

6.0 EXCAVATION
All other Mass planting beds: Where defined planting beds are indicated on the landscape drawings with specific species scheduled and no turfing shown, treat as an excavated landscape planting bed

Excavate the subgrade to the required depths to receive top soil and rip subgrade to the depths shown on the plans to allow plant roots to establish and divide. Finished soil levels shall allow for turf or mulch to be finished to top of kerb, top of steel edging, top of planter beds, top of paved surfaces or as otherwise shown on the drawings. Depth of topsoil shall be as shown below or as otherwise noted on the drawings. All spoil to be removed from site unless approved otherwise.

7.0 CULTIVATION
Prepare all sub grades to receive planting by cultivating to the depths shown on the details. The location of underground services are to be determined prior to commencement of work, do not cultivate with machinery within 1.0m of underground services lines. Remove all stones over 50mm and other unwanted debris by hand. Thoroughly mix in additives and trim finished levels.

8.0 ADDITIVES
Additive types and rates: The Contractor shall incorporate additives to the subsoil or topsoil at rates recommended by the soil test results.

Where site topsoil is to be stockpiled for reuse, incorporate additives as recommended in soil tests by cultivating through the topsoil. For excavated garden beds or backfill to planting holes, incorporate additives into stockpiled topsoil prior to placement. In all situations, ensure additives are thoroughly mixed through topsoil.

9.0 FERTILISERS AND SOIL CONDITIONERS
Fertiliser: Apply fertilisers according to the manufacturer's recommendations and recommended rates.
Native plant slow release fertiliser (equal to 'Osmocote Native Gardens') - N:P:K 17.9 :0.8 :7.3

Soil Conditioner Amendment:
Soil conditioner amendment to be 'TerraCottem Universal' (or approved other by Site Super Intendant), applied at the rates listed below.

150 dia pot	40 grams
200 dia pot	100 grams
25L pot	400 grams
100L pot	1 kg

10.0 PLANTING
Before planting begins thoroughly water the plants and planting areas. Plants shall be set plumb with the top of the root ball slightly below the level of the surrounding ground. Water plants again immediately after planting.

11.0 STAKING
Timber stakes must be hardwood and sharpened to a point at one end. The size of timber stakes, and the number required per plant must be in accordance with the table below.

Plant Size	Timber Stake Size	No. of Stakes
Advanced (200mm dia pot)	25 mm x 25 mm x 1500 mm long	1

Ties must be 50 mm wide hessian webbing.

12.0 MULCH
Use mulch which is free of deleterious and extraneous matter such as soil, weeds and sticks. Place mulch to the required depth (75mm), clear of plant stems, and rake to an even surface flush with surrounding finished levels.
Mulch type shall be: 'Forest Blend' (Coarse 20-40mm) as supplied by Australian Native Landscape or an approved equivalent.

13.0 JUTE MAT
Supplier: 'TREE MAX'
Contact: Neil Taylor - 0400 584 585
Install in accordance with manufacturers specification. Trench at top and bottom of embankment as detailed.

14.0 EDGING

14.1 CONCRETE EDGE
Maitland City Council (Refer SD-004 '*Edge Restraint*')
- 32MPa Concrete strip 250mm (high) x 200mm (wide)
- All exposed corners radii
- 100mm thick washed sand or Class 3 FCR sub-grade

15.0 MAINTENANCE

15.1 PERIOD
The Planting Establishment Period commences at the date of Practical Completion.
The duration of the plant establishment period is 52 weeks.

15.2 MAINTENANCE LOGBOOK
Contractor to keep a maintenance record of works carried out on a monthly basis. Log should include but not limited to:
- Activities carried out during each attendance;
- Irregularities encountered and actions taken;
NB: Maintenance payments will be evaluated on submission of monthly logbooks.

15.3 RECURRENT WORKS
Throughout the Planting Establishment Period, continue to carry out recurrent works of a maintenance nature including, but not limited to, watering, mowing, weeding, rubbish removal, fertilising, pest and disease control, staking and tying, replanting, cultivating, pruning and keeping the site neat and tidy. All rubbish related to landscape works shall be removed by the landscape contractor before it is allowed to accumulate.

15.4 PLANTING
Commence recurrent planting maintenance works at the completion of planting. Ensure the stock arriving on site is protected and maintained for healthy growth.

15.5 REPLACEMENTS
Continue to replace failed, damaged or stolen plants for the extent of the Planting Establishment Period.

15.6 MULCHED SURFACES
Maintain the surface in a clean and tidy condition and reinstate the mulch as necessary.

15.7 GRASSED AREAS
Commence grass maintenance works at the completion of turfing, and continue to carry out grass maintenance throughout the contract and Planting Establishment Period, maintaining healthy weed free growth.

15.8 STAKES AND TIES
Adjust or replace as required. Remove those not required at the end of the Planting Establishment Period.

15.9 WATERING
Generally: Maintain a vigorous healthy appearance.
Site Water: The contractor shall assume there is no site water available other than that which is provided as part of the works. The contractor shall be responsible for supplying water and/or paying for water for the duration of the works.
Timing: Water at times of day to minimise water evaporation loss. Do not water during the hottest period of Summer days.
Public areas without installed watering systems: Water in dry periods. Make available all necessary equipment to carry out hand and sprinkler watering as required.
Water restrictions: Coordinate the water supply and confirm the watering regime against federal and state government legislation and restrictions at the time.
Hand watering: Manually water all lawn and planting areas in the absence of an irrigation system or until the proposed irrigation system is fully operational.

16.0 MAINTENANCE LOGBOOK
Contractor to keep a maintenance record of works carried out on a monthly basis. Log should include but not limited to:
- Activities carried out during each attendance
- Irregularities encountered and actions taken
NB: Maintenance payment will be evaluated on submission of monthly logbooks.

Submission: Contactor is to submit two maintenance Logbook to Moir Landscape Architecture at 26 weeks and 52 weeks after practical completion.

17.0 REPORTS

17.1 LANDSCAPE PRACTICAL COMPLETION REPORT
Moir Landscape Architecture is to submit a 'Landscape Practical Completion Report' to the Council's Project Mangement officer that certifies that all landscape works and relevant witness and hold point inspections have been carrried out, implement and maintained in accordance with the construction specification.

17.2 LANDSCAPE MAINTENANCE CERTIFICATE
Moir Landscape Architecture is to submit two 'Landscape Maintenance Certificate' to the Council's Project Management Officer and NSW Office of Water at 26 weeks and 52 weeks after practical completion, that certify that at 26 and 52 weeks after practical completion, that approved public domain works are being satisfactorily maintained.

18.0 HOLD POINTS / WITNESS INSPECTIONS

• All landscape and public domain works as approved shall be coordinated with Council's Project Management Officer during the construction period.

• The following hold point/witness point inspections (where applicable) are to be carried out by Council's Project Management Officer:

HOLD POINT	COMPLETED	NOTES
Completion of subgrade preparation prior to spreading of any imported soil or ameliorated site soil (in accordance with AS4419 - 2003)	Yes/No	
Where ameliorated stockpiled soil or site soil is required and utilised for planting purposes in accordance with AS4419 – 2003, evidence of associated amelioration measures must be provided to Councils Project Officer .	Yes/No	
Completion of all landscape works in accordance with the Landscape Construction Specification and subject approved Council.	Yes/No	
Batch Certificates for all imported soil in accordance with AS4419 - 2003. Should site soil be utilised for planting purposes, soil testing must be conducted in accordance with AS4419 - 2003. A copy of the results must be provided to Councils Project Management Coordinator, where amelioration of the soil is required, evidence of this application must be communicated and will form a witness/hold point.	Yes/No	
Work shall be maintained for 52 weeks.	Yes/No	
WITNESS POINT		
Completion of nominated soil spreading, mulching, any associated proprietary products and planting in accordance with the landscape specifications.	Yes/No	
Pre-ordering of plant stock in accordance with the specification.	Yes/No	
Manufacturer's warranty and maintenance information for all proprietary products	Yes/No	

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5. CONFIRM LOCATION OF ALL SERVICES ON SITE PRIOR TO EXCAVATION.

Architect:

Engineer:

No.	Date	REVISION	By
A	21/8/17	Draft for review	RL
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North

Status
For submission
Harvest Estate, Chisholm - Stage 7
5 Pioneer Avenue, Tuggerah, NSW
AVID Property Group

SPECIFICATION
SCALE: 1:100
ORIGINAL DRAWING AT A1.
Drawn By: RL
Checked By: DM
Approved By: DM
Project No. **1464**
Drawing No. Rev **SP-304 F**