

SANDY HOLLOW SOLAR FARM LANDSCAPE PLAN

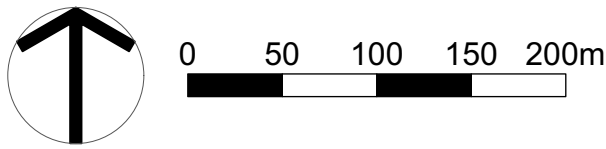
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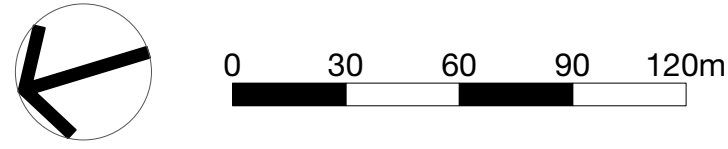
Source: Nearmap, 2024

SITE LOCATION

LOCALITY PLAN
Scale 1:4000 @ A1



SITE PLAN
Scale 1:2000 @ A1



Sheet No.	Drawing Title	Revision	Date
LP01	COVER SHEET	D	4/11/2024
LP02	LANDSCAPE PLAN	D	4/11/2024
LP03	DETAILED PLANS & SECTIONS	D	4/11/2024
LP04	DETAILED PLANS & SECTIONS	D	4/11/2024
LP05	SPECIFICATION 01	D	4/11/2024
LP06	SPECIFICATION 02	D	4/11/2024



- LEGEND
- SITE BOUNDARY
 - 10 METER APZ ZONE
 - PROPOSED SOLAR PVS
 - DENSE PERIMETER PLANTING
 - BUFFER AREA TO BE MAINTAINED TO A MINIMUM HEIGHT AS PER BUSHFIRE GUIDELINES
 - ACCESS ROAD
 - ACCESS GATE
 - PROPOSED 2.5M HIGH SECURITY FENCE

NORTHERN BOUNDARY PLANTING TO BE 5M WIDE OFF FENCE LINE

BUFFER AREA TO BE SEEDED TURF. AREA TO BE PLOUGHED, MOWN OR GRAZED AND MAINTAINED IN ACCORDANCE WITH NSW RFS STANDARDS

DENSE PLANT SCREENING ALONG THE SOUTHERN AND WESTERN BOUNDARY OF THE SITE

PV ARRAY WITHIN APZ TO BE REMOVED AND TO BE OUTSIDE THIS PROTECTED ZONE

LANDSCAPE PLAN
Scale 1:800 @ A1

0 15 30 45 60m

NOTE:
- TREES TO BE SPACED TO HAVE MINIMUM 5m DISTANCE BETWEEN CANOPIES.
- SHRUBS TO BE PLANTED BETWEEN TREE CANOPIES.
- GRASSES TO BE SLASHED TO A MINIMUM AS PER BUSHFIRE GUIDELINES



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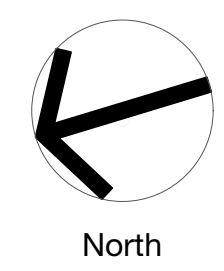
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No:	DATE:	REVISION:
A	16/10/2024	FOR COMMENT
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BY: JH
PROJECT: SANDY HOLLOW SOLAR FARM
1333 Merriwa Road SANDY HOLLOW

Status: FOR SUBMISSION

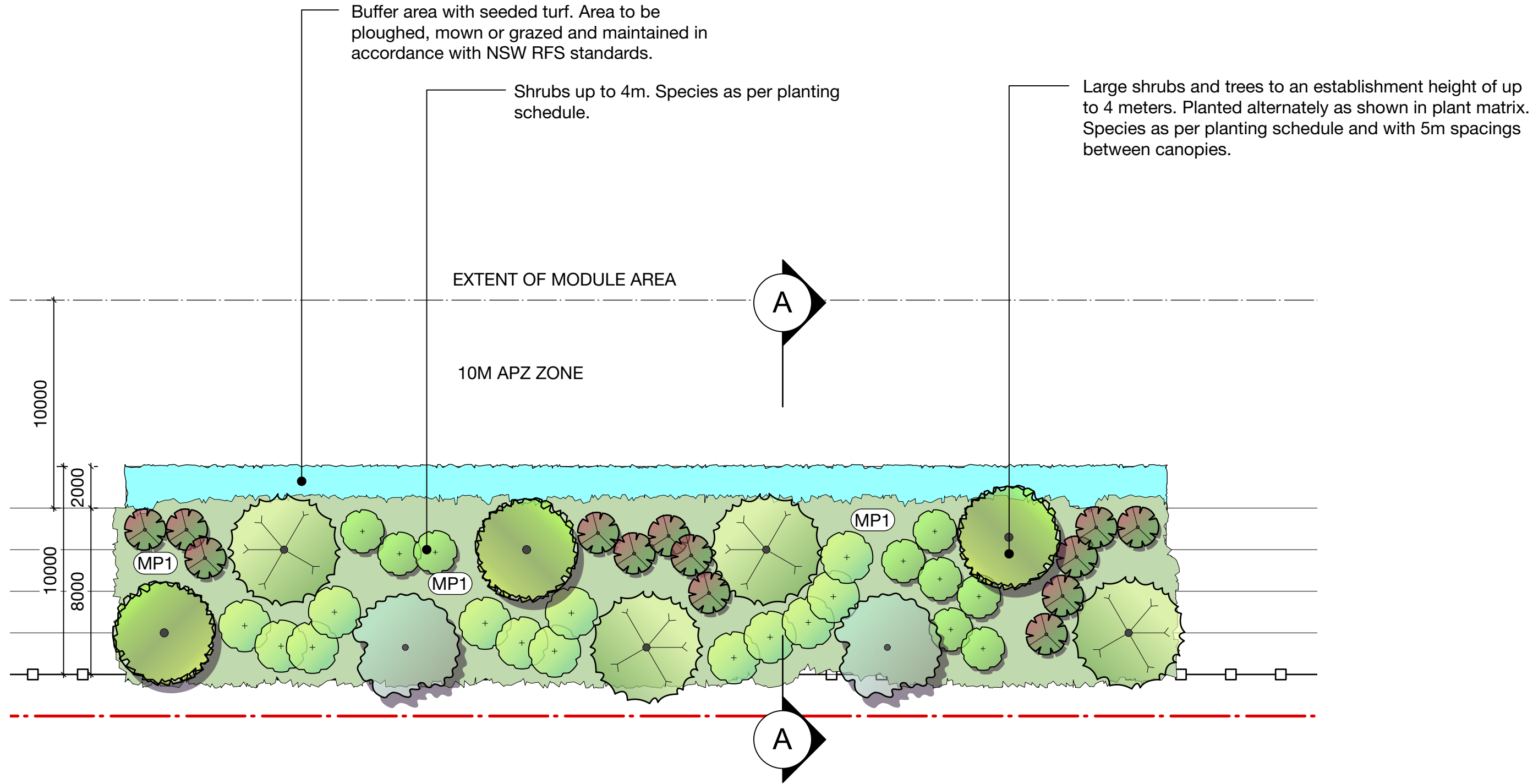


LANDSCAPE PLAN

SCALE: 1:1000

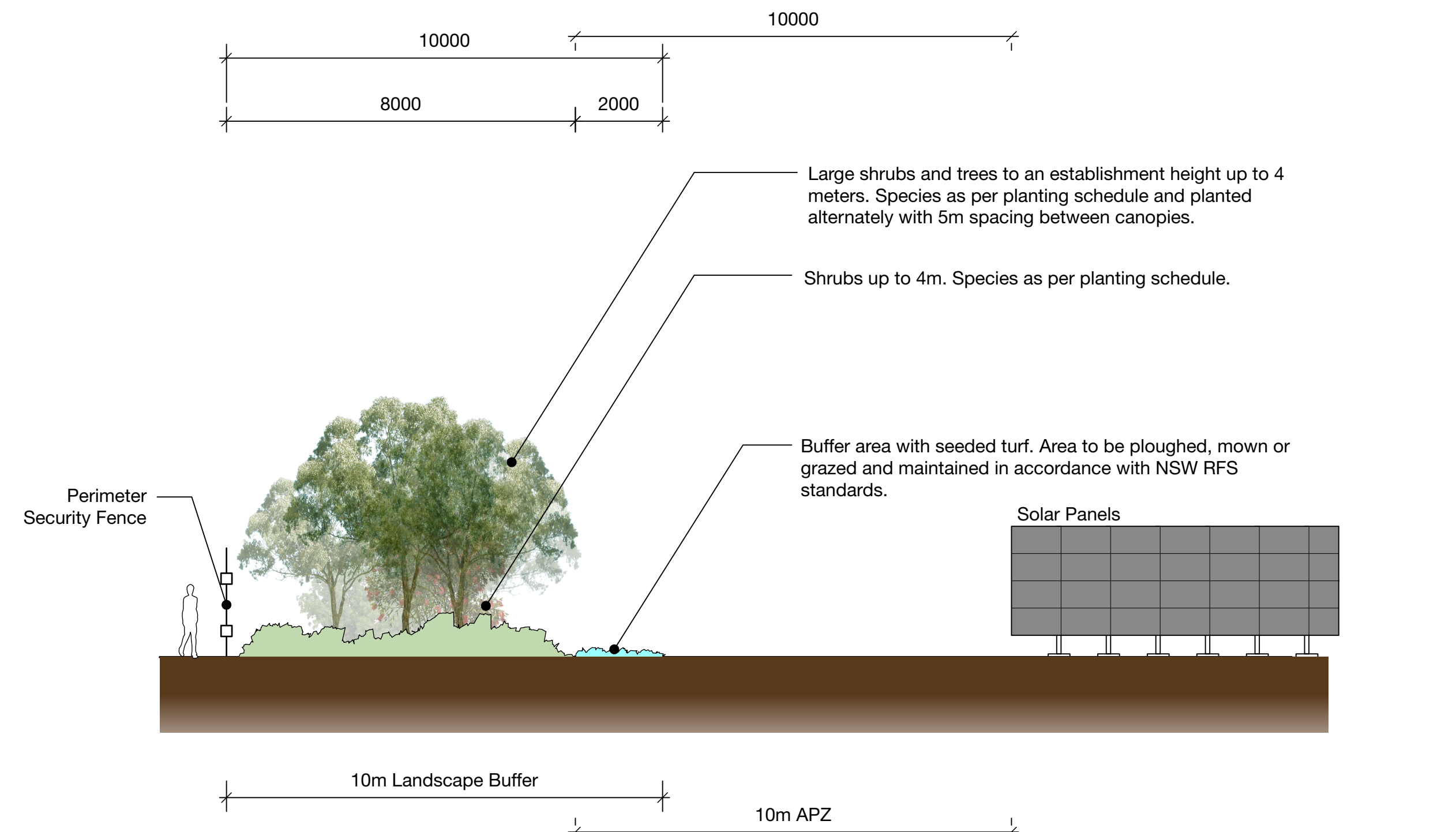
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Checked By: JR

Project No. 2528
Drawing No. LP02
Rev D



TYPICAL PLANTING MATRIX (WESTERN BOUNDARY)
Scale 1:200 @ A1

0 5 10 15 20m



TYPICAL SECTION A - SCREEN PLANTING ALONG BOUNDARY
Scale 1:100 @ A1

0 2 4 6 8 10m

PLANT IMAGERY

TREES



Acacia linifolia



Acmena smithii



Murraya paniculata

SHRUBS



Bursaria spinosa



Dodonea viscosa

MASS PLANTED GRASSES



Austrodanthonia caespitosa



Dianella caerulea



Lomandra longifolia

Planting Schedule

Code	Botanical Name	Common Name	Pot Size	Mature Height	Mature Width
Small Trees/ Large Shrubs					
ACA lin	<i>Acacia linifolia</i>	Flax-leaved Wattle	Tubestock	3 - 5m	2 - 4m
ACM smi	<i>Acmena smithii</i>	Lillypilly	Tubestock	1.5 - 3m	1 - 2m
MUR pan	<i>Murraya paniculata</i>	Orange Jessamine	Tubestock	3 - 4m	2 - 3m
PHO fra	<i>Photinia x fraseri</i> 'Red Robin'	Red Robin Dwarf Photinia	Tubestock	3m	2m
Shrubs					
BUR spi	<i>Bursaria spinosa</i>	Sweet Bursaria	Tubestock	3 - 4m	1.5 - 2.5m
CAL lin	<i>Callistemon linearis</i>	Narrow-leaved Bottlebrush	Tubestock	3 - 4m	2 - 3m
COR alb	<i>Correa alba</i>	White Correa	Tubestock	0.9 - 1.5m	0.9 - 1.2m
DOD vis	<i>Dodonaea viscosa</i>	Giant Hop Bush	Tubestock	1.5 - 3m	2.0 - 3.5m
MEL nod	<i>Melaleuca nodosa</i>	Prickly Leaved Paperbark	Tubestock	2 - 3m	2.5m
SZY cas	<i>Syzygium</i> 'Cascade'	Lilly Pilly	Tubestock	1.50 - 3m	1.2 - 2.0m
MP1 Mass Planting					
AUS cae	<i>Austrodanthonia caespitosa</i>	Common Wallaby-grass	Tubestock	0.3 - 0.45m	0.3 - 0.6m
DIA cae	<i>Dianella caerulea</i>	Blue Flax-lily	Tubestock	0.45 - 0.6m	0.3 - 0.6m
LOM lon	<i>Lomandra longifolia</i>	Spiny-headed Mat-Rush	Tubestock	0.6 - 0.9m	0.4 - 0.6m

NOTE:
MATURE HEIGHTS SHOWN ARE INDICATIVE ONLY. CONTRACTOR TO
CONFIRM TOTAL HEIGHT OF TREES AND APPLICANT TO MAINTAIN.



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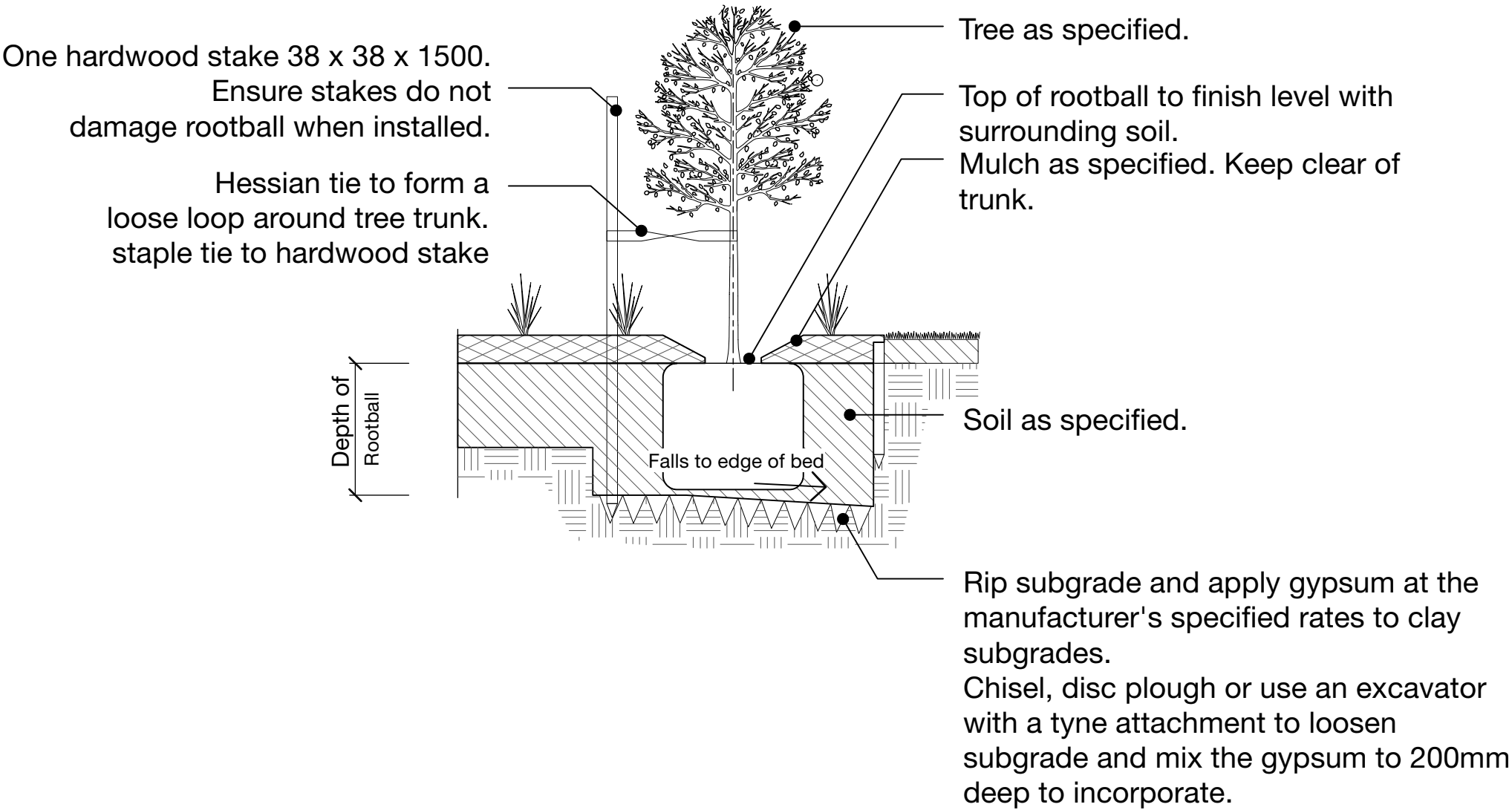
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JH

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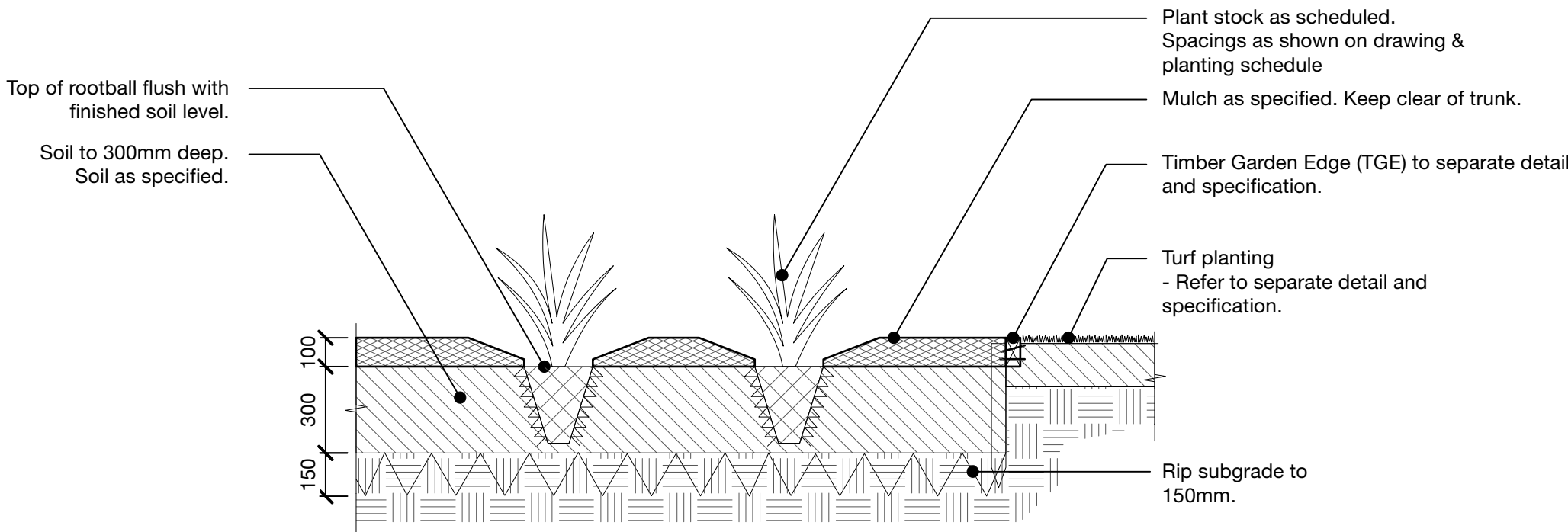
DETAILED PLANS & SECTIONS

SCALE: AS SHOWN
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Drawn By: JH
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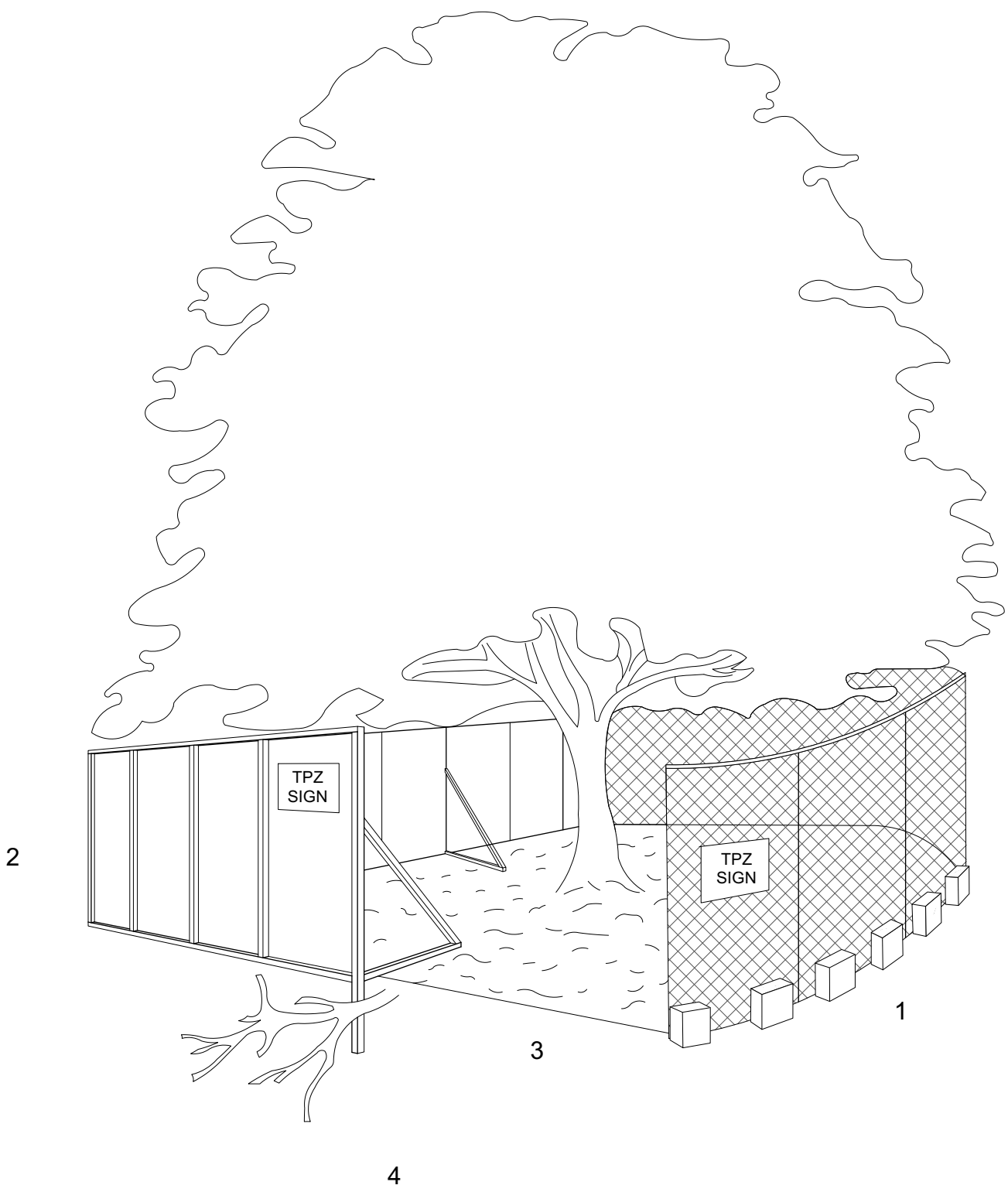
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Drawing No.
Rev
2528
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TYPICAL TREE IN MASS PLANTING DETAIL
Scale 1:20 @ A1

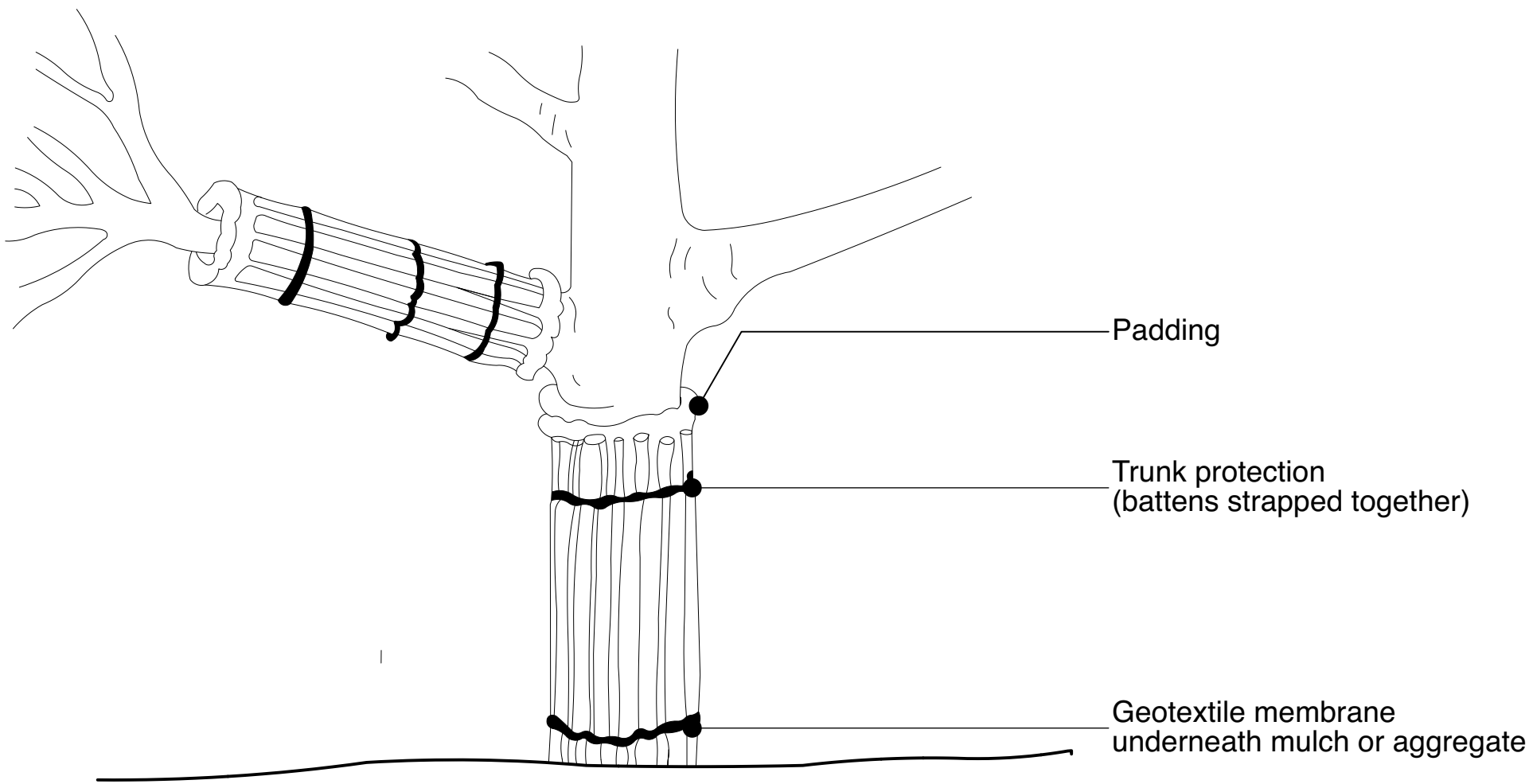


TYPICAL MASS PLANTING DETAIL
Scale 1:20 @ A1



LEGEND:
1: Chain wire mesh panels with shade cloth (if required) attached, and held in place with concrete feet
2: Alternative plywood or wooden paling fence panels. This fencing material prevents building materials, or soil entering the TPZ if required.
3: Mulch installation across surface of TPZ
4: Bracing is permissible within the TPZ. Installation of supports should avoid damaging roots

TREE PROTECTED FENCING DETAIL
Scale 1:50 @ A1



NOTE:
1. For trunk and branch protection use boards and padding that will prevent damage to bark. Boards are to be strapped to trees, and not to be nailed or screwed.
2. Rumble boards should be of suitable thickness to prevent soil compaction and root damage.



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JH

Status: FOR SUBMISSION

DETAILED PLANS & SECTIONS

SCALE: AS SHOWN
ORIGINAL DRAWING AT A1.
Drawn By: JH
Checked By: JR

Project No. 2528
Drawing No. LP04
Rev D

SPECIFICATION

1.0 GENERAL

1.1 EXISTING SERVICES

Existing services on-site, including, but not limited to, stormwater drainage, water, and associated power service conduits, are to be located before the excavation of planting holes and tree installation. The drawings do not indicate the extent of existing services. The Contractor must confirm existing services before excavation. Do not excavate by machine within 1m of existing underground services without prior approval or identification of service location by the site superintendent.

1.2 PROTECTION OF EXISTING FEATURES

During installation, protect all existing trees, shrubs, other specified vegetation, features and improvements, structures and utilities. All retained trees are to be protected from damage from groundworks. Take necessary precautions, including:

- Harmful Materials: Do not store or place bulk and dangerous materials under or near trees. Do not place spoil from excavations against tree trunks, even for short periods. Prevent wind-blown materials such as cement from harming trees and plants.
- Damage: prevent damage to tree bark. Do not attach stays, guys and the like to trees.
- Work under trees: Do not add or remove Topsoil within the drip line; use hand methods to preserve root systems intact and undamaged. Open up excavations under tree canopies for as short a period as possible.
- Roots: Where it is necessary to cut tree roots, use means such that the cutting does not unduly disturb the remaining root system. Compacted Ground: Avoid compaction of the ground under trees.

2.0 MATERIALS

2.1 PLANT MATERIAL

Discrepancies within the planting schedule or drawings should be referred to the Landscape Architect for clarification. Make no substitutions unless approval is provided in writing. Substitutions shall not be approved unless the Contractor complies with this specification. 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, and free from disease and insect pests. Plants shall have large, healthy root systems.

2.2 SOILS

The top 300mm of soil shall comply with AS4419:2018 'Organic Soil' and must have a texture of Sandy Loam as defined in AS4419:2018 Table 1. The subsoil, extending below 300mm, shall conform to AS4419:2018 'Soil Blend', with a maximum organic matter content of 5% and a texture of Sandy Loam, also as specified in AS4419:2018 Table 1.

2.2.1 DEFINITIONS

Site topsoil: Soil excavated from the site exhibits the following characteristics: it contains a minimum of 2% organic matter, supports plant life, and is free from unwanted Matter.

Unwanted Matter (in Topsoil): Includes stones larger than 25mm in diameter, clay lumps, weeds, tree roots, sticks, rubbish, and toxic plant material.

Topsoil: Where available, use ameliorated site topsoil. If unavailable, import topsoil from an off-site source approved by the Superintendent, ensuring it meets the above specifications.

Source Landscape Soil: Soil to be used for landscape works shall consist of either ameliorated site topsoil or imported general-purpose soil applied to the specified areas and locations. All soil used must be free from noxious weeds and other contaminants. It is assumed that soil will be placed in all revegetated areas and as backfill for all plantings.

Unless otherwise directed by the Site Superintendent, the landscape contractor shall be responsible for the removal and disposal of all spoil or excess soil excavated during the implementation of landscape works.

2.2.2 SOIL TESTS

Soil Testing and Amelioration:

Test the soil and ameliorate it by the results of the soil tests. Where site topsoil is unavailable for reuse, suitable Topsoil must be imported to support native plant growth.

Sampling:

When using on-site soil, sampling shall be conducted as recommended in AS 4419:2018 Appendix A. The following sampling technique should be used in conjunction with the guidelines specified in AS 4419:1998. In discrepancies, consult the Superintendent for clarification before proceeding with any work.

The Contractor shall arrange for the following soil tests to be conducted:

- One test of any proposed imported topsoil.
- An approved soil testing laboratory from topsoil stockpiles conducted one test of site topsoil.

Collect three samples of each soil type from various locations for each test. Each sample should be approximately the size of a spade full. Thoroughly mix the three samples to obtain an 'average' sample, ensuring mixing is done in a clean container free from impurities such as cement residue or imported soil. Extract 1 kg (approximately the volume of a 2L ice cream container) of the final sample from the three mixed batches. Package and forward these samples to the soil laboratory for testing, along with a site plan locating the sources of soil samples and 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 to analyse the characteristics and provide recommendations for use as landscaping topsoil suitable for native species.

Results:

The results of all soil tests shall be submitted to the Superintendent as soon as they are available.

Lead Time:

Allow a minimum of 10 full working days to complete soil testing. Check with the laboratory to ensure that testing will not delay landscaping works. Once available, supply soil test results to the Superintendent.

2.2.3 SUBSOIL

Excavated Planting Beds:

Where defined planting beds are indicated on the landscape drawings with specific species scheduled and no turfing shown, treat these areas as excavated landscape planting beds.

Excavation Technique:

Excavate to backfill with ameliorated site soil or imported general-purpose soil to achieve the levels shown on the drawings, allowing for mulching and placement of imported soil. Rip and cultivate to the depths specified in the drawings.

2.2.4 SOIL TEXTURES

Use soils described by the following terms (or their equivalents) that generally comply with the texture classifications and typical uses outlined in AS 4419:2018 Table H1. The required texture is medium textured—specifically, sandy loam.

2.2.6 ADDITIVES

Additive Types and Rates:

The Contractor shall incorporate additives into the subsoil or Topsoil at rates recommended by the soil test results. This may include, but is not limited to, pH-neutral compost, lime, gypsum, urea, and potash.

Application:

Where the soil tests recommend subsoil additives, apply these additives after the cultivation of the subsoil. For site topsoil to be stockpiled for reuse, incorporate additives as specified in the soil tests by mixing them through the Topsoil. For excavated garden beds or backfill in planting holes, incorporate additives into the stockpiled Topsoil before placement. In all cases, ensure that additives are thoroughly mixed throughout the Topsoil.

2.3 MULCH

The use of mulch shall be limited to the areas specified on the plans, highly disturbed areas, and locations with low erosion potential. Composted site mulch or an equivalent product (approved by the site superintendent) spread to a depth of 75mm is to be used. Coir logs shall be used where there is a risk of mobilising surface materials due to weed management and planting works.

Mulch Selection: ANL Forest Fines or approved equivalent.

3.0 TREE SUPPLY SPECIFICATION

3.1 STANDARD

Guidance: Follow the guidance given in 'AS2303:2018 Tree Stock for Landscape Use'.

4.0 CRITERIA FOR TREE STOCK ASSESSMENT

4.1 GENERAL

This Section specifies the above- and below-ground criteria for tree stock assessment, which are necessary for determining quality tree stock suitable for landscape use.

1. Individuals involved in the production, design, procurement, planting, and management of trees should comprehensively understand this Standard. Specialist advice should be sought where necessary.

2. Above- and below-ground criteria should be considered integral to nursery production systems. Alternatively, these criteria may be incorporated into QA accreditation programs or used to assess tree stock at dispatch.

4.2 CRITERIA FOR ABOVE-GROUND ASSESSMENT OF TREE STOCK

True to Type:

Tree stock shall be accurate to type. Individual trees or batches of tree stock per variety shall be clearly labelled with correct botanical nomenclature.

1. Where common names are used, they should only be as an adjunct to the tree's botanical name.

2. The National Plant Labelling Guidelines contain information on determining correct botanical nomenclature and are available from www.ngia.com.au.

Height and Calliper:

The height and calliper range shall be recorded.

1. Height and calliper should be appropriate to the individual species.

2. Further information on the Tree Stock Balance Assessment is provided in Section 3.

Health:

Tree stock shall exhibit good health for the time of year, location, and stage of growth, as demonstrated by the following criteria:

- (a) Crown density.
- (b) Crown cover.
- (c) Crown form.
- (d) Leaf colour and size.
- (e) Absence of epicormic shoots.
- (f) Absence of dieback.

Crown Symmetry:

Differences in crown distribution on opposite sides of the stem axis shall be less than 20%.

Significant Injury:

Tree stock shall be free from significant injury and wounds (except for adequately made pruning cuts per AS 4373), cracks, fungal fruiting bodies, and bleeding areas (except from properly made pruning cuts per AS 4373).

Stem Taper:

The calliper at any given point on the stem shall be less than the calliper at any lower point, excluding species with atypical stem taper (e.g., Brachychiton rupestris or similar species). For an example of stem taper, see Figure 2.2.

Self-Supporting:

1. Even if the stem is well structured, support through staking or other means may still be required during production. For example, support may be needed to develop a central leader, assist root systems in consolidating after repotting, protect against strong winds, or simply support the above-ground parts.

2. Tight staking during production should be avoided, as it may reduce stem taper and root system development. Staking methods should seek to minimise reliance on the stake.

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. For an example, see Figure 2.3.

1. Where tree stock has a defined central leader, the apical bud shall be intact, and any stem deviation from vertical shall not exceed 15°. The division shall exceed clean stem height requirements (see Figure 2.4(a)).

2. 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.

3. Where tree stock has branch dominance, terminal buds shall be intact. The union at any division shall be sound (see Clause 2.2.10), and any such division shall be above any clean stem height requirements (see Figure 2.4(b)).

Formative Pruning:

Formative pruning of tree stock shall be by AS 4373. All pruning cuts shall be at the branch collar or a node (see Figure 2.5). The diameter of any pruning cut shall not exceed 50% of the stem diameter immediately above the point of pruning (see Figure 2.5). If a clean stem is required, it shall not exceed 40% of the total stem height (see Figure 2.5).

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).

1. For convex stem and branch bark ridge, see Figure 2.6, illustrations (a) and (c).

2. Included bark may be an inherent characteristic of various species, and it can arise through genetics, poor pruning practices, or regrowth after damage.

3. Unions with included bark that are inwardly turned (see Figure 2.6, illustrations (b) and (d)) are generally more prone to failure than sound/convex unions. They represent an inherent risk, which is more significant in giant trees. Included bark can often be managed by formative pruning during nursery production and excluding stock plants exhibiting inclusions.

4. While some species may naturally exhibit junctions with included bark that rarely fail, these exceptions should be addressed individually, not compromising the overall aim of eliminating included bark from tree stock.

Trunk Position:

The trunk base 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 its health.

1. The Nursery Production Farm Management System, incorporating the Nursery Industry Accreditation Scheme, Australia (NIASA), EcoHort, and BioSecure HACCP, contains information on managing active pests and diseases. It is available from www.ngia.com.au.

2. Some organisms or indications of their presence are not necessarily harmful, mainly where beneficial microorganisms have been used under an integrated pest management strategy. Galls or swellings on some species may be typical.

4.3 CRITERIA FOR BELOW-GROUND ASSESSMENT OF TREE STOCK

Non-Suckering Rootstock:

At dispatch, there shall be no evidence of suckering on rootstock. 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.

1. The Nursery Production Farm Management System, incorporating the Nursery Industry Accreditation Scheme, Australia (NIASA), EcoHort, and BioSecure HACCP, contains information on managing active pests, diseases, and weeds. Available from www.ngia.com.au.

2. Some organisms or indications of their presence are not necessarily harmful, mainly where beneficial microorganisms have been used under an integrated pest management strategy. Galls or swellings on some species may be typical, e.g., lignotubers on some Eucalyptus spp.

Rootball Occupancy:

Upon 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 outward (radial) and downward.
 - (ii) Girdled, kinked, or J-roots shall not be present (see Note 3).

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.

1. This will ensure optimum root occupancy.

2. The root system should be inspected for non-conforming roots at each production stage and pruned if required.

5.0 CRITERIA FOR TREE STOCK BALANCE ASSESSMENT

Tree stock balance is determined by calculating the size index by multiplying the height (in metres) of the tree stock measured from the root crown to the top of the trunk by the calliper (in 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 the nominated container volume set out in Appendix E.
1. Species, climatic conditions, and production processes may influence the height-calliper proportions. Therefore, the size index should not be isolated when specifying tree stock for landscape use.
2. Further information regarding indicative tree stock height and calliper measurements is provided in Appendix D, AS2303.
3. At the time of publication, the industry committed to further research of tree stock balance parameters across all climatic regions of Australia, which was intended to be completed within two years of publication, with the data considered in a review of the Standard at that time.

7.0 EXECUTION

7.1 EXCAVATION OF PLANTING HOLES

- Locations for plants and outlines of areas to be planted are to be staked out on-site. Mark all subsurface utility lines.

Supervisor approval of the stakeout is required before excavation begins.

- Tree pits will be excavated to the depth and widths indicated on the drawings. If the planting area under any tree is initially dug too deep, 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.
- 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 to remain in place and to receive amendment in the top 150mm layer, excavate the hole to the depth of the root ball and the widths shown on the drawing. Slope the sides of the excavation at a 45-degree angle up and away from the bottom.
- Preparation of subgrades to be inspected before the installation or modification of Topsoil or planting mix. The subsoil goes into the bottom layer of the topsoil or planting mix. Loosen the subgrade soil 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 any soil conditions encountered, including poor drainage, that the Contractor considers harmful 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 landscape architect.

7.2 PLANTING OPERATIONS

- Before planting begins, thoroughly water the plants and planting areas. Water plants again immediately after planting.
- 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 to position or move the tree in the planting area.
- Remove plastic, paper, or fibre pots from containerised plant material. Score the side of the root ball with a sharp knife and tease out the roots. Immediately after removing the container, install the plant so the roots do not dry out. Pack planting mix around the exposed roots while planting.
- Before backfilling, remove any waterproof or water-repellant strings or wrappings from the root ball and trunk.
- Soils and Mulch: Place soil mixes, tamping lightly to reduce settlement. Ensure that the backfill immediately around the root ball's base is tamped with sufficient foot pressure to prevent the root ball from shifting or leaning. Thoroughly water all plants immediately after planting.
- Water is applied by a 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.
- Fine Grading: Provide smooth transitions between slopes of different gradients and directions. 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.
- Staking and Guying: Stake or guy a tree, as shown in the details.
- 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 usual 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 and no rough edges or tears.
- Mulching: All trees are to be mulched to the depths shown on the drawing. Mulch must not be placed within 8 cm of the trunks of trees. Spread a 75mm layer of mulch to all mass planting beds and individual plantings in turf. Finish to the required levels. Keep mulch away from the plant stems. No mulch on creek banks. Mulch selection should be based on suitability to the species proposed for planting selection.

8.0 PLANT ESTABLISHMENT

8.1 SCOPE

- The maintenance period for the Landscape Contractor will be 104 weeks. This period considers all areas documented within the Landscape Plan, not only where mitigation works have occurred. The landscape contractor shall remove all rubbish related to landscape works before it is allowed to accumulate.
- Period: The Planting Establishment Period commences at the date of Practical Completion. The duration of the plant establishment period is 104 weeks.
- Program: The maintenance schedule will be advised once Practical Completion has occurred.
- Log Book: Keep a logbook recording when and what maintenance work has been done and what materials, including toxic materials, have been used.
- 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.
- Replacements: Continue to replace failed, damaged, or stolen plants for the extent of the Planting Establishment Period.
- Mulched Surfaces: Maintain the surface clean and tidy and reinstate the mulch as necessary.
- Site Water: The Contractor shall assume no site water is available other than that provided as part of the works. The Contractor shall be responsible for supplying and paying for water for the duration of the works.

8.1 WEEDING

Any species likely to significantly invade the vegetation management area, prevent natural regeneration, or impede seed growth is to be targeted for removal. Species considered as weeds within the Warrumbungle Shire Council area and listed under the National Significance and Biosecurity Weeds to be given priority.

Phase 1: Construction (Pre-planting)

Actions	Task description	Allocated Timeframe	Positive indicators	Frequency	Contingencies
Watering	Keep soil moist by watering regularly and gently to ensure growth		Colour of the soil must be a darker tone and feel moist to the touch	2-3 watering cycles to get the soil wet or moist	If the soil appears two third lighter than when watered repeat watering cycle
Mowing	Keep the seeded turfed area to a minimum height to ensure visual security	First mow to occur after 8-10cm of visible sprouts	Sprouts visible in areas	3-6 weeks after spreading / planting	Mow only after turf is at a recommended height. Mowing should occur gently to ensure as new seedling are tender
Fertilising	Lightly fertilise using a quality fertiliser	After the first mow	Healthy growth of turf	Until seed establishment	Do not over fertilise Use organic fertiliser
Weed spraying (Pre-planting)	Broad acre and spot spraying of annual grasses and weeds within planting zones following relevant standards and procedures	4-6 weeks prior to planting	Decline and reduction of live weed cover by 90%	Within the first two weeks of spraying inspect for effectiveness Dated photos of effectiveness and include in report Retain invoices if possible as evidence	Repeat spraying to achieve 90% reduction rate
Pest animal control	Inspect site for any pest animal warrens and treat as necessary	Prior to planting	No evidence of damage to plantings and no evidence of pests	Monitor site weekly during establishment period for evidence of pests	Consider effective control measure or fencing if pest animals continue to pose a threat to plantings
Planting and Guarding	Ensure planting is carried out at recommended densities within screening areas identified on the approved landscape plans. Stake and guard all trees and shrubs with standard tree guards or equivalent Ensure temporary guards or fencing around seeded turf to promote healthy growth	Planting and guarding to take place after installation	Successfully staked and guarded prior to commencement of construction	Inspect locations after planting every two weeks for signs of pests and animal damage Monitor and remove tree guards if deemed necessary	In dry conditions water plantings using water truck or similar methods Use 1.5m tall guards or netting if standard tree guards are insufficient

9.0 REPORTING

Practical Completion Reports
Following an inspection of the restoration area and rectification of any defects identified by Moir Landscape Architecture, Moir Landscape Architecture is to submit a 'Practical Completion Report' to the Principle Certifying Authority. This report will confirm that the works have been installed as per the approved plans, or outline any deviations from the plans, and any rectifications required.
The restoration areas shall also be monitored to document such things as growth rates, success and failures. Monitoring of the growth, root distribution and transpiration rates of establishing species will help identify species that are successful and suitable for use in future stages or as replacement plantings.

Plant Establishment
During plant establishment of the proposed landscape works and regeneration areas should be checked regularly for plant health and weed invasion. Maintenance will vary in intensity over the life of the establishment period.
Regular inspections will reduce the potential for minor infestations becoming major problems. All rubbish related to landscape works shall be removed by the landscape contractor before it is allowed to accumulate. During the maintenance period the landscape contractor shall undertake the following: Regular watering, weeding, mulching, plant replacement and other activities as required to promote healthy growth.

A 'Maintenance Log' is to be completed by the contractor verifying that satisfactory maintenance of the works has been undertaken and that any necessary rectification measures have been carried out to a high professional standard. All works undertaken are to be recorded with reference to the Maintenance Schedule.
The 'Maintenance Log' is to be available at anytime to the Client and Site Superintendent.

Quarterly Inspections are to occur with the Client, Contractor and Moir Landscape Architecture present. A report is to be produced by Moir Landscape Architecture summarising the inspection and providing any recommendations for rectification works to be carried out. This report and photos are to be forwarded to the DIPW for review. Report to be forwarded to Lake macquarie Council Council for their reference.

Phase 2: Construction and operation phase

Actions	Task description	Allocated Timeframe	Positive indicators	Frequency	Contingencies
Monitoring to achieve satisfactory growth rates	Establish a minimum of one photo point in each management zone to demonstrate growth and screening effectiveness	Every three months after plant establishment	Satisfactory growth is achieved as per requirements	Document planting success every three months. Collate and monitor photo point and compile into six monthly report	If die back occurs determine the best performing species and use to achieve desired results
Watering	Regularly water juvenile plants to ensure proper establishment	Weekly over three months following planting	95% survival rate for planting vegetation following three months	Monitor for signs of drought stress in plants Document each watering cycle	If water is unavailable contact DPE to discuss other contingencies to achieve screen planting
Weeding	Spot spray along planting zones to reduce weed growth	Spray monthly for first 12 months then quarterly for three years	Screening area is 90% native vegetation	Within the first two weeks of spraying inspect for effectiveness Dated photos of effectiveness and include in report Retain invoices if possible as evidence	Repeat spraying cycle if proven ineffective within 14 days
Pest animal control	Insect site for any signs of pest animals and conduct necessary physical or chemical treatments	Three times annually for three years	No visible evidence of damage to plants	Inspect locations after planting every two weeks for signs of pests and animal damage Retain invoices if possible as evidence	In dry conditions water plantings using water truck or similar methods Use 1.5m tall guards or netting if damage occurs
Infill planting	Replace any dead plants with new stock or with the best performing species	Monitor throughout the three-year period	Failed planting to be replaced to achieve 95% success rate	Inspect locations after planting every two weeks for signs of pests and animal damage	If die back occurs determine surviving best performing species and use to achieve desired results
Monitor fencing	Ensure fencing is in good condition for effective security of the development	Quarterly after installation for three years	Gates and fences are in good working order and operate successfully to exclude livestock or pests	Dated photos to be included in six monthly reports	If required undertake repair works or engage contractor to remediate any issues

Phase 3: Operational Phase

Actions	Task description	Allocated Timeframe	Positive indicators	Frequency	Contingencies
Weeding	Spot spray within management zones to reduce weed growth	Spray twice annually as required or in response to weed issues	Screening area is 90% native vegetation	Within the first two weeks of spraying inspect for effectiveness	Repeat spraying cycle if proven ineffective within 14 days
Pest animal control	Insect site for any signs of pest animals and conduct necessary physical or chemical treatments	Twice annually or as required	No visible evidence of damage to plants	Inspect locations to monitor for damage	Implement more intensive fencing and tree guarding protocols if unsuccessful
Vegetation management	Managing vegetation within development site by allowing small livestock to graze like lambs and sheep	Inspect annually or as required	Assets are protected	Annually or as required	Ensure vegetation management techniques are monitored