IGLU - MASCOT

DEVELOPMENT APPLICATION REPORT

ISSUE G
144683-1-DA

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MAKING COMPLEX EASY

REVISION	DATE	PREPARED BY	APPROVED BY
[G]	31/08/2020	ZL	MD
[F]	22/07/2020	ZL	MD
[E]	02/04/2020	ZL	MD
[D]	01/04/2020	ZL	MD
[C]	20/09/2019	ZL	MD
[B]	17/09/2019	ZL	MD
[A]	05/08/2019	MD	AG

Prepared for:
Iglu

Site Location:
6-8 John Street, Mascot

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1.0 SITE UNDERSTANDING

1.1 CONTEXT

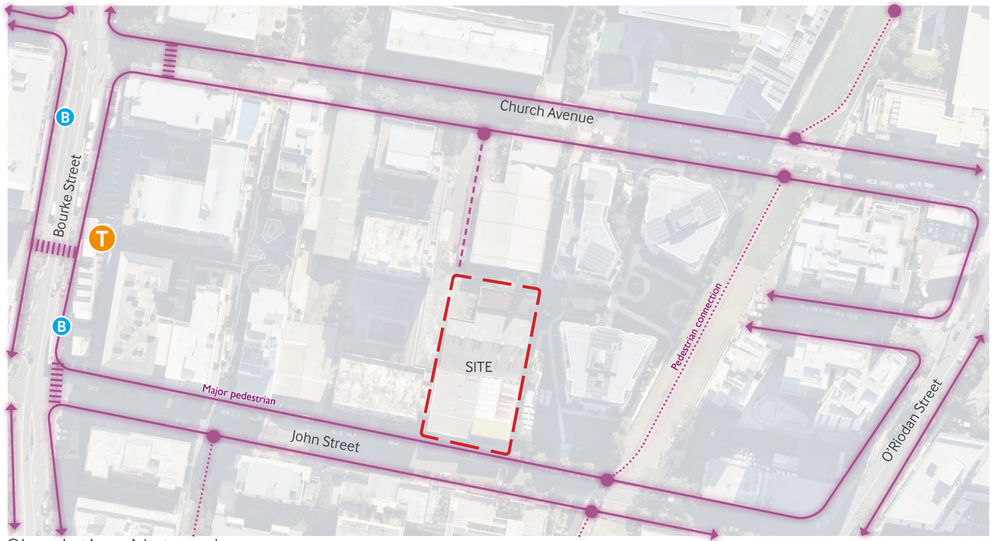
Precinct Context

John Street

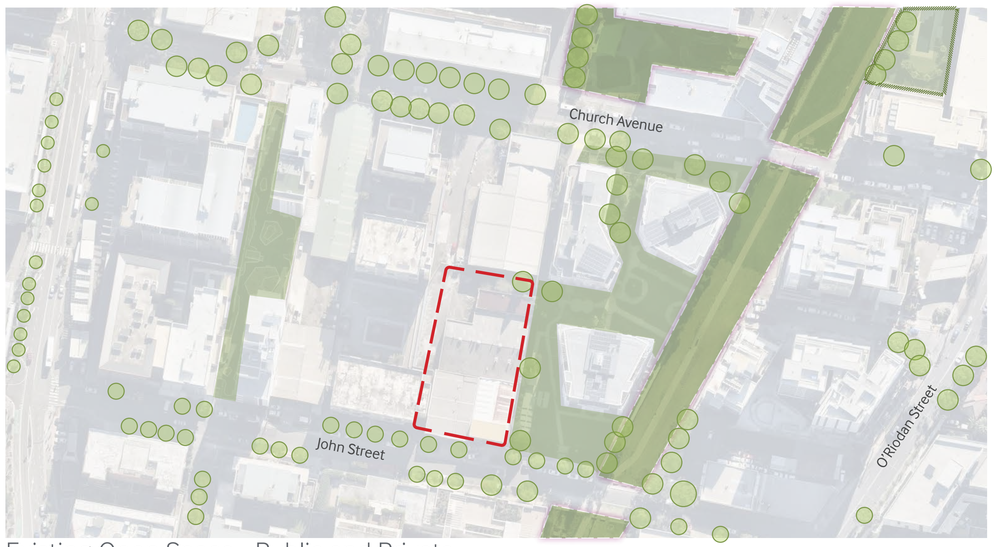
Church Street

Mascot Station and built form

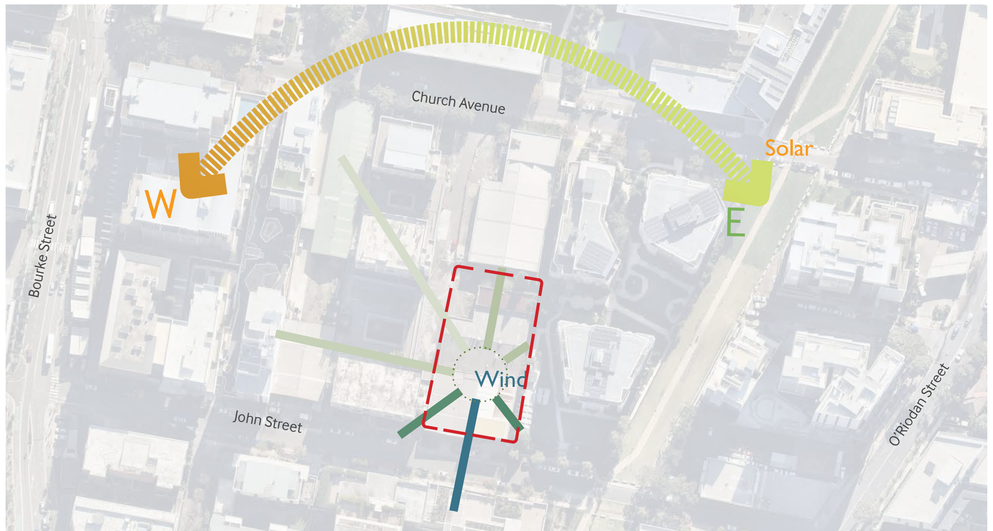
1.2 SITE ANALYSIS



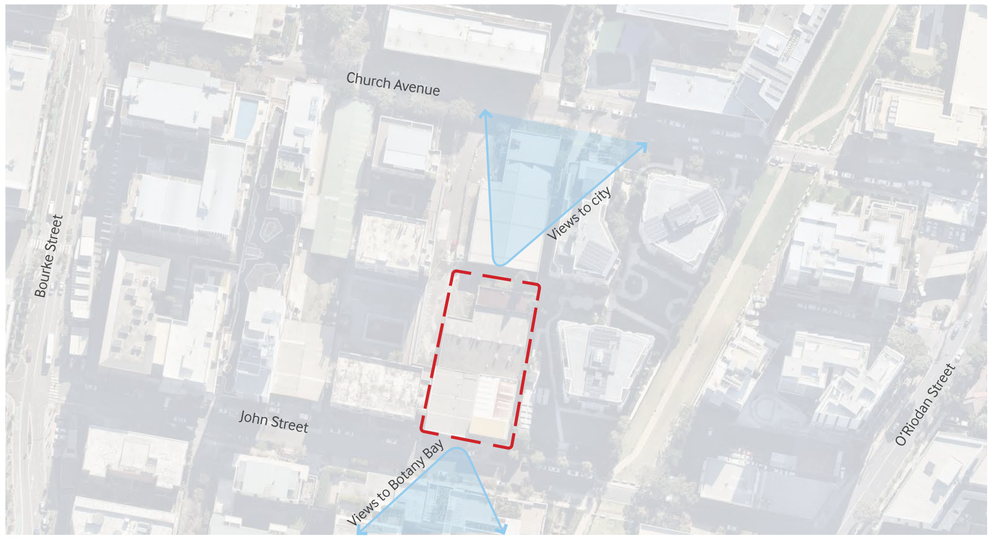
Circulation Networks



Existing Open Space - Public and Private



Solar & Wind



Prominent Views

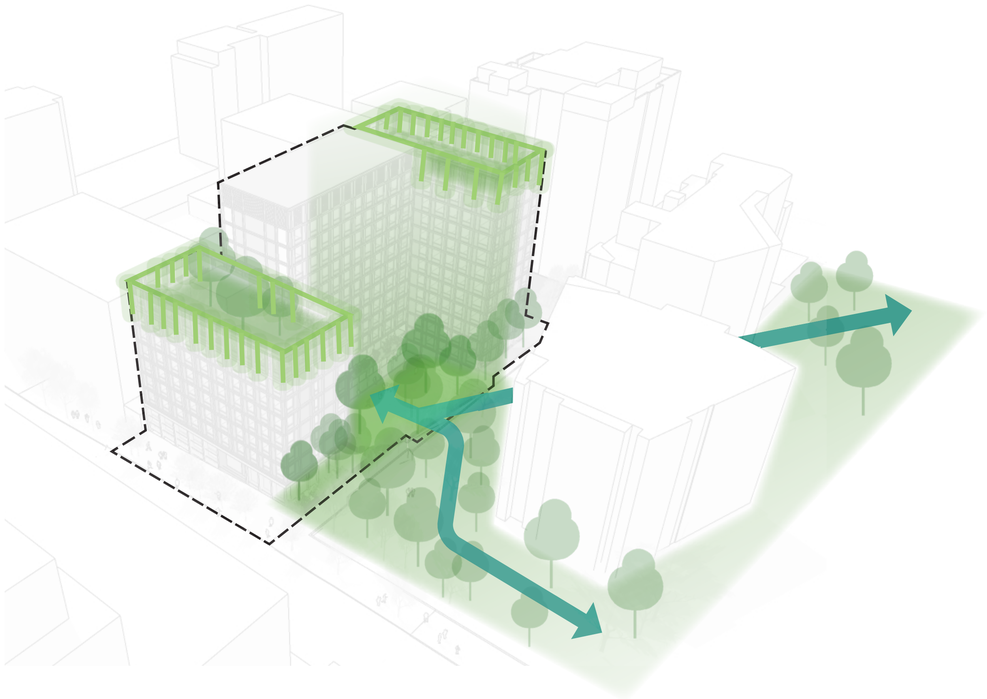
2.0 DESIGN VISIONING

2.1 VISION STATEMENT

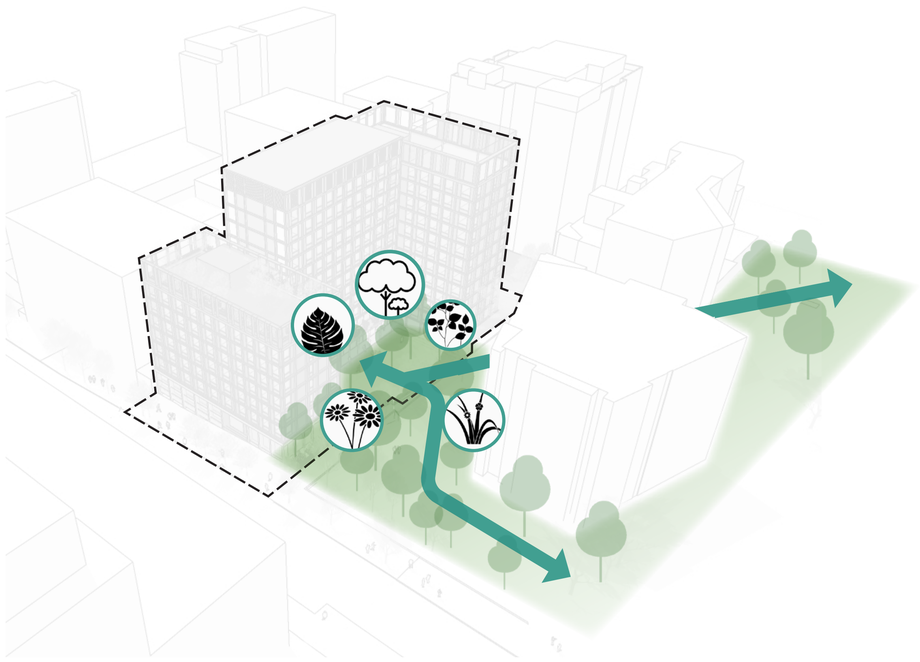
A PLACE OF RESPITE

Providing a point of difference from its surrounding character, Iglu Mascot will be a place of respite . A green and inviting series of spaces will provide residents with a garden outlook while creating a balanced series of intimate and active spaces in which residents can enjoy.

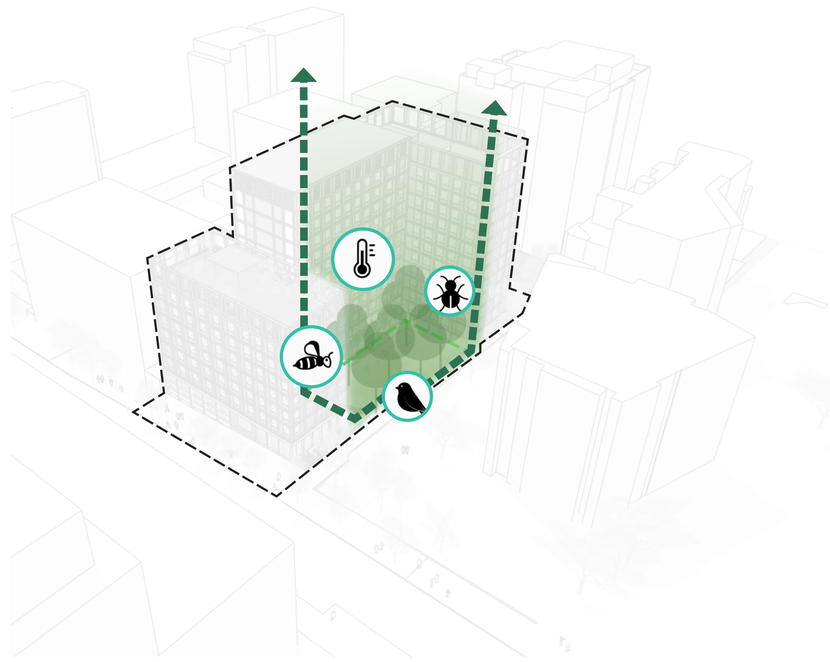
Iglu Mascot will provide a green point of difference that promotes urban greenery and connects residents with nature. The central deep soil zone will allow for mature and sutainable vegetation growth that will help urban cooling in hot summer months while also increasing biodviersity in the highly built up suburb of mascot.



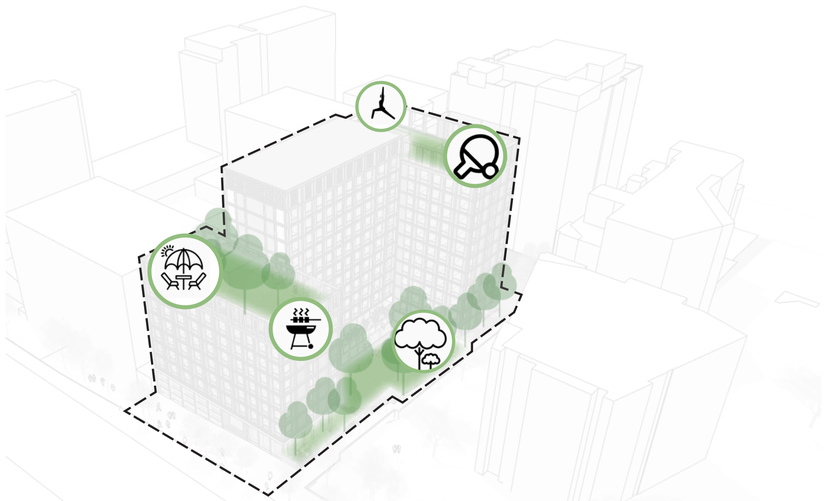
2.2 DESIGN DRIVERS



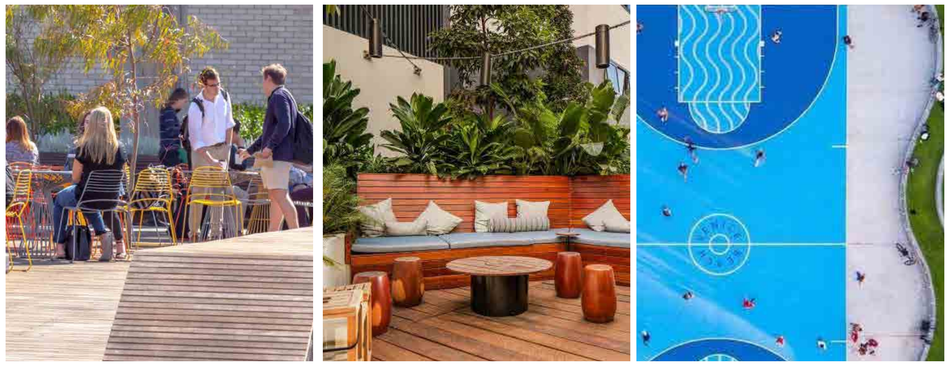
Borrowed Landscape

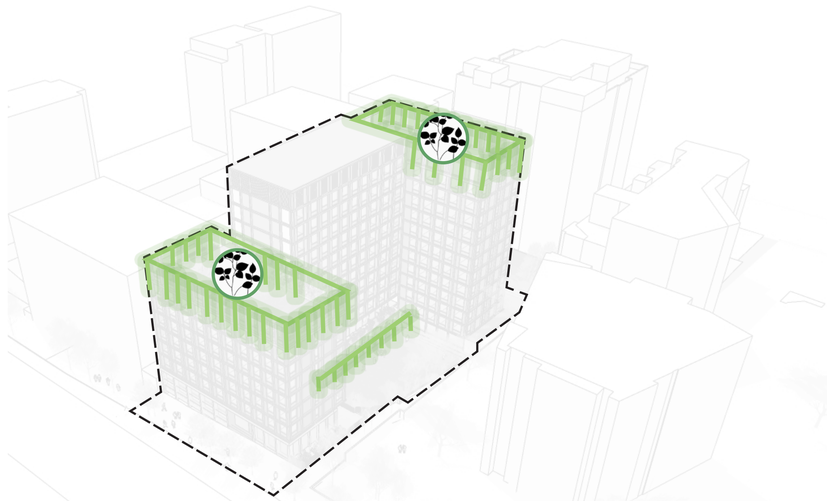


Establish a Green Core



A Series of Outdoor Rooms





A Distinctive Green Halo

2.3 CHARACTER IMAGES





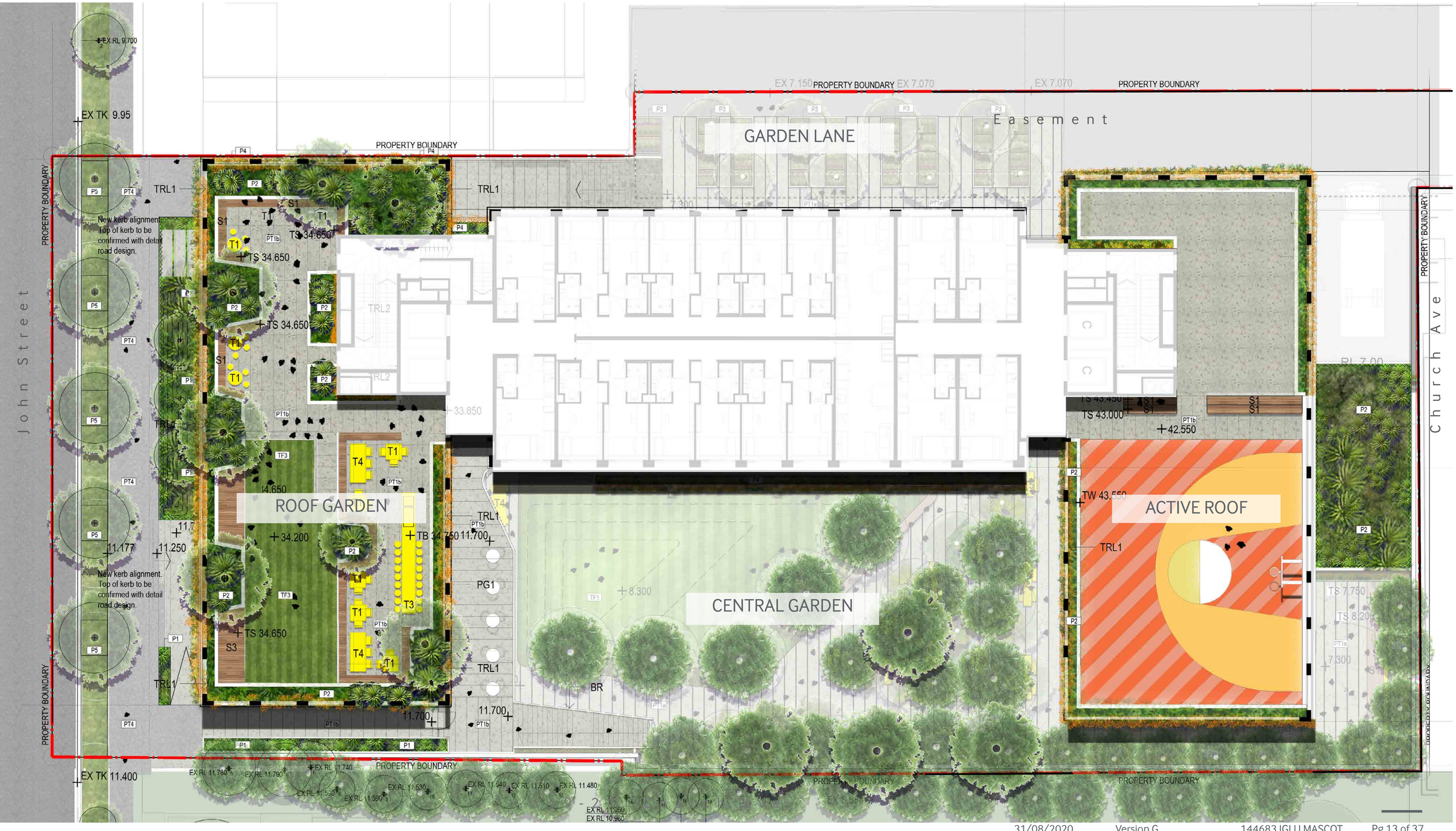




3.0 LANDSCAPE PLANS & SECTIONS

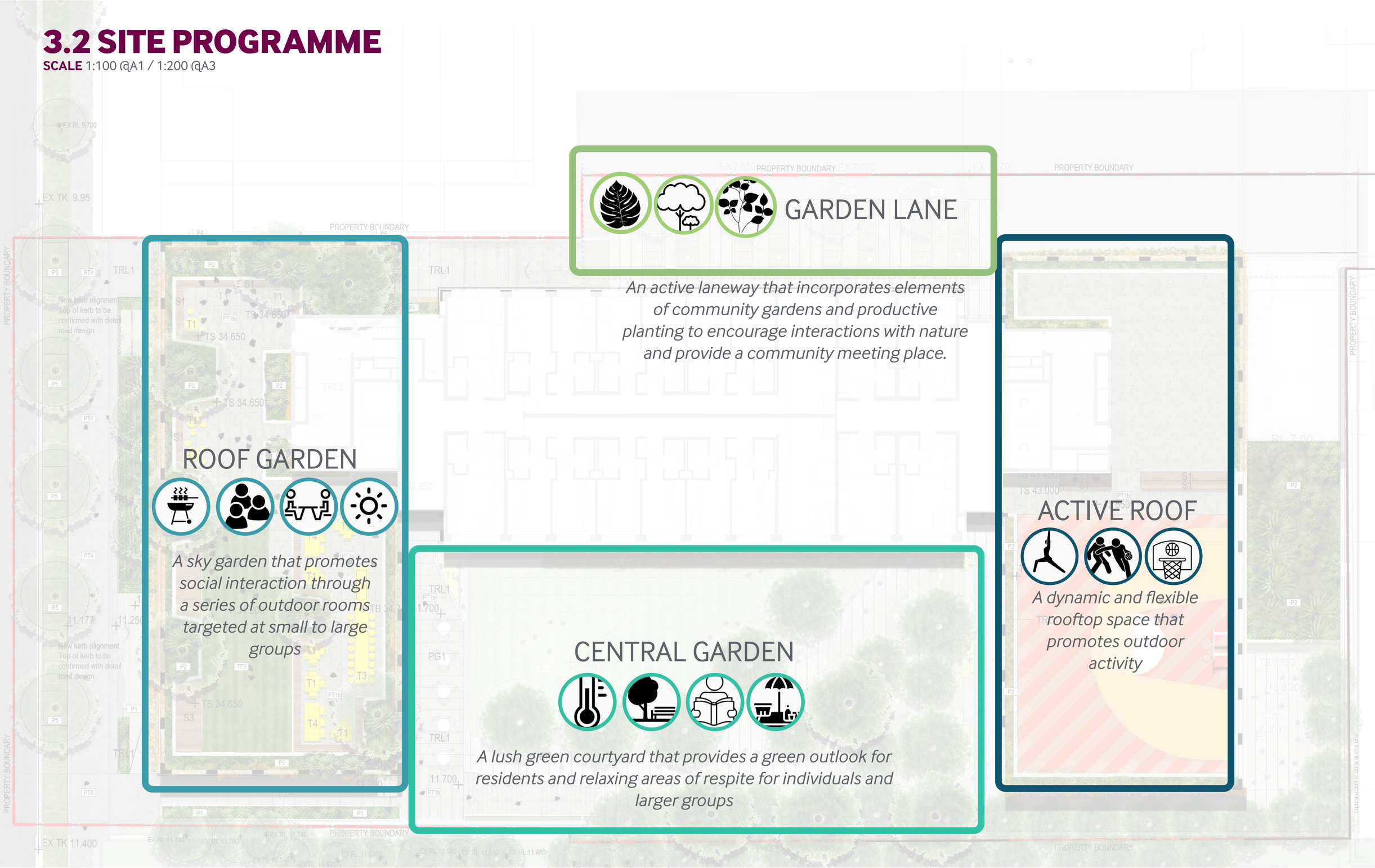
3.1 SITE PLAN

SCALE 1:100 @A1 / 1:200 @A3



3.2 SITE PROGRAMME

SCALE 1:100 @A1 / 1:200 @A3



GARDEN LANE

An active laneway that incorporates elements of community gardens and productive planting to encourage interactions with nature and provide a community meeting place.

ROOF GARDEN

A sky garden that promotes social interaction through a series of outdoor rooms targeted at small to large groups

CENTRAL GARDEN

A lush green courtyard that provides a green outlook for residents and relaxing areas of respite for individuals and larger groups

ACTIVE ROOF

A dynamic and flexible rooftop space that promotes outdoor activity

3.3 VEGETATION MANAGEMENT PLAN

SCALE 1:100 @A1 / 1:200 @A3

3 - 9 Church Ave

Tree Number	Species	Status
T1	Corymbia maculata	Retain
T2	Corymbia maculata	Retain
T3	Corymbia maculata	Retain
T4	Corymbia maculata	Retain
T5	Unknown	Retain
T6	Unknown	Retain
T7	Unknown	Retain
T8	Unknown	Retain
T9	Unknown	Retain
T10	Unknown	Retain
T11	Unknown	Retain
T12	Unknown	Retain
T13	Unknown	Retain
T15	Unknown	Retain
T16	Unknown	Retain
T17	Unknown	Retain
T18	Unknown	Retain
T19	Unknown	Retain
T20	Araucaria columnaris	Remove
T21	Unknown	Remove
T22	Unknown	Remove

John Street

Church Ave

19-21 Church Ave

3.4 LOWER GROUND

SCALE 1:100 @A1 / 1:200 @A3

PT1a - Unit pavers on ground
PT2 - Timber decking
TF1- Turf on ground
P1 - Planting on ground
P2 - Podium planter
P3 - Freestanding veggie crate

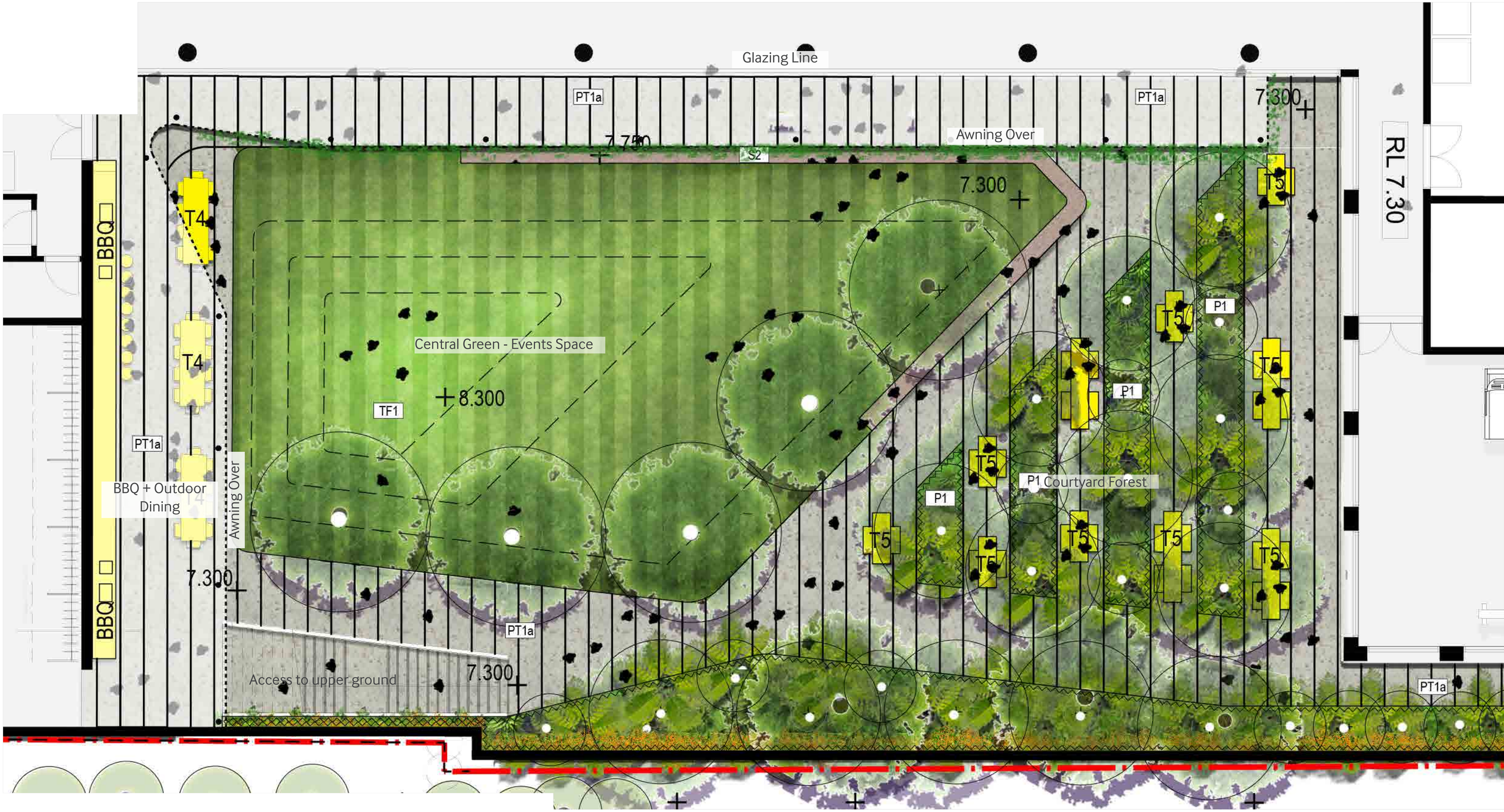
T1 - Dining table
T2 - Coffee table
T3 - Bar table
T4 - Banquet table
S1 - Timber seat with back rest
S2 - Couch

3.5 DETAIL COURTYARD

SCALE 1:50 @A1 / 1:100 @A3

PT1a - Unit pavers on ground
PT2 - Timber decking
TF1- Turf on ground
P1 - Planting on ground
P2 - Podium planter
P3 - Freestanding veggie crate

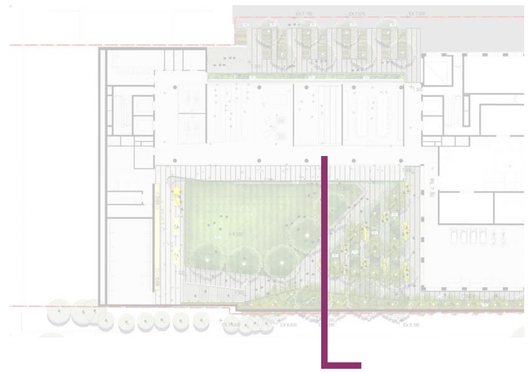
T1 - Dining table
T2 - Coffee table
T3 - Bar table
S1 - Timber seat with back rest
S2 - Couch



3.6 COURTYARD SECTION

SCALE 1:50 @A1 / 1:100 @A3

1. Permeable pavement
2. Lush planting
3. Cabbage plams
4. Tree ferns
5. Turf Lawn

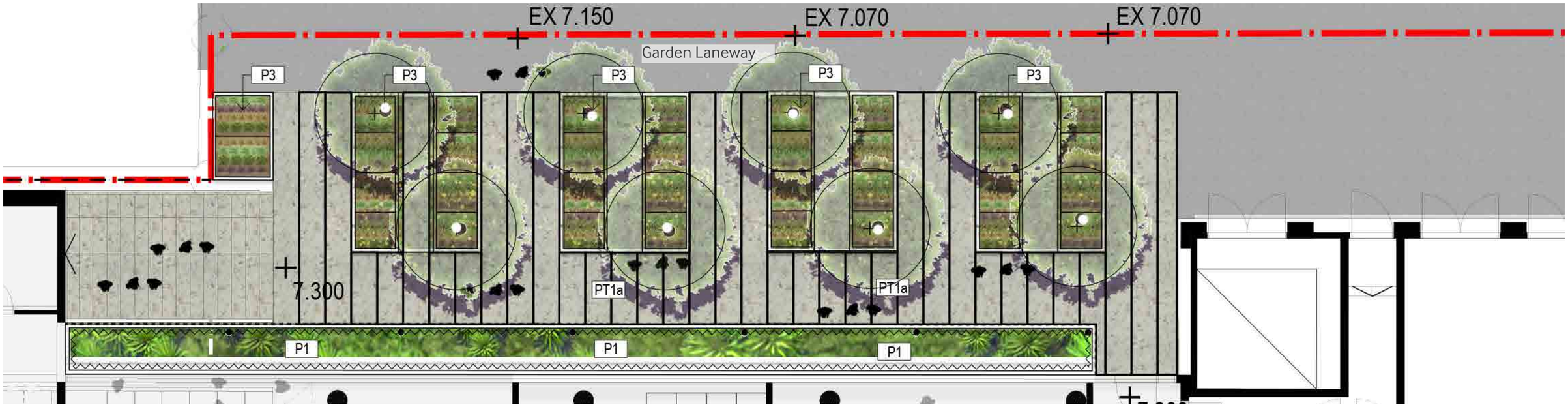


3.7 COMMUNITY GARDEN DETAIL

SCALE 1:50 @A1 / 1:100 @A3

PT1a - Unit pavers on ground
PT2 - Timber decking
TF1- Turf on ground
P1 - Planting on ground
P2 - Podium planter
P3 - Freestanding veggie crate

T1 - Dining table
T2 - Coffee table
T3 - Bar table
S1 - Timber seat with back rest
S2 - Couch



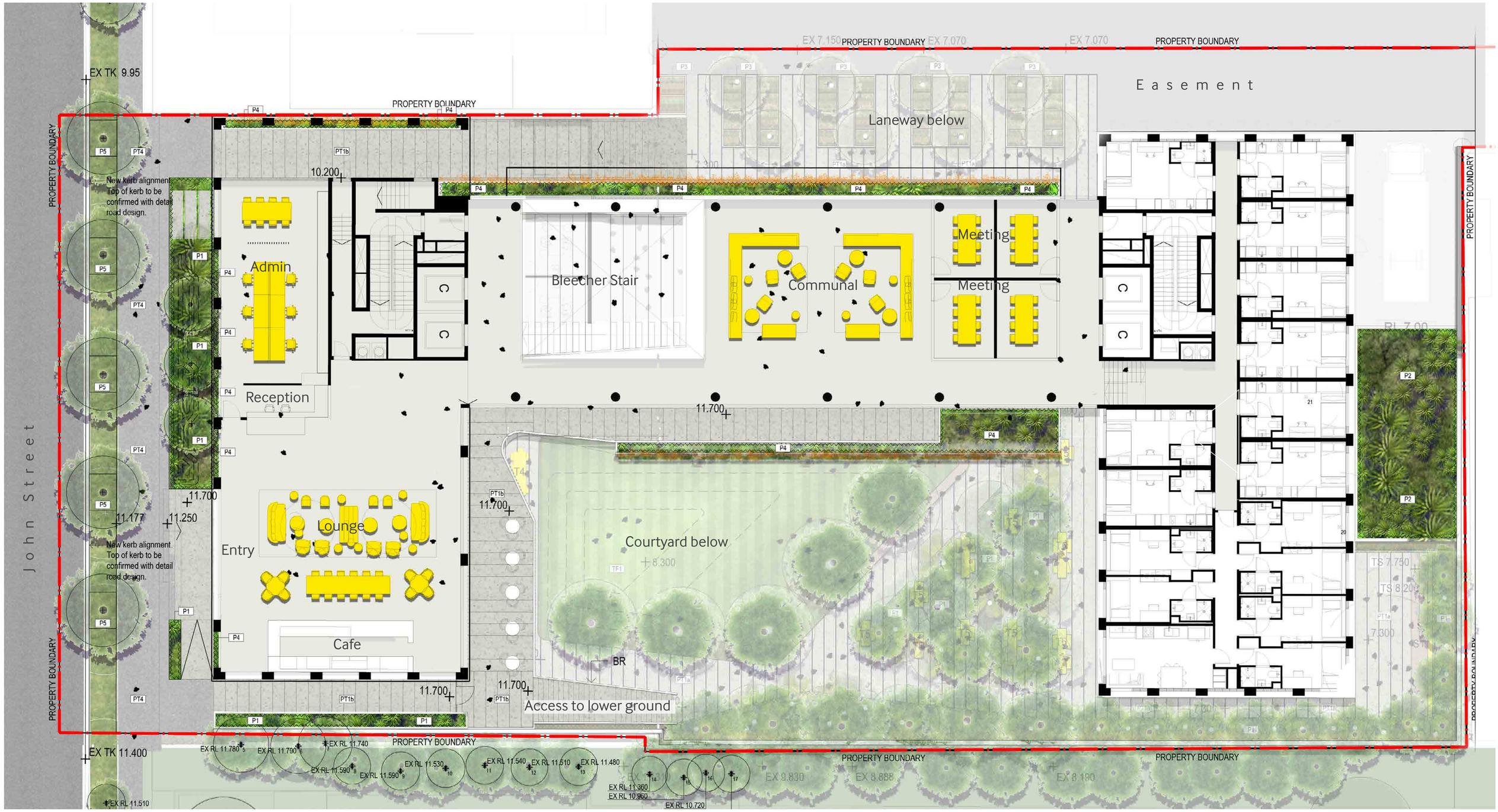
Community garden character images

3.8 UPPER GROUND

SCALE 1:100 @A1 / 1:200 @A3

PT1b - Unit pavers on slab
PT4 - Streetscape to Bayside Council specification
P1 - Planting on ground
P2 - Planting on podium
P4 - 500mm deep architectural planter
P5 - Streetscape planting

BR-Bike rail to stair



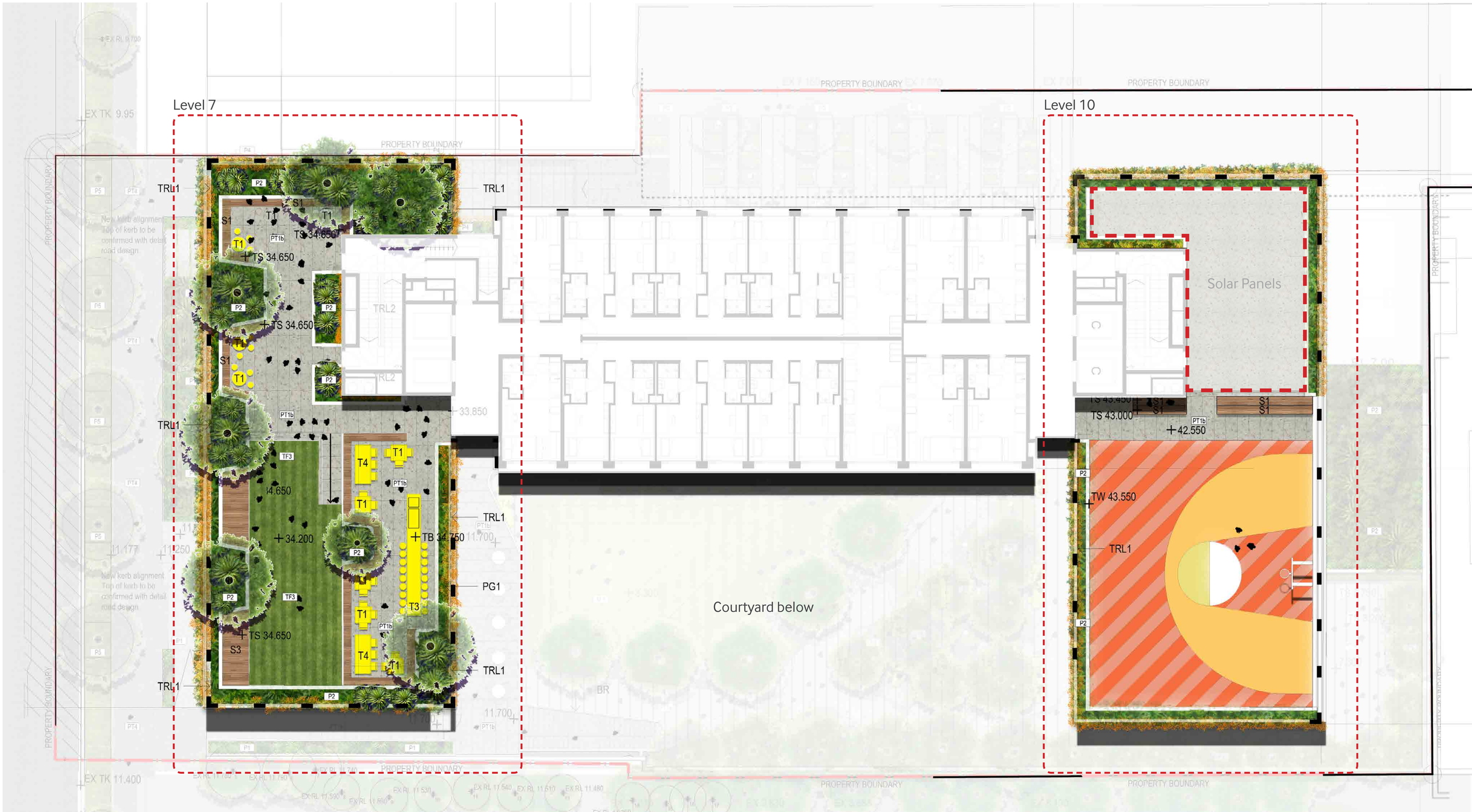
19-21 Church Ave

3.9 ROOF LEVELS

SCALE 1:100 @A1 / 1:200 @A3

PT1b - Unit pavers on slab
TF2 - Astroturf
TF3 - Turf on podium
P2 - Planting on podium
TRL1 - Mesh trellis to building facade
TRL2 - Mesh trellis to wall

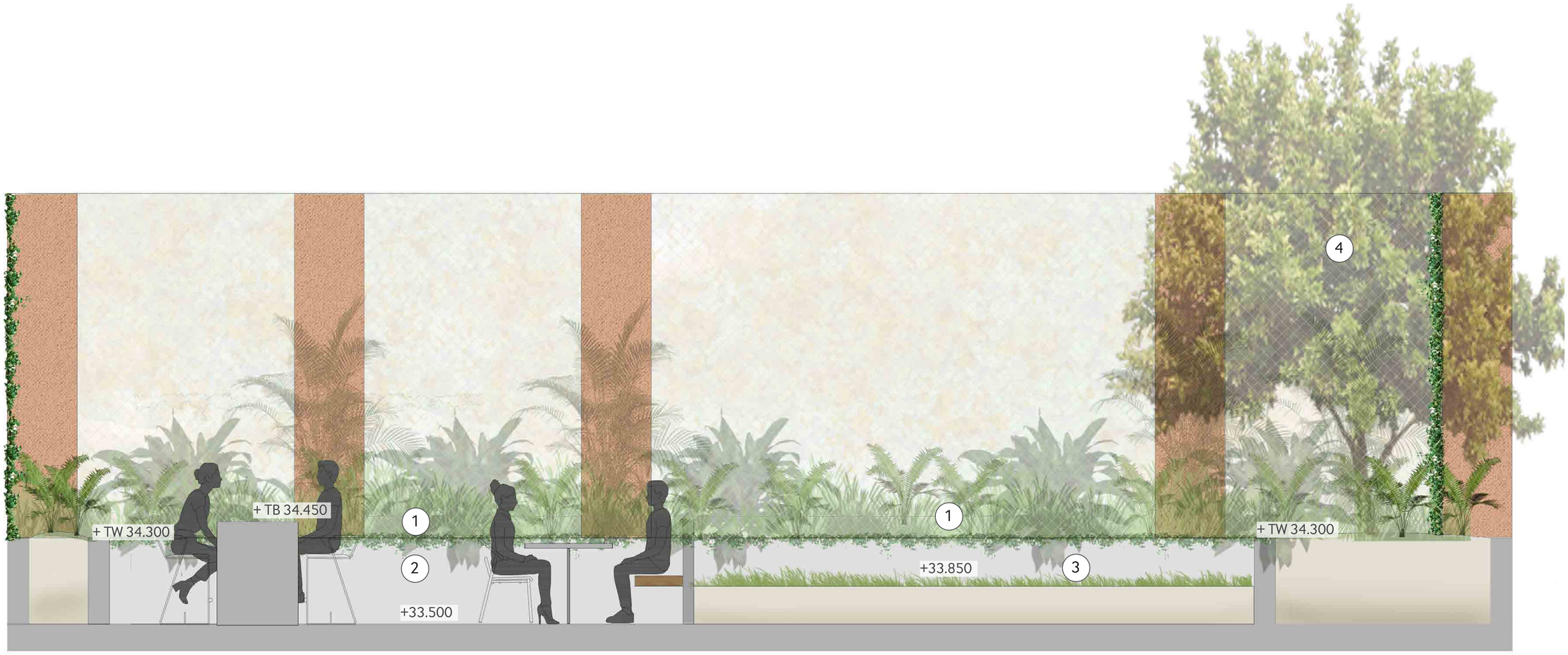
T1 - Dining table
T2 - Coffee table
T3 - Bar table
T4 - Banquet table
S1 - Timber seat with back rest
S3 - Platform seat



3.10 ROOF SECTION

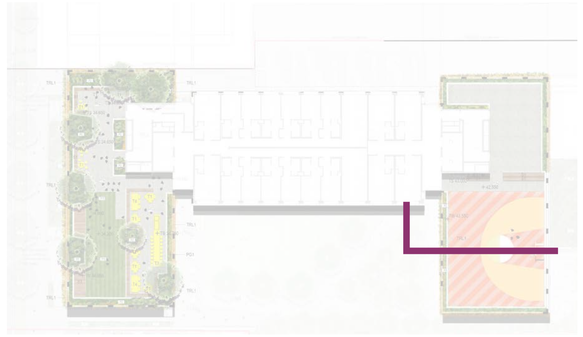
SCALE 1:50 @A1 / 1:100 @A3

1. Podium planter with mesh screen
2. Outdoor dining
3. Lawn
4. Small trees

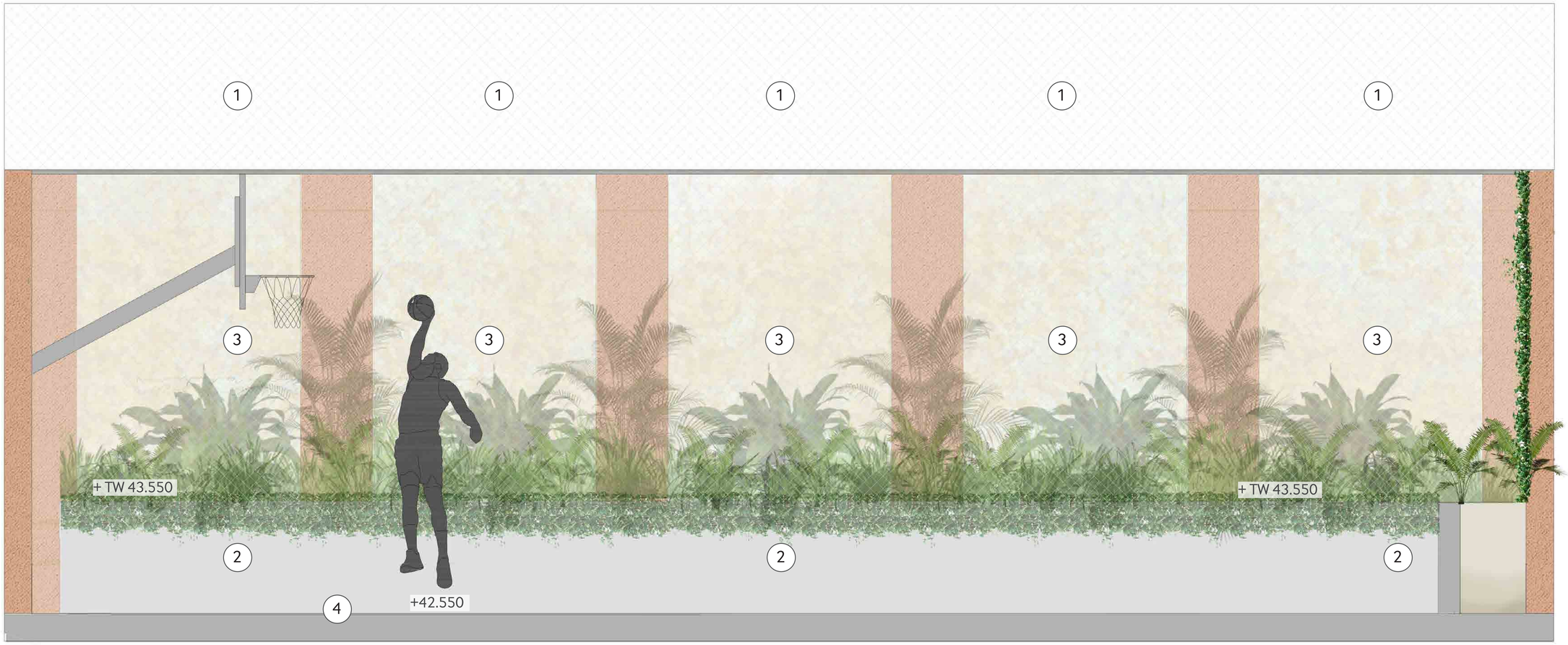


3.11 ROOF SECTION

SCALE 1:50 @A1 / 1:100 @A3



1. Basketball enclosure
2. Podium planter behind
3. Mesh screen behind
4. Basketball Court



4.0 PLANTING & MATERIAL STRATEGY

4.1 PLANTING PALETTE

Courtyard + Cascading Plants

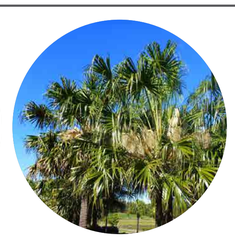
The planting palette for the courtyard will reflect the historical vegetation communities of the Mascot area, while also incorporating select exotic species to provide a diverse and robust palette. A canopy of mature native trees, palms and ferns will provide a cool and shaded environment for the understory plants. The courtyard understory supports a mix of native and exotic plants providing a textured and coloured landscape.

Trees


CYATHEA cooperi


ELAEOCARPUS eumundii


HOWEA forsteriana


LIVINGSTONIA australis

Foliage


ADIANTUM aethiopicum


ALCANTAREA 'Silver Plum'


ALOCASIA brisbanensis


ASPLENIUM australasicum


BLECHNUM 'Silver lady'


CTENANTHE 'Grey Star'


MOLINERIA capitulata


NEOMARICA gracilis


PHILODENDRON 'Rojo Congo'


PHILODENDRON xanadu


PTERIS cretica

Groundcovers


DICHONDRA repens


FITTONIA species


OPHIOPOGON japonicus


PILEA zebrina


PRATIA pedunculata


SYNGONIUM 'Pixie'


VIOLA hederacea


ZOYSIA tenuifolia

Cascading


CISSUS antarctica


EPIPREMNUM 'Marble Queen'


HOYA australis


PHILODENDRON cordatum


PLECTRANTHUS australis


RHIPSALIS baccifera

Roof + Vertical Greening

The planting palette for the roof spaces and the associated trellis system will provide a hardy and colourful landscape. Low maintenance plants have been selected to provide robust and functional spaces that support the communal uses of the roof top areas.

Trees


HIBISCUS tiliaceus


WATERHOUSEA floribunda

Shrubs


ALCANTAREA 'Silver Plum'


CORDYLINE 'Kaspar'


MOLINERIA capitulata


STRELITZIA nicolai


WESTRINGIA fruticosa

Groundcovers


CARPOBROTUS glaucescens


DICHONDRA Repens


GREVILLEA 'Poorinda Royal Mantle'


OPHIOPOGON japonicus


PENNISETUM 'Nafray'


POA 'Eskdale'


SENECIO serpens

Vertical


CISSUS antarctica


PANDOREA pandorana


PYROSTEGIA venusta

Streetscape + Ground Planting

Trees


CORYMBIA maculata


WATERHOUSEA floribunda

Shrubs


DORYANTHES excelsa


MOLINERIA capitulata


WESTRINGIA fruticosa

Groundcovers


CARPOBROTUS glaucescens


ECHEVERIA species


EPIPREMNUM 'Marble Queen'


PENNISETUM 'Nafray'


PLECTRANTHUS australis


NEOMARICA gracilis

Garden Lane

The garden lane planting will provide a range of productive plants that the community can participate in growing and harvesting. A selection of seasonal produce will be choosen to be planted thoughout the year to ensure a variety of produce is available for the community throughout the year.

Trees


Lemon


Lime


Mulberry


Fig

Fruit + Vege


Blueberry


Broccoli


Beetroot


Capsicum


Carrots


Cauliflower


Chilli


Cucumber


Eggplant


Lettuce


Passionfruit


Peas


Silverbeet


Strawberry

Flowers + Herbs


Basil


Chives


Ginger


Lavender


Lemongrass


Lemon Balm


Marigold


Mint


Nasturtium


Pansies


Parsley


Rosemary


Sage


Snapdragon


Spinach


Thyme

4.2 DEEP SOIL

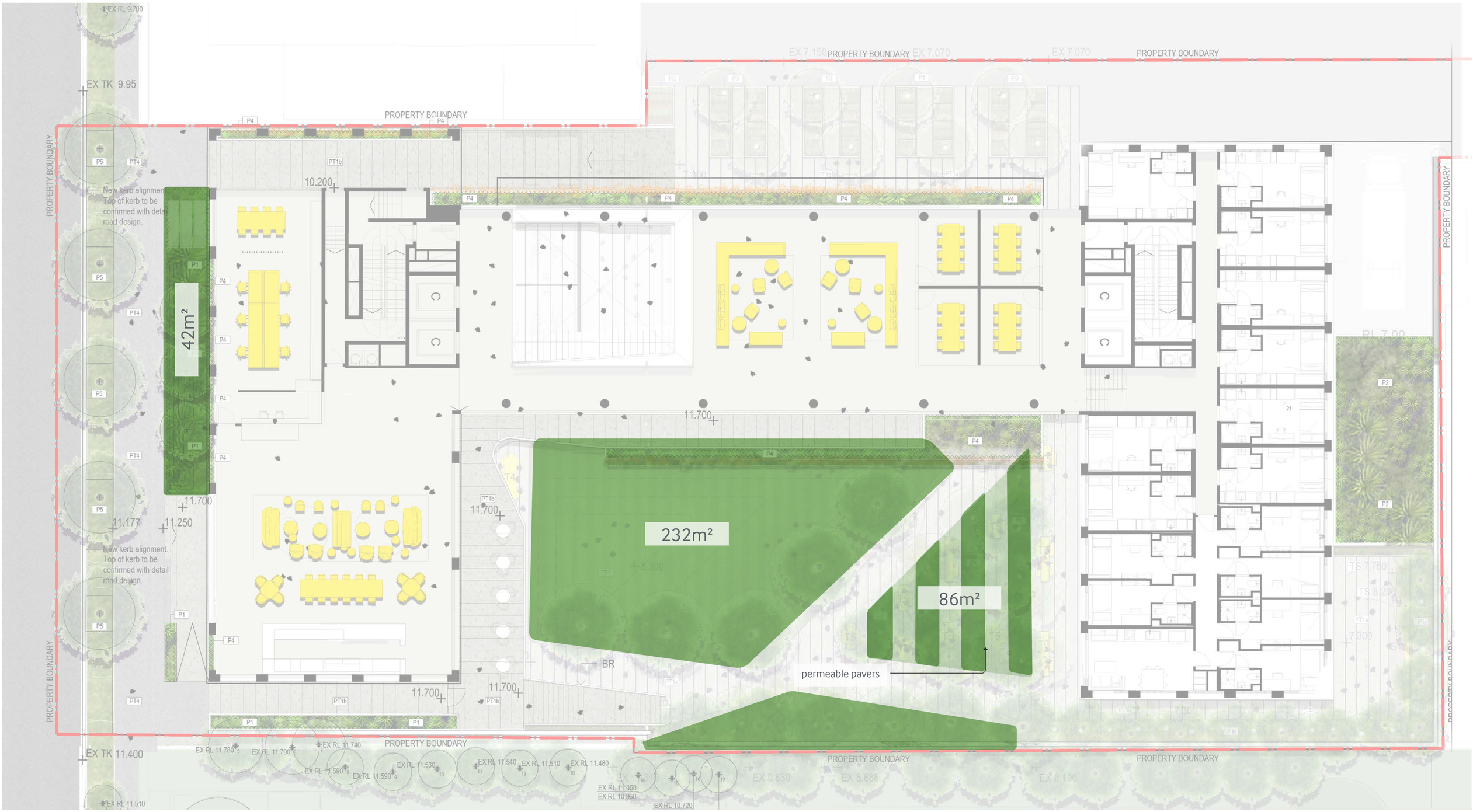
SCALE 1:100 @A1 / 1:200 @A3

Deep soil zones are areas of soil not covered by buildings or structures within a development. They exclude basement car parks, services, swimming pools, tennis courts and impervious surfaces including car parks, driveways and roof areas. Deep soil zones have important environmental benefits, such as allowing infiltration of rain water to the water table and reducing stormwater runoff, promoting healthy growth of large trees with large canopies and protecting existing mature trees which assist with temperature reduction in urban environments. Deep soil zones may be constrained by the size of the lot or the location of a proposed development. To provide shade and amenity for residents they can be co-located with communal open space

Deep soil zones should be located to retain existing significant trees and to allow for the development of healthy root systems, providing anchorage and stability for mature trees. Achieving the design criteria may not be possible on some sites including where:

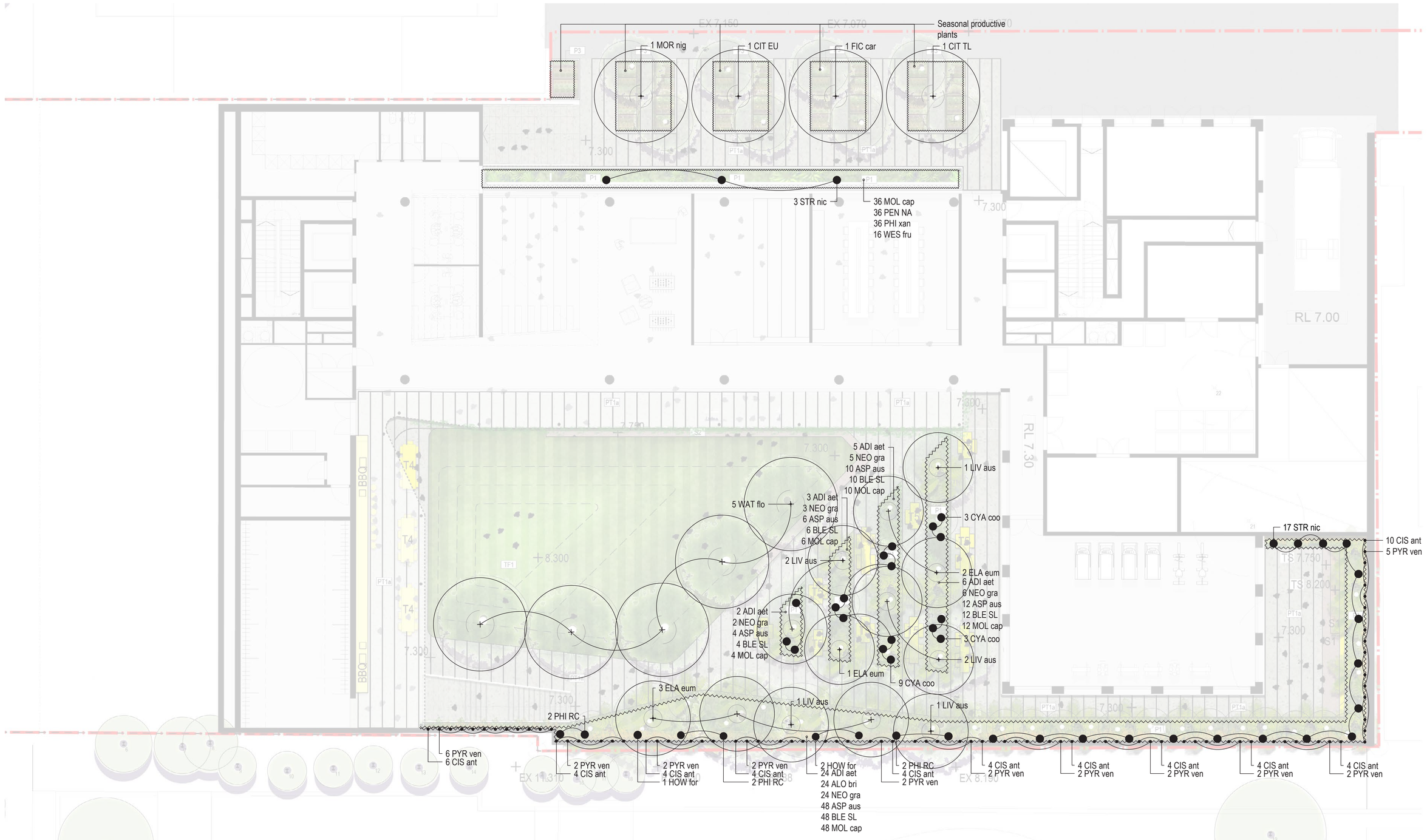
- the location and building typology have limited or no space for deep soil at ground level (e.g. central business district, constrained sites, high density areas, or in centres)
- there is 100% site coverage or non-residential uses at ground floor level Where a proposal does not achieve deep soil requirements, acceptable stormwater management should be achieved and alternative forms of planting provided such as on structure

Site Area	2381.56 m²
Deep Planting	360m² or 15%



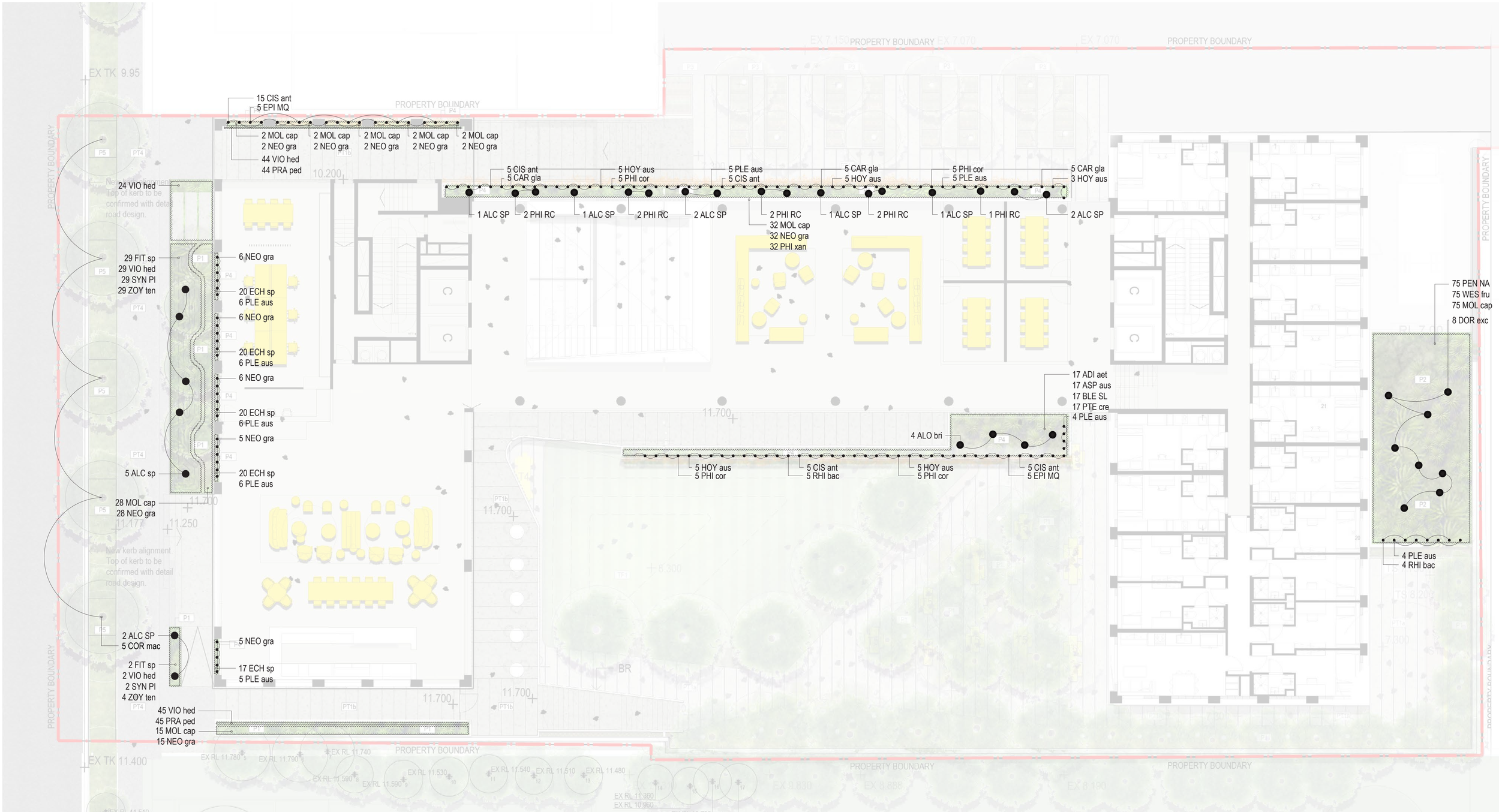
4.3 LOWER GROUND PLANTING PLAN

SCALE 1:100 @A1 / 1:200 @A3



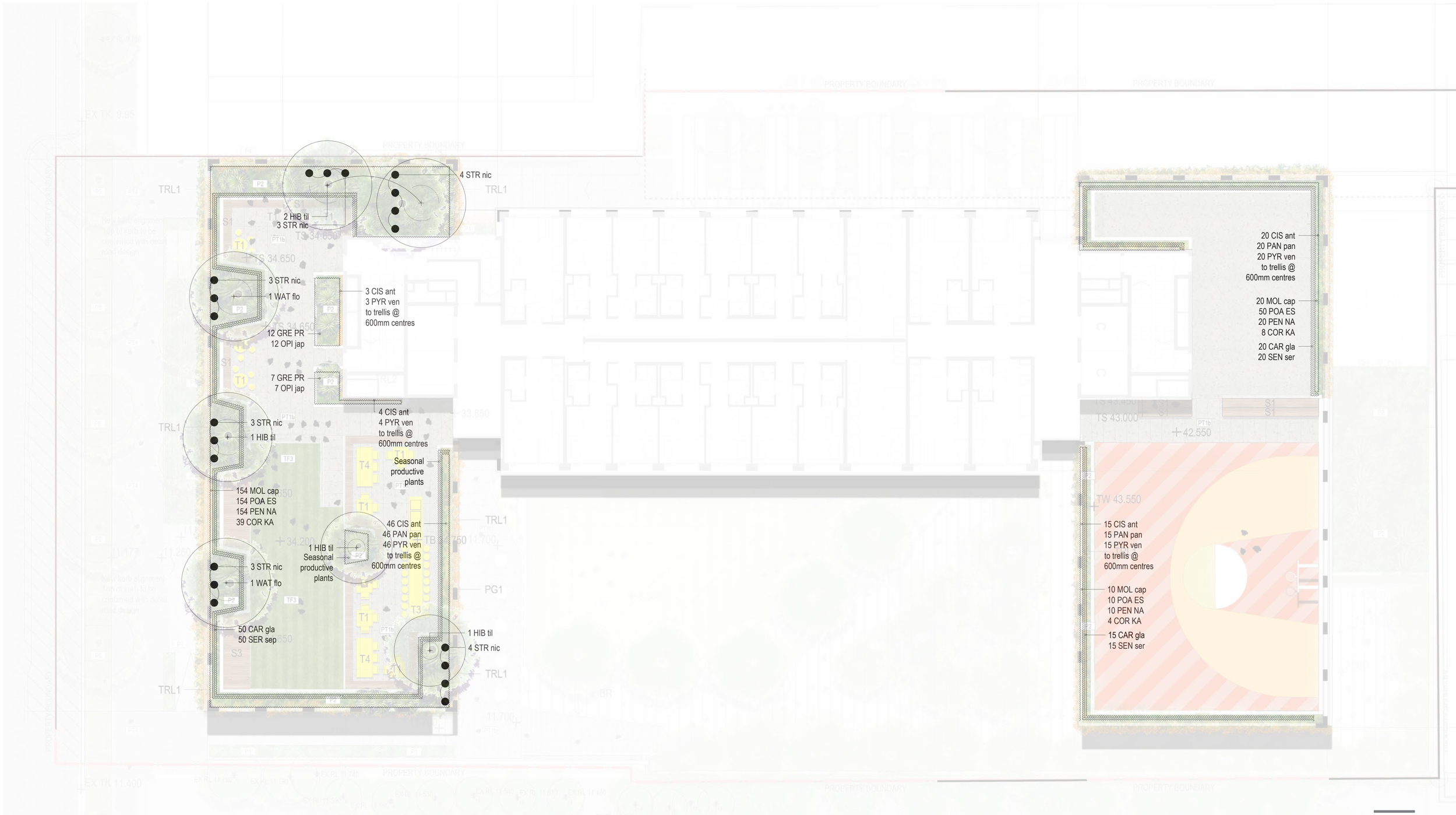
4.4 UPPER GROUND PLANTING PLAN

SCALE 1:100 @A1 / 1:200 @A3



4.5 ROOF PLANTING PLAN

SCALE 1:100 @A1 / 1:200 @A3



4.6 PLANTING SCHEDULES

Ground + Streetscape

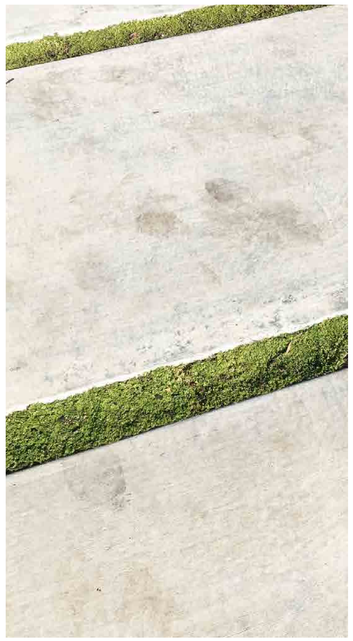
Code	Botanical Name	Common Name	Native	Minimum Potsize	Minimum Install HeightxSpread	Estimated Mature HeightxSpread	QTY
STREET TREES							
COR mac	CORYMBIA maculata	Spotted Gum	Sydney Area Native	400L	4.5m x 3m	30m x 10m	5
TREES							
CYA coo	CYATHEA cooperi	Australian Tree Fern	Sydney Area Native	Ex-ground	2.5m clear trunk	10m x 8m	15
ELA eum	ELAEOCARPUS eumundi	Smooth Leafed Quandong	Australian Native	1000L	3.5m x 1.5m	7m x 2m	5
HOW for	HOWEA forsteriana	Kentia Palm	NSW Native	100L	3.5m x 1.5m	15m x 5m	3
LIV aus	LIVINGSTONIA australis	Cabbage Tree Palm	Sydney Area Native	N/A	3.5m clear trunk	20m x 6m	7
TRI lau	TRISTANIOPSIS laurina	Kanooka Gum	NSW Native	200L	3.5m x 1.5m	12m x 4m	3
WAT flo	WATERHOUSEA floribunda	Weeping Lilly Pilly	Australian Native	400L	4.5m x 1.5m	15m x 9m	5
SHRUBS							
ADI aet	ADIANTUM aethiopicum	Common Maidenhair Fern	Sydney Area Native	140mm	0.2m high	0.5m x 0.75m	57
ALC SP	ALCANTAREA imperialis 'Silver Plum'	Silver Plum Bromeliad	Exotic	45L	0.5m high	1m x 1m	15
ALO bri	ALOCASIA brisbanensis	Cunjevoi	Sydney Area Native	45L	0.6m high	2m x 1m	28
ASP aus	ASPLENIUM australasicum	Bird's Nest Fern	Sydney Area Native	45L	0.6m high	1.5m x 1.5m	97
BLE SL	BLECHNUM gibbum 'Silver lady'	Silver Lady Fern	Exotic	45L	0.6m high	1m x 1m	97
CTE GS	CTENANTHE setosa 'Grey Star'	Grey Star	Exotic	300mm	0.4m high	1.5m x 1.5m	30
DOR exc	DORYANTHES excelsa	Gymea Lily	Sydney Area Native	45L	1m high	1.5m x 1.5m	8
MOL cap	MOLINERIA capitulata	Palm Grass	Australian Native	300mm	0.4m high	1m x 1m	276
NEO gra	NEOMARICA gracilis	Walking Iris	Exotic	300mm	0.4m high	0.5m x 0.4m	153
PHI RC	PHILODENDRON 'Rojo Congo'	Rojo Congo Philodendron	Exotic	45L	0.6m high	3m x 3m	15
PHI xan	PHILODENDRON xanadu	Xanadu	Exotic	300mm	0.4m high	0.8m x 1m	68
PTE cre	PTERIS cretica	Ribbon Fern	Exotic	140mm	0.2m high	0.75m x 0.6m	17
STR nic	STRELITZIA nicolai	Bird of Paradise	Exotic	45L	1.2m high	6m x 3m	20
WES fru	WESTRINGIA fruticosa	Coastal Rosemary	Sydney Area Native	300mm	0.4m high	2m x 4m	91
GROUNDCOVERS							
CAR gla	CARPOBROTUS glaucescens	Pig Face	Sydney Area Native	140mm	200mm x 300mm	0.2m x 2m	15
ECH sp	ECHEVERIA species	Stonecrop	Exotic	140mm	0.2m high	0.15m x 2m	97
FIT sp	FITTONIA species	Nerve Plant	Exotic	140mm	0.1m high	0.15m x 0.5m	31
OPH jap	OPHIOPOGON japonicus	Mondo Grass	Exotic	140mm	0.1m high	0.2m x 0.2m	26
PEN NA	PENNISETUM alopecuroides 'Nafray'	Fountain Grass	Australian Native	140mm	0.25m high	0.60m x 0.65m	111
PIL zeb	PILEA zebrina	Silver Sparkle	Exotic	140mm	0.1m high	0.15m x 0.5m	31
PRA ped	PRATIA pedunculata	Matted Pratia	Australian Native	140mm	0.1m high	0.15m x 1m	89
SYN PI	SYNGONIUM podophyllum 'Pixie'	Arrowhead Plant	Exotic	140mm	0.2m high	0.3m x 0.15m	31
VIO hed	VIOLA hederacea	Native Violet	Sydney Area Native	140mm	0.1m high	0.2m x 1m	144
ZOY ten	ZOYSIA tenuifolia	Temple Grass	Exotic	140mm	0.1m high	0.2m x 0.4m	33
CASCADING							
CIS ant	CISSUS antarctica	Kangaroo Vine	Sydney Area Native	200mm	0.9m Length	4m x 6m	87
EPI MQ	EPIPREMNUM 'Marble Queen'	Pothos	Exotic	200mm	0.9m Length	0.5m x 3m	10
HOY aus	HOYA australis	Wax Flower	Australian Native	200mm	0.9m Length	0.5m x 1m	23
PHI cor	PHILODENDRON cordatum	Heart Leaf Philodendron	Exotic	200mm	0.9m Length	0.5m x 2m	20
PLE aus	PLECTRANTHUS australis	Swedish Ivy	Exotic	200mm	0.9m Length	0.5m x 1m	47
PYR ven	PYRPSTEGIA venusta	Orange Trumpet Vine	Exotic	200mm	0.9m Length	0.5m x 3m	29
RHI bac	RHIPSALIS baccifera	Mistletoe Cactus	Exotic	200mm	0.9m Length	0.3m x 3m	9
PRODUCTIVE PLANTS							
CIT EU	CITRUS limon 'Dwarf Eureka'	Dwarf Eureka Lemon	Exotic	45L	1.5m x 0.6m	3m x 3m	2
CIT TL	CITRUS aurantifolia 'Tahitan Lime'	CITRUS aurantifolia 'Tahitan Lime'	Exotic	45L	1.5m x 0.6m	3m x 3m	2
FIC car	FICUS carica	Black Genoa Fig	Exotic	45L	1.5m x 0.6m	5m x 3m	2
MOR nig	MORUS nigra	Black Mulberry	Exotic	45L	1.5m x 0.6m	5m x 3m	2

Roof

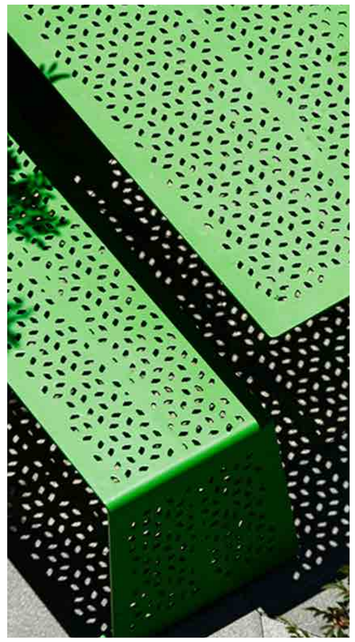
Code	Botanical Name	Common Name	Native	Minimum Potsize	Minimum Install HeightxSpread	Estimated Mature HeightxSpread	QTY
TREES							
HIB til	HIBISCUS tiliaceus	Cottonwood	Australian Native	200L	3.5m x 1.5m	8m x 4m	5
WAT flo	WATERHOUSEA floribunda	Weeping Lilly Pilly	Australian Native	200L	3.5m x 1m	15m x 9m	2
SHRUBS							
COR KA	CORDYLINE australis 'kaspar'	Kaspar Palm Grass	Australian Native	45L	0.5m high	2m x 1m	51
MOL cap	MOLINERIA capitulata	Palm Grass	Australian Native	300mm	0.4m high	1m x 1m	184
STR nic	STRELITZIA nicolai	Giant Bird of Paradise	Exotic	45L	1.5m high	5m x 4.5m	20
GROUNDCOVERS							
CAR gla	CARPOBROTUS glaucescens	Pig Face	Sydney Area Native	140mm	200mm x 300mm	0.2m x 2m	85
GRE PR	GREVILLEA 'Poorinda Royal Mantle'	Prostrate Grevillea	Australian Native	140mm	0.2m high	0.2m x 6m	19
OPH jap	OPHIOPOGON japonicus	Mondo Grass	Exotic	140mm	0.1m high	0.2m x 0.2m	19
PEN NA	PENNISETUM alopecuroides 'Nafray'	Fountain Grass	Australian Native	140mm	0.25m high	0.60m x 0.65m	184
POA ES	POA labillardieri 'Eskdale'	Common Tussock-grass	Sydney Area Native	140mm	0.25m high	1.3m x 0.7m	214
SEN ser	SENECIO serpens	Blue Chalk Sticks	Exotic	140mm	0.45m high	0.2m x 1m	85
VERTICAL							
CIS ant	CISSUS antarctica	Kangaroo Vine	Sydney Area Native	200mm	0.9m Length	4m x 6m	88
PAN pan	PANDOREA pandorana	Wonga Wonga Vine	Australian Native	200mm	0.9m Length	15m x 9m	81
PYR ven	PYROSTEGIA venusta	Orange Trumpet Vine	Exotic	200mm	0.9m Length	5m x 8m	88

4.7 MATERIAL PALETTE

TRL-1 TRELLIS MESH

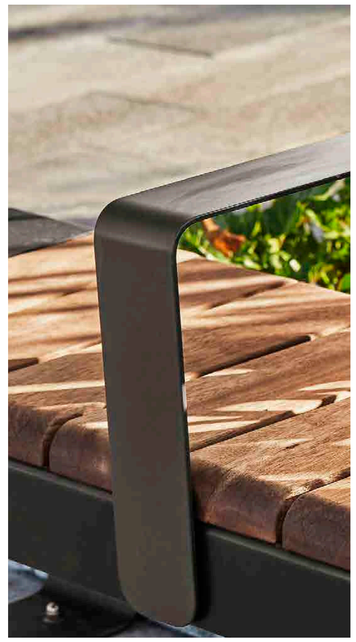


PT1C PERMEABLE PAVEMENT

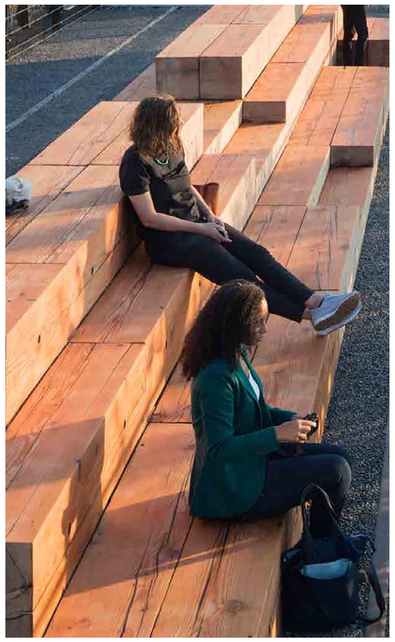


T1-4 OUTDOOR DINING

PT1A CONCRETE PAVEMENT



S2 SEATING

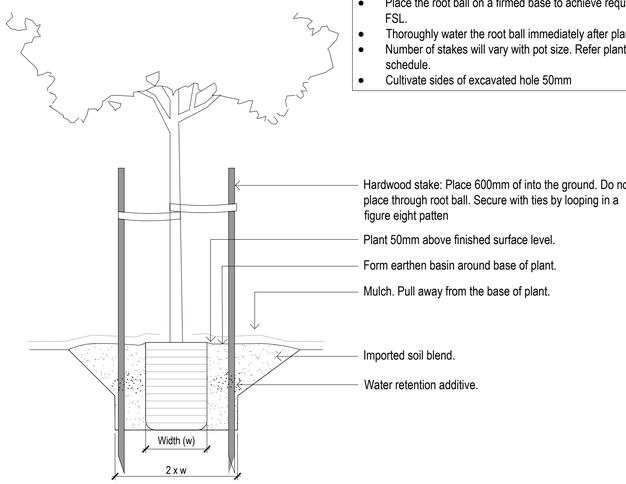


S1 - TIMBER SEATING TERRACES

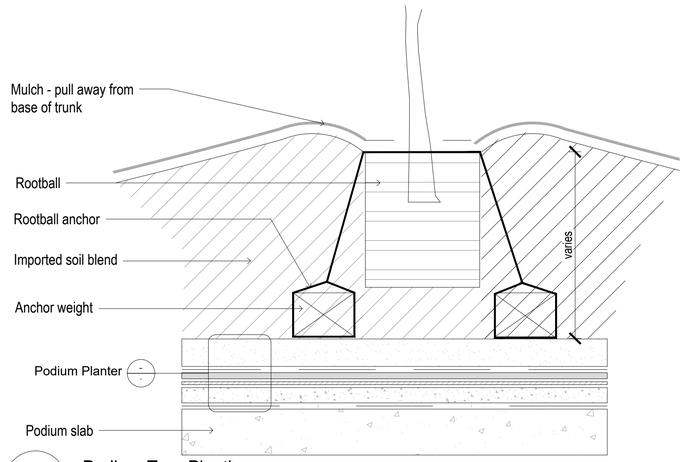
5.0 APPENDIX

5.1 TYPICAL DETAILS

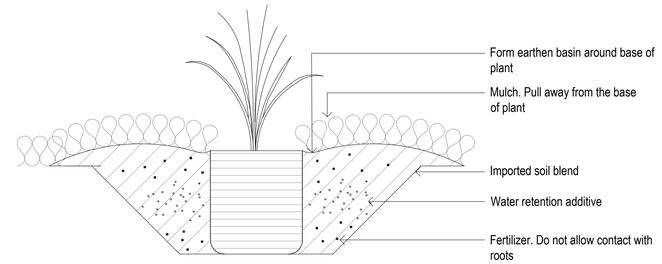
Notes:
- Place the root ball on a firmed base to achieve required FSL.
- Thoroughly water the root ball immediately after planting.
- Number of stakes will vary with pot size. Refer plant schedule.
- Cultivate sides of excavated hole 50mm



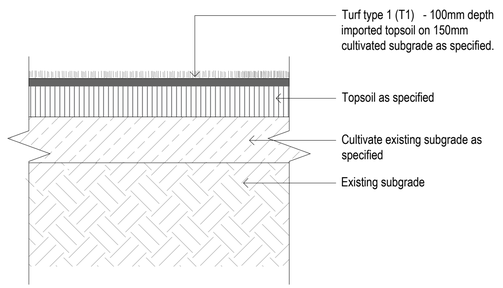
01 Tree Planting
SCALE 1:20



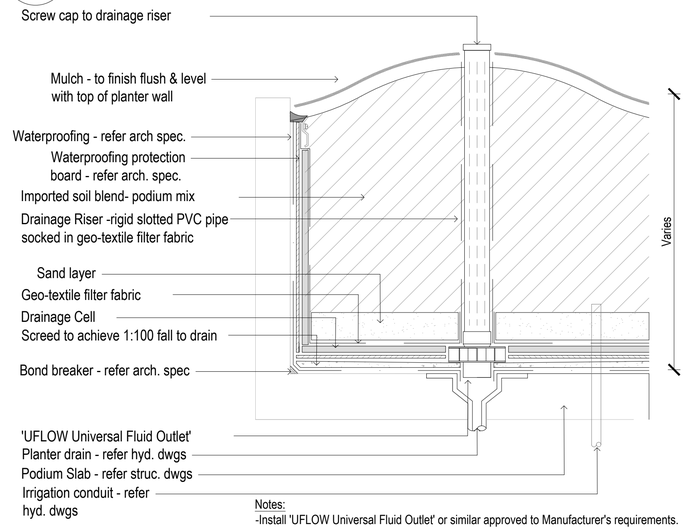
02 Podium Tree Planting
SCALE 1:10



03 150mm - 300mm Planting
SCALE 1:10

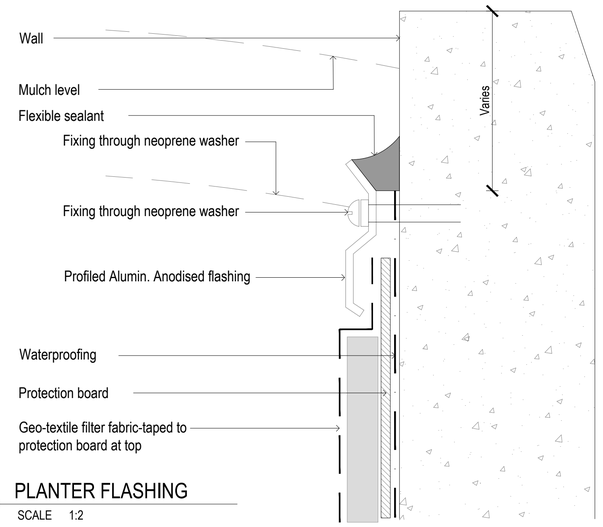


04 Turf
SCALE 1:10



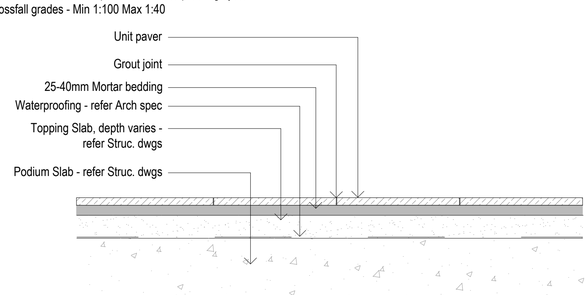
Notes:
-Install 'UFLOW Universal Fluid Outlet' or similar approved to Manufacturer's requirements.

05 Podium Planter
SCALE 1:10

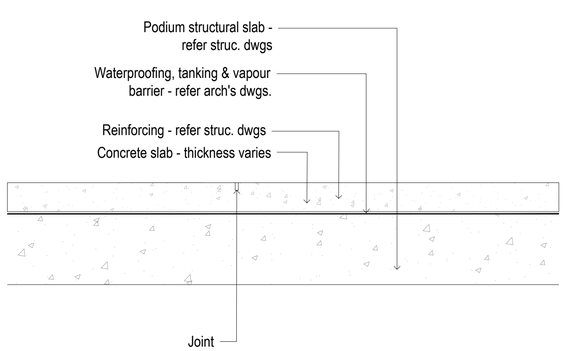


06 PLANTER FLASHING
SCALE 1:2

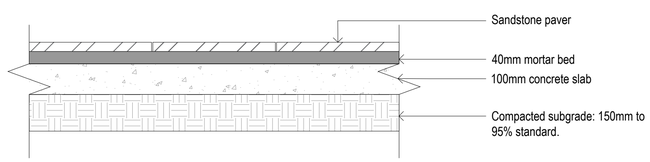
Notes:
- Mortar mix must be compatible with waterproofing system
- Crossfall grades - Min 1:100 Max 1:40



07 Unit Pavers on Podium
SCALE 1:10



08 Concrete Pavement on Podium
SCALE 1:10



09 Unit Pavers on Ground
SCALE 1:10

5.2 SPECIFICATION NOTES

SCOPE OF WORK
The work includes the organisation for and supply of all relevant labour, materials, plant and equipment as required to execute the works. The scope of works includes, but is not limited to, the supply, construction, installation, placement, and execution of works as documented on the landscape drawings and within the technical specification.

EARTHWORKS
Earthworks shall involve the removal of existing compacted material, the cultivation of subsoil, the supply and mixing in of additives, the supply and spreading of topsoil and the fine grading of such soil and existing soil profiles to all landscaped areas to form the finished levels and profiles.
Install all surfaces with falls of minimum 3% away from the existing buildings, to edges or kerbs as required, to ensure drainage of surface water to the drainage systems around the site.
Finished surfaces shall finish flush with existing pit covers, rollover kerbs, edges and adjacent surfaces. Where flush kerbs are installed to road edges grass levels should finish 50mm below such flush kerbs.
Excavate for underground services. Ensure that all service trenches, including subsoil drains and irrigation main spray lines are back filled and compacted.

FILL
Use inorganic, non-perishable material that will form stable fill to comply with AS 3798, section 4. Where fill profiles coincide with plant growing medias fill materials shall also comply with plant growing media requirements.

Plant Growing Media
All plant growing media to be in accordance with "Soils for Landscape Development" (SLD).
Quality assurance, control and material validation shall be in accordance with the following SLD specifications;
- G1 Quality assurance and control
- G2 Hold points
- G3 Compliance certification

As a minimum the contractor shall provide for approval test results which correlate to the specified SLD specifications prior to materials being sent to site, followed by third party testing of the installed material from in situ samples of each horizon obtained by a qualified soil scientist/agronomist with experience in urban soil management with a certified fitness for purpose statement to be provided by the same by a qualified soil scientist agronomist.
Where further soil design or selection is required in response to conditions which fall within the contractors scope of responsibility this shall be undertaken in accordance with the methodology described in Soils for Landscape Development (S.Leake and E.Haege, 2014) and a certified fitness for purpose statement shall be provided by a qualified soil scientist/agronomist with experience in urban soil management.
Testing to be carried out by a NATA accredited laboratory to the specified planting media specification in accordance with the SLD Quality Assurance, Control and Material Validation specification.
Soil is to be free from noxious weeds, rocks, roots, rubbish or any other deleterious material. Refer SLD specifications.

Placement of plant growing media
- Place plant growing media in the locations specified on the landscape drawings, with horizon profiles and depths as detailed. Shaping of topography is to occur at the lowest specified soil profile with subsequent profiles to be of a consistent depth. Spread and grade evenly.
- Consolidate in 150mm thick layers as material is installed.
- Ensure that the consolidated finished surface levels are as specified.
- Only work soils when moisture levels are appropriate for soil texture classification.
- Prevent compaction by construction plant and relieve compaction where this has occurred.

In planting beds, podium planters and landscape planters mound plant growing media at centre to promote drainage. Finish sides to allow the thickness of mulching material to be at the same level as adjacent finished surface levels.
Carry out soil amendments if required by testing results. Once amendments have been carried out site topsoil is to be tested for a second time as per above 'Testing' section.
Supply and place 100mm diameter PVC capped conduits 350mm deep under pavements (excluding vehicular pavements) to enable installation of sub-soil drainage and irrigation systems. Mark ends of conduits with a 6mm diameter brass pin set into paving. Backfill trenches and compact as specified.

DRAINAGE
Subsoil drainage is to intercept groundwater seepage and prevent water build-up behind walls, in garden areas and under pavements.
Subsoil drainage to be a black polyethylene slotted corrugated subsoil drainage pipe with a minimum nominal diameter of 90 mm to comply with AS 2439 (all parts).
Gravel surround to be 10 mm size.
Subsoil drainage must be connected to surface drains or to the stormwater drainage system. Connections are to be thoroughly sealed.
Test all lines on completion to ensure their correct functioning.

Surface Drains
Surface drains are to collect surface run-off and prevent ponding of water in pavement areas to AS/NZS 3500.3.
Surface drains are to be stainless steel with heel guard grates and R11 slip rating
Surface drains must be connected stormwater drainage system. All connections shall be thoroughly sealed.

Podium Planter Drainage
Install podium planter drainage to bases of podium planter and planter box areas.
Podium planter drainage to be an approved high-density black polyethylene slotted modular drainage cell with a minimum depth of 40mm.
Drainage cell to be covered with layer of geotextile, non-woven, needle punched fabric prior to covering.
Podium planter drainage must be connected to surface drains or to the stormwater drainage system.

PLANTING
Contractor Qualifications: Minimum five years experience in similar work as required by this Specification. Submit evidence of completed similar work with contact names and telephone numbers.

Fertiliser
Deliver fertiliser to the site in bags, branded with the type and manufacturer's name.

Mulch
Provide mulch free of deleterious or extraneous matter such as soil, weeds, rocks, and twigs. Mulch to finish level with surrounding finished levels after settlement allowances of the topsoil and mulch. Place mulch clear of plant stems to avoid rotting at ground level.

Planting
Adopt planting procedures that produce healthy plants within the prevailing soil, climatic and management environment of this project.
The following is the minimum expected:
- Excavate a hole for each plant twice the diameter of the rootball and 100 mm deeper than the root ball. Break up the base of the hole to a further depth of 100 mm and loosen the sides of the hole.
- Remove the plant from the container with minimum disturbance to the root ball, and place it in its final position, in the centre of the hole and plumb. Ensure the plant root ball is level with the finished surface of the soil surrounding the hole or bed.
- Thoroughly water plants immediately after planting and at such times during the contract period as is required to maintain growth free from water stress. Each plant will require a minimum of 10 litres of water at the time of planting.
- Backfill with topsoil as specified. Lightly tamp and water thoroughly to eliminate air pockets. Ensure that topsoil is not placed over the top of the root ball.

Containers
Collect empty plant containers daily during planting operations and remove from site.

Spraying
Report any evidence of insect attack or disease amongst plant material immediately. If directed by Superintendent, spray with an insecticide and/or fungicide approved prior to use, in accordance with manufacturer's directions and statutory requirements.

Locations
Do not vary the plant locations from those shown on the drawings unless otherwise directed. If it appears necessary to vary the locations and spacing for any reason apply for directions from Superintendent.

Plants

Definitions
The following definitions to apply to all plants:
- Batch: means a group of plants of like size and species as identified in the plant schedule
- Calliper: the stem or trunk diameter at a specified point, measured 300mm above the top of the root ball.
- Clean stem height: the height of the trunk above ground, which is free of branches.
- Clear trunk - palms: Overall height for palms shall be based on measurement taken from the top of the root ball, adjacent to and perpendicular to the start of the spear emergence (newest shoot/frond-tip).
- Ex-ground: means trees grown in the ground and dug for delivery. Includes both in-ground container grown trees and balled and bur lapped trees.
- Growing-on: shall mean the process of progressively re-potting smaller plants prior to the final planting out to promote plant growth sufficient to meet the height, spread and calliper size specified.
- Height: shall be measured from the top of the root ball, adjacent to and perpendicular to the top of the natural foliage projection.
- Spread: shall be measured as the mean diameter of the horizontal branches.

Plant Quality
All plants to be true to scheduled nomenclature, well formed, hardened off nursery stock. They are to be container grown in potting mixture with a healthy root system, fully established but not pot bound. The containers to be of the size and type specified for the plant size specified as set out in the Plant Schedule.
All plants to have a well-balanced branching habit and no plant is to be cut back so severely that growth and development of natural form are retarded. Pruning scars to be clean cut to leave little or no protrusion from trunk or branch and budding or grafting scars to be clean, with well-developed calluses. Leaves shall be of normal size, shape, colour, and texture for the species, with a minimum of physical or insect injuries, and to be free from living insects, pests, and disease. All pots shall be free of weeds.

Containers
All non-ex-ground plants are to be grown or acclimatised in a container. Plants specified in pots or bags to be grown in new or sterilised recycled polypropylene containers or polythene bags of potting media.

Acclimatisation
All plants to be fully sun or shade hardened-off to suit their on-site growing position for a minimum period of six (6) weeks.

Delivery
Order sufficient of each species shown on the drawings to achieve the detailed planting layouts and ensure that the supplier retains in stock sufficient additional stock for replacement of failed, stolen, damaged, or unhealthy specimens.

Tree Quality
Prepare live materials in advance of installation to NAT SPEC Guide – Specifying Trees: A Guide to Assessment of Tree Quality (2003) standard to ensure satisfactory performance and growth rate after planting and/or placement at project site.

Anti-Transpirant
To be applied only to street trees and advanced or Ex-Ground stock as noted in Schedule - Materials & Finishes. Prior to removing the plants from their containers, spray on the specified anti-transpirant to the top and underside of foliage at the specified application rates. Follow manufacturer's recommendations for application. Ensure no overspray occurs on other hard landscape elements.
The application of anti-transpirant should be repeated at intervals as per the manufacturer's recommendations during the Establishment Period.

Stakes and Ties
Use stakes and ties where indicated on the Plant Schedule.
Stakes
Use durable hardwood, straight, free from knots or twists, pointed at one end. Where the Plant Schedule indicates 2 stakes, locate the stakes on opposite sides of the root ball.

Driving
Drive stakes 600 mm into the ground on each side of the tree, either before the tree is placed, or in such a manner as to avoid damage to the root system. Remove shattered ends.

Ties
Use 50 mm wide Hessian webbing. Fix ties securely to stakes in a figure eight pattern. Place other ties where necessary to stabilise the tree.

Guying
Use guys where indicated on the Plant Schedule install to manufacturer's requirements.

Adjustable steel guys (stainless steel below planting surface) sufficient to stabilise and support tree.

Fixing
Fixings on podium planters must not damage waterproofing.

Trunk Protection
Adopt guying procedures which minimise damage to plant.

Rootball Anchoring
Use sub-surface anchoring systems where indicated on the Plant Schedule and to manufacturers requirements.
Provide turnbuckles to allow for tensioning of guys.

Completion of Planting
Practical completion of the planting works shall include but not be limited to establishment of turfed areas and replacement of plants and turf that have failed, vandalised, or stolen during the work prior to practical completion.

Plant Material Establishment
The Establishment period commences at the date of Practical Completion of the Works. Refer to Schedule - Materials & Finishes for period duration.

Recurrent Works
Maintain horticultural practices, as well as rectifying defects that become apparent in the works under normal use including, but not limited to, the following items where required:
- Watering, weeding, fertilising, pest and disease control, edging, renovating, pruning, rubbish removal and keeping the site neat and tidy.
- Maintain mulched surfaces in a clean and tidy condition and top up to the specified depth if necessary.
- Spray against insect and fungus infestation if considered necessary by the Superintendent in accordance with the manufacturer's directions.
- Trees, and garden bed areas are to be watered regularly so as to ensure continuous healthy growth.
- Remove rubbish and weed growth that may recur throughout the contract area, at weekly intervals, and maintain in a completely clean and tidy condition.
- Rectify soil subsidence or erosion which may occur after the soil filing and preparation operations.
- Throughout the establishment period, ensure pathways, pavements and road are kept clean of mulch, soils and landscape litter.
- Prune trees and shrubs as directed by the Superintendent. Pruning will be directed for the maintenance and dense foliage or miscellaneous pruning as beneficial to the condition of the plants.
- Prune damaged growth.

Plant Replacement
Replace failed or damaged plants. This does not include vandalised or stolen plant material. (Vandalised or stolen plant material will be replaced prior to practical completion.)

Replanting in Establishment Period
Where new plant material has been supplied to replace dead or dying plants, these shall be subject to a full establishment period.

IRRIGATION
Design, supply, install, and maintain for the duration of the Establishment Period, a fully automatic irrigation system to all planting and turf areas within the property alignments. Provide an irrigation system that will provide uniform coverage with sufficient water to achieve optimum plant growth. Items not specified, but normally required to conform to such intent, are considered part of this work. Minimum precipitation rate to all areas is to be 30mm per week. The number, size and location of water supply points and associated pipework cast into podium slabs will be determined by the irrigation design.
The irrigation system must be designed to a standard that would be considered best industry practice and in accordance with Efficient Irrigation for Water Conservation Guideline. The system must have sufficient stations to allow planting and turf areas with different microclimatic conditions to receive different quantities of water. Turf and planting areas must be on separate stations.
Sprinklers and drippers must be suppled in sufficient quantity and arranged to deliver water optimum for plant growth to all plant material regardless of their size and location.
The system is to be designed and certified as an efficient irrigation system by a Certified Irrigation Professional. Show to scale the locations of all irrigation components including control valves, identity (model/brand) of each component, show pipeline type and sizes,

show sprinkler arcs/coverage, provide a section/details of mains pipeline and trench, articulated riser assembly, controller assembly including lockable box and control valve assembly in valve boxes. Provide specification notes as required.

Water Connection

Water for irrigation shall be supplied via rainwater tanks and an irrigation pump. The rainwater tanks and irrigation pump is part of Hydraulic Services. Refer to plan for location and sizes. Mains water (town water) shall NOT be used within the irrigation system. An isolating gate valve and filter (120 mesh) to be provided after the Irrigation pump. The sizing of all pipework to be determined by the design parameters set out in this Specification. Gate valves or water supply points connected to the rainwater tank have been shown on the drawings. The number, size and location of these water supply points shall be refined and determined by the final irrigation design. It is essential that the irrigation contractor coordinates such water supply points with the Builder at the start of building works.
System Type – Fully Automatic High Pressure – (Option 1)
Use Class 12.5 MDPE main line reticulation with pop up spray irrigation to turfed areas and planting areas. The system is to be fully automatic. Minimise overspray of roads and paths. Overspray of buildings or parts of buildings is not acceptable.

Products

All irrigation products to be either NETAFIM or HUNTER or approved equivalent and should be accredited with Smart Approved Watermark.

Component Identification

All pipework including subsurface dripper lines shall be identified by a purple/lilac colour in accordance with AS 2700.
All lids on valve boxes shall be identified by a purple/lilac colour in accordance with AS 2700

All caps on popup sprinklers and QCVs shall be identified by a purple/lilac colour in accordance with AS 2700

Spray Irrigation – High Pressure

Install sprinklers to all planting areas. Use pop up sprinklers with pressure compensation and radius arc adjustment. All sprinklers shall integral check-valves, have matched precipitation across all arcs of coverage and be constructed of stainless steel and engineering plastic. The maximum output capacity of all (each) sprinkler head must not exceed 9 litres/minute

Planting Areas

Sprinklers shall have 300 mm pop up bodies and shall be spaced head to head. All planting areas shall have the sprinklers arranged on both sides of narrow planting areas to ensure thorough coverage. Sprinklers located only on one side of a planting area are unacceptable.

Controllers

Irrigation system is to be controlled by solid state/hybrid controllers via 24vac remote control valves.
Controller shall have two spare stations, ENERGEX approved 240/24 vac transformer, multiple start times per day, multiple 7/14day program ability, manual and semi-manual override provision, capable of full automatic unattended operation, rain sensor override compatible and non-volatile 100 year memory retention. Mount controller and power supply together inside a galvanised steel, colourbond, weatherproof cabinet with a lockable T handle as supplied by B & R products or equivalent.
Install an automatic rainswitch or rain sensor to terminate the program in the event of excessive rainfall. Refer to plan for location of rainswitch or rain sensor.
All exposed wiring is to be conduited. Conduit to be painted to match external wall colour.

Controller Location and Power Supply

Provide a 240V, 10 AMP weatherproof general-purpose outlet 1500mm above ground level. Refer to plan for location.

Valve Boxes

House all valves in lockable black valve boxes, foot traffic grade. Secure all lids by a stainless steel or hot dipped galvanised bolt. Size and locate each box to enable easy access to each valve assembly for operation and maintenance.
Install valve boxes in planting areas wherever possible and locate close to mowing strips.
Valve boxes to be placed at grade in turfed areas or 20mm above soil level in planting areas.
Provide a 50mm deep, 10mm aggregate on a geotextile layer at the bottom of all valve boxes. The tops of all valves shall be no deeper than 150mm below the top of the valve box.

Control Valves

Automatic station control valves to have 24 vac remote actuation, with manual bleed and integral flow control, pressure regulating, manual shut-off and be constructed of industrial plastic and stainless steel and to have minimum pressure rating of 1033 kPa. All valves shall be identified with a 40mm laser engraved plastic tag attached to the valve stem with a cable tie. The tag shall show the station number identified on the "As Built" drawing.
Locate valves in lockable valve boxes so that all parts of the valve can be reached for servicing.

Isolating Valves

Install manually-operated isolating valves throughout the system to permit isolation of areas for maintenance purposes with minimum disruption to the system. Install one isolating valve on the up-stream side of each automatic control valve. All isolating valves to be bronze and pressure rated to 1033 kPa.
Locate valves in lockable valve boxes so that all parts of the valve can be reached for servicing

Reticulation

All mainline and sprayline piping to be MDPE class 12.5. Fittings to be compression type. Piping to be sized to ensure that velocities do not exceed 1.0m/sec in mainlines and 1.5m/sec in lateral lines under any circumstances. Maximum flow rate to be 6 litres/second. Arrange and support pipework as necessary so that it remains free from vibration while permitting necessary movements such as thermal expansion and contraction.
Trenches to have minimum 50mm clearance to all pipework. Minimum cover over mains pipework to be 450mm and lateral pipework to be 350mm. Spacing between multiple pipes in common trench to not be less than 50mm. Mainline pipework to be laid on a minimum of 50 mm thick sand bed. Backfill to trenches to be free from rocks, sticks and construction debris and compacted thoroughly.

Control Wiring

Common wiring to be 7/0.85 and 7/0.67, 4mm and 2.5mm. Single core, multi-strand, and polyethylene insulated and sheathed. Each controller to have separate common wires.
Active cables to be 7/0.67 and 7/0.50, 2.5mm and 1.5mm multi core, multi-strand and polyethelene insulated and sheathed. Each controller to have separate active wires.

Installation

Run all wiring in the mainline trench without any breaks between the Controller and Automatic valves. Bundle tie all wiring together at 3m intervals and place beneath pipework
Minimum depth of cover to be 300mm
All field joints to be housed in a separate valve box
Loop all wiring at least 300mm at each valve or junction
Joints to be Tyflo Heat-Shrink joint or a waterproof direct burial splice kit such as 3M DBY or equivalent.

Commissioning

Remove all spoil, rubbish and construction debris from site.

Ensure that the operation of all components is functioning correctly and that all equipmentv has been installed as specified.

Practical Completion

Apply for only after system has been run for four consecutive fully-programmed cycles over a period of four days.

Establishment Period

The irrigation system is to be fully maintained during the establishment period